



# HARRIS ALLIED





Dear Harris Allied Customer,

The 80s brought significant new developments in every aspect of our industry. The future promises even more sweeping change — new technology, new equipment, new arenas of competition at home and abroad.

The powerful currents of change flowing through our industry in the 90s will present a host of new challenges. Meeting those challenges and turning them into opportunities for growth demands an unswerving commitment. That's why we at Harris Allied are beginning the most significant expansion in our history.

The changes we plan will be important for us, but even more valuable to you. It's our goal to put even more powerful resources at your disposal as you search for the competitive edge that advanced technology can provide. At the same time, we intend to become even more responsive to your day-to-day needs. After all, you can't make effective long term plans when daily operations occupy all your attention.

One thing at Harris Allied will never change, no matter where the future takes us. Throughout our history as a company, we've never forgotten that our success and growth depend entirely on your own. In the shifting landscape of the coming decade, you can be sure we'll never lose sight of that enduring reality.

Over the past two years, many of you have seen the real benefits to your own operations that combining our strengths has produced. We hope you'll continue to let us know what you like — and whatever you may not like — about the new changes we're making for you. After all, your friendship is as important to us as your business. We promise you that the major expansion we're undertaking at the moment will make both relationships stronger than ever.

Sincerely yours,

Handwritten signature of Thomas E. Yingst in black ink.

Thomas E. Yingst

Handwritten signature of Gus Ezcurra in black ink.

Gus Ezcurra

Handwritten signature of Roy M. Ridge in black ink.

Roy M. Ridge

cover:  
at view of Earth as photographed by an  
orbiter from an altitude of 9,544 miles.  
use authorization courtesy of NASA.)

# IMPORTANT PHONE NUMBERS

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Please use the following numbers to contact Harris Allied:

- For Radio RF and Studio equipment and information in the U.S.,

**DIAL 800-622-0022**

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**IN CANADA, Dial 800-268-6817**

**OR FAX US AT 317-962-8961**

- For Television RF equipment and information in the U.S.,

**DIAL 217-222-8200, Extension 3131**

**IN CANADA, Dial 800-268-6817**

**OR FAX US AT 217-224-1439**

- For Satellite assistance: **Dial 317-962-8596**
- For Systems assistance: **Dial 217-222-8290**
- For RF Parts: **Dial 217-222-8200, Extension 3500**
- For Radio RF Technical Service: **Dial 217-222-8200, Extension 3528**
- For Television RF Technical Service: **Dial 217-222-8200, Extension 3177**
- To buy, sell or trade used equipment: **Dial 317-962-1471**

## MEETING THE EXPANDING CHALLENGE OF THE FUTURE.

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- You've asked us for more in-person assistance. We've expanded to give it to you.

It's clear that broadcast technology will undergo rapid advancement and radical change throughout the 1990's. But broadcasters have fewer engineers on staff—some have none. Many of our customers have asked us for more direct sales assistance. Our expanded field sales team delivers just that.



"Broadcasters have voiced concern that they lack in-house experts to keep abreast of technical advances, to evaluate and recommend equipment and to assist with facilities planning and implementation. Harris Allied hopes to benefit U.S. broadcasters by making more field specialists available to provide these kinds of direct assistance."

*Thomas E. Yingst, vice president and general manager*

■ **Our unified radio field sales team will be more accessible than ever before.**

To meet your growing need for on-site assistance, we've expanded our radio field sales team from 12 to 15 representatives. Their territories are organized around regional Harris Allied offices in Atlanta, Richmond, Chicago and Los Angeles.

Now, your Harris Allied representative is even more helpful and accessible. He's ready to meet with you to discuss your current needs and long-term requirements. He will assist you in finding equipment, training, planning, financing and other services that will make your future as bright as can be.

■ **One toll free number gives you full access to Harris Allied's radio resources in the U.S.**

The new Harris Allied Radio Telemarketing Center allows you to dial a single toll-free phone number — 800-622-0022 — and be able to:

- Get information on any Harris Allied product or service
- Place an order for anything in this catalog
- Contact or arrange for a visit from any member of our radio field sales team

Every radio field salesperson and member of our telemarketing staff represents every radio product we provide, including all Harris AM and FM transmission products as well as the more than 5000 radio studio products we distribute from over 250 leading manufacturers.

"Many customers have told us that maintaining separate domestic radio sales forces for RF equipment and studio products was confusing — that it was hard to know whom to call for what. A single sales organization with one toll-free telephone number will remedy the situation."

*Roy M. Ridge, vice president of market development*

■ **Television broadcasters can take advantage of unparalleled resources.**

To meet the needs of a changing television industry, Harris Allied maintains the largest direct field sales force in the U.S. Your Harris Allied representative is part of a unique resource — the only North American manufacturer of VHF and UHF transmission equipment, the only one to offer 24 hour staffed service, and the only RF equipment manufacturer to offer regularly scheduled formal customer training programs.

■ **Canadian broadcasters continue to benefit from unified operations.**

Harris Allied Canada is the single source for all Harris RF products as well as over 4000 studio products, making Harris Allied the only full-line distributor and U.S. broadcast RF equipment manufacturer with Canadian operations, staff and customer service. One toll free number — 800-268-6817 — gives Canadian broadcasters access to advice, technical information, pricing and delivery on new products and technologies plus a used equipment exchange, satellite equipment, as well as complete audio and/or RF packages.

■ **We're expanding our commitment to you.**

This company was built on a commitment to the future of broadcasting. Today, we show our commitment to broadcasters in many ways — innovative technology, round-the-clock customer support, the world's only Broadcast Technology Training Center, global systems expertise in every stage of turnkey broadcast systems from planning through commissioning. Now, unified resources of Harris Allied are even more responsive to your needs. The next decade will belong to the leaders — take the lead with Harris Allied Broadcast Equipment.

NOTE: Ordering information and the Terms and Conditions Of Sale appear at the end of this catalog. Please read them before placing your order. Specifications and descriptions as well as illustrations or drawings, weights, measurements and prices are subject to change without notice. With approved credit, leasing and financing are available in most areas.



**HARRIS**  
**ALLIED**  
BROADCAST EQUIPMENT



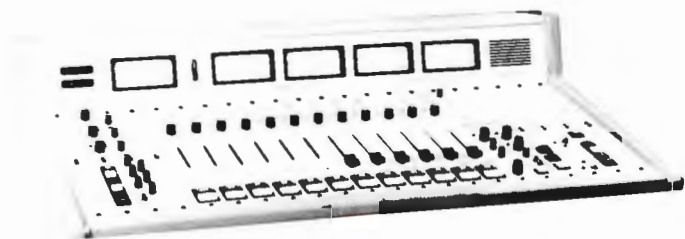
## TAKING THE LEAD IN TECHNOLOGY

Harris Allied is leading broadcasting into the future with advanced technology that dramatically increases reliability and simplicity, improves performance, and reduces power costs. Among exciting RF innovations are Platinum Series™ all solid state VHF TV transmitters, which provide unsurpassed on-air reliability and require only 10% the routine maintenance of tube transmitters, and DX Series medium wave transmitters which use patented digital modulation to cut transmitter power costs by up to a third and provide near-perfect performance. Shown here are modules from each. See pages 156 to 194 for information on RF products.



# CONSOLES & MIXERS

## AUDITRONICS



### 210 SERIES

Auditronics' new 210 radio console looks remarkably similar to their 12-year-industry-leading 200 radio console . . . until you look beneath the surface. Inside the 210 you'll find improvements in every section you can hear and use. From new lower-noise input preamplifiers to new transformerless output modules. From new overbridge and broader accessory selection to standard clock/timer with sequencer capability that you can slave to your house system.

All-new modules include an upgraded telephone interface with direct recorder output that doesn't require an input module or third bus. All output modules are identical full-featured stereo so you can interchange at will, and you'll need fewer spares. Manufacturing innovations throughout the 210 allow us to deliver Auditronics' quality at a price you'll find very attractive.

The popular 200 Series is still available on special order.

Prices on Application

The 310 Series audio production console is a totally new concept in audio processing and control. Designed as a building-block system to satisfy the requirements of both small and large facilities, the 310 Series is easily expandable in capabilities, at no sacrifice of initial performance specifications.

Features include 4 or 8 outputs, output submastering, mix-minus capability, mono and/or stereo inputs, mix output, 4 auxiliary sends, and auxiliary returns. Also control room monitoring, stereo solo system, aural phase check capability, stereo headphone monitoring, output metering, mic phantom power supply, and built-in monitor mixer.

Prices on Application



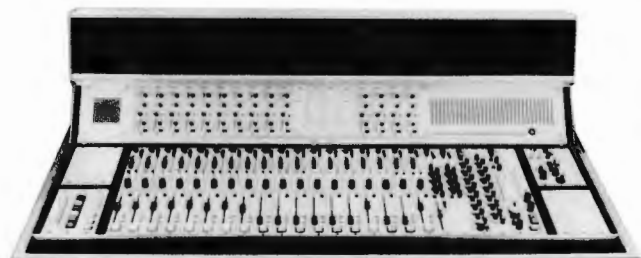
### 310 SERIES

Specially designed from the frame up with all the features required for multi-track broadcast production, this console lets your creative people deliver their best work in the least time with the greatest convenience.

Because the 400 is an Auditronics modular design, you can select the console's optional modules to suit your particular application. And you can change the configuration any time in the future to meet your continuing growth needs on a plug-in basis.

Auditronics long and successful history of designing audio consoles for the broadcast industry has allowed us to deliver unsurpassed audio program quality, along with ergonomic placement and labeling of controls for maximum operator ease of use.

Prices on Application



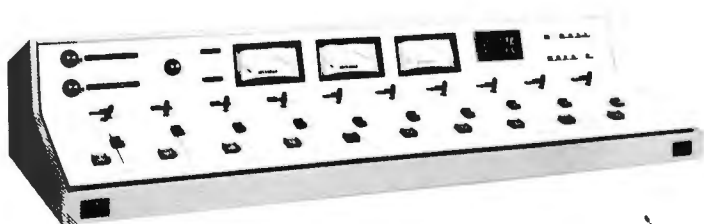
### 400 SERIES

The Auditronics 400 Series audio console is the best available choice for the broadcast professional who desires to do multi-track production without having to purchase an expensive multi-track recording console.

Items featured in this catalog are merely representative of our product line and are not intended to be all-inclusive. Harris Allied carries over 250 manufacturer lines. If you don't see the equipment you want here — call your Sales Professional at 800-622-0022.

# CONSOLES & MIXERS

**AUTOGRAM**



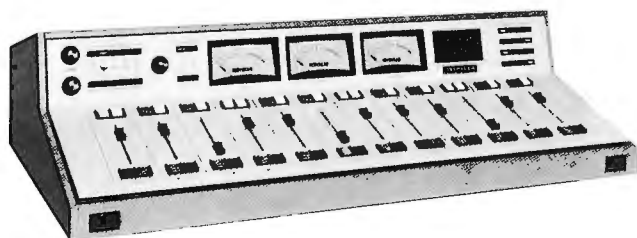
**LC-10**

Autogram AC and IC consoles feature ladder-type step attenuators, heavy aluminum front panels with traditionally Autogram engraved legends for clear and spacious fronts. Only highest quality parts such as Shallco step attenuators, oak rotary switches and large illuminated API true VU meters are used. Now available in: (A) No audio transformers — electronically balanced in and out; (B) High quality transformers in and out. Easy to install — easy to maintain and they're "bullet proof." Autogram's LC-10, pictured, is similar to above with Penny & Giles slide pots.

Prices on Application



**AC-6**

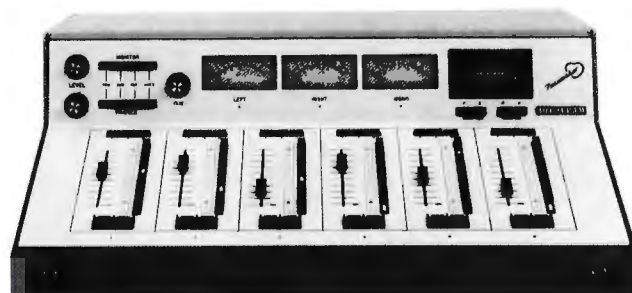


**R/TV-12**

The R/TV-12 stereo audio console is one of the latest innovations from Autogram with features such as: 8 dedicated pots, 4 pots with 4 inputs each, electronic switching, no audio transformers, Penny & Giles linear conductive faders, Schadow selector switches, pluggable miniature terminal strips, up to eight patchable microphone preamplifiers, each channel remotely controllable, easy input level selection.

The R/TV series is also available in a 20-fader version with 18 dedicated faders. Two faders are able to accommodate 8 inputs each.

R/TV-12...\$10,775.00 U.S.      YOUR PRICE \$ \_\_\_\_\_  
 R/TV-20...\$12,995.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



**PACEMAKER 648**

The Pacemaker, Autogram's cost-conscious console series, features Penny & Giles faders; electronic switching; no audio transformers; pluggable-miniature terminal strips; new legend system, input level selection; front panel assignable mix minus bus; a smaller lower profile cabinet. The Pacemaker 648 has 6 faders with 8 inputs per fader giving a grand total of 48 inputs for your maximum dollar per input value.

The Pacemaker is also available in an 8-fader model known as the 828B with 6 faders of 2 inputs each and 2 faders of 8 inputs each featuring 28 total inputs. A 10-fader model known as PM-1032 has 8 faders of 2 inputs each and 2 faders of 8 inputs each. Featuring 32 stereo inputs, also 5 meters.

Prices on Application



## RETROFIT MODULES

Upgrade older Autogram and Collins consoles with Henry retro-fit modules. A console equipped with Henry modules will exhibit frequency response of 3 Hz to 30 kHz, .02% THD, 80 dB noise floor, and perfect transient response.

**HENRY**

Ultra low-noise MA10 mic preamp with adjustable gain. Transformerless design eliminates mic loading for improved bass response and clarity. Replaces original MPA preamps.

Use model LA1 instead of transformers for line level sources. Adjustable gain matches any source -20 to +8 dB without pads, boosters. DC coupled. Replaces BT and MT transformers.

The new technology of the SA10 summing amp eliminates all capacitors in this critical stage. Improved S/N, extends LF response to below 3 Hz. Replaces original MXA series mixer amplifier.

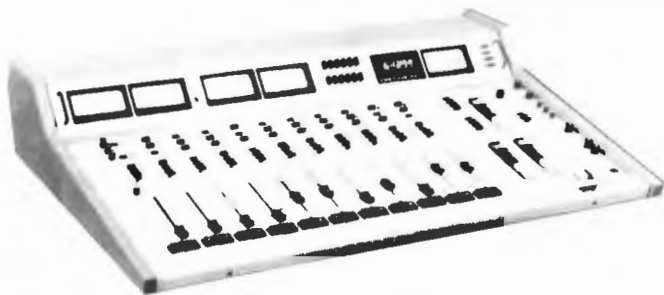
The new OA10 program and VU meter output amplifier features balanced output to +26 dBm without a transformer. DC coupled for perfect square waves and output for VU meters. Replaces original LA series modules.

MA10 .....\$125.00 U.S.      YOUR PRICE \$ \_\_\_\_\_  
 LA1, SA10, OA10...\$85.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



# CONSOLES & MIXERS

## BROADCAST AUDIO



### SYSTEM 12-VI

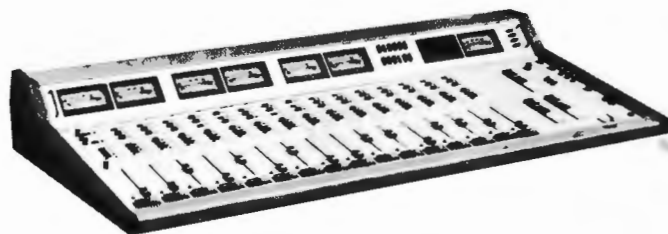
Series VI audio consoles sound great, are easy to use, and have sensible, reliable electronics for absolute dependability. The attractive low profile design is recessed only 2.5 inches into the desk, for maximum leg room. The armrest and panels are available in either solid oak or walnut hardwoods. A digital timer, peak overload indicator, equalizer headphone monitor, and dual studio monitor outputs are standard. Each mixer has both an active balanced stereo line input, and a transformer balanced mono mic input, so all mixing positions are interchangeable. Three relays and 11 open collectors for mute/control. A universal output amplifier is used for stereo cue, stereo headphone and line outputs. Separate amplifier cards are used for left and right channels, for even greater redundancy. Hall effect "off/on" switches are also standard.

System 12-VI  
with 8 mixers... \$11,350.00 U.S. YOUR PRICE \$ \_\_\_\_\_



### SYSTEM 8-VI

System 8-VI  
with 6 mixers... \$6,250.00 U.S. YOUR PRICE \$ \_\_\_\_\_



### SYSTEM 20-VI

System 20-VI features 2-inch modules, which enable up to 20 mixers or optional panels to fit into the same mainframe as the popular System 16-IV. Four muting or control relays, and 17 open collector outputs are standard. The use of double-sided ground plane motherboards assures minimum noise and crosstalk, plus effective RFI rejection. The new low profile design is recessed 2.5 inches into the desk, for maximum leg room. Other versions are available with 16 and 24 mixer capacity.

System 20-VI  
with 10 mixers... \$13,950.00 U.S. YOUR PRICE \$ \_\_\_\_\_

System 16-VI  
with 10 mixers... \$12,850.00 U.S. YOUR PRICE \$ \_\_\_\_\_

System 24-VI  
with 12 mixers... \$15,950.00 U.S. YOUR PRICE \$ \_\_\_\_\_



### SYSTEM 12-IV

System 12-IV is a model of engineering simplicity, using motherboard construction with only two types of amplifier modules and a plug-in interconnecting harness. Two independent industrial grade power supplies are rack mounted in common housing with front AC and DC status indicators. The power supply is short-circuit proof and an optional redundant supply is available. Operator conveniences include 4-inch log taper slide faders. Three stereo and one mono output. Accessory and module (mixer) prices upon request.

System 12-IV  
with 8 mixers... \$9,650.00 U.S. YOUR PRICE \$ \_\_\_\_\_

System 8-IV also available, includes 6 mixers expandable to 8.

System 8-IV  
with 6 mixers... \$7,250.00 U.S. YOUR PRICE \$ \_\_\_\_\_

System 16-IV has the same basic features as System 12-IV, but has 3 sets of stereo meters and expansion capability to 16 mixers.

System 16-IV  
with 8 mixers... \$10,750.00 U.S. YOUR PRICE \$ \_\_\_\_\_



### SERIES IV

Series IV Custom Version audio consoles have a front panel digital up-timer, with 16 inputs, which can reset the clock from the console "on" logic, without requiring any relays to be used. A Control Room Monitor Module which includes a 3-frequency headphone equalizer is also included.

System 12-IV custom  
w/8 mixers... \$10,750.00 U.S. YOUR PRICE \$ \_\_\_\_\_

System 16-IV custom  
w/8 mixers... \$13,350.00 U.S. YOUR PRICE \$ \_\_\_\_\_



### THE 10,000 SERIES OF MODULAR AUDIO MIXING CONSOLES



The 10,000 series audio mixing console is a total broadcast product. The 10,000 combines complete ON AIR, stereo production, and up to 8 channel multitrack production capability within a single product specifically designed for rigorous broadcast use. This unique capability makes the 10,000 a leap forward in user-friendly design. To achieve this, the console's module layout evolves from a simple ON AIR format by steps into a sophisticated and uncompromising multitrack production console. All 10,000 series mainframes support a complete audio and logic bus structure to accommodate up to a full multitrack format. Only the plug-in meter panels vary between applications. This makes it possible to use the same basic console throughout the most sophisticated broadcast facility. The flexibility of design speeds installation, eases repair, reduces operator training, and reduces operating errors.



10,000 Series consoles shown above

- TYPICAL 10,000 Series Air Console** . . . . . under \$11,000 U.S.  
(12 channel mainframe with 8 input modules)
- TYPICAL 10,000 Series Air Console** . . . . . under \$14,000 U.S.  
(18 channel mainframe with 12 input modules)
- TYPICAL 10,000 Series 4-track Console** . . . . . under \$19,500 U.S.  
(18 channel mainframe with 12 input modules)
- TYPICAL 10,000 Series 8-track Console** . . . . . under \$21,500 U.S.  
(18 channel mainframe with 12 input modules)

(Prices shown above are typical factory list prices and vary with module content. Call your local Harris Allied sales professional for a four color sales brochure or a quote )



### THE **TURBO-12,000 SERIES** OF MODULAR AUDIO MIXING CONSOLES

#### Standard Features

- Totally Modular Console
- Three Mainframe Sizes— 8, 18, & 28 Input
- High Quality Construction
  - Penny and Giles slide faders
  - VCA's lengthen fader life
  - ITT Schadow switches for finest quality
  - Gold connectors throughout
  - Regulated external power supply
  - Heavy aluminum chassis
  - Solid oak accent trim
- Comprehensive Logic
  - Start and stop sources with isolated reed relays on each module standard
  - Remote channel On and Off control with tally
  - Flashing OFF switches for cart machine tally
  - 3 muting busses— control room & 2 studios
  - Monitor DIM function during cue and talkback
  - Uptimer reset DIP switch selectable on each module

#### New TURBO Features

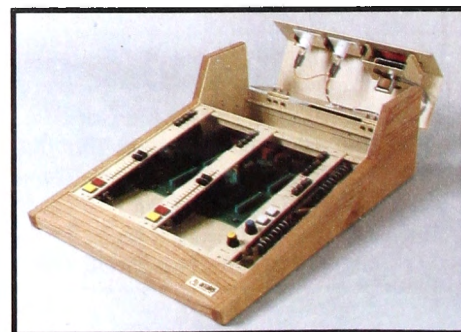
- New channel ON, OFF switches— silent, 5 million operation with ultra long life lamps
- Polycarbonate module overlays for scratch-proof surface
- Several new option modules
- Redesigned PC boards with added features
- Optional deluxe thru-table mainframes with . . .
  - ¼" milled precision aluminum side panels,
  - lighted VU meters, deluxe thru-table oak trim system
- . . . and many more standard features
  - Total Turret support
  - Mic modules available with panning
  - Line modules available with Mode select
  - Prefader patch points on all input modules
  - 10 minute uptimer with module reset
  - Monitor and Talkback to two studios
  - Two internal mix minus busses for telephone

The 12,000 series console represents the pinnacle of over a decade of audio console design by Arrakis Systems. This console combines the engineering and manufacturing excellence that has made Arrakis #1 in radio console unit sales in the United States. To further increase its technological lead, in late 1990 the 12,000 series went TURBO with new features, new modules, increased performance, and improved durability through the use of polycarbonate overlays on all module surfaces.

The 12,000 is a unique synthesis of old and new technologies. It was designed for the specific purpose of creating a new console standard for the 1990's. For ease of service, installation, and expansion, the 12,000 is entirely front panel modular. There are no electronics on the motherboards. Damaged modules can be easily replaced while new modules can be easily added for expansion. For unparalleled flexibility, the 12,000 features a 'Universal Bus' design that enables any module to be placed in any position in the mainframe.

The 12,000 is a console for all markets. With three mainframe sizes to choose from (up to 28 input positions), this console fits any possible broadcast application. There are four input modules to choose from with basic or advanced features. Advanced modules feature panning on mic modules and mode select on stereo line level modules. All modules feature advanced logic control of sources with tally lamps. The console supports a control room and two studios with full monitoring and talkback. With three stereo output buses, the console can perform several air and production functions at once. Two user-transparent internal mix minus busses feed the telephone hybrid for feedback-free telephone operation. The console operator simply treats the telephone the same as any other console input. A ten minute up timer with panel controls and module reset capability is standard. A variety of option modules such as a 4-stereo output distribution amp and 5-input remote select switch bank easily customize the 12,000 to the specific broadcast application. The 12,000 truly is a console for all markets.

The 12,000 features the highest performance and reliability standards of any broadcast console made today. Input modules utilize VCA technology to remove audio from the slide faders for improved reliability. Only the finest quality components, such as Penny and Giles, are used throughout. Custom conductive plastic rotary faders dramatically extend rotary fader life. Installation is easy with plug-in connectors beneath the meter panel. Attention to detail makes the 12,000 the most mechanically and electrically reliable console that can be built today.



*Easy to install and service*



# CONSOLES & MIXERS

ARRAKIS SYSTEMS

## SYSTEM SIX-

- 8 input module mainframe
- 6 input modules standard
- 2 option module positions for added input modules or option modules

TYPICAL SYSTEM 6.....  
under \$4,500 U.S.



## SYSTEM TWELVE-

- 18 input module mainframe
- 12 input modules standard
- 6 option module positions for added input modules or option modules

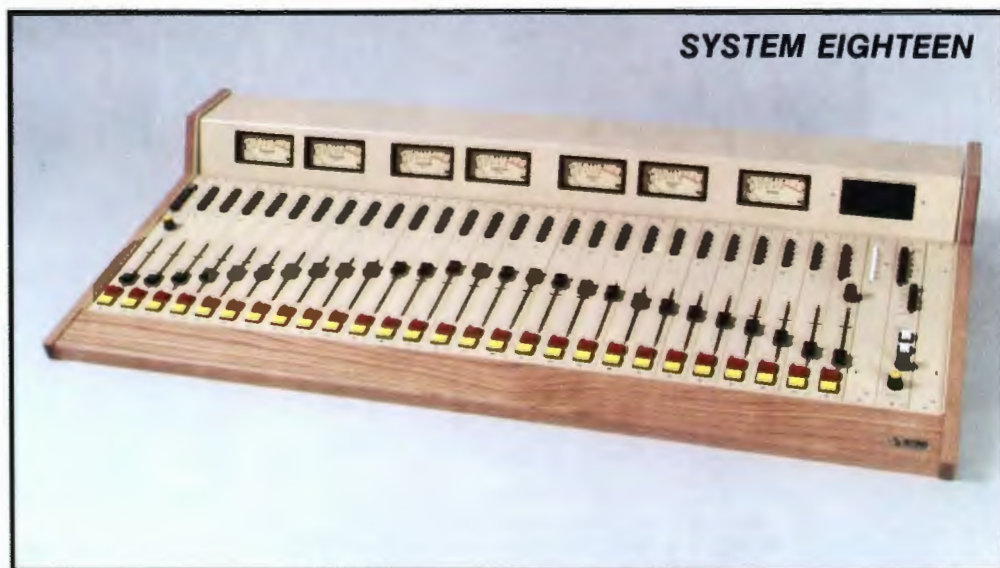
TYPICAL SYSTEM 12.....  
under \$7,000 U.S.



## SYSTEM EIGHTEEN-

- 28 input module mainframe
- 18 input modules standard
- 10 option module positions for added input modules or option modules

TYPICAL SYSTEM 18.....  
under \$11,000 U.S.



*(Prices shown above are factory list prices and vary with the module content. Please contact your nearest Harris Allied sales professional for a quote )*

NOTE — Systems 6, 12, and 18 displayed in pictures above are shown fully loaded with modules in all positions.

IN CANADA CALL 800-268-6817

 HARRIS  
ALLIED

Specifications subject to change or revision.

ARRAKIS SYSTEMS

## THE *TURBO-SC* SERIES OF AUDIO MIXING CONSOLES

### Standard Features

- 6 MODELS
- Active balanced Inputs and Outputs for high performance
- VCA's remove audio from all pots
- DC Switching removes audio from switches
- Solid Oak end panels & armrests
- Mono mixdowns for Program and Audition standard
- Mix-minus bus for interface to phone hybrids standard
- 10 watt per channel monitor amp
- 2 watt per channel monitor amp
- Stereo cue system
- VU Meters—taut band, buffered & adjustable
- Remote Start—(all models except 150SC)
- Muting—Jumper selectable for any 'A' input
- Muting Relay—3PDT built-in

### NEW TURBO Features

- Prefader Patch jumpers on all 'A' inputs
- Rack mounted external power supply
- Undedicated mic preamp for customer options
- Digital clock and timer (optional for 150, 500, 2000)
- Remote select switches—connectorized for ease of installation
- External monitor inputs—connectorized and buffered
- All models mute on 'A' input only so that 'B' inputs can be line level
- All rotary fader boards feature custom conductive plastic faders with stainless steel shafts and bushings
- Improved two part epoxy hardened paint
- Improved manuals and documentation
- Turbo-ized performance  
Ultra-low distortion . . . Ultra-low crosstalk

The SC SERIES family of audio consoles is the most popular line of consoles in America today. With six models from 6 to 12 channels, rotary or slide faders, the SC series superbly fits applications from 'ON AIR', to the newsroom, to production. In 1988, the SC series went TURBO with a complete redesign inside and out. Features were added. Performance was improved. With the built-in monitor amplifier, muting relay, and start relays, the TURBO-SC series console is literally complete right out of the box and ready to go 'ON AIR'.

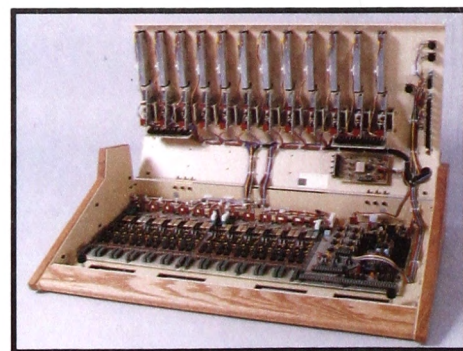
### Easy to Use

This line of consoles was specifically engineered for rugged broadcast use. The front panel layout of faders and switches is spacious and intuitive. The console features relay isolated remote starts to start cart machines and other sources. A built-in internal telephone mix minus bus interfaces to the telephone hybrid without requiring the operator to perform any special switching. He simply treats the telephone as he would any other source.

With 6 different models in the series, the entire radio station can use an SC Series console from 'ON AIR', to Production, to News. This flexibility reduces training time, makes for fewer costly 'ON AIR' mistakes, speeds production, and dramatically smooths and improves overall station operation.

### Attractive and Rugged

The SC Series console line is as rugged and reliable as it is attractive. The console is constructed of heavy, hardened aluminum panels. Three large, easily removed motherboards contain all active audio electronics. All IC's are plug in. VCA's removed audio from all pots to extend fader life. DC controlled switching removes audio from the switches in the entire ON AIR audio chain. The power supply is regulated and protected. Solid oak trim accents the clean lines and earthtone colors of this rugged and reliable console.

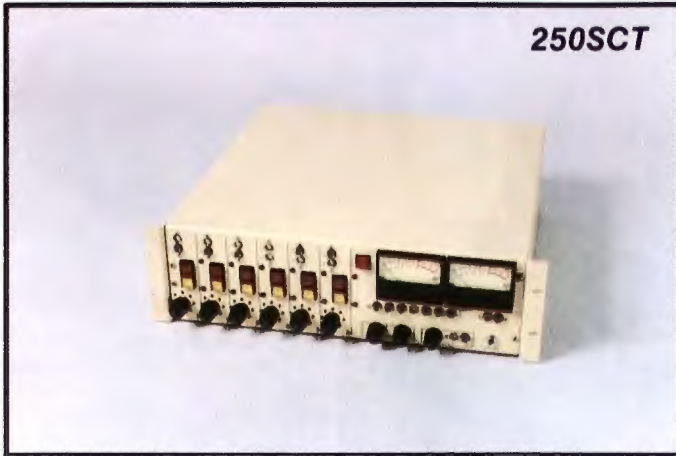


*Easy to install and service*



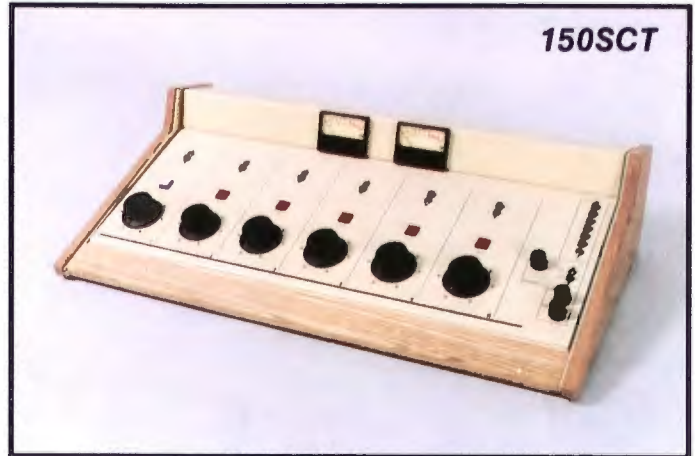
# CONSOLES & MIXERS

**ARRAKIS SYSTEMS**



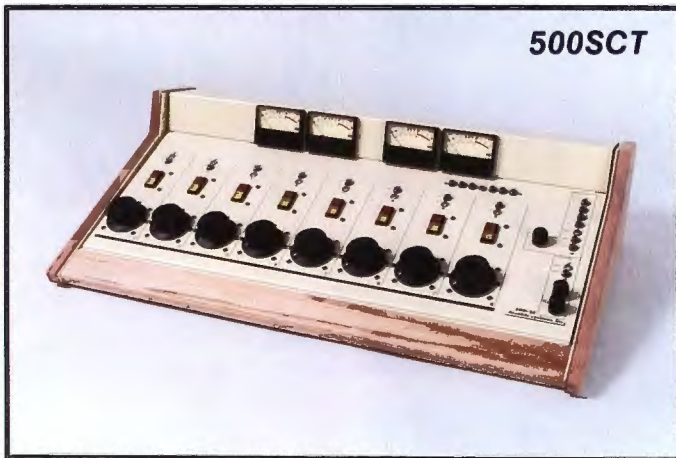
**250SCT**

6 Channels  18 inputs total  Program & Audition outputs  
 250SCT-6M mono . . \$2,895 U.S. YOUR PRICE \$ \_\_\_\_\_  
 250SCT-6S stereo . . \$2,995 U.S. YOUR PRICE \$ \_\_\_\_\_



**150SCT**

6 Channels  18 inputs total  Program & Audition outputs  
 150SCT-6M mono . . \$2,395 U.S. YOUR PRICE \$ \_\_\_\_\_  
 150SCT-6S stereo . . \$2,495 U.S. YOUR PRICE \$ \_\_\_\_\_



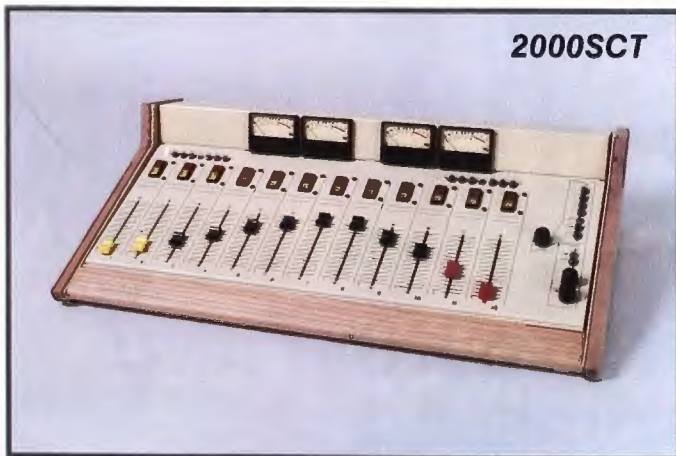
**500SCT**

8 Channels  22 inputs total  Program & Audition outputs  
 500SCT-8M mono . . \$3,495 U.S. YOUR PRICE \$ \_\_\_\_\_  
 500SCT-8S stereo . . \$3,595 U.S. YOUR PRICE \$ \_\_\_\_\_



**1500SCT**

8 Channels  28 inputs total  Program & Audition outputs  
 1500SCT-12M mono . . \$4,395 U.S. YOUR PRICE \$ \_\_\_\_\_  
 1500SCT-12S stereo . . \$4,495 U.S. YOUR PRICE \$ \_\_\_\_\_



**2000SCT**

12 Channels  24 inputs total  Program & Audition outputs  
 2000SCT-12M mono . . \$4,895 U.S. YOUR PRICE \$ \_\_\_\_\_  
 2000SCT-12S stereo . . \$4,995 U.S. YOUR PRICE \$ \_\_\_\_\_



**2100SCT**

12 Channels  34 inputs total  Program & Audition outputs  
 2100SCT-12M mono . . \$5,895 U.S. YOUR PRICE \$ \_\_\_\_\_  
 2100SCT-12S stereo . . \$5,995 U.S. YOUR PRICE \$ \_\_\_\_\_

IN CANADA CALL 800-268-6817

**HARRIS ALLIED**

Specifications subject to change or revision.





## **The Auditrone 210 . . .**

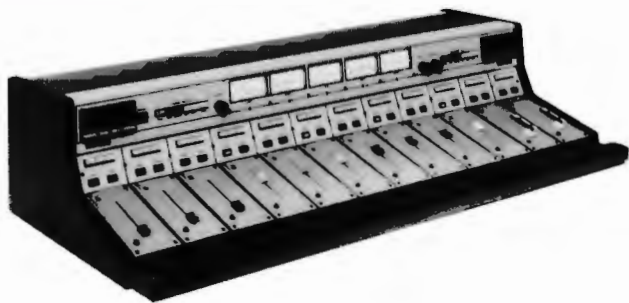
**A NEW CONSOLE WITH THE FORMAT  
COMPATIBILITY YOU NEED NOW AND  
IN THE FUTURE.**

*See Page 4.*



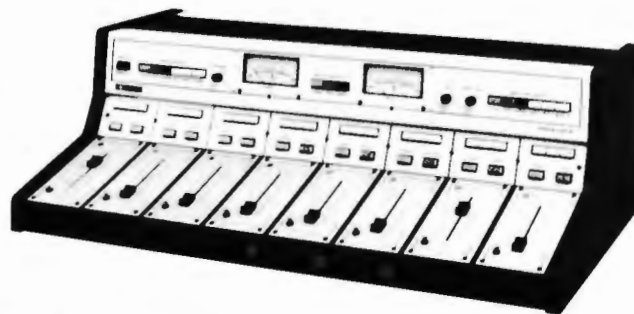
# CONSOLES & MIXERS

HARRIS



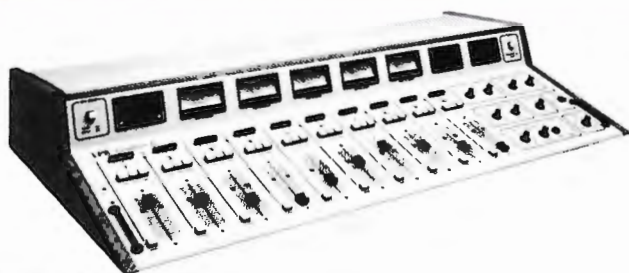
## GOLD MEDALIST

The Harris Gold Medalist™ provides top-of-the-line audio console features normally found only on consoles at twice the price. Easy on-air use is provided with remote source start/stop switching; EOM-controlled channel-off switching, visual color-coded flag indicator switches for PGM and AUD, LED-illuminated Hall effect switches for On and Off, and a choice of linear or rotary faders. The 36 standard inputs are expandable to 72 and other features give input/output flexibility. Top audio performance is ensured with excellent RFI/EMI immunity.



## MEDALIST 8

The Harris Medalist 8, 10 or 12 channel dual stereo consoles are designed for easy on-air use with color-coded switching; wide attenuator spacing, and a choice of linear or rotary faders. Designed to give the broadcaster input/output flexibility, these consoles are engineered for superb audio performance with excellent RFI/EMI immunity and signal-to-noise performance and low THD and IMD.



## CITATION II

LPB started with one of the longest-running success stories in the radio console business: the LPB Citation I; then added the combined wisdom of ten years of user feedback and made that "wish list" of features

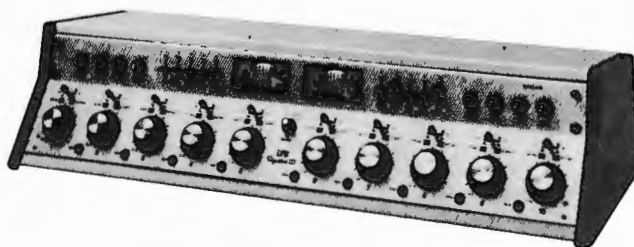
standard in the Citation II. For today's fast-paced air shifts, they placed all essential controls — and *only* the essential controls — directly in front of the operator. Lesser-used controls are logically grouped together on the right.

For flexibility, the ten-mixer Citation II features three inputs per mixer with lock-out switching, two stereo output busses, mix-minus capability, mono mixdown with independent VU, two user configurable four position auxiliary selectors and programmable monitor and cue muting for the first five mixers. For convenience, a digital clock and a separate event/cumulative timer are standard, and every mixer has a remote start button which follows the input selected.

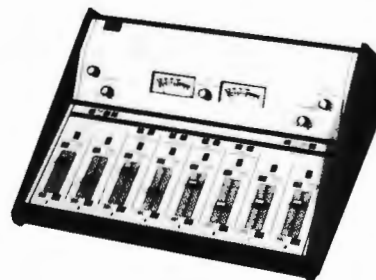
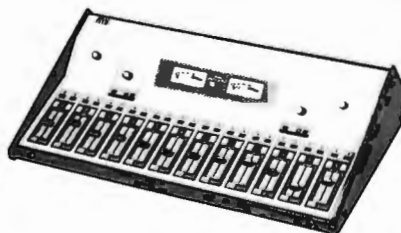
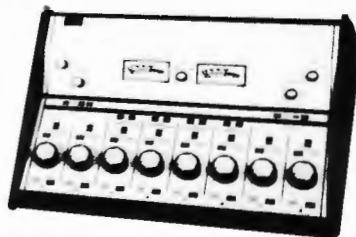
## SIGNATURE III

The LPB Signature III series consoles are a significant update of prior models, and include 6, 8, 10 and 12 mixer duals, both mono and stereo. All are identical functioning full duals, i.e., the only difference between any two stereo (or mono) consoles is the number of mixers (and associated inputs).

Prices on Application



ATI



## VANGUARD SERIES

The Vanguard series of ATI consoles represents a unique value in broadcast boards. Starting with a clean slate, every aspect of the console design process has been rigorously evaluated to find better and more cost effective alternatives. A digitally scanned matrix of long life membrane switches replaces conventional trouble prone pushbutton and lever key switches for input selection and bus assignment. Logic controlled, current mode FETs switch all audio with no wearout, feed-

thru or noise. DC operated VCAs used for all level control functions eliminate the need for expensive audio faders. A Vanguard Series console will provide you with exceptional performance and a long trouble-free life in the most demanding control room or production applications. 8 mixer available in linear or rotary fader. Please specify. 12-mixer available with linear faders, only.

Prices on Application

IN CANADA CALL 800-268-6817

**HARRIS  
ALLIED**

Specifications subject to change or revision.

13



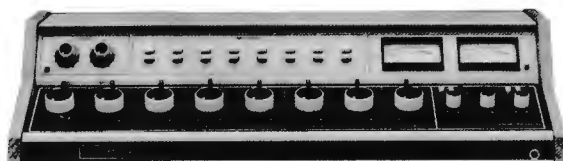
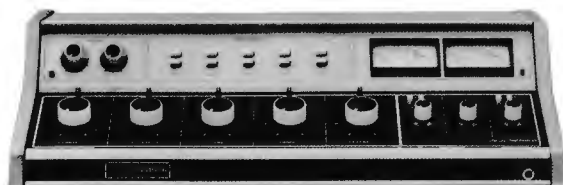
# CONSOLES & MIXERS

## BROADCAST ELECTRONICS



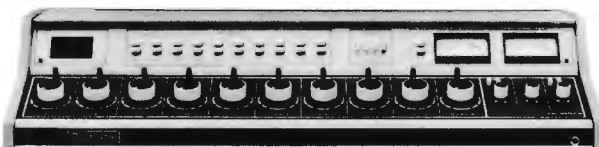
### 4S50A

The 4S50A and 4S50AR consoles accommodate 12 stereo input sources featuring high/low input sensitivity selection, cue switches on all mixers and individual monitor, cue and headphone amplifiers. Mono models available. R series for rack mounting.



### 5S150A (top) and 8S150A (bottom)

The 5S150A, 8S150A stereo and 5M150A, 8M150A mono consoles feature sealed pots, 3600 series electronics and contact free FET bus selection. Each mixing channel accommodates two pushbutton selected inputs and may be preset for mic or line level input. 8 series are 8 mixer... 5 series are 5 mixer. Call us for complete details.

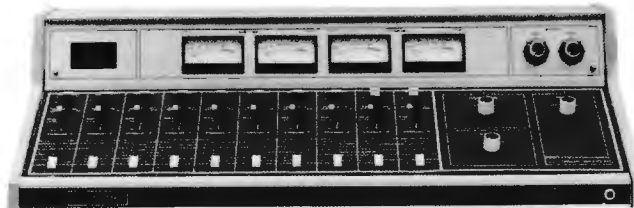


### 10S250A

The 250A consoles are available in 5-, 8- and 10-fader models, in stereo and mono versions. Features include rotary faders, ladder-type step attenuators with cue bus switching, telephone type channel keys and contact-free FET bus selection. Field proven 3600 plug-in electronics make this a truly outstanding line of consoles for any broadcast application.

Prices on Application

OPTIONS AND RELATED ACCESSORIES  
ALSO AVAILABLE

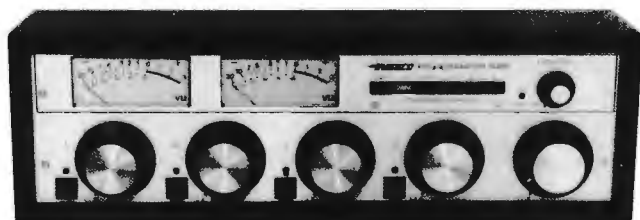


### 10S350A

The 10S350A is a 10-fader unit based on the popular 250A series, but featuring an exclusive model with stereo capability and linear faders.

Prices on Application

## RUSSCO



### 505S

The Russco line of consoles packs a terrific value into a compact size at an unheard of bargain price. Designed for broadcast studio use, this terrific five channel mixing console is as modern as tomorrow, with sophisticated features and fully integrated circuitry for dependability. They're engineered for easy operation and simple servicing and they're as good looking as they are good working. A monitor amp is included in the mono model only. Rack mounted versions available.

505 mono...\$1599.00 U.S.  
505S stereo...\$2299.00 U.S.

YOUR PRICE \$ \_\_\_\_\_  
YOUR PRICE \$ \_\_\_\_\_

## ALLEN & HEATH



### SC+

Allen & Heath's latest series of consoles offer many options in modular as well as non-modular desks. The SC+ series is available in 17, 25, or 33 channel input frames with a 4bus/8 tape returns group section or a 4x4 matrix output. Modules available include inputs with fixed EQ or Sweep EQ, Stereo inputs with fader start & optional RIAA EQ, and a talk-back oscillator module. Consult your Harris Allied professional for the configuration best-suited to your station.



# CONSOLES & MIXERS

**RAMSA**

## WR-8616

The WR-8616, a mixer specifically designed for recording and broadcast applications, employs a versatile mainframe that can accommodate a variety of modules to meet the user's specific need. Such a design approach facilitates interfacing with a variety of equipment, such as tape cartridge machines, 2 to 16 track tape machines, turntables, or up to 16 microphones. Offers a choice of two input modules, a mono mic/line module (WU-8101) and a stereo line module (WU-8106). Depending upon which modules are used, the WR-8616 can accommodate up to 16 MIC IN signals, or 32 LINE IN signals, or a combination thereof.

Price on Application



**TAC**



## BULLET

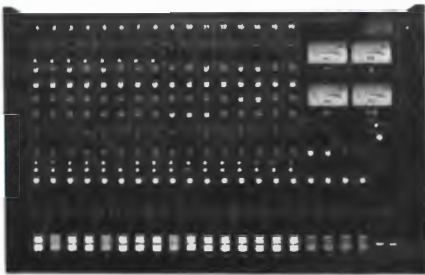
TAC total audio concepts consoles are used worldwide and include the Bullet, Scorpion and Matchless models. These renowned instruments are based upon confidence of design, production and quality. The configurations available within the models are staggering with



## SCORPION XPB

features and modules for most conceivable requirements. The TAC products have achieved the status of being the standard by which all others in their field are judged.

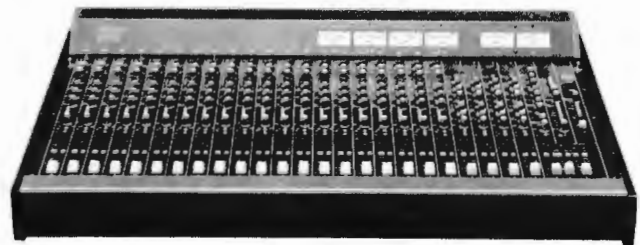
**TASCAM**



## M-216

The Tascam 200 Series mixers were designed to handle tough assignments conveniently and dependably such as sound reinforcement, studio recording and broadcast and video production/post production. Each channel is built on its own circuit card for better isolation. They are mounted on a steel chassis for optimum strength and security, and are built to accept inputs from any source. A generous power supply affords ample headroom for full dynamics and low distortion.

M-208, 8-ch. mixer ..\$1199.00 U.S. YOUR PRICE \$ \_\_\_\_\_  
M-216, 16-ch. mixer . \$1849.00 U.S. YOUR PRICE \$ \_\_\_\_\_



## M-320B

Tascam designed the 300 Series to meet the demands of both studio recording and live sound mixing. A sophisticated signal routing system takes care of the most complex foldback, effects mixing, subgrouping and monitoring requirements. These consoles deliver clean, dynamic sound due to transformerless balanced differential input design.

M-308B, 8-ch. mixer...\$2299.00 U.S. YOUR PRICE \$ \_\_\_\_\_  
M-312B, 12-ch. mixer...\$3399.00 U.S. YOUR PRICE \$ \_\_\_\_\_  
M-320B, 20-ch. mixer...\$4599.00 U.S. YOUR PRICE \$ \_\_\_\_\_

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Specifications subject to change or revision.

15

# CONSOLES & MIXERS

## SHURE



### FP31

The model FP31 is a compact, portable microphone mixer specially designed for electronic news gathering (ENG) and electronic field production (EFP) use including film, video and remote broadcast applications. The FP31 provides a wide, flat frequency response, low distortion, and up to +18 dBm output. The unit features extremely low internal noise and switchable low-cut filters for each input that effectively rejects low-frequency handling and wind noise. 400 Hz slate tone, 1 kHz cue tone.

Shure Price...\$1025.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

### M267

The Shure model M267 is a professional microphone mixer/remote amplifier. The excellent performance, versatility and features of this complete, compact console make it suitable for studio, remote, or sound reinforcement use, and as an add-on mixer for expanding existing facilities. It is also ideally suited for use with audio and video tape recorders to provide multiple microphone inputs.

Shure Price...\$520.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

## TELFAX



### TEN 32

The Telfax "Ten 32" phone remote mixer allows you to mix and send audio, plus communicate with your studio over standard dial telephone lines. The built-in dialing pad is switchable between tone and pulse dialing. The Ten 32 features four mic and two tape inputs, line and auxiliary outputs; a headphone amplifier with four jacks, and radio monitor input. Optional carrying case available. 3 3/4"H x 8 3/4"W x 8 3/4"D, 5 lbs.

Telfax Price...\$995.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

## ELECTRO VOICE

The Electro Voice ELX-1R broadcast mixer packs the features you've asked for in a "friendly" format that's easy to use. In the studio or on the scene, the ELX-1R delivers the same exceptional performance, with versatility and dependability. Electro Voice has taken the popular ELX-1, reduced the price, deleted the battery pack and added a rack-mount chassis. All of the other great features of the ELX-1 have been retained, while eliminating the need for external rack-mount hardware.

EV Price...\$567.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



### FP42

The FP42 is a 4-input, 2-output, compact, self-contained stereo mixer for applications in broadcasting and recording. The high-reliability FP42 integrates all the operating features of a professional stereo mixer in a single unit — small and lightweight enough for location use, but with the reliability of a studio console. Most of the functions of the FP42 (3 1/8"H x 12 7/32"W x 9 1/16"D) are available in the more compact FP32 (2 7/16"H x 7 3/4"W x 6"D).

FP42...\$990.00 U.S.      YOUR PRICE \$ \_\_\_\_\_  
 FP32...\$1395.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



### TEN 44

The top of the line Telfax "Ten 44" remote mixer is an unbeatable value, with more features than any other unit in its price range such as four mic and two tape inputs, line and auxiliary outputs; a headphone amplifier with four jacks, cueing channel, and radio monitor input. Rechargeable ni-cads are standard. You can time events with the LCD up/down timer. Optional carrying case available. 3 3/4"H x 8 3/4"W x 8 3/4"D, 5 lbs.

Telfax Price...\$1150.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



### ELX-1R



# CONSOLES & MIXERS

**GENTNER**



## COMBINATION REMOTE MIXER

In the battle to reduce equipment needs and increase simplicity, Gentner's combination remote mixer is the ideal weapon. The CRM is a four channel microphone mixer and a four channel headset amplifier built into one device. Now, for many applications you'll only need one box and no interconnection cables. 3½"H x 17"W x 10" D

Gentner Price...\$1595.00 U.S.      YOUR PRICE \$\_\_\_\_\_

## MICROTEL

How can you get your telephone remotes to sound good without employing communications engineers to set-up your remote? The answer is Microtel. Microtel will allow you to do a quality sounding remote from almost any telephone without cumbersome and complicated set-up. You'll be able to do more remotes and generate more income for your station. Microtel works with any remote broadcast equipment.

Microtel...\$239.00 U.S.

YOUR PRICE \$\_\_\_\_\_



**ZERCOM**



## MAX-Z

MAX-Z is a remote broadcast console that provides maximum flexibility, utility, and above all, audio quality. A short list of standard features includes 4 high- or low-level inputs (mic or line), 4 headphone outputs, modular telco jack, tone or pulse touch pad dialing, carrying case, built in rechargeable batteries and charger, clock stopwatch/timer, VU meter, and cue channel.

Zercom Price...\$1095.00 U.S.      YOUR PRICE \$\_\_\_\_\_



## MAX-Z-II

If your needs are for the same quality in a smaller package, check out the MAX-Z-II. Half the facility of the MAX-Z with the same world class quality. 2 high- or low-level inputs (mic or line), 2 headphone outputs. Almost everything else is the same as its big brother "Z". Includes carrying case.

Zercom Price...\$600.00 U.S.      YOUR PRICE \$\_\_\_\_\_

**HENRY**

## MICROMIXER

MicroMixer is a nifty four-input, two-output stereo utility mixer. It's essentially a "micro-console-in-a-box". Each of the four line level inputs is balanced and bridging, and will accept an input level from -10 to +8. There's a gain control for each input which has a range from "off" to +10 dB gain. "Micro-assign" switches permit the inputs to be assigned to the Left, Right, or Both outputs in any combination. Use MicroMixer to combine two stereo sources, four mono sources, add mono to stereo, combine stereo to mono... hundreds of uses! The stereo outputs will drive a 600 ohm load to +25 dBm. DC coupled circuitry for great specs: DC-30 kHz, -80 dB noise, .008% distortion.

Henry Price...\$195.00 U.S.      YOUR PRICE \$\_\_\_\_\_



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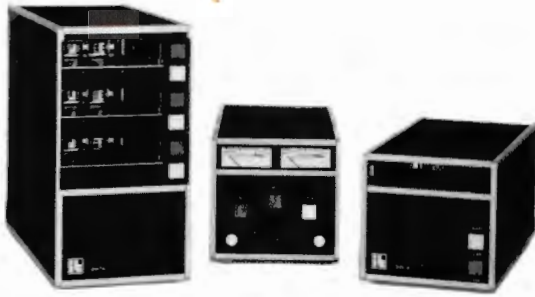
IN CANADA CALL 800-268-6817



Specifications subject to change or revision.

# CARTRIDGE MACHINES

ITC



## DELTA SERIES

ITC's Delta Series is the successor to a long line of "premium" tape cartridge machines. The Delta Series consistently meets the tough requirements of professionals like you who demand outstanding audio performance in a reliable, mid-priced mono or stereo cart machine. Delta is available in a single or triple-deck configuration. Three cue tones are standard on all Deltas and high speed cue is a standard feature on single decks. The bottom deck of a Delta tri-deck or the single Delta I deck may be converted to a recorder with the single and easy addition of a Delta IV recording amplifier.

Prices on Application



## 99B SERIES

Unique in the world of cartridge recorders is the 99B. Loaded with features, the 99B Series pleases even the most discriminating user. Central to the 99B is the unique and patented ELSA feature. ELSA preparation automatically erases the cartridge, locates the splice and aligns azimuth of the record head for maximum phase response performance. There's nothing else like it. Call us for all the different model configurations.

Prices on Application



## SERIES 1

The Series 1 from ITC is available as a 1/3 rack width stereophonic or monophonic reproducer or recorder/reproducer. Standard features include hi-speed cueing from the CD servo motor, three cue tones (1 kHz, 150 Hz; and 8 kHz) plus 1 kHz add/defeat, and superior ITC designed audio performance. Front panel LED indicators, metering and function select switches are also standard.

Cartridge stability is enhanced by a cast aluminum, nickel-plated deck assembly which is milled to precision tolerances and a new cart hold-down system which uses silent guide rails.

The front panel, deck assembly, and internal P.C. boards are all mounted in a single-piece chassis which slides out of the steel case for easy servicing. P.C. boards are mounted using gold edge connectors and a mother board/daughter board design. Full remote control capability is available on the simplified rear panel. A motor on/off switch is also provided.

The Series 1 playback-only machine is easily and inexpensively upgraded in the field to a recorder/reproducer.

OTARI

## CTM-10

The Otari CTM-10 Series of NAB cartridge recorders and players consist of four machines. The CTM-10 mono and stereo play only machine, the CTM10M mono record/play transport, the CTM10S stereo record/play transport, and the CTM10R record electronics chassis. Standard features include Dolby HX bias optimization circuit, 3 speed operation (3.75, 7.5, 15ips), Life + heads, brushless DC PLL Servo capstan motors, dynamic braking, active balanced ins and outs, precision milled alloy deckplates, motor driven pinchroller,  $\pm 6\%$  speed control. Parallel I/O port for external interface (9600 Hz) and multi-frequency test oscillator.

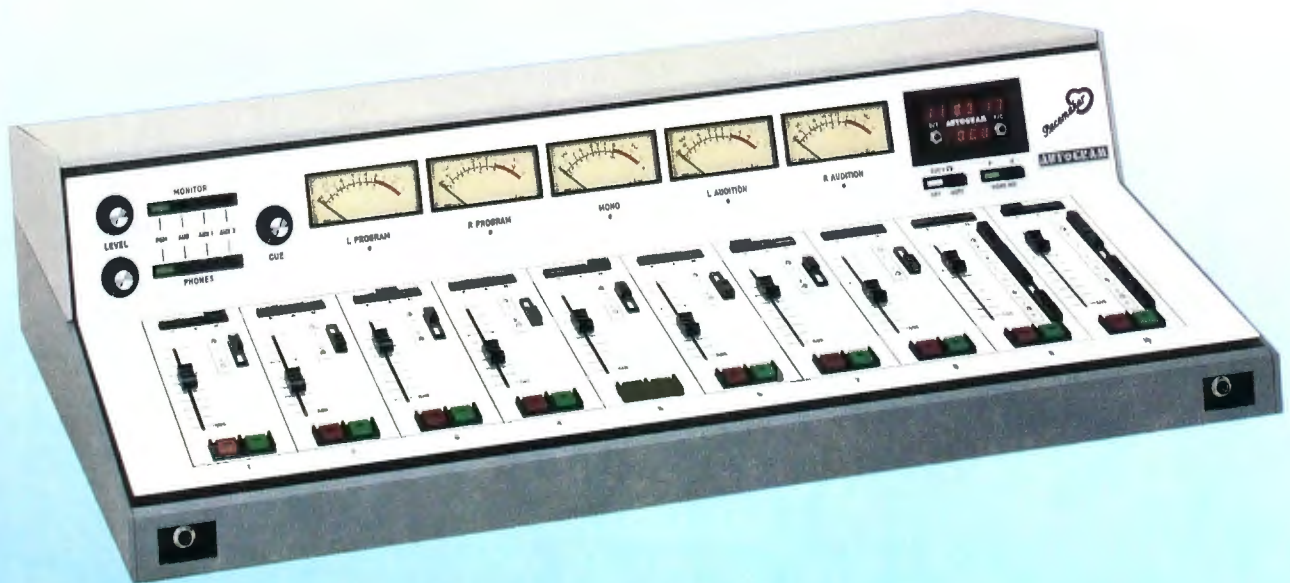
Prices on Application





# PACEMAKER 1032

## BUILT WITH INTENSIVE CARE



The new PACEMAKER console by

**AUTOGRAM**  
CORPORATION

*See Page 5.*



**DYNAMAX**<sup>®</sup>  
BROADCAST PRODUCTS BY FIDELIPAC<sup>®</sup>



**CTR90 SERIES  
SUPERIOR AUDIO QUALITY**

*See Page 21.*



# CARTRIDGE MACHINES

FIDELIPAC

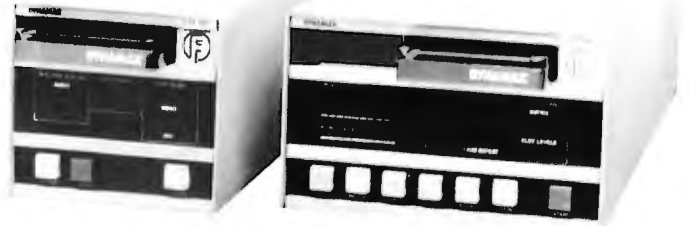


## CTR90

Fidelipac's new CTR90 Series of cart machines are designed to provide years of reliable operation and to withstand the abuse so often encountered in a fast paced broadcast environment.

A precision drive system is provided by a high-torque DC capstan motor which is PLL regulated. Input and output connectors support both XLR and 9 pin "D" connectors. Record, reproduce and logic printed circuit boards are easily removable from the rear of the machine, thus enhancing serviceability. Add unparalleled mechanical integrity and robust, cool running power and you have the CTR90 Series. A series which attains new standards, and obsoletes many previously acceptable specifications.

The Dynamax CTR90 Series is designed specifically to complement audiophile quality of today's sophisticated digital audio systems more and more available to the consumer. Now, both compact disc-based program material and local productions can assume equal quality and be aired in a traditional, convenient and inexpensive format.



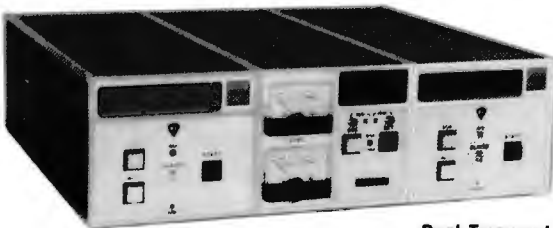
## CTR100

The CTR100 Series offer features no other tape cartridge machine provides. Among the outstanding features the CTR100 offers are the exclusive CARTSCAN System which allows the operator to intermix cartridges recorded in various audio formats. The system also provides an auxiliary output to activate equipment such as a Dolby® encoder or decoder.

Contact us for details on all the different versions available.

Prices on Application

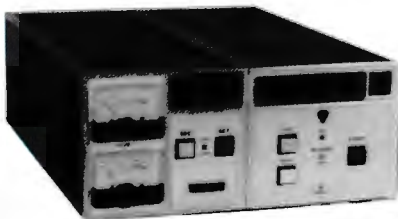
AUDICORD



Dual Transport Record/Play



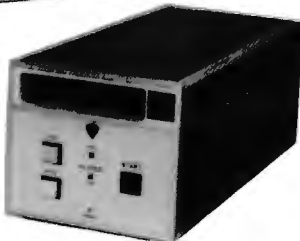
Record/Play



Record/Play



Playback



Play

## DL SERIES

Born of the heritage of the Audi-Cord A and E Series with thousands in service, the DL Series features 100% solid state design with high noise immunity CMOS logic. Extensively modular design with plug-in circuit cards, Audi-Cord's heavy duty deck and head mounts stay adjusted. The DL series is available in record/play and play-only versions. Dual transport record/play model also available in the DL series.

Prices on Application

## "S" SERIES

These cartridge machines are more than just attractive. They were designed new from the cabinet feet up, selecting the materials which offered the best manufactured cost consistent with functional integrity to insure the most machine for the dollar. Still, the "S" Series contains new operating features, maintenance access and rugged construction to keep pace with modern broadcast operations.

The many features include: all front access controls in pull-out power; dual play equalization — HI and LO; replay lock-out to prevent accidental replays and off speed motor lock-out to prevent start WOW.

Prices on Application

# CARTRIDGE MACHINES

## BROADCAST ELECTRONICS



### DURA TRAK 90

BE engineers made the Dura Trak 90 cart machine the simplest, most reliable and best-performing machine in its class. They designed it to eliminate on-air mistakes with Cart-not-cued and Cart-previously-played lockouts, automatic muting and auxiliary start pulse. Fast Forward and three tone cue sensing standard. Engineered for durability with 1/2" aluminum deck plate, gold-to-gold contacts, solid cast front panel. Simplicity, reliability, quality, affordability—Dura Trak 90 has them all.

Prices on Application

### PHASE TRAK 90

If you aren't satisfied with the audio quality of your carts, don't blame the tape. They only sound as good as your cart machines permit. Phase Trak 90™ cart machines guarantee you superior production and playback quality... no matter what brand of tape you use. A microprocessor-based Tape Analysis System "learns" and stores the optimal characteristics of 10 different tape formulations... assuring you of the highest production quality. Clean, crisp playback quality is assured with Phase Trak 90's exclusive Continuous, Non-encoded Electronic Phase Correction.

Prices on Application



2100CRPS



2100CRP



2100CP

### 2100C SERIES

The Series 2100C's are the most effective professional tape cartridge machines in the industry today. No other cart machine combines the value and economy of the 2100C's. For example, the Series 2100C's include two cue tones (1 kHz and 150 Hz) as standard features.

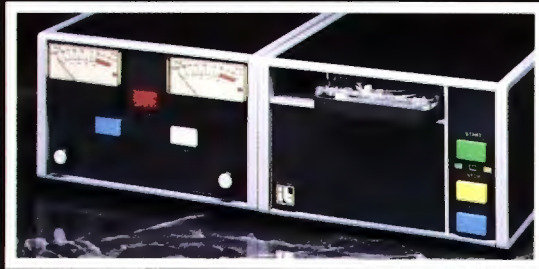
The construction is modular for easy maintenance. New flat response, long life heads offer superb performance and the direct drive transport ensures maximum reliability. Even the styling has been enhanced for a more attractive appearance.

Prices on Application





ESL-V Eraser/  
Splice Locator



99B Series Recorder/Reproducer



DELTA I Reproducer, DELTA III Triple-Deck Reproducer,  
DELTA IV Record Amplifier



Series 1 Reproducer



Series 1 Recorder/Reproducer

See Page 18.

# #1 FOR ALL



No matter which cart machines you choose, Audiopak carts are the

industry's most popular choice. Audiopak "workhorse" A-2s, "stereo" AA-3s and "digital-ready" AA-4s are the world's best selling line of broadcast tape cartridges.

**audiopak**  
BROADCAST CARTRIDGES

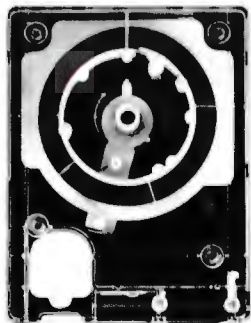
The cart the world counts on, cart after cart after cart.

See Page 25.



# TAPE CARTRIDGES

**ITC**



## **ITC-II**

The ITC Cart II broadcast cartridge represents a breakthrough in technology beyond anything previously experienced in the industry. A revolutionary design eliminates pressure pads, utilizes a non-rotating hub, and includes... high-output, low-noise, lubricated tape for recording at high levels without performance loss. Tape and cartridge complement each other like never before in the ITC Cart II broadcast cartridge.

CHECK OUR PRICE

## **AUDIOPAK**

### **A-2**

The AudioPak A-2 is the audio cartridge tape that has become a standard for broadcasters the world over. For stations who really care about how they sound, the A-2 is the logical answer to better sound.

### **AA-4**

The key feature of the AudioPak AA-4 is the SGS-4 broadcast mastering tape. When recorded on a high quality cartridge recorder, the SGS-4 tape can produce virtually identical copies of the best analog or digital mastering tapes.

CHECK OUR PRICE



**AA-4**

## **FIDELIPAC**

### **300**

The Model 300 broadcast audio cartridge provides performance at a price that is within the budget of all radio and TV broadcasters. Its endurance under severe operating conditions in everyday studio operations is surprising, frequently lasting over five years with only replacement of worn tape and pressure pads. *Mono only.*

### **DYNAMAX**

The Dynamax tape cartridge shell is constructed of high-grade engineering plastic for more strength, better heat stability and better dimensional accuracy. A modified internal tape path yields more accurate tape travel, less tape wear, lower scrape flutter and vastly enhanced phase uniformity.

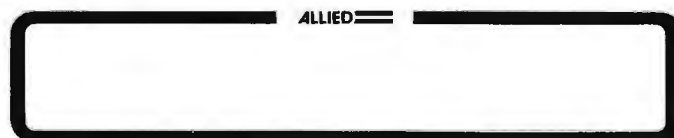
CHECK OUR PRICE

## **ALLIED**

For labeling those all-important commercial, music and program audio cartridge tapes, these cart labels will stick. If label peeling is a problem, then you need a label from us! They stay when they should. They come off completely when they should. 12 labels per sheet. Pin drive. Several colors available.

Your Price... \$2.50 for 10 sheets  
Sold only in increments of 10 sheets

Actual size



# CART ACCESSORIES

**ITC**



## ESL-V

The ESL V eraser/splice locator combines erasing and splice locating into one easy, automatic step ensuring consistent high quality audio reproduction from cartridge to cartridge. A clean, deep erasure is assured every time eliminating unwanted program material and noise. High-speed splice locator (30 IPS) frees the operator from visually locating the tape splice. The operator can then perform other tasks while the ESL V eraser/splice locator properly prepares the cartridge for recording.

ITC Price...\$1225.00 U.S.

YOUR PRICE \$ \_\_\_\_\_

## BROADCAST ELECTRONICS



## ST-90

Broadcast Electronics' ST-90 makes proper cart preparation fast, easy and reliable! Running at 27.5 ips (23 ips at 50 Hz), it zips through your carts. Yet its dual erase heads thoroughly erase any NAB standard cart to a typical depth of 90 dB — uniformly and without adding noise of its own. After erasure, the ST-90's splice detector automatically positions the splice and stops the tape — it's virtually 100% accurate because it actually senses the thickness of the splice itself instead of using the less-reliable photocell method.

BE Price...\$1150.00 U.S.

YOUR PRICE \$ \_\_\_\_\_

## FIDELIPAC



## 400

The model 400 features a removable guide pin, a scuff resistant top, a power-on indicator and wood case. It can erase all audio, video and computer tapes up to 1" wide and it has a thermal protected core that will not burn out.

Fidelipac Price...\$125.00 U.S.

YOUR PRICE \$ \_\_\_\_\_



## ESD10

The Dynamax ESD10 gives you reliable splice detection and deep cart erasure, for flawless sound reproduction. It achieves an erase depth of 75 dB or more. Dual erase heads are used. A patented splice find system — the most reliable detector ever built, requires no sensitivity adjustments.

Fidelipac Price...\$1150.00 U.S.

YOUR PRICE \$ \_\_\_\_\_

## BLANK-IT

If you need blank tape fast and are worried about recorder erase head wear, then worry no more. With the easy-to-handle "BLANK-IT" eraser from Fidelipac, you'll save time — no need to run the tape through your recorder. You'll save money — it allows instant reuse of the erased tape without worry about program residue or those mind destroying "whomps". "BLANK-IT" is hand-held for rapid, accurate tape erasing in any setting. Model 395.

Fidelipac Price...\$70.00 U.S.

YOUR PRICE \$ \_\_\_\_\_



## SONAR RADIO



## VX-1401

Sonar's VX-1401 provides economy and efficiency. The VX-1401 is simple to use and has full warranty. NAB cartridges and ¼" reel-to-reel tapes are thoroughly erased to noise-floor levels. 4½"H x 4¾"DIA, shipping weight: 4 lbs.

Sonar Radio Price...\$69.00 U.S.

YOUR PRICE \$ \_\_\_\_\_



# CART ACCESSORIES

**AUDIOLAB**



## TD-1B

The Audiolab tape degaussers with automatic overheat thermal protection erase audio tape, carts and cassettes. They erase up to 2" tape widths, accommodate up to 16" reels, provide a wide focused magnetic field to assure complete erasure and positive results every time with a simple operation. Dimensions: 3"H x 5¼"W x 7¼"D, shipping weight: 9½ lbs.

Audiolab Price... \$132.00 U.S.

YOUR PRICE \$ \_\_\_\_\_

**GARNER**

## 105

It takes just four seconds to erase all sizes and types of audio tape with Garner degaussers. Garner has designed their units to automate your tape erasing operations and eliminate residual noise problems, and our customers say they have a winner! The 105 accommodates up to 10½" reel.

Garner Price... \$1590.00 U.S.

YOUR PRICE \$ \_\_\_\_\_



**TAPECASTER**



## X-100

The Tapecaster X-100 features state-of-the-art technology for the serious broadcaster who wishes to rewind his own tape cartridges. It has two direct-drive motors and a floating aluminum tape supply disc which holds a 7" reel or 10½" pancake of lubricated tape. The solenoid brake stops the supply disc at the end of the wind. The X-100 has adjustable tension control for the supply disc brake, ramp design tape guides and four gold-contact rotary switches to program the wind to 7.5 ips. The wind time is accurately metered by the light copper and nylon counter wheel.

Tapecaster Price... \$620.00 U.S.

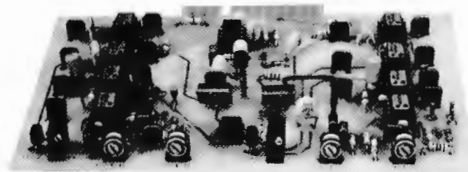
YOUR PRICE \$ \_\_\_\_\_

**AUDIOMETRICS**

## PREMIUM RETROFIT CARD

The Premium Retrofit Card by Indy Audio is a direct retrofit to replace existing cards in the ITC<sup>®</sup> Premium Series cart play machines. Upgrade your faithful ITCs with technology of the 1990's. Direct plug-in — minimum modifications. Slew rate, rise time noise, distortion... all state-of-the-art. 0.06% THD, 0.01% IMD, 66 dB S/N.

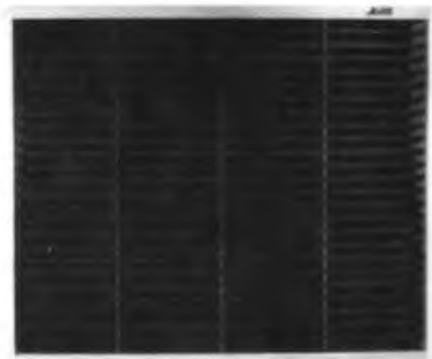
Audiometrics Price... \$249.00 U.S.



# CART STORAGE

## A-LINE

For audio cartridge storage we offer the high-quality highly flexible A line of cart racks from the standard to the most custom lazy susan models. The standard free-standing units are designed for use in non-critical space situations. The N series packs tremendous storage ability



### STANDARD FREE-STANDING SERIES

Model	Cap.	H x W (in.)	Net Wt. (lbs.)	Price
A L 20	20	5 $\frac{1}{2}$ x 23 $\frac{1}{2}$	10	\$44.00
A L 40	40	9 $\frac{1}{2}$ x 23 $\frac{1}{2}$	15	\$44.00
A L 50	50	12 x 23 $\frac{1}{2}$	15	\$52.00
A L 60	60	14 $\frac{1}{2}$ x 23 $\frac{1}{2}$	15	\$63.00
A L 100A*	100	22 $\frac{1}{2}$ x 23 $\frac{1}{2}$	20	\$91.00
A L 100B†	100	12 x 44 $\frac{1}{2}$	20	\$91.00
A L 150	150	17 $\frac{1}{2}$ x 44 $\frac{1}{2}$	55	\$139.00
A L 200	200	22 $\frac{1}{2}$ x 44 $\frac{1}{2}$	60	\$183.00

Additional capacities available upon configurations.

\* 5 wide 30 high  
† 10 wide 10 high

into a much narrower format when vertical space exists, but horizontal space is at a premium. All cart racks are normally laminated in walnut, pecan, oak or black. Please specify. Special laminates and sizes are available. Call, FAX, or write for special prices.



### N-SERIES

Model	Cap.	H x W (in.)	Net Wt. (lbs.)	Price
A L 100N	100	67 x 10	50	\$95.00
A L 150N	150	67 x 14 $\frac{1}{2}$	60	\$139.00
A L 200N	200	67 x 18 $\frac{1}{2}$	75	\$183.00
A L 250N	250	67 x 23 $\frac{1}{2}$	110	\$238.00
A L 300N	300	67 x 27 $\frac{1}{2}$	120	\$279.00

### LAZY SUSAN SERIES

Lazy susan cart racks are normally supplied with standard 4" base. However, any size base up to 30" is available. Special size racks are available. Laminates including walnut, pecan, oak or black are standard. Call, FAX or write for prices on special bases, sizes or laminates.

Model	Cap.	H x W (in.)	Turn Radius	Net Wt. (lbs.)	Price
A L 100LS	100	33 $\frac{1}{2}$ x 10 $\frac{1}{2}$	14 $\frac{1}{2}$	45	\$180.00
A L 160LS	160	27 $\frac{1}{2}$ x 14 $\frac{1}{2}$	20 $\frac{1}{2}$	65	\$270.00
A L 240LS	240	27 $\frac{1}{2}$ x 18 $\frac{1}{2}$	26 $\frac{1}{2}$	120	\$314.00
A L 400LS	400	33 $\frac{1}{2}$ x 23 $\frac{1}{2}$	32 $\frac{1}{2}$	225	\$540.00
A L 800LS	800	60 $\frac{1}{2}$ x 23 $\frac{1}{2}$	32 $\frac{1}{2}$	335	\$911.00
A L 1000LS	1000	60 $\frac{1}{2}$ x 27 $\frac{1}{2}$	39	402	\$1415.00
A L 1200LS	1200	71 $\frac{1}{2}$ x 27 $\frac{1}{2}$	39	450	\$1638.00



## SIMPAC

### SIMPAC

For a cart rack that will mount anywhere and hold up to 10 carts the Simpac line is just what the engineer ordered. Black only. Priced per module.

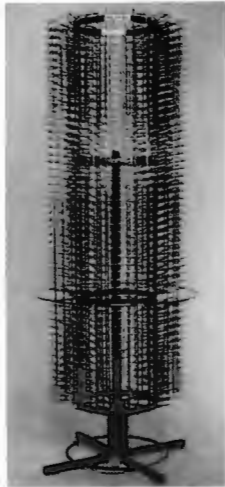
Simpac Price \$7.85 U.S. YOUR PRICE \$ \_\_\_\_\_





# CART STORAGE

**ALLIED**



## LAZY SUSAN CART RACKS

Where strength and capacity are required at a minimal cost, the Allied line of welded, durable wire lazy susan cart racks can fill the need. Available in a choice of 300 or 500 capacity, these industrial quality cart racks will give many years of dependable service. Hanging modules are available as separate units accommodating 50 carts, for wall hanging.

Lazy Susan Racks			
Model	Cap.	Dimensions	Your Price
ABOLS 300	300	6'H x 19"Dia.	\$359.00
ABOLS 500	500	6'H x 21"Dia.	\$549.00

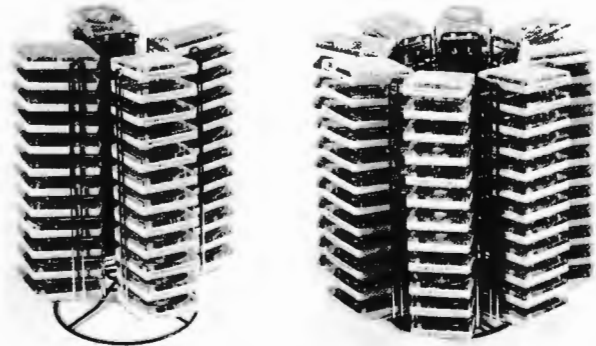
NOTE: "Handle" ring diameter of ABOLS 300 is 22" and ABOLS 500 is 27"

Wall Rack			
Model	Cap.	Dimensions	Your Price
ABOLS 50	50	65 1/4"H x 4 1/2"W x 6"D	\$46.00

## FIDELIPAC

The Fidelipac line of cart storage products gives you a choice of styles and sizes. These high quality racks will give you the storage space you need in a compact space.

WR25	wall mount-25 carts . . . . .	\$36.00 U.S.	YOUR PRICE \$ _____
MRB-1	rack base (8-WR25) . . . . .	\$83.00 U.S.	YOUR PRICE \$ _____
MR-200	mobile rack holds 200 . . .	\$371.00 U.S.	YOUR PRICE \$ _____
	(includes casters)		
TR-48	tabletop rack holds 48 . . .	\$104.00 U.S.	YOUR PRICE \$ _____
TR-96	tabletop rack holds 96 . . .	\$185.00 U.S.	YOUR PRICE \$ _____



## Bulletin Board

A pioneer service dedicated to broadcast, the Harris Allied Bulletin Board is entering its third year.

Files include such helpful programs as Basic Electronic Formulas, Audisk and Sentry automation working demos and ERP vs tower height formulas. Files are added regularly.

Our Bulletin Board service is free, of course. Your contributions are welcome. Log-on and take a look.



Call the Bulletin Board  
**317-935-0531**

### The BBS Menu

#### MAIL:

[E]nter Mail  
[R]ead Mail  
[S]can All Mail  
[N]ew Mail Only  
[M]ail Activity  
[H]ot News

#### SYSTEM HELPS:

[\$]ale Prices  
[L]ast Callers  
[T]ime & Date  
[W]elcome New Person  
[#]Phone Directory  
[J]unque/Trade-in

#### UTILITIES:

[?]Menu Choices  
[C]hange SIGs  
[B]oiler Plate

[O]utline of BBS  
[G]ood-bye  
[X]fer Help

#### REGISTERED USER AREA:

[P]assword Change  
[Q]uestion  
[V]erify Your SIGs  
[D]ownload File/List

[U]pload a File  
[I]ndivi File Download  
[A]lpha File Listing  
[Z]Hard-software Info

Carriage Return for Selections

#### MODEM SPECS:

8 Bit • No parity • 1 Stop • 300-2400 Baud  
No Filtering

# REEL-TO-REEL-RECORDERS

**OTARI**



## MX-50

The Otari MX-50 is an affordable audio machine that, regardless of its cost-effective design, incorporates the performance and features required by audio professionals. The standard machine is a 1/4" NAB two-channel configuration accepting from 5" (EIA) to 11.8" (DIN) reel sizes. Independent reel size selector switches optimize tape handling, and supply and take-up reel sizes can be intermixed. Inputs are transformerless active balanced, with XL-tape connectors. A complete list of features and options, including a transport remote control and a convenient roll-around stand, is available from Harris Allied.

Otari Price...\$2495.00 U.S.

YOUR PRICE \$ \_\_\_\_\_



## MX-5050 BIII

The MX-5050 BIII is the latest in a series of most successful 2 channel professional tape recorders. The BIII features a score of improvements over the BII such as built in mini-autolocator with three one-touch cue point memories, search zero and repeat functions. The new transport features positive action controls with microprocessor governed logic, motion sensing, and dynamic braking. The variable speed control has a range of ±20%. The BIII is easy to interface to the outside world via our standard 37 pin parallel I/O accessing 9600 Hz DC servo capstan control. All inputs and outputs are transformerless active balanced.

Otari Price...\$3295.00 U.S.

YOUR PRICE \$ \_\_\_\_\_



## MX-5050 MKIV-2

Otari's all new Mark IV series is available as a 1/4" 2-channel 1/2 track, 1/2" 4-channel, and 1/2" 8 track. All have built in mini auto-locator with three cue points, search zero and repeat functions. The transports are very smooth with microprocessor controlled logic, motion sensing and dynamic braking. Standard features include a 37 pin parallel I/O, ±20% speed control, active balanced inputs and outputs and reel size switches for both take-up and supply reels. The MKIV-4 and MKIV-8



## MX-5050 MKIV-4

now feature Gapless Seamless punch in and punch out. These two machines also include a rehearse mode. Your Harris Allied sales professional will help you choose the Mark IV best suited to your needs.

MKIV-2...\$4295.00 U.S.

MKIV-4...\$5995.00 U.S.

MKIV-8...\$6295.00 U.S.

YOUR PRICE \$ \_\_\_\_\_

YOUR PRICE \$ \_\_\_\_\_

YOUR PRICE \$ \_\_\_\_\_



## MX-5050 MKIV-8



## MX-55NM

The Otari MX-55NM features the latest developments in a high quality production and mastering 2 channel half track tape machine. The 1.5" thick cast alloy deckplate and 1/2" thick cast alloy side panels provide maximum ruggedness. The MX-55NM is a 3 speed machine available in speed pairs from 3.75 ips to 15 ips (30 ips optional). The MX-55NM's smooth transport is microprocessor based featuring dynamic braking. Other features include ±20% speed control, 4 point auto-locator, easy access to card bay, Dolby HX pro headroom extension, gapless seamless punch in/punch out, cue speaker, 3 frequency test oscillator and much more. For all of this plus center track time code, ask for Otari's MX-55TM.

MX-55NM...\$5495.00 U.S.

MX-55TM...\$6495.00 U.S.

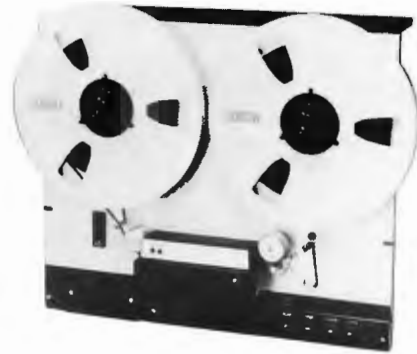
YOUR PRICE \$ \_\_\_\_\_

YOUR PRICE \$ \_\_\_\_\_



# REEL-TO-REEL RECORDERS

**OTARI**



## ARS-1000

The Otari ARS-1000 is a ¼" two channel, half track reproducer with 25 Hz tone sensor, end of message and cue tone relays with adjustable delay (100 milliseconds to 15 seconds). 7½-3¾ ips speeds. 19" rack mount. Designed for automated broadcast systems and other high reliability reproduce-only applications. 15-7½ ips speeds available on special order.

Otari Price...\$2250.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



## MTR-15

Otari's all new MTR-15 high performance 2 track mastering tape recorder offers a unique automatic record and reproduce alignment system for dramatically quick and easy set up of 4 speeds and 4 set ups per speed. The MTR-15 is available as a ¼" ½ track, a ½" 2 track, and a ¼" ½ track with center track time code. Each is available as a rack mount version with an optional roll-around stand. Features include a built-in 4 point autolocator, constant tension transport, 12.5" reel capacity, Dolby HX Pro head room extension, built-in monitor speaker, and more. For details call your Harris Allied Professional.

MTR-15N-(¼")...\$ 9,250.00 U.S.      YOUR PRICE \$ \_\_\_\_\_  
 MTR-15H-(½")...\$10,350.00 U.S.      YOUR PRICE \$ \_\_\_\_\_  
 MTR-15T-(¼" w/time code)...\$11,270.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



## MTR-12I

Otari's MTR-12I is a ½" 4 channel mastering recorder available in two versions. The standard machine features 3 speeds, 12.5" reel size capacity, and a microprocessor controlled constant tension transport featuring one-hand rock smoothness. The MTR-12I comes standard in a roll-around console with an accessible rack mounted card cage. The MTR-12 ILX low speed version features 3¾ ips frequency response out to 20 kHz within 2 dB. This version includes Dolby HX Pro headroom extension. Call us for more details.

MTR-12I . . . . \$13,525.00 U.S.      YOUR PRICE \$ \_\_\_\_\_  
 MTR-12ILX . . . \$15,950.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



## MX-70

The Otari MX-70 series is a 1" 8 track or 1" 16 track recorder with a microprocessor controlled, constant tension .3 speed transport with 1" thick cast alloy deck plate for maximum rigidity. Included is a full function remote session controller featuring ±20% varispeed with 2 cue memories. The MX-70 features one-card per channel plug-in electronic in an easily accessible card bay. Gapless Seamless punch in and out is a standard feature. The MX 70 is easily controlled from external devices such as synchronizers and editors. Contact Harris Allied for a full list of features and performance specifications.

Prices on Application

**OTARI**®



## **MTR-15**

**The new standard in tape  
recorder performance and  
versatility.**

***See Page 31.***



INCH AFTER INCH,

SESSION AFTER SESSION,

THRILL AFTER THRILL.



ON THIS YOU CAN RELY.

*Ampex Recording Media Corporation*  
37 Music Square East • Nashville, TN 37203 • (615) 242-0022

**See Page 37.**



# REEL-TO-REEL RECORDERS

## TASCAM



### 22-2

The Tascam 22-2 is the basic half-track recorder/reproducer with independent record mode selector and 1 tape/source monitor for each channel. Independent mic/line mixing and output level control for each channel. Remote pause function for record and play. 7½-15 ips speeds.

Tascam Price...\$1099.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



### 34B

The Tascam 34B is a 4-track ¼" recorder/reproducer with 15-7½ ips speeds, 10½" reel capacity, full frequency response in sync mode, function and output select and punch in/out recording. The 34 also features ±12% pitch control, dump edit, cue control, FL tape counter and zero return.

Tascam Price...\$2199.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



### 32

Tascam's 32 is a half-track ¼" master recorder/reproducer with 10½" reel capacity, 15-7½ ips speeds, independent L & R record mode, simul-sync, full frequency response in sync mode, function and output select and punch in/out recording. The 32 also features ±12% pitch control, dump edit, mic inputs, independent input/output level controls, head-phone jack with volume control, cue control, FL tape counter and zero return.

Tascam Price...\$1749.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



### BR20

The BR Series (Broadcast Recorder) is Tascam's newest generation of professional 2-track recorders. Loaded with valuable features, the +4 dBm XLR balanced BR-20 half-track, equipped with built-in rack-mounts, has a highly-functional shuttle control by using a combination of EDIT and FFWD/REW ("QUICK CUE") that provides for smooth and accurate cue and review. NAB/IEC equalization and 250/320 operating levels can be adjusted from the front panel via convenient switches while a self-contained speaker allows for monitoring of production material. The BR-20T is a ¼" half track with center track time code and gapless/seamless punch in/out.

BR-20 ...\$2399.00 U.S.      YOUR PRICE \$ \_\_\_\_\_  
 BR-20T...\$2999.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

## REVOX



### C270

The Revox series 270 is loaded with professional features you will not find on comparable machines at this point. Many 270 standard features are available only as options on many other machines. Pro transport functions, pro audio quality, pro construction... that's value! The 270 series is available in 2, 4 and 8 track.

Revox Prices range from \$4695.00 - \$7795.00 U.S.



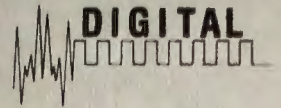
### PR99 MKIII

The MKIII continues the excellent value/performance ratio many worldwide users have come to expect of the Revox PR99 Series. Designed and manufactured in Switzerland and West Germany, the PR99 MKIII draws on the same engineering expertise that has made Studer the world standard for excellence in audio recording. Applications— broadcast: on-air playback, post-production, on location recording; recording studio: mastering, dubbing.

Revox Price...\$3495.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



# The New Speed of Sound



Users of the DSE 7000 are at the front of the revolution that's changing forever the way leading-edge stations run their production studios. They're finding out that the new speed of sound is even quicker than the eye.

The DSE does it all with no tape, no razor blades, no mice and no piano lessons.

The DSE 7000's UNDO feature takes the fear out of flying new ideas. Simply try another take, assemble a different edit, or test a new effect. If you don't like the new results, UNDO it instantly... the original is untouched!

All DSE 7000 users agree... "It's the most impressive thing that's ever happened to radio."

**AKG DSE 7000**  
Up to 3 times more productivity.  
Lease for as little as \$30 a day.  
Talk to us  
for all the details.







Point-to-point, America's  
best kept trade secret  
is becoming America's  
best selling wire...

**GEPCO**

*See Page 60.*



### LOGGING SYSTEMS

Dictaphone logging systems are radio's program verification loggers of choice. Featuring 1, 2 or 4 channels, Dictaphone systems are designed for high dependability, unattended recording from 1 to 8 days. Your entire radio station's programming is available to settle billing disputes, monitor talent, monitor competitors, and defend your station legally.

Dictaphone's reputation as the industrial strength logger has made it the most popular in critical services such as fire, police, emergency and 911 applications.

Optional, multiplexed time code makes finding specific segments fast and friendly. Dictaphone logging systems work best with 3M 8206-1/4-3600 tape. Harris Allied carries the complete 3M line of recording tape including this special formula made especially for slow speed logging.

Talk to us at Harris Allied. We'll configure and tailor a system to your special needs.

Prices on Application

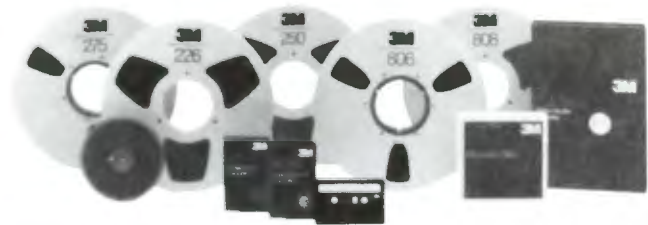


### AMPEX



Harris Allied is an Ampex distributor and can supply all your tape needs. We can quote prices for any requirement of Ampex tape. Quantity discounts are available.

### 3M



3M 806 audio mastering tape is specially formulated to meet high output, low print requirements. This flexibility is further enhanced by its degree of interchangeability with 3M 226 and 808 audio tape. Call us for all your 3M tape needs.

### ALLIED



#### REEL STORAGE

Every station has a room running over with reel-to-reel tapes, commercials, programs, and a wide assortment of other types of taped material. The A-Line reel tape storage cabinets are available in standard or custom sizes for every application.

Model	Tape Size	Cap	Shipping Weight	Price
A/L 350TB	7"	350	175 lbs.	\$216.00
A/L 500TB	7"	500	225 lbs.	\$340.00
A/L 175TC	10 1/2"	175	200 lbs.	\$295.00
A/L 250TC	10 1/2"	250	250 lbs.	\$352.00

Additional reel-to-reel storage cabinets are available from Arrakis. See page 77.

### A-LINE



#### A-LINE SIDE PANELS

The Otari 5050BII & BIII handle so much more easily when angled toward the operator. This is easily and economically accomplished with A-Line side panels. Simply remove the side panels which come with your 5050BII, BIII, use the same screws, and attach the A-Line side panels.

Your Price \$79.95 U.S.

# CASSETTE RECORDERS

## TASCAM



### 122 MKII

The 122 MKII is the leader in Tascam's line-up of professional 4-track 2-channel stereo cassette machines. It offers extended durability and reliability to keep up with the tough, relentless pace of professional operation. It features an extremely high standard of audio reproduction quality.

Tascam Price . . . \$1099.00 U.S.

YOUR PRICE \$ \_\_\_\_\_



### 112

Tascam's model 112 is a basic 2-head machine that fully maintains the professional quality performance, stability and reliability of the top-line 122 MKII. Special care has been taken in the 112 transport system to ensure unflinching reliability and stability even under hard non-stop working conditions. 19" rack mountable. Selectable front (1/4" phono jack) and rear (RCA-pin jack) input terminals. Independent left and right channel input level controls. The 112 is a tough, reliable workhorse that makes the cassette medium a worthy contender in the competitive professional arena. The 112B is the balanced version with broadcast levels and impedances in and out.

112 . . . \$679.00 U.S.

YOUR PRICE \$ \_\_\_\_\_

112B . . . \$749.00 U.S.

YOUR PRICE \$ \_\_\_\_\_

## NAKAMICHI



### MR-1

The Nakamichi MR-1 is a professional quality audiocassette recorder well suited to broadcast applications. Housed in a standard 19-inch rack enclosure, the front panel measures 5 5/8 inches high, including the mounting feet. An advantage that this machine has over many others is its professional input and output capability. It provides both front panel 1/4-inch and back panel XLR-balanced connectors for +4 dBm levels. Back panel unbalanced input and output 1/4-inch connectors also are available.



### MR-2

The Nakamichi MR-1 at left, has set a new performance standard for professional cassette decks. The MR-2 proves that it's possible to design a budget-priced professional deck with sound quality that stands above the crowd! If you need an affordable top-quality professional deck for broadcast use, look no further! The MR-2 has been created for you. It has the professional features you need, the sound quality you demand, and it's surprisingly affordable. RCA and 1/4" connectors in and out. A Henry Matchbox makes a fine companion.

## YAMAHA



### C-300

Cannon connectors in and out (as well as RCAs) automatically have a way of saying "professional", but, the Yamaha C300 pays attention to every professional detail! The C300 boasts three heads, a closed loop, dual capstan tape transport mechanism and super bias which combine to help you produce cassette tapes that will be difficult to distinguish from high-priced reel-to-reel. The Yamaha C300 comes rack-mount-ready as shown.

Yamaha Price . . . \$1095.00 U.S.

YOUR PRICE \$ \_\_\_\_\_



# CASSETTE RECORDERS

**MARANTZ**

## PMD 201 & 221

The PMD 201 and PMD 221 by Marantz offer more to the broadcast news operation than ever before available. Outstanding features include: 15 16 ips 1/2 speed or regular 1-7 8 ips, vari-speed control which allows correction of tapes which may have been recorded with less-than-full battery power. PA Play mix permits one of the most sought-after abilities: live intro with optional microphone, actuality on tape, then back to live using the cassette machine as an integral part of a telephone report.

In addition to features listed which are common to both machines, the 221 also has three heads and variable bias for normal, CrO<sub>2</sub>, and FeCr tape. FeCr tape permits a frequency response of up to 14 kHz.

PMD 201 2 heads: \$299.00 U.S. YOUR PRICE \$ \_\_\_\_\_  
 PMD 221 3 heads: \$369.00 U.S. YOUR PRICE \$ \_\_\_\_\_



PMD 221

**SONY**

## TC-D5PROII

The Sony TC D5PROII features reliable mechanisms including a Disc-Drive Capstan-Servic tape transport with a coreless motor. Microphone inputs CANNON connector (LR 3-31 female type). Approximately 5.5 hours of operation more than ever before are possible with two "D" size alkaline batteries. The TC D5PROII can also be operated on DC 6V with the addition of an optional AC adaptor AC-D468 or a car battery (DCC-127A). The TC D5PROII employs Sony's F&F head for outstanding performance and long-term reliability. The Dolby "B" noise reduction system is incorporated. VU meter & peak level indicator.

Sony Price \$869.00 U.S. YOUR PRICE \$ \_\_\_\_\_



**AUDIOMETRICS**

## SQUEEZE PLAY

SQUEEZE PLAY is unique because it's integrated Custom IC circuitry is deftly incorporated into a high-quality radio-cassette unit. A customer panel permits the user to easily switch between skimming and normal operation and to select appropriate record and pause time intervals. The transport shuts off automatically at the end of the cassette. SQUEEZE PLAY has several useful applications. The most obvious is skim a competing station quickly and painlessly gathering useful information on playlist and rotations. However a PD might want to skim his own station. SQUEEZE PLAY operates from 117 volts AC. Record time can be varied from 2 seconds to 30 seconds. Pause time can be varied from 30 seconds to 3 1/2 minutes.

Audiometrics Price \$159.95 U.S. YOUR PRICE \$ \_\_\_\_\_



**OTARI**

## DP4050E

Otari's world popular DP4050E Series II 4 cassette Duplicators run at an 8:1 duplication ratio. They simultaneously record both A and B sides in stereo for an effective duplication ratio of 16:1. Featuring improved cassette transports incorporating a three motor, direct drive design and the option of selecting a slave transport rewind mode at the conclusion of the duplication pass. Also now available for use with the DP4050E Series is the new 7" bias and signal buffer. Use of this buffer allows the utilization of a larger number of slave units.

DP4050E-C2 Master w/ 2 Slaves \$5400.00 U.S.  
 YOUR PRICE \$ \_\_\_\_\_  
 DP4050E-OM Open Reel Master \$7750.00 U.S.  
 YOUR PRICE \$ \_\_\_\_\_  
 DP4050E-Z3 3 Slave package \$4495.00 U.S.  
 YOUR PRICE \$ \_\_\_\_\_  
 DP4050E-Z Bias & Signal Buffer \$ 995.00 U.S.  
 YOUR PRICE \$ \_\_\_\_\_



IN CANADA CALL 800-268-6817

**HARRIS ALLIED**

Specifications subject to change without notice

39

# DIGITAL RECORDERS

**SONY**



## PCM-2500

The Sony PCM-2500 professional Digital Audio Tape recorder features two hours of digital recording on a compact DAT cassette, a maximum spooling time of 180 times normal speed, and direct interface to both analog and digital audio professional studio equipment. Designed specially for professional applications, the PCM-2500 enables immediate interfacing with a variety of studio equipment. The SDIF-2 and AES/EBU connectors provide interfaces for digital signals of 32, 44.1 or 48 kHz sampling rates. Analog connection to and from other professional audio equipment is implemented with balanced Cannon XLR-type connectors of +4 dBs reference level with +8, -10 dB trim.

Sony Price . . . \$3550.00 U.S.

YOUR PRICE \$ \_\_\_\_\_



## TCD-D10 PRO

Big performance comes in a little package. Take the lightweight Sony along with you to record it all in digital. At 10" x 2 1/4" x 7 1/2", the TCD-D10 PRO is the smallest DAT recorder from Sony. Even with an internal battery pack, the unit weighs only 4 lb. 7 oz. and what's remarkable about this portable is that compact design has been achieved without sacrificing the features required for professional applications. Two hours of digital recording on a miniature DAT cassette, Sony's heavy-duty transport to withstand the rigors of field work, CLD multi-display and various safety/warning systems for failsafe operation, scan search at 100 times normal speed, remote control convenience, and direct interfacing with other digital audio equipment.

Sony Price . . . \$2900.00 U.S.

YOUR PRICE \$ \_\_\_\_\_

**TECHNICS**



## SV-DA10

Technics introduces its SV-DA10 digital audio tape deck at an extremely reasonable price! Important features include MASH (Multi-stage noise shaping) A/D & D/A Converter System for reproduction of the finest musical details, convenient shuttle search dial permits fast search at up to 400 times normal tape speed and digital fade-in and fade-out to facilitate digital editing.

Technics Price . . . \$900.00 U.S.

YOUR PRICE \$ \_\_\_\_\_





# DIGITAL RECORDERS

PANASONIC



## SV-3700

The SV-3700, Panasonic Digital Audio Tape deck is designed specifically for professional applications. New DAT technology offers CD sound quality together with the full recording/playback capability of a cassette deck. Convenience is outstanding, with direct access, skip, and programmed play functions, not to mention ultra-fast rewind/fast-forward operations. This is possible thanks to rotary head technology and time/program indexing signals that are recorded together with the audio information.

Panasonic Price...\$1599.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



## SV-255

Introducing the SV-255 portable Digital Audio Tape recorder from Panasonic. Ideal for high quality professional or on-the-job recording applications indoors or out. The ultra-compact SV-255 is just 9" wide, 1 3/4" high, and 5 3/8" front to back. And, it weighs only 3.2 lbs. High performance DAT capability in a small package.

Panasonic Price...\$2700.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

TASCAM



## DA-30

The DA-30 is an affordable, full function rack-mountable R-dat recorder reproducer stereo deck which carries on Tascam's tradition of having the best sounding DATs. The DA-30's analog-to digital converters use Delta-Sigma modulation and 64-times oversampling while the digital to analog converters feature 18-bit technology with eight-times oversampling. Combined, this results in the achievement of a S/N ratio in excess of 94 dB. Other key features include AES/EBU digital I/O, a full-function programmable remote control, start ID positioning, head room margin display and +4 dBm balanced inputs and outputs plus -10 dBv unbalanced ins and outs.

The DA-30 offers the same professional-quality recording capabilities as its predecessor at 48 kHz, 44.1 kHz, and 32 kHz sampling frequencies.

Tascam Price...\$1499.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



**AKG's complete digital sound editing facility, the DSE 7000, is available through Harris Allied. See page 35.**

# CD PLAYERS

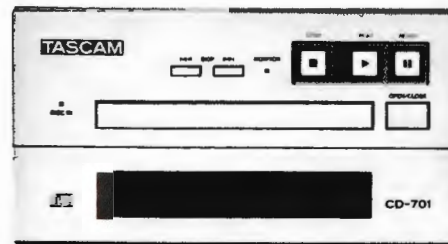
## TASCAM



### CD-401

Rack mounting and XLR or RCA connectors make installation of the CD-401 quick and easy. A fader start/stop signal from the console can cause the player to start automatically on fade-in and stop at the completion of a fade-out.

Tascam Price...\$799.00 U.S. YOUR PRICE \$\_\_\_\_\_



### CD-701

The CD-701 features a full-size turntable and unique disc clamping system that virtually eliminate tracking errors, and superlative "ZD Circuit" for impeccable CD sound with an absolute minimum of digital noise. Up to four CD-701 units can be controlled by the sophisticated RC-701 control unit. The RC-701 offers a variety of programming and control functions, including dial-controlled search with frame accuracy, an auto cue function which automatically locates the start point, event play, link play,  $\pm 6\%$  pitch control, and others. An optional RAM buffer is available which provides immediate startup from the ready mode making continuous looping, between any two points possible.  $8\frac{1}{8}''H \times 4\frac{3}{4}''W \times 19\frac{1}{8}''D$ . Weighing 21 $\frac{1}{2}$  lbs.

Tascam Price...\$2199.00 U.S. YOUR PRICE \$\_\_\_\_\_

## TECHNICS

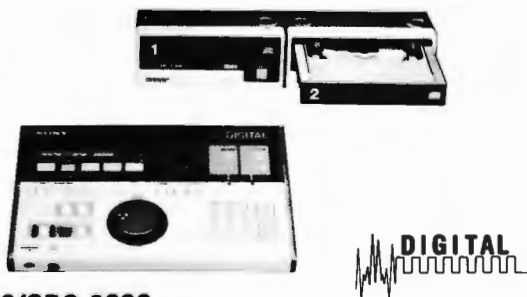


### SL-P1300

The SL-P1300 presents 8 times oversampling, 4 digital-to-analog converters, and professional XLR connectors. 3" and 5" CD formats are accommodated with no requirement for adapters. The SL-P1300 autocues to first audio and features a joy wheel for precise 0.1 second cue.

Technics Price...\$1699.95 U.S. YOUR PRICE \$\_\_\_\_\_

## SONY



### CDP-3000/CDS-3000

The CDP-3000/CDS-3000 is a modular professional compact disc player system. It allows instant and programmed play with the extra convenience of controlling two CDP-3000 players. The control unit is independent of the player(s) — only a single cable is required for control interface. Front loading design permits mounting of two units side by side in a standard 19" rack.

Sony Price...\$6300.00 U.S. YOUR PRICE \$\_\_\_\_\_

## NUMARK



### CD6020

Numark's dual-transport CD player consists of two 19" rack-mountable components—a control unit that can be mounted neatly in the mixer console and a transport module that mounts in an equipment rack. Hands-free mixing is made possible with the Integrate™ feature. There's also the BeatSync™ feature that automatically mixes one disc selection to another while matching the beat structure of both discs for perfectly-matched, beat-synchronized mixes.

Numark Price...\$1995.00 U.S. YOUR PRICE \$\_\_\_\_\_

**YES, WE DO STILL HAVE TURNTABLES!**  
 Call for price and models still available. Turntable accessories such as tonearms and preamps are now featured in the Studio Accessories pages 59 to 75.



# CD PLAYERS

**DENON**



**DIGITAL**

## DN-970FA

**THIS ONE PRODUCES RESULTS.** It's the *new* one from Denon. Their DN-970FA Production CD Cart Player™ is designed specifically for production studio use.

The same great concept that has made the 950FA the broadcast standard is the foundation on which the 970FA is built.

Add  $\pm 10\%$  varispeed in 0.2% steps (the selected speed is displayed in real time on the front panel), 3 separate A-B cue points and AES/EBU digital output and you have the world's most dedicated and advanced CD production machine.

The AES/EBU digital output permits the 970FA to provide digital source material and sound effects with any of the desktop editors and Digital Audio Work Stations that recognize the format. Available now!

DN-970FA... \$2599.00 U.S.      YOUR PRICE \$\_\_\_\_\_



**DIGITAL**

## DN-950FA

This is the third year that Denon has enjoyed a position of CD player leadership in our business. The industry has adopted the "Denon system" as a standard. The system consists of a CD player and a protective disc housing. Together, they combine to produce an on-air CD performance standard untouched by any other method. The 950FA player is friendly at first sight, emulating the appearance and operation of a tape cartridge machine. The ACD5 cartridge, pictured here, provides permanent housing for the compact disc and a permanent solution to disc handling problems. Rack mount for two units also available.

Please call us. We'll tell you about all of the features and benefits of this, the number one on-air CD system.

Denon Price... \$1499.00 U.S.      YOUR PRICE \$\_\_\_\_\_

**STUDER**



**DIGITAL**

## A727

Studer's A727 reflects the real-world needs of professionals in the layout and function of its controls. Functions are programmed for efficiency and control buttons are arranged logically and sized appropriately. Via the parallel remote control socket, the A727 can be controlled like a conventional tape deck. Up to four players can be conveniently monitored with the separate stereo monitor module option.

Studer Price... \$2695.00 U.S.      YOUR PRICE \$\_\_\_\_\_



**DIGITAL**

## A730

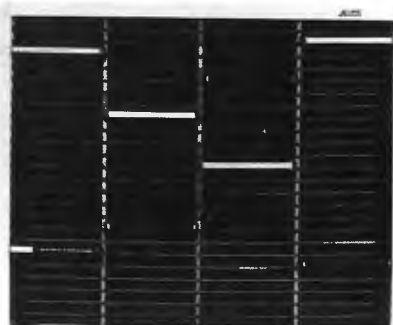
The A730 is a joint professional CD player venture combining the strengths of Philips and Studer into one totally new concept in CD playback systems. The A730 features a professional transport mechanism which means long life. Fast loading of the system provides optimum access for 5 inch and 3 inch discs. Ergonomics include efficient disk jockey mode, easy and accurate cueing, and reliable use on-air. You'll find the A730 equally at home as a desk top unit or flush mounted.

Studer Price... \$3795.00 U.S.      YOUR PRICE \$\_\_\_\_\_

**ASK US ABOUT A TRADE-IN  
 ALLOWANCE ON YOUR NEXT PURCHASE**

# CD STORAGE & ACCESSORIES

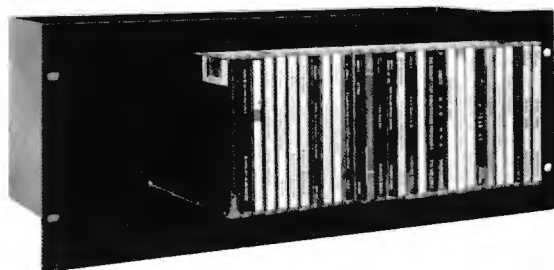
## A-LINE



### CD100

A-Line offers the most beautiful and practical CD storage racks available. Built of solid oak frames and full shelves to hold all single CD types. Choose any of 8 models. Now, oak laminate finish also available. Please specify.

Model	Cap	Height	Width	Depth	Price
A/LCD48OAK	48	9 $\frac{5}{8}$ "	22 $\frac{1}{2}$ "	5 $\frac{5}{8}$ "	\$71.95
A/LCD48LAM	48	9 $\frac{5}{8}$ "	22 $\frac{1}{2}$ "	5 $\frac{5}{8}$ "	\$66.50
A/LCD100OAK	100	18 $\frac{11}{16}$ "	22 $\frac{1}{2}$ "	5 $\frac{5}{8}$ "	\$123.95
A/LCD100LAM	100	18 $\frac{11}{16}$ "	22 $\frac{1}{2}$ "	5 $\frac{5}{8}$ "	\$113.50
A/LCD180OAK	180	32 $\frac{3}{4}$ "	22 $\frac{1}{2}$ "	5 $\frac{5}{8}$ "	\$201.95
A/LCD180LAM	180	32 $\frac{3}{4}$ "	22 $\frac{1}{2}$ "	5 $\frac{5}{8}$ "	\$196.50
A/LCD244OAK	244	44 $\frac{1}{4}$ "	22 $\frac{1}{2}$ "	5 $\frac{5}{8}$ "	\$271.95
A/LCD244LAM	244	44 $\frac{1}{4}$ "	22 $\frac{1}{2}$ "	5 $\frac{5}{8}$ "	\$261.50

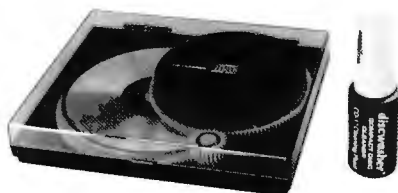


### CD

With the model CD, up to 42 compact discs can be stored in a rack. The discs stand up vertically with labels facing out, and protrude  $\frac{3}{8}$ " for easy access. Recommended for stationary installations only. Faceplate .125" aluminum, body .063" aluminum. Welded construction. Brushed and black anodized. 4 spaces tall (7"). Now has separators!

Allied Price...\$70.00 U.S.

## DISCWASHER



Discwasher manufactures fine products for CD care in broadcast facilities.

Discwasher Price...\$19.95 U.S.      YOUR PRICE \$ \_\_\_\_\_

### A/L80CD

### A/L40CD



A-Line's wood lazy susan cabinets are constructed of solid oak or walnut. They hold all single CD cases and have a 15 $\frac{1}{2}$ " turn radius. Two sizes available — 40 capacity and 80 capacity.

Model	Cap	Height	Width	Depth	Price
A/L40CDOAK	40	10 $\frac{5}{16}$ "	11 $\frac{1}{2}$ "	10 $\frac{1}{2}$ "	\$79.95
A/L40CDWLT	40	10 $\frac{5}{16}$ "	11 $\frac{1}{2}$ "	10 $\frac{1}{2}$ "	\$79.95
A/L80CDOAK	80	18 $\frac{1}{16}$ "	11 $\frac{1}{2}$ "	10 $\frac{1}{2}$ "	\$99.95
A/L80CDWLT	80	18 $\frac{1}{16}$ "	11 $\frac{1}{2}$ "	10 $\frac{1}{2}$ "	\$99.95



### 37000

The Security Storage Cabinet System forms a complete CD storage system. The base is secured to the floor and the storage cabinet snaps onto the standard base. The 12" base cabinet (37240) increases overall height. With the snap-in feature, you are able to stack as many as 3 storage cabinets. The 45° and 90° pieces allow you to design your own storage area with no limitations to the shape, size and look of your design. All metal construction. Talk to your favorite Harris Allied salesperson for types of cases accommodated by this system.

37000, 23 $\frac{3}{4}$ "H x 45"W x 21"D...	\$945.00 U.S.
37240, 34"H x 45"W x 21"D....	\$250.00 U.S.
37210, 45°, 45 $\frac{1}{2}$ "H .....	\$362.50 U.S.
37200, 90°, 45 $\frac{1}{2}$ "H .....	\$362.50 U.S.

## DENON



This compact disc contains a large number of test signals and musical excerpts which can be used not only to thoroughly check the playback performance of a CD player but to evaluate other audio components such as amplifiers, tape decks, loudspeakers, etc.

Denon Price...\$25.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



# How to pick out a voice in the crowd



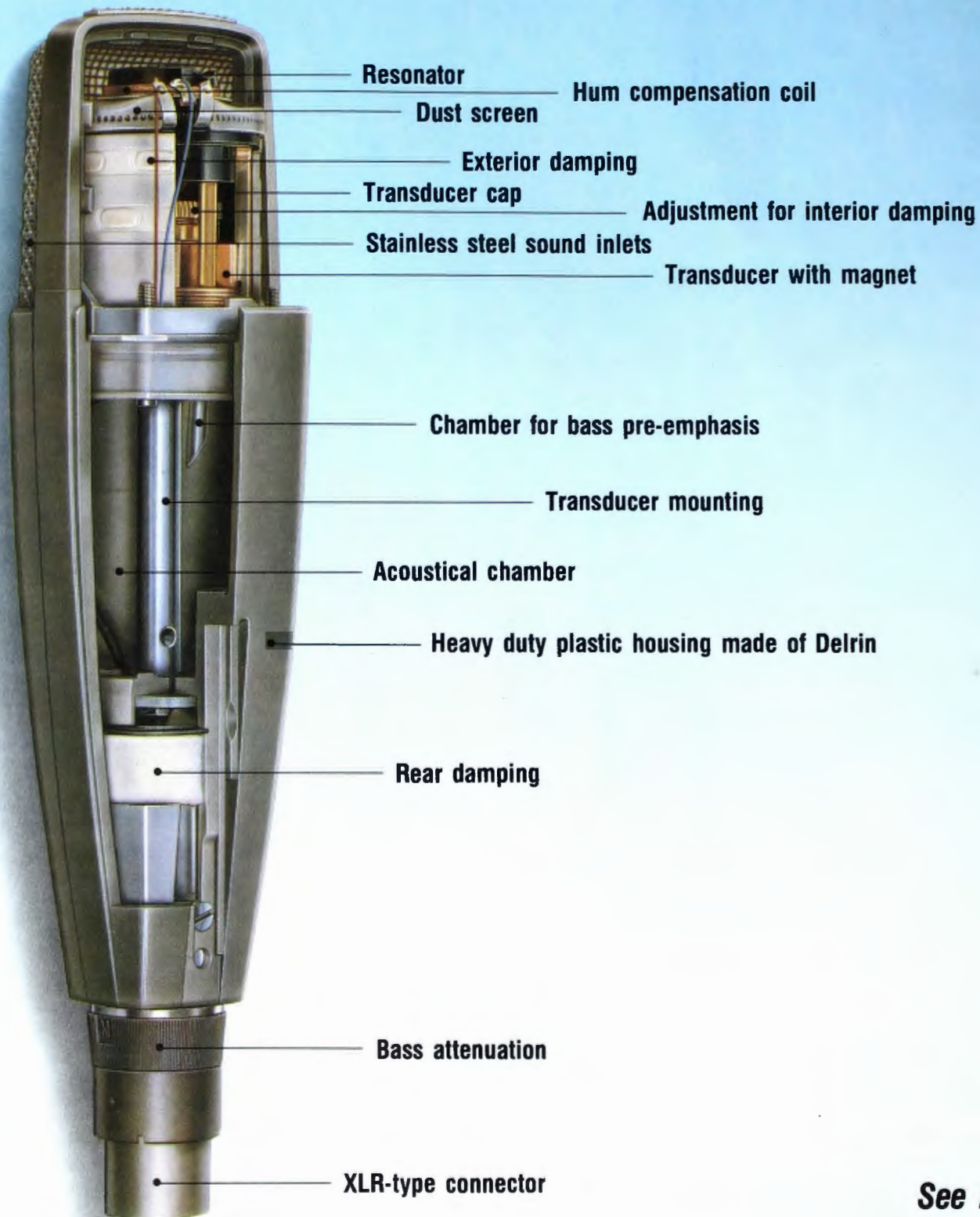
Beyer BroadcastGroup™ microphones meet the challenge of the evolving broadcasting and production environment with a fully integrated selection of condenser, moving-coil and ribbon designs. Employing the most up-to-date technologies, each BroadcastGroup™ microphone is engineered for accuracy and dependability, especially under strenuous operating conditions. The performance of each BroadcastGroup™ microphone exceeds accepted criteria for its intended applications.

**BroadcastGroup**

**beyerdynamic**))))

*See Pages 51 and 53.*

# *You Get More with a Sennheiser*



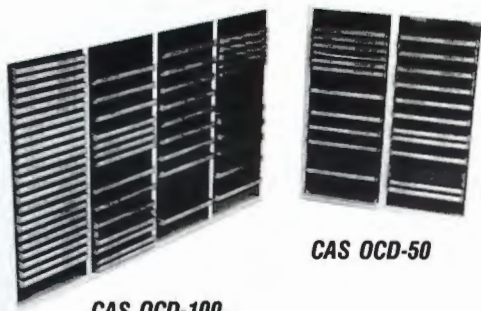
*See Page 51.*

***SENNHEISER MD421... FROM A BANG  
TO A WHISPER... CONTROLLED RESPONSE  
MEANS SUPERIOR REPRODUCTION***





CAS TCD-30

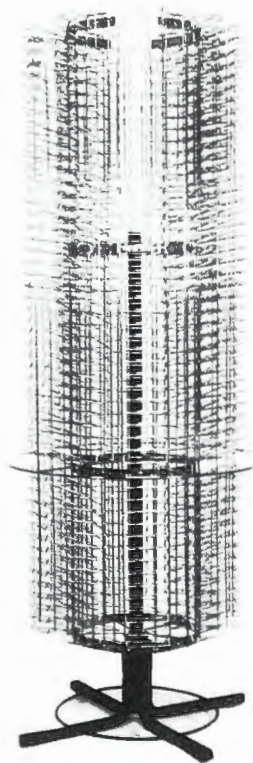


CAS OCD-100

CAS OCD-50

Audiometrics' model CAS TCD-30 is constructed of economical plastic. Designed for jewel cases only. Holds 30 CDs. Audiometrics' OCD line comes in two capacities for jewel cases only. Made of solid oak with molded plastic inserts.

Model	Cap	Height	Width	Depth	Price
CAS TCD-30	30	8 1/4"	10 3/4"	5 1/4"	\$6.95
CAS OCD-50	50	14"	12"	5 1/8"	\$39.95
CAS OCD-100	100	14"	23"	5 1/2"	\$59.95



### LAZY SUSAN CD RACK

Audiometrics offers two sizes of lazy susan wire CD racks. Both are six feet high and hold all types of single CD cases. Also available as wall stringers. Denon cartridge compatible.

ABO 280CD holds 280 CDs,  
22" turn radius. . . \$329.00 U.S.

ABO 560CD holds 560 CDs,  
27 1/2" turn radius. . . \$579.00 U.S.

## BROADCAST DISC STORAGE, LTD.

The Discit® by Broadcast Disc Storage, Ltd. is an interlocking organizer with a snap-together feature. 12 1/2"W x 5 1/8"D, 18 CD capacity. Black polystyrene construction. Holds all single CD cases.

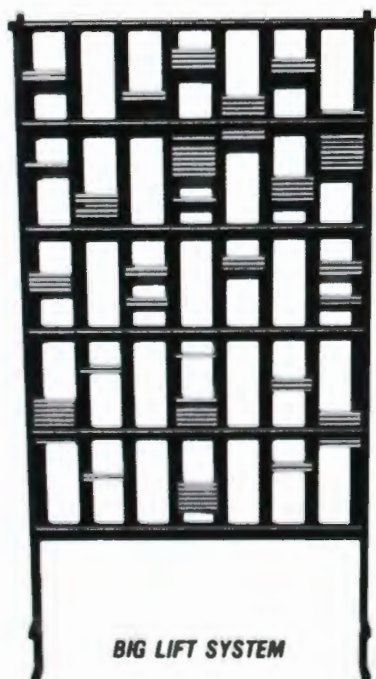
Discit Price . . . \$12.75 U.S. YOUR PRICE \$ \_\_\_\_\_

The model 34000/16000 Big Lift System from Broadcast Disc Storage, Ltd. has a 630-disc capacity. It will hold 35 Discits described at left. Assembly required. Dark brown rail secures to wall with heavy flanges. Accommodates all single CD cases. 79"H x 41 1/2"W x 7"D. Five extra Discits included.

34000/16000 . . . \$760.00 U.S. YOUR PRICE \$ \_\_\_\_\_



DISCIT



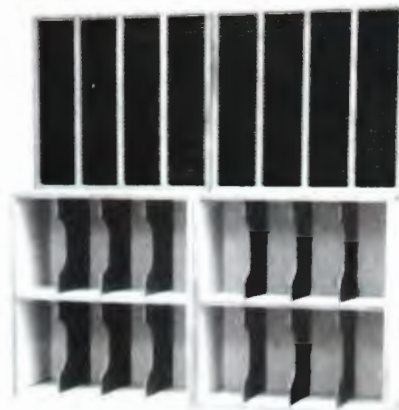
BIG LIFT SYSTEM

## ARRAKIS

### ZX/CD-160

Arrakis CD storage racks (pictured here mounted on matching LP storage units described on page 77) are manufactured expressly to be compatible with Modulux™ furniture. They feature solid oak trim, hold 160 discs. They can be shipped via UPS™ or FedEx™. Dimensions: 23 1/2"H x 25"W x 4 3/4"D.

ZX/CD-160 . . . \$179.00 U.S.  
YOUR PRICE \$ \_\_\_\_\_



# MICROPHONES

## AKG



**D-80**

The D-80 is a cardioid dynamic microphone which was designed for both vocal and musical applications. It is particularly suited for use with high quality sound reinforcement systems and cassette decks. A foam wind and pop filter eliminates pop and breath noise, as well as wind noise when the microphone is used outdoors.

AKG Price...\$135.00 U.S.

YOUR PRICE \$\_\_\_\_\_



**D-330BT**

The D-330BT is the premier model in the D-300 series and embodies all of the sophisticated design principles that went into the creation of the series. The microphone has a variable bass vs. distance contour and features two equalizer switches (3 pos. bass-rolloff, 3 pos. treble rise) for ultimate flexibility in tailoring response to specific voices and ambient acoustics. This hypercardioid mic comes with the SA-41 stand adapter and case.

AKG Price...\$250.00 U.S.

YOUR PRICE \$\_\_\_\_\_

The entire line of AKG microphones is available from Harris Allied.



**D-190E**

The D-190E features a smooth frequency response and uniform cardioid directional pattern that produces an open, effortless sound and relative immunity to feedback even under acoustically unfavorable conditions. The elastically suspended capsule greatly reduces sensitivity to handling noise and mechanical shock.

AKG Price...\$135.00 U.S.

YOUR PRICE \$\_\_\_\_\_



**C-414B/ULS**

The C-414B/ULS pressure gradient condenser microphone is a studio standard. A large diameter diaphragm capsule allows an exceptionally wide dynamic range and frequency response. A unique feature is the four selectable polar patterns on the mic. Thus, four different types of microphones are combined into one all-metal housing with a satin-black chrome finish. Three position bass-rolloff switch and three position attenuator switch. Low current consumption as well as low self noise. Includes foam windscreen, SA-18/3 clamp-type stand adapter and foam lined vinyl case. Unsurpassed for digital recordings.

AKG Price...\$1045.00 U.S.

YOUR PRICE \$\_\_\_\_\_

## ELECTRO VOICE



**635A**

The 635A dynamic omnidirectional is a rugged, durable microphone manufactured by Electro-Voice. The sound of the 635A is the standard against which other up-close omnidirectional vocal microphones are compared.

EV Price...\$139.00 U.S.

YOUR PRICE \$\_\_\_\_\_



**RE-50**

The RE-50 was designed expressly for hand-held ENG. It has the same tailored frequency response and high output level as the famous 635A. The RE-50 rubber shock mount "mike-within-a-mike" design achieves a degree of shock isolation never before known in the industry. The construction is also highly resistant to damage from mechanical shock.

EV Price...\$207.00 U.S.

YOUR PRICE \$\_\_\_\_\_

The RE-20 was created especially for critical recording, broadcast, and sound reinforcement applications which require response that extends to the frequency extremes. The RE-20 provides dynamic performance heretofore available only from the most expensive condenser microphones.

EV Price...\$525.00 U.S.

YOUR PRICE \$\_\_\_\_\_



**RE-20**

The new RE27N/D utilizes the variable-D design technology pioneered by the world class RE20 microphone.

The new RE27N/D not only utilizes the RE20 time-proven design but takes it one step further. Electro-Voice has now added N/DYM technology. N/DYM rare-earth super magnet delivers four times the power of conventional magnets. This results in a microphone with higher output and even wider frequency response, providing a high-performance version of the variable D design concept.

The RE27N/D's increased sensitivity is enhanced by switchable filters which enable the selection of either the flat, high-end response or a shelving emphasis above 4 kilohertz for enhanced vocal presence and the option of two low frequency roll offs.

N/DYM and variable-D are the ingredients of a perfect blend—the new RE27N/D.

PRELIMINARY



**RE-27N/D**

Harris Allied carries the entire line of EV microphones.





**Belden® listens  
to your  
audio needs.**

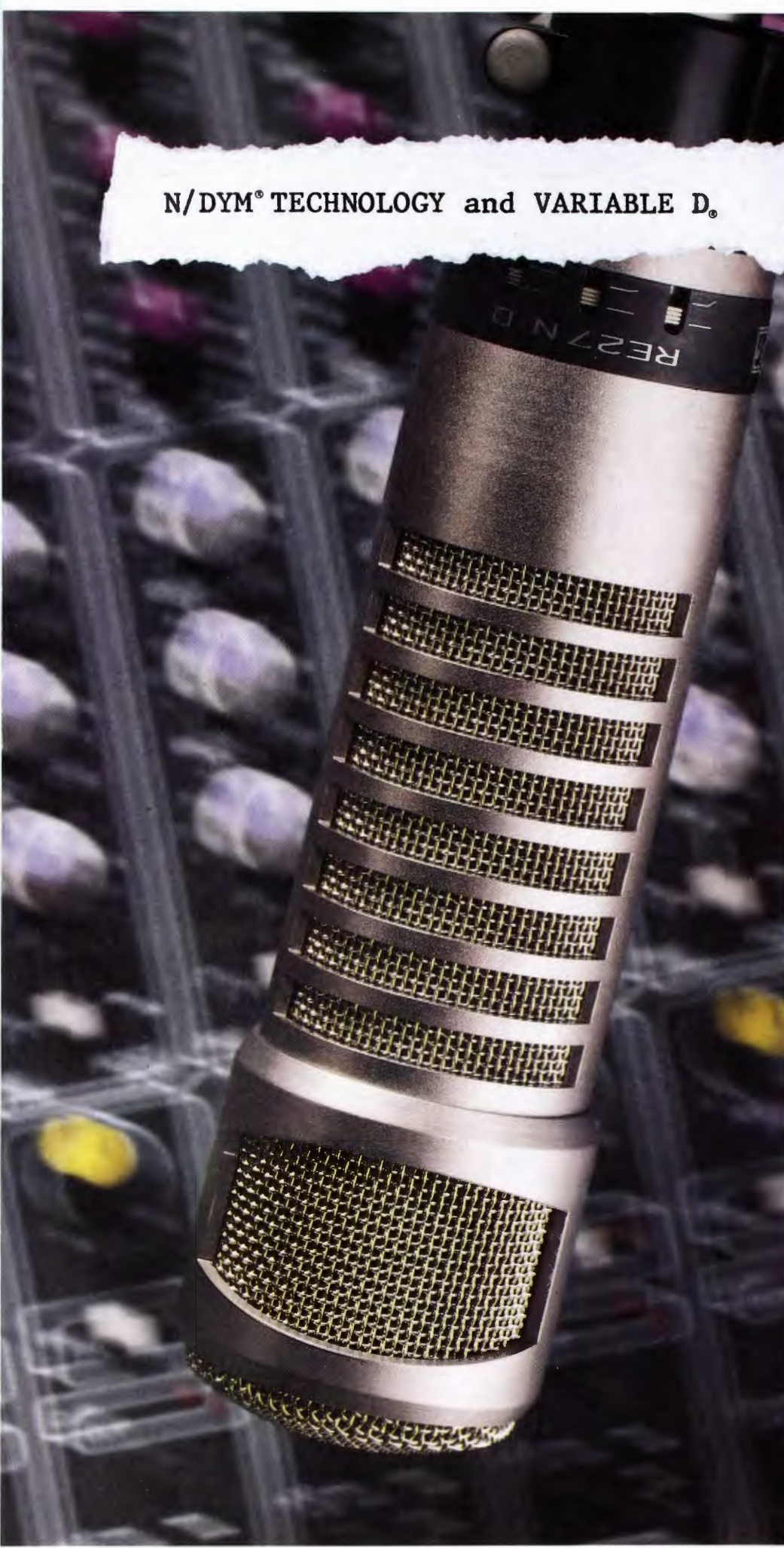
*See Page 59.*

**There is no equal.®**



**BELDEN**





N/DYM® TECHNOLOGY and VARIABLE D.

**THE RE27N/D**

**ONLY  
ELECTRO-VOICE  
COULD IMPROVE  
ON THE  
TRADITION  
OF THE  
RE-20**

*See Page 48.*



# MICROPHONES

**SENNHEISER**



## MD-421-U LC

From a whisper to a bang, this is the microphone which has become a broadcast standard. Ruggedly constructed to precision standards, the MD-421-U LC withstands hard use with Sennheiser's legendary reliability. Its pressure gradient dynamic transducers provide faultless performance both in the protected confines of the studio and the often hostile environment outdoors. Less cable. Shown in its new tailor-made shock mount, MZS100.

MD-421-U LC...\$439.00 U.S.      YOUR PRICE \$ \_\_\_\_\_  
 MZS100.....\$95.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



## MD-441-U

Standards set by Sennheiser's popular "421" are exceeded by the "next step up", the model 441. Featuring a built-in pop and blast filter, the 441 has the ability to withstand sound pressure levels beyond the threshold of pain. Supercardioid. Less cable.

Sennheiser Price...\$595.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

Harris Allied carries the entire line of Sennheiser microphones. These shown are merely representative.

## AUDIO TECHNICA



## AT 835

Harris Allied supplies Audio-Technica microphones to all types of radio and TV stations. Standard, shotgun or condenser, Audio-Technica mics are rugged and true to the original sound. Shown here is the AT 835 wide-range electret condenser line microphone with a unidirectional polar pattern specifically designed for long distance sound pickup.

Audio Technica Price...\$257.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

Harris Allied distributes the entire Audio-Technica line.

## EQUITEK II



There are two serious drawbacks to condenser mics: their unjustifiably high price and, technically, the current limiting imposed by 48 volt phantom power supplies.

Equitek engineers dedicated themselves to solving both.

The Equitek condenser microphone system achieves the silky transients previously available only in very expensive units. Equitek is less than \$600.

Use with any 48 volt power supply. Internal circuitry and enhanced power overcomes current limiting problems.

How good is it? One of our most-heard voiceover talents says that with the Equitek microphone, he can hear the bottom of his voice for the first time. The secret is out. Requires suitable shock mount & 48 volt P.S.

Equitek II...\$599.99 U.S.      YOUR PRICE \$ \_\_\_\_\_

## BEYER DYNAMIC



## M 59

The M 59 is a rugged vocal quality dynamic microphone designed to meet the critical demands of studio on-the-air or studio voice-overs while also meeting the rigors of on-location ENG/EFP news, sports, and conference applications. Other features of the M 59 are fast transient response for increased sonic accuracy; tailored frequency response for rich, crisp sound; internal shock mount reducing handling noise; hypercardioid polar pattern for superb gain-before-feedback; and non-glare Nextel finish. An optional WS 740 large cell windscreen is also available and recommended for on-air, voice-over and other close talking applications.

Beyer Dynamic Price...\$289.95 U.S.      YOUR PRICE \$ \_\_\_\_\_

# MICROPHONES

## SHURE



**SM-7**

The SM-7 designed in conjunction with professional users, is among the finest studio professional dynamic microphones in use today. Its "smooth and silky" sound has made it extremely popular for voice-over recording in radio and television. Announcers love its "mellow" sound. Less cable.

Shure Price . . . \$550.00 U.S.                      YOUR PRICE \$ \_\_\_\_\_



**SM-57**

The SM-58 is the world-standard professional stage microphone, with the distinctive Shure upper mid-range presence peak for an intelligible, lively sound. A tough, handsome microphone that weighs less than 11 ounces, the SM-58 is often imitated in appearance, but never duplicated in performance, ruggedness or reliability. Cable included. Also available is the SM-57, especially suitable for interview type use where "hand-a-bility" of the microphone is important. CN and LC variations for both models available.

Shure Prices starting at \$160.00 U.S.



**SM-84**

The SM84 condenser has been specifically designed to provide superior quality sound reproduction in professional broadcasting. It features a wide-range frequency response, specially tailored to provide more natural sound. The Shure-developed amplifier supplied with the SM84 is compact, lightweight and can easily clip onto a belt or fit into a pocket. It is powered by a standard, readily available nine-volt battery or by simplex power from an external source. The SM84 is unidirectional and otherwise identical to the omnidirectional SM83.

SM84 . . . \$300.00 U.S.                      YOUR PRICE \$ \_\_\_\_\_  
SM83 . . . \$248.00 U.S.                      YOUR PRICE \$ \_\_\_\_\_

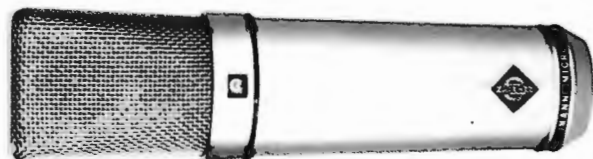
Call us for all your Shure microphone needs.

## NEUMANN

### U 87A

The solid state condenser microphone model U 87A is the best known and most widely used of the fet-80 series. The dual membrane capsule uses evaporated gold on polyester film which has proven to be the most heat and aging resistant material. Three switches are provided beneath the capsule itself: for selecting the three directional characteristics, frequency response and sensitivity. Its high frequency response is practically linear even in its cardioid and figure-8 positions.

U 87A . . . \$2475.00 U.S.                      YOUR PRICE \$ \_\_\_\_\_



## VEGA



The Vega SP-30 and REPORTER portable wireless microphone systems are ideal for ENG, on-location production, TV/film/commercial production, and general field use. The systems provide professional audio quality at a reasonable price. Specify frequencies when ordering transmitters or receivers. (Frequency range is 150 to 216 MHz.) The necessary accessories for completing your system are also available from Harris Allied.

Price on Application

## TELEX



The professional Telex wireless system transmits the microphone signal via FM radio transmission to a receiving station. The user of the microphone is thus able to move without the encumbrance or limitations of a microphone cable. Telex wireless systems are radio's favorites. A broad combination of transmitters and receivers in several price ranges are available from Harris Allied.

Price on Application



# HEADSETS

**AKG**



**K141M**



**K240M**



**K18**



**K270**

The K141M, an ultraspaceous, dynamic supra-aural professional monitoring headphone is capable of high sound pressure levels while maintaining low distortion and wide bandwidth. Features AKG's patented self-adjusting headband. Matches 4-600 ohm outputs.

AKG Price...\$100.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

The K240M monitor headphone is an established professional standard in the studio. This deluxe circumaural stereo headphone provides better directional sound perspective and distance discrimination, faithfully simulating hearing in natural room conditions. Matches 4-600 ohm outputs. Also available in a calibrated variation, the K240DF studio monitor, which is designed with a flat frequency response based on European requirements for a reference monitor headphone.

K240M...\$120.00 U.S.      YOUR PRICE \$ \_\_\_\_\_  
K240DF...\$150.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

The K-18 is an ultra-lightweight boom set. It consists of two monophonically connected dynamic earphones and boom arm with noise-cancelling dynamic microphone. The headphone matches with 4 to 300 ohm outputs and comes with a 3 1/4 ft. cable with stripped and tinned leads.

AKG Price...\$85.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

The new AKG K270 headset with microphone is as professional as they get. Headphones feature a frequency response of 20 to 20,000 Hz and a system impedance of 75 ohms. Headphones are closed for maximum noise attenuation.

The user may choose from a condenser or a dynamic mic element. Call us for complete information and a comprehensive brochure.

Preliminary

## ASTROLITE



**2636-G1**



**2637-G1**

The 2636-G1 features ear-enveloping cushions which provide attenuation for use in noisy environments. The close-talking dynamic mic equals the performance of studio microphones—even in high ambient noise levels. Comes with ventilated or standard earphone cushions. Ventilating cushions optional.

The 2637-G1 has a noise cancelling electret mic with performance equalling fine studio microphones. Its noise cancellation properties make it suitable for use in noisy environments. The 2637-G1 features phantom or battery power.

2636-G1...\$239.00 U.S.      YOUR PRICE \$ \_\_\_\_\_  
2637-G1...\$359.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

## BEYER DYNAMIC

The DT 108K is a dynamic, single-muff headset with built-in dynamic boom mic (200 ohm). Designed for live remote broadcasting. The headphone is the well known DT 100 which is extremely lightweight and comfortable to wear even over long periods of time. The headphone transducers feature extended frequency response and are virtually impossible to overload. Left and right channels may be independently wired so that one channel can be used for studio talk back and the other for program monitoring, etc. The ear cushions, which effectively attenuate external sounds, can be removed from one or both sides if some background ambience is required. DT 109K same as the DT 108K in a dual-muff configuration.

DT 108K...\$193.00 U.S.      YOUR PRICE \$ \_\_\_\_\_  
DT 109K...\$209.95 U.S.      YOUR PRICE \$ \_\_\_\_\_



**DT 108K**



**DT 109K**

# HEADSETS

## SENNHEISER



**HD 490**

The new HD490 offers true high-fidelity sonic performance in a durable, yet elegant European design. Like its more expensive siblings, the new HD490 incorporate: neodymium-ferrous magnets, radial bead diaphragm, field replaceable parts, 10 ft. stranded steel cable with stereo mini to ¼" adaptor plus. Digitally compatible. Frequency response—20-22,000 kHz; Impedance—70 ohms; Sensitivity—94 dB; distortion—<1%; 4.8 oz. weight less cable.

Sennheiser Price... \$119.00 U.S.      YOUR PRICE \$\_\_\_\_\_



**HD 450**

Successor to the HD 414 Series, the single best-selling headphone in the world. Open-Aire design, HD 450 provides higher output and improved accuracy using neodymium-iron magnets. Supplied with 10-ft. stranded-steel cable (mini to ¼" phone adapter incl.). Frequency response—20-20,000 Hz; impedance—70 ohms; sensitivity—94 dB; distortion—≤1%; 4.8 oz. weight without cable.

Sennheiser Price... \$89.00 U.S.      YOUR PRICE \$\_\_\_\_\_



**HD 560**

The HD 560 Ovation digitally compatible is a Sennheiser headphone that sets new standards. It features neodymium-ferrous magnets and extremely lightweight aluminum drivers plus a new diaphragm design incorporating high grade silk, all combining to create a new experience in transparency of sound. The ear cushions fully surround the ear and are designed to keep the diaphragm from it. Replaceable 10-ft steel stranded cable with ¼" stereo phone plug. Frequency range—16-30,000 Hz.

Sennheiser Price... \$269.00 U.S.      YOUR PRICE \$\_\_\_\_\_



**HMD 224**

The super directional characteristics of the microphone make the HMD 224 system highly suitable for sporting events with close-crowd noises. Headphone response extends from 16 Hz to 20 kHz. Comfort is aided by a total self weight of only 12.7 ounces.

Sennheiser Price... \$295.00 U.S.      YOUR PRICE \$\_\_\_\_\_

## KOSS



**PRO 4AA**

The Koss Pro 4AA... brought back by popular demand! Studio and broadcast professionals have long preferred the full frequency deep bass sound of Koss' professional headphones. Foam-filled Pneumalite earcushions provide a tight seal that totally isolates the listener from distracting outside sounds and irritating feedback. 1" voice coil. Extended range for precision monitoring. Lifetime warranty.

Koss Price... \$99.95 U.S.      YOUR PRICE \$\_\_\_\_\_

## FOSTEX



**T-20**

Performance and comfort have made the Fostex T-20 a standard in the broadcast industry. The RP system assures superior performance, while oversized earpads and a fully adjustable headband assure comfort, even after hours of continuous use. Impedance—50 ohms, at 1 kHz, sensitivity—96 dB at 1 mW input, frequency response—20-30,000 Hz, 10.5 oz. weight without cord.

Fostex Price... \$99.00 U.S.      YOUR PRICE \$\_\_\_\_\_

## TELEX

The PH Series is an extremely comfortable, lightweight boom mike headset for on-the-air announcers and sportscasters. It features a unique differential microphone that produces a polar pattern to help create sound equal to a controlled studio set-up. Quality dynamic earphones utilize an ultra-thin mylar diaphragm, a precision wound fine copper voice coil, and a rare earth samarium cobalt magnet. A small, multi-function in-line power package with belt clip provides true balanced line audio output for maximum system compatibility and lowest noise.

CALL FOR YOUR PRICE

Harris Allied also supplies the complete line of Telex earsets, twin set and mono set components.



**PH-24**



# SPEAKERS

## ELECTRO-VOICE



### SENTRY 100A

### SENTRY 500

The Sentry 100A is a no-nonsense monitor speaker for the professional. Extended low frequency response, high efficiency and high power capacity make the Sentry 100A the ideal choice for digital or analog monitoring. The constant directivity design provides more uniform dispersion for full frequency response over a wider area. A high power SUPER-DOME™ tweeter and long throw 8" woofer are housed in a compact enclosure that is rackmountable. Shipping Weight: 33 lbs. Also available is an amplified version, the Sentry 100EL. Shipping Weight: 37 lbs. 17¼"H x 12"W x 11½"D. Rackmount optional.

Offering superior low frequency response, the Sentry 500 speaks to the needs of professionals with specific requirements. The larger brother of the highly successful Sentry 100A, the Sentry 500 is designed to combine constant directivity, very low frequency response, efficiency and high power handling in a well thought out package. Also available is the Sentry 505, a downward angled version of the Sentry 500.

Sentry 100A . . . \$317.00 ea. U.S.      YOUR PRICE \$ \_\_\_\_\_  
 Sentry 100EL . . . \$659.00 ea. U.S.      YOUR PRICE \$ \_\_\_\_\_

Sentry 500 Price . . . \$627.00 ea. U.S.      YOUR PRICE \$ \_\_\_\_\_  
 Sentry 505 Price . . . \$627.00 ea. U.S.      YOUR PRICE \$ \_\_\_\_\_

## JBL



### 4400 SERIES

JBL's 4400 series studio monitors achieve a new "truth" in sound with an extended high frequency response that remains effortlessly smooth through the critical 3,000 to 20,000 Hz range. And even extends beyond audibility to 27 kHz, reducing phase shift within the audible band for a more open and natural sound. The JBL 4400 studio monitor series captures the full dynamic range, extended high frequency, and precise character of your sound as no other monitors in the business.

4406 . . . \$250.00 ea. U.S.      YOUR PRICE \$ \_\_\_\_\_  
 4408 . . . \$325.00 ea. U.S.      YOUR PRICE \$ \_\_\_\_\_  
 4410 . . . \$495.00 ea. U.S.      YOUR PRICE \$ \_\_\_\_\_  
 4412 . . . \$750.00 ea. U.S.      YOUR PRICE \$ \_\_\_\_\_



### CONTROL 1

### CONTROL 5

The JBL Control 1 is a high performance personal monitor loudspeaker. Incorporating a 5½" low frequency loudspeaker, ¾" high frequency radiator and high performance dividing network, the Control 1 provides full-range, low distortion reproduction in a variety of applications. Compact and durable, the Control 1 mounting versatility is enhanced by a complete line of installation accessories. Wall mounting brackets are available for permanent attachment to any rigid surface. A clamp mounting system is available for semi-permanent attachment to a wide variety of structures.

The JBL Control 5 is a high performance, wide range control monitor suitable for use as the primary sound source in a variety of applications. Molded of dense polypropylene foam, the Control 5 enclosure offers a pleasing shape that fits easily into any environment. Wall, ceiling, rack and tripod mounting systems allow positioning of the system in exactly the right spot for optimum performance. A 6½" low frequency driver provides solid, powerful bass response to 50 Hz. High frequency response to 20 kHz is handled by a pure titanium 1" dome.

JBL Price . . . \$250.00 pair U.S.      YOUR PRICE \$ \_\_\_\_\_

JBL Price . . . \$395.00 pair U.S.      YOUR PRICE \$ \_\_\_\_\_

# SPEAKERS

## ALC



### 10302 ANNOUNCER

The Announcer full range loudspeaker is the ultimate in performance in a compact size. The wood cabinet is covered in walnut-grained vinyl and is perfectly square. As with all ALC loudspeakers, the grille snaps away and the system has an overall fuse. The high-compliance full range transducer produces quality sound from below 60 Hz to beyond 15 kHz. 7 $\frac{1}{2}$ " cubed. Shipping Weight: 9 lbs.

ALC Price...\$59.00 ea. U.S. YOUR PRICE \$\_\_\_\_\_

## AURATONE



### 5CVW

Auratone's 5CVW recording/broadcast standard mixdown/comparative monitors and extension speakers feature walnut woodgrain vinyl finish and black foam grille. The little powerhouse. They tell exactly what's going on. 6 $\frac{1}{2}$ " cubed. Shipping Weight: 10 lbs.

Auratone Price...\$103.00 pr. U.S. YOUR PRICE \$\_\_\_\_\_

## HEMISPHERE



### MM-3

The Hemisphere MM-3 speaker system was designed for the select few who strive for perfection in sound recreation. Offering flat response, phase-aligned, efficiency and accuracy in recording, mixing and playback. Basic drivers are one 1" HF dome and two 5 $\frac{1}{4}$ " LF cones handling 100 watts continuously and 160 watts peak.



### 20306 MONITOR

The Monitor loudspeaker system provides a flat response from below 50 Hz to beyond 20 kHz. Its high compliance surround on the 8" woofer and phenolic tweeter combine to enhance any type of music. The tweeter control and the system fuse are behind the snap-away grille. It will handle 25 watts RMS continuous, 45 watts integrated program material at 8 ohms. 19 $\frac{1}{2}$ "H x 11"W x 7 $\frac{1}{4}$ "D. Shipping Weight: 24 lbs.

ALC Price...\$124.00 ea. U.S. YOUR PRICE \$\_\_\_\_\_

## FOSTEX



### 6301B

The 6301B all-purpose powered monitor speakers are completely self-contained. The sound is delivered from a full-range speaker that's surprisingly flat and accurate. It is designed to handle the complex waveforms of complete songs. You get a frequency response of 80 Hz-13 kHz. The built-in 10-watt (RMS, into 8 ohms) amplifier will handle anything you feed it. A separate external speaker jack is also provided. 7 $\frac{1}{8}$ "H x 4 $\frac{3}{4}$ "W x 5"D. Shipping Weight: 6 lbs. Optional wall bracket and rack mounting available.

Fostex Price...\$350.00 pr. U.S. YOUR PRICE \$\_\_\_\_\_

## TOA



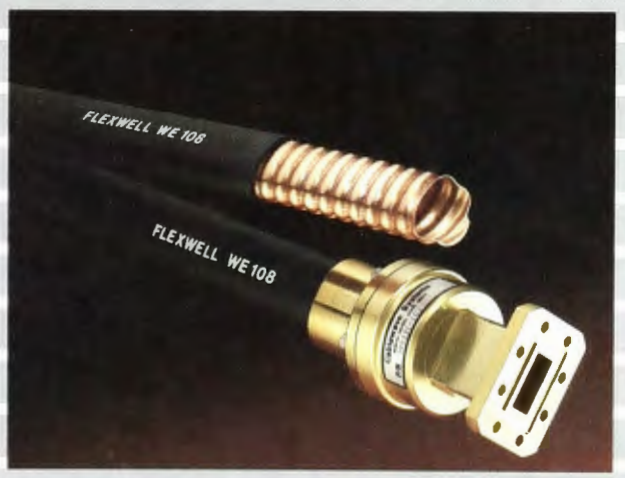
### 22-ME-AV

The TOA 22-ME-AV is a compact system that incorporates a full-range, five-inch cone speaker; 120 watts power at 8 ohm; smooth, extended frequency response (100 Hz to 17 kHz). Magnetically shielded. Enclosed in an attractive 6.7" x 6.7" x 5.8" wooden cabinet with a scratch-resistant, charcoal-gray finish. Weighs 5.1 lbs. Its compact size makes it a natural for console-top monitoring. Optional mounting brackets available.

TOA Price...\$79.00 each U.S. YOUR PRICE \$\_\_\_\_\_



# **FLEXWELL<sup>®</sup> RF & Microwave Transmission Line Products**

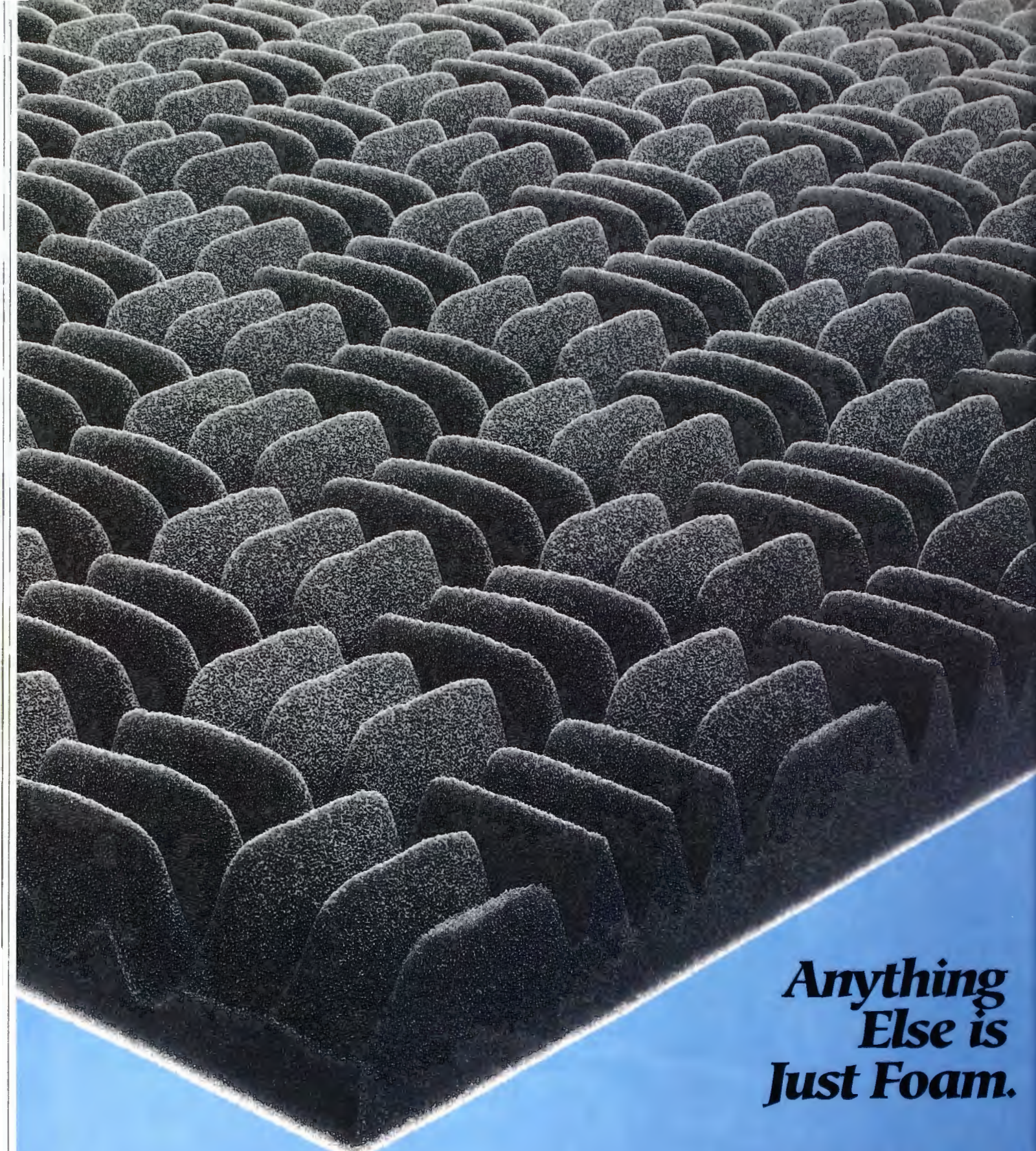


*See Pages 121 and 145.*

As partners in total quality,  
Cablewave Systems is committed  
to delivering the highest quality  
RF products available.

**RFS Cablewave Systems**  
Division of Radio Frequency, Inc.





*Anything  
Else is  
Just Foam.*

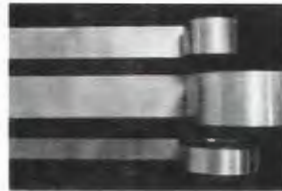
**SONEX**  
By illbruck

**See Page 75.**



# STUDIO ACCESSORIES

**ALLIED**



## COPPER PRODUCTS

Harris Allied, being the broadcast industry's major supplier of copper, offers you #8 and #10 ground radials, .020 or .032 2", 3", 4", 6" and

8" strap, flyscreen and groundscreen. Due to fluctuating market, call us for current pricing.

## SPOOL TOOL

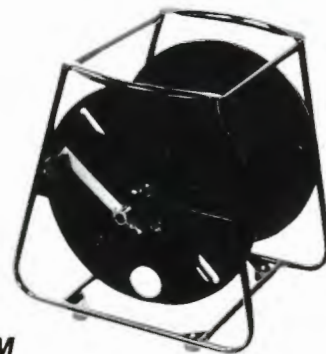


### SPOOL TOOL

Great for mic, coax, and electrical cable. Spacers included will adapt your Spool Tool Sr. Model 105 core from 1½" wide to 3" wide. Handles and all hardware are included. Easy to assemble. Made of high impact polyethylene plastic. Spool Tool is lightweight, easy to clean and never rusts.

Model 103 Jr. (11½" dia.) ...\$10.95 U.S. YOUR PRICE \$ \_\_\_\_\_  
 Model 105 Sr. (15½" dia.)...\$14.95 U.S. YOUR PRICE \$ \_\_\_\_\_

## KEITH MONKS



### CABLE DRUM

Top-of-the-line quality Keith Monks cable drums are available in two core sizes: 3½" and 9". With capacities and shipping weights of 164' of ½" cable, 14 lbs. and 338' of ¾" cable, 34 lbs. respectively, these cable drums are sure to satisfy your station's broadcast cabling storage needs.

Prices on Application

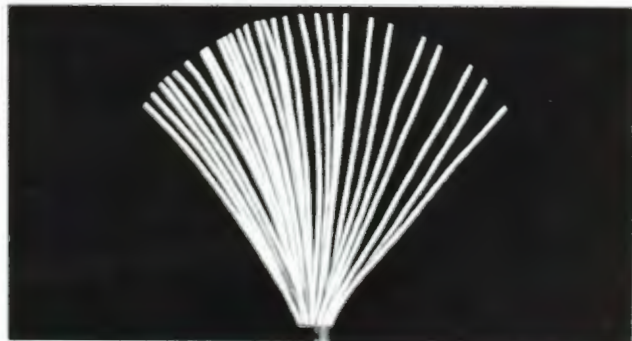
## BELDEN



### 8451

Belden is recognized as the leader in the wire/cable/cord industry and manufactures thousands of different electronic cable and cord constructions utilized in a vast assortment of applications. Belden Black 8451 is especially popular with broadcasters as well as 8723.

The recently introduced 1192A mic cable is also sure to become a favorite. See page 49. With Belden in our "backyard" we offer you the world's largest inventory of wire/cable/cord available to anyone, anywhere.



### 1200 SERIES

Belden's 1200 Series of multi-conductor snake cable features individually shielded and jacketed pairs. These cables interconnect audio components such as console board equipment for the broadcast industry. The loose tube construction allows for high flexibility while the PVC outer jacket features an over all non-reflecting black matte finish for a low profile appearance. The PVC inner jackets are numbered for ease of identification.

Prices on Application

IN CANADA CALL 800-268-6817

**HARRIS ALLIED**

Specifications subject to change or revision

**59**

# STUDIO ACCESSORIES

**GEPCO**



**SINGLE PAIR  
AUDIO CABLES**

Gepeco International has adopted and lives by the slogan "Coming Through Loud and Clear™"

Gepeco, one of the best kept secrets in broadcasting, stocks virtually every configuration of wire and cable the broadcaster needs which complies with the latest national electrical code and UL listings.

Audio cables include GA618 multi-pair series, 618 single-pair series, GA724 multi-pair series and GA803 thin profile multi-pair series all for the broadcaster.

Additionally, Gepeco manufactures and stocks speaker cables, microphone cables, special sound and data cables and conventional multi-conductor and multi-pair shielded and unshielded cables.

Gepeco is also a primary source for composite video and audio cables, studio set lighting cable which meet NEC articles 400, 520 and 530 (UL 2000 volt).



Gepeco will also assemble your custom needs in coaxial, twinaxial, tri-axial and multi-conductor assemblies.

The Gepeco Breakout Box for stage and field applications has become a standard for those industries. Be sure to ask about the Gep-pak reeless one-man pay out system which speeds installation many times over.

Gepeco cable products are designed, developed and proven for the professional technician. Gepeco is immediately available from Harris Allied.

Prices on Application

**WEST PENN**



Put some color into your life by using West Penn easy to strip color shielded cable. A particular favorite of broadcasters is #291 two conductor twisted pair shielded cable. #291 comes in 22 AWG stranded with a 24 AWG drain wire with insulation colors of white, red, brown, black, yellow, green, gray, blue, violet and orange. This product is comparable to the leading manufacturers, but at reduced prices. The CL2 series is also offered through Harris Allied.

The entire West Penn line is on a very competitive price structure.

Call for today's price.

**BROADCAST CIRCUIT SYSTEMS**

WC series standard microphone cables come completely assembled with super-flexible star quad 4 conductor braided shield cable and include 1 each Switchcraft A3F and A3M XLR type connector installed, wired in the IEC standard configuration for this type connector or XLR female to 1/8" mini. All WC series cables are available in black, blue, brown, grey, green, orange, purple, red, yellow, white. Standard lengths are 5, 10, 15, 25, 50, 75, and 100 feet. Other lengths and colors available upon special order.

Prices on Application





# STUDIO ACCESSORIES

## ALLIED TERMINATION SYSTEM

Harris Allied can offer everything you need to establish a type of punch block wiring system in your studio or office.

Call for today's price on other termination components including SA-1 bridge clips, EOE crimp tools, snap-in wall mounts, wire and cable hangers.



### 66 SWITCHPAD

The 66 SwitchPad features compact plug-in switch selectable attenuation that insulates direct wire spin (DMS) type connecting blocks for precise frequency or establishing circuit overload under voice or data circuits. Spare wiring for SwitchPads provide 60 to 11 dB attenuation in 1 dB steps.



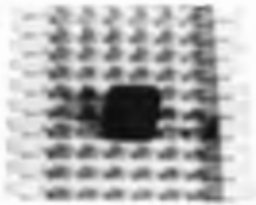
### S66MT PUNCH TOOL

For punch block wiring applications, these tools are the most efficient method utilized. See MT crimp, loaded. See BT manual for details.



### 66 PUNCH BLOCKS

The 66 punch blocks are the easiest way to accomplish complex wiring systems. Available for efficient voice, data connected equipment or other types of wiring installations. See BT 75 group of 4 clips & 2 See BT 76 group of 3 clips & 2 See BT 20 group of 3 clips & 2.



### D PADS

When used in conjunction with the Allied 66 punch block provides a secure 1/2" x 1/2" (12.5 x 12.5) dB attenuation.



### ST CONNECTOR

Each punch block back up is available with the standard or the 66 dB connector.

## AUDISAR



Audisar provides all needed TRS and 2-pin jacks (standard) and optional connecting cable assemblies.

Audisar Price: MT 21 (1) \$ 114.8 200 (1) \$

## SWITCHCRAFT



### A3M and A3F

These 3/8" diameter precision machined 1/4" long aluminum connectors are used for audio, video and data applications. They are available in standard and optional configurations.

Call for current prices.

Equipment and services offered by Harris Allied Broadcast Equipment are based on the terms and conditions of sale published at the end of this catalog.

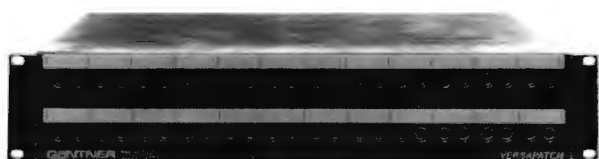
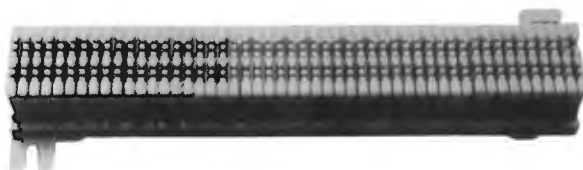
# STUDIO ACCESSORIES

**GENTNER**

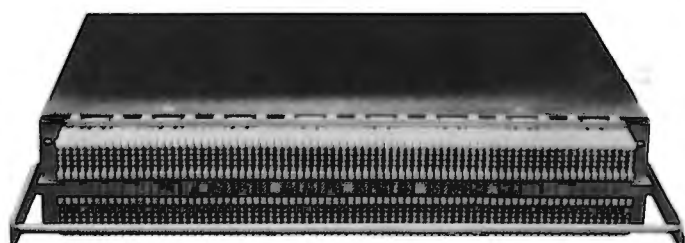
## FLEXIBLOCK

The Gentner Flexiblock is an insulation-displacement punch block system made specifically for stranded wire. Connections to Flexiblock are fast, easy and reliable. A high number of connections may be made in a small space (up to eight connections per circuit) and connections are virtually short-circuit proof.

FB100 .....\$29.00 U.S. YOUR PRICE \$ \_\_\_\_\_  
 Miniblock FB10, 1x20 terminals, 2 slots per terminal  
 (2"L x .93"H x 1.75"W) ...\$7.69 U.S. YOUR PRICE \$ \_\_\_\_\_



front view



VERSAPATCH

rear view

Flexiblock makes Versapatch the most versatile, flexible prewired patch panel you can buy. Gentner's Versapatch is a prewired patch panel enclosed in a chassis. Stranded wire cables are terminated on Flexiblock punch blocks to provide a high density of punch down connections with ultimate reliability. Individual designation strips allow you to change one circuit's designation quickly and neatly - no need to remove

and re-do an entire row's designation for one change. Versapatch is available with tip-ring sleeve jacks; normals are jumpered at bay or top-row bridged (half-normaled) for monitoring capability. The Flexiblock termination on Versapatch is color-coded and numbered for easy reference. Strain relief bars are provided for cable tiedown.

## EASYTERM

Make your next wiring project easier. Gentner's EasyTerm™ is the easy way to terminate wires in an equipment rack. EasyTerm panels mount anywhere in a rack, front or rear, and can swing open for easy access to your equipment. Multiple EasyTerm units may be ganged together and opened as one unit. Cables are routed to EasyTerm from inside your rack, eliminating the cluttered look of external cables. An optional kickbar holds EasyTerm open for routing of cables while providing a sturdy base for punch-down of wires. EasyTerm can mount in the rear of a rack, and swing out of the way for easy access to your equipment.

EasyTerm/FB: The EasyTerm/FB uses 2 rows of Flexiblocks, providing 320 terminals, with 2 slots per terminal.

EasyTerm/66: The Easy Term/66 replaces the Flexiblock rows with a 66B375 block for termination.

Prices on Application



**EasyTerm/FB™**

Hinged for easy access to inside of rack. (Occupies 2 rack units)

Cables enter through panel for clean, easy installations.

Heavy gauge steel provides sturdy base.

160 terminals, 8 connections per terminal. Equivalent to 3.2 Flexiblocks.

Stranded or solid wire may be used.



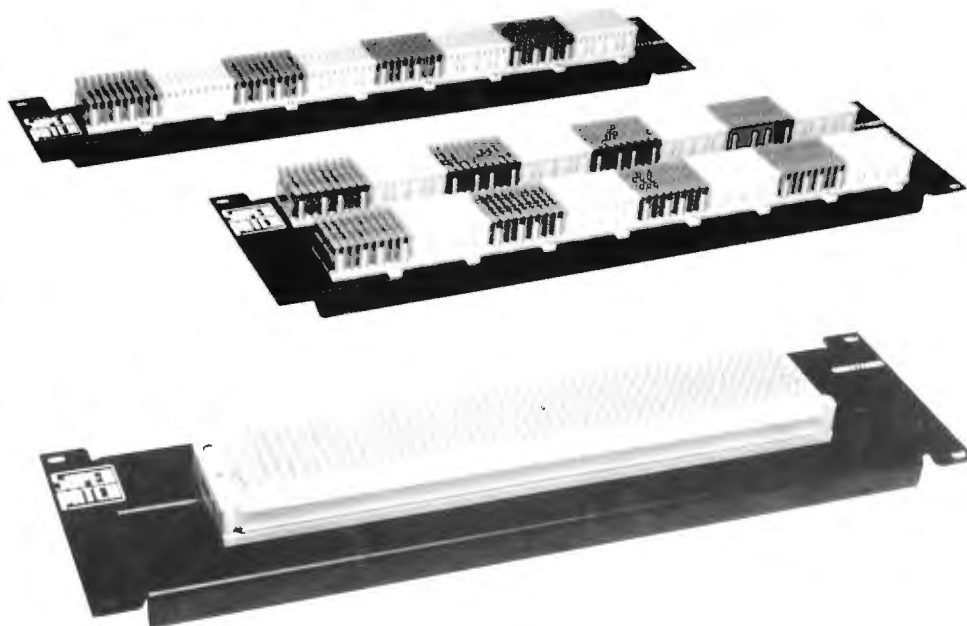
### SUPERPATCH

The Gentner SuperPatch termination system defines the superior method for mounting either Flexiblocks or 66 style punch blocks in a rack. The SuperPatch is non-hinged to provide more space to route wiring. Three configurations are available:

**SuperPatch/1 (SP/1):** The Superpatch/1 uses 1 row of Flexiblocks on a 3½" panel, providing 160 terminals with 2 slots per terminal (equivalent to 1.6 Flexiblocks).

**SuperPatch/2 (SP/2):** The Superpatch/2 uses 2 rows of Flexiblocks on a 5¼" panel, providing 320 terminals with 2 slots per terminal (equivalent to 3.2 Flexiblocks).

**SuperPatch/66 (SP/66):** The SuperPatch/66 uses a single 66B375 punch block on a 5¼" rack panel. Other 66 blocks are available on special order.



The Gentner pre-wired patch panel allows you to specify exactly the composition configuration you need for your application by selecting from four (4) bay types, three (3) normals, nine (9) terminations plus cable and bundle length. Gentner patch panels are *handwired*, using soldered connections at the jack, 22-gauge shielded pair stranded wire, and your choice of termination.

Patchbay configurations available:

48 jack 2⅝" rack height (two rows of 24)

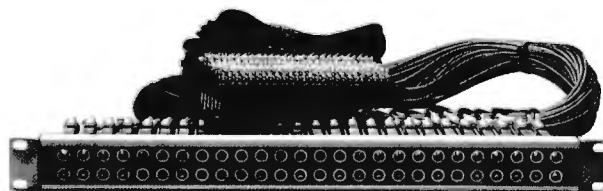
52 jack 1¾" rack height (two rows of 26)

24 jack 1¾" rack height (single row)

96 jack 1¾" rack height (2 rows of 48 bantam)

Though many models are available, the following double row (DR) models are most common:

Jack Type	Normals	Termination	# Jacks	Part Number
T-R-Slv	At Bay (AB)	XT	48	DR-48-TRS-AB-XT
T-R-Slv	At Bay (AB)	PU	48	DR-48-TRS-AB-PU
T-R-Slv	At XT	XT	48	DR-48-TRS-BO-XT
T-R-Slv	At PU	PU	48	DR-48-TRS-BO-PU



Terminations:

**XT:** Christmas tree termination. Christmas trees - ADC#PJ-660-6.  
# of terminals - 6 x 26

**PU:** Punch block termination. Punch blocks - Siemens #66B375.  
# of terminals - 3 x 75

**NT:** No termination, numbered cables. Stub ends - Numbered pairs with heatshrink over numbers.

**BB:** 24 terminal barrier blocks. Barrier blocks - TRW #24-140 or functional eq. # of terminals - 24.

**CT:** Custom - Any termination will be factory wired. (Termination is supplied by customer.)

**FB:** Wired to the Gentner Flexiblock punch block.  
# of terminals - 1 x 50

**ET/FB:** EasyTerm/FB. Equivalent to 3.2 Flexiblocks on a 3½" hinged rack panel.

**ET/66:** EasyTerm/66. Uses a 66B375 block on a 3½" hinged rack panel.

**SP:** SuperPatch. One or two rows of Flexiblocks on a fixed 3½" or 5¼" non-hinged rack panel.

**SP/66:** SuperPatch/66. A 66B375 block on a fixed 5¼" rack panel.

Gentner custom patch panels also available through Harris Allied. Your price must be quoted due to variables.

Harris Allied carries the entire Gentner line.

You will find their products in various locations in this catalog.

# STUDIO ACCESSORIES

**ADC**



ADC's Pro-Patch jackfield is truly state-of-the-art, incorporating the split cylinder contacts. Pro-Patch units are reusable and especially suited for remotes, special broadcasts and advance builds, with the ability to change circuits and normalling configurations in seconds.

Ultra-Patch panels, another innovative product utilizing ADC's split cylinder technology, were designed to provide yet another set of options for audio patching and interconnect requirements. Ultra-Patch panels can be terminated at the factory to any of ADC's standard or custom jackfields and may be rack or wall mounted.

ADC's standard line of audio jackfields feature an extensive selection. Choice of jacks, panel size, normal line options, cable length (3 to 8 feet) and variety of terminations (stub end with leads identified or ADC's ultra patch panel) combine to give you more than 280 possible configurations.

All ADC products are available pre-wired or unwired.

Prices on Application

## ENERGY CONTROL

### EQ2

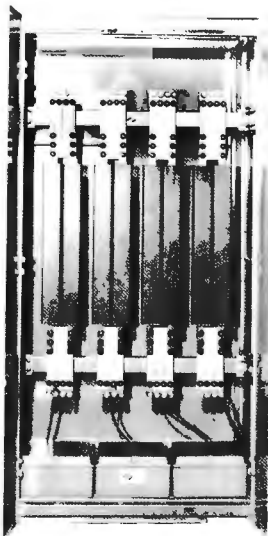
Your sensitive electronic equipment is bombarded daily by damaging AC power spikes, surges, and noise interference. These common power line disturbances caused by power switching, lightning, motor and fluorescent light operation can cause data memory loss, chip and circuit damage, data transfer errors and equipment failure! A single large surge can destroy your computer or telephone system, medium intensity spikes cause cumulative damage and eat away at electronic circuits and chips which result in early equipment failure. Eliminate these costly powerline problems.

EQ2... \$59.00 U.S.

YOUR PRICE \$ \_\_\_\_\_



## CONTROL CONCEPTS



### ISLATRON

From 5 amps to 1200 amps, Islatron supplies protection for all kinds of broadcast equipment. Islatron effectively stops lightning induced voltages, spikes and transients in their tracks. Protected by four U.S. patents, no other device works or protects like Islatron.

Prices on Application



## MA-4X

The MA-4X (MXP) is the latest in semi-conductor based, high performance transient voltage surge suppression equipment for service panel use up to 1200 amps. 5 pin remote plug. Single and three-phase models of all protection types and sizes are available.

Price on Application

## DPI

The easy way to sensitive equipment protection is EFI's DPI plug-in series. Integrated LEDs alert the user to reverse polarity, ground voltage, no ground, suppression status and power status.

Price on Application

## MA-5

EFI's MA-5 with remote supervision capability responds to potentially harmful voltage transients in less than 1 nano-second. 5 pin remote plug. Models include single- and three-phase in models exactly suited to your needs.

Price on Application

## SUPPRESSION STRIP

Six outlets, all protected for use with sensitive electronic equipment. Same status indications as DPI series.

Price on Application

# AUDIOMETRICS

## PLM

Eliminate power surges and voltage spikes that can damage your equipment and receive clean, uninterrupted, EMI/RFI noise-filtered power. A digital voltmeter is standard on both models PDM and PLM to allow continuous monitoring of power levels. Consolidate all of your electrical connections into one convenient package with one of four Audiometrics models. Models PDL and PLM are equipped with two slide-out swivel rack lights that illuminate an entire rack of equipment with shadow-free light. All four power distribution units have eight switched U-grounded AC outlets and two unswitched outlets for convenient power hook-ups.

PDL . . . \$156.00 U.S.  
PLM . . . \$244.00 U.S.

YOUR PRICE \$ \_\_\_\_\_  
YOUR PRICE \$ \_\_\_\_\_

# ATI

## P-1000

The ATI P-1000 Micro Amp Series features high gain, low noise and flat frequency response. Mounting brackets are supplied for internal turntable cabinet mounting.

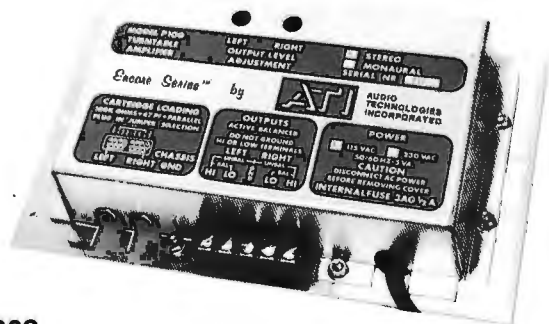
P1000-1 Dual/Stereo Transformer Outputs . . . . . \$395.00 U.S.  
YOUR PRICE \$ \_\_\_\_\_

P1000-2 Dual/Stereo Balanced Differential Outputs . . \$375.00 U.S.  
YOUR PRICE \$ \_\_\_\_\_

## P-100S

ATI's Encore P-100S features top quality at great pricing. 80 dB signal-to-noise ratio with a maximum output of +18 dBm. The P-100's output is active balanced. Stereo.

ATI Price . . . \$279.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



# STUDIO ACCESSORIES

## HARRIS



### PX-91

The Harris PX-91 Mastering Quality phono preamp is designed to give excellent audio fidelity for dual mono or stereo operation. Faithful reproduction of even the most demanding disc cuts is assured with extremely low transient intermodulation and dynamic distortion. The PX-91 is designed for high accuracy equalization, excellent transient response, and low noise. Conservative operation of all components provides high reliability.

## HENRY

### UTC

The Universal Turntable Controller (UTC) by Henry is a remote control interface device that allows full remote control of popular direct-drive turntables, such as Technics SP15, SP25, SL1200MKII, and Russco RT-700. The UTC easily connects to the turntable with just three wires, and provides CMOS/contact closure compatible outputs for separate START and STOP switches plus RUN and STOP tally lamps. One UTC will control two turntables.

Henry Price . . . \$195.00 U.S.

YOUR PRICE \$ \_\_\_\_\_



## AUDIOMETRICS



### TP-84

The Audiometrics TP-84 follows the RIAA curve to within 1 dB in its entire bandwidth while maintaining a signal to noise level of 70 dBm. Distortion figures of .08% make the TP-84 transparent to your turntable cartridge. Bracket mount included.

Audiometrics Price . . . \$289.00 U.S.

YOUR PRICE \$ \_\_\_\_\_

## STANTON



### 310B

The Stanton 310B preamp features universal mounting by special brackets, instant selection of flat or NAB post-emphasis curves, switchable effective rumble filter, individual adjustment of gains and high frequency responses, trimming of the capacitive cartridge loading at the input and immunity to external magnetic AC fields.

Stanton Price . . . \$225.00 U.S.

YOUR PRICE \$ \_\_\_\_\_

## RUSSCO



### FIDELITY-PRO

Fidelity-Pro is available with balanced or unbalanced output. The Fidelity-Pro units feature switchable high and low frequency filters. The balanced output models include highest quality transformers for true line isolation.

FPSB stereo balanced 600 ohm output . . . . \$339.00 U.S.

YOUR PRICE \$ \_\_\_\_\_



# STUDIO ACCESSORIES

## AUDIOMETRICS

### SA-240E IV

We searched markets worldwide for the last tonearm you will ever need. Accuracy and superior handling are what you asked for. A calibrated grams scale, anti-skate and a gentle lift/place mechanism are features you wanted. The Audiometrics SA-240E IV is our answer to your requests, wants and needs. Specify tracking of 0-3 or 0-6 grams.

Audiometrics Price, 0-3 grams...\$129.95 U.S.  
Audiometrics Price, 0-6 grams...\$139.95 U.S.



## AUDIO TECHNICA

### ATP-12T

The ATP-12T fits a wide range of turntable heights and base thicknesses. Its sealed horizontal and vertical ball bearing pivots assure professional handling. An accurate VTF gauge is built in...no accessory gauge is needed. The ATP-12T tracks cartridges at 0-5 grams. Combined armrest and armrest mount sold only as a package.

Audio Technica Price...\$275.00 U.S. YOUR PRICE \$\_\_\_\_\_



## SHURE



SC35C

SC39B

The SC35C is designed for use on the heaviest and most rugged tonearms which require a tracking force of 4 to 5 grams. The stylus assembly of the SC35C is rigid enough to withstand the punishment of continuous backcueing, yet compliant enough to offer excellent mid and high frequency reproduction. The SS35C is the spherical replacement stylus for this cartridge.

Shure Price...\$50.00 U.S. YOUR PRICE \$\_\_\_\_\_

Up to now, it was necessary to compromise true hi-fi performance to get the ruggedness required for professional use. Shure engineers went into the field where they virtually "lived with" the professionals. This is the result. The SC39 is built to stand up to professional use and to a professional's critical listening.

SC39B 1.5-3 g, spherical...\$70.00 U.S. YOUR PRICE \$\_\_\_\_\_  
SC39EJ 1.5-3 g, bi-radial...\$78.30 U.S. YOUR PRICE \$\_\_\_\_\_



### V15 TYPE V

The Shure V15 Type V cartridge comes in three styles, the MR (micro ridge) model, the 15B and 15P. The micro ridge version is radically different from the hyperelliptical tips and geometrically is longer and more pointed, therefore running deeper in the LP groove, reducing harmonic distortion by another 50% over equivalent hyperelliptical styli. The "B" version is the same V15 without the "MR" refinement. You might think of it as the original with the destaticizer brush. The "P" version is a P-mount V15, for mounting on P-mount arms and does not include the destaticizer and damping mechanism.

V15 V-B hyperelliptical...\$237.50 U.S. YOUR PRICE \$\_\_\_\_\_  
V15 V-MR micro ridge...\$297.00 U.S. YOUR PRICE \$\_\_\_\_\_  
V15 V-P hyperelliptical...\$221.50 U.S. YOUR PRICE \$\_\_\_\_\_

## STANTON

### 681A

The 681A cartridge features extreme linearity plus widest and flattest possible response essential for precise alignment of cutting heads. Its factory calibrated frequency response meets the most rigid tolerances.

Stanton Price...\$55.00 U.S. YOUR PRICE \$\_\_\_\_\_

### 500 MKII SERIES

The 500 MKII series of cartridges are designed to deliver superb sound quality, ruggedness and reliability, yet not compromise professional broadcast standards.

500EE MKII .75-1.5 g, elliptical...\$22.25 U.S. YOUR PRICE \$\_\_\_\_\_  
500E MKII 1-2 g, elliptical...\$19.38 U.S. YOUR PRICE \$\_\_\_\_\_



# STUDIO ACCESSORIES

**KEITH MONKS**



## MKII RECORD CLEANING MACHINE

The MKII Professional Record Cleaning Machine is a tried and tested product which is used by broadcasting authorities and record libraries all over the world. It is advisable to clean a record with the Keith Monks record cleaning machine every 15-20 playings. Records are cleaned using a mixture of 50% distilled water and 50% industrial methylated spirits which will remove grease, hardened sludge and loosen embedded grit. The drying process removes all traces of the cleaning liquid along with the foreign material leaving the record clean and dry. During the process, the turntable revolves at speed and the liquid solvent is applied by swinging the brush over the record and depressing the applicator plunger. Having thus wetted the record, dissolved the grease and loosened any embedded material, the suction arm is simply moved to the center of the record. As the liquid on the record is moving to the edge, it is advisable to vacuum from the center outwards rather than inwards. As it passes over the surface the suction removes all liquid along with the suspended foreign matter. The whole process can be completed in about 1½ minutes per side of record. Cover included. 16½"H x 19"W x 18"D; Net Weight: 65 lbs.

MKII...\$3114.00 U.S.

YOUR PRICE \$ \_\_\_\_\_

**ALLIED**



## TURNTABLE BASE

A table top turntable base that will accommodate all the popular turntable/tone arm combinations. Comes in standard walnut or black laminate. Special laminates are available at extra cost. (Turntable and tone arm not included.)

Allied Turntable Base...\$125.00 U.S.

**DISCWASHER**



## DISCWASHER

Discwasher manufactures a complete line of fine products for record care in broadcast facilities.

Cleaning system.....	\$16.50 U.S.	YOUR PRICE \$ _____
Diskit .....	\$36.25 U.S.	YOUR PRICE \$ _____
ZeroStat Destaticizer.	\$29.95 U.S.	YOUR PRICE \$ _____
Fluid 16 oz. ....	\$14.95 U.S.	YOUR PRICE \$ _____



## CLEANING STICKS

Cotton tipped swabs for lubricating and cleaning recorder heads and other hard to reach areas.

## RAZOR BLADES

Harris Allied supplies your broadcasting facility with single edge industrial razor blades to fit all standard razor blade tools.

**BOTH PRICED RIGHT!**



FITS ALL STANDARD RAZOR BLADE TOOLS  
**ALLIED**  
 Broadcast Equipment For Industrial Use Only  
 100 SINGLE EDGE INDUSTRIAL BLADES



## SHIPPING CASES

Protect your investment in quality equipment by packing them safely in standard stock or custom cases before your next remote. Reinforced corners, recessed handles and latches and strong side panels help to ensure protection of delicate equipment. Call us with equipment type and/or dimensions for a competitive quote.





### SUPERLAY

Superlay is a multi-purpose control interface for use in broadcast station control rooms, A/V systems, or any installation requiring multiple circuit control. Superlay is ideal for controlling the various equipment functions that need to be switched when, for example, a control room mic is turned ON, e.g., EBS receiver mute, intercom speaker defeat, telephone bell disconnect, skimmer recorder start, "ON THE AIR" warning lights on, etc. Superlay can be controlled by virtually any console's muting output, or by any external switch, either momentary or maintained. It provides two types of outputs: relay and switched AC.

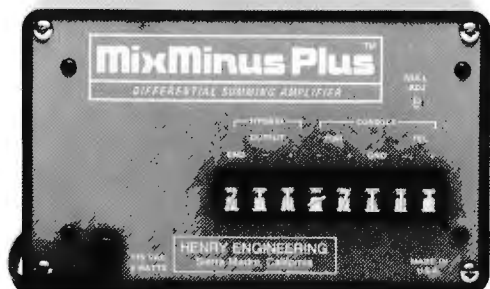
Henry Price... \$225.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



### LOGICONVERTER

LogiConverter is an interface unit that facilitates remote control of broadcast studio equipment. It eliminates the incompatibility often encountered when a broadcast console is used to provide remote start/stop control of peripheral equipment, e.g. cart machines, CD players, tape recorders, etc. LogiConverter converts TTL/CMOS or 'open-collector' console outputs to relay closures for remote interface that is compatible, reliable, and isolated. It isolates the control circuitry and translates the logic to best suit the device being controlled. All LogiConverter inputs are opto-isolated; outputs are SPDT (Form C) relay contacts. The unit can be user programmed via internal 'dip switches' to generate either momentary or maintained outputs from various inputs, with 24 input/output combinations possible. LogiConverter will control up to 4 circuits, and can provide start-only or start-stop outputs from a single input signal.

Henry Price... \$195.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



### MIXMINUS PLUS

MixMinus Plus is a differential summing amplifier designed to add a "Mix-Minus" output to a broadcast audio console. This output is typically used to feed the send input of a telephone hybrid device. MixMinus Plus has two inputs and one output. One input is fed with the program output of the console. The second input is fed with the hybrid receive audio, tapped just after the "phone" channel fader on the console. MixMinus Plus subtracts the program mix *minus* the receive audio. The null adjustment will provide 40 dB rejection of the receive audio signal (30 Hz-3 kHz). MixMinus Plus is easily connected to most consoles and needs no adjustment once installed. The overall gain is unity; the unit is easily adapted to suit the gain structure of virtually any console.

Henry Price... \$195.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



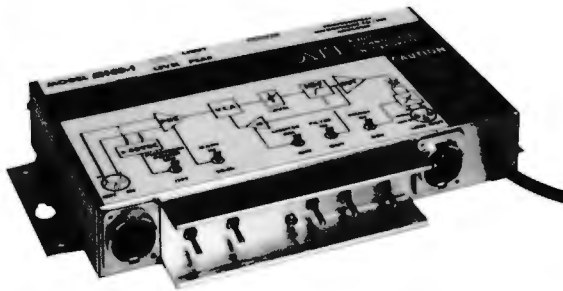
### TELECART II

TELECART II is a multi-mode telecontroller with numerous broadcast station applications. It will interface with virtually *any* cart machine to automatically answer a phone line and play a recorded message to the caller. Its "failsafe" design prevents the line from being answered unless the message cart is cued and ready to play. Telecart II can also be used for "listen lines" and similar uses where a phone line is automatically answered and audio is fed to the caller, or caller audio is recorded or put on the air. A dual-range digital call counter registers up to 9,999 calls received. CPC sensing is included for line-release when the caller hangs up. For areas that do not have CPC, an optional dial-tone/busy signal decoder is available.

Henry Price... \$225.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

# STUDIO ACCESSORIES

**ATI**



## M100

The M100 microphone amplifier eliminates dimmer noise, RF pick-up and hum loops. Mount this small, rugged, full-featured preamp right near the audio source. The unusually quiet, direct balanced, instrumentation amplifier input has impressive hum and RF rejection and accepts +20 dBm maximum input. Features switchable and adjustable gain, limiter, lo-cut filter, 48 volt phantom power and a phase reversing switch. XLR in and out, dual rack mountable.

ATI Price...\$329.00 U.S.

YOUR PRICE \$ \_\_\_\_\_

**RADIO DESIGN LABS**



## STM-2

The STM-2 is part of the group of "STICK-ON" products from Radio Design Labs. The STM-2 is a quality low-noise microphone preamplifier designed for use in commercial sound, broadcast, and recording applications. The STM-2 is very flexible with gain adjustment from "off" to 65 dB, two balanced or unbalanced outputs, and available phantom supply input! Its compact size makes it ideally suited to locations where a larger or heavier preamp cannot be used! The single-ended supply input makes STM-2 the ideal choice for both permanent and mobile equipment installations. Requires external DC supply.

Radio Design Labs Price...\$109.95 U.S. YOUR PRICE \$ \_\_\_\_\_



## M-1000

M-1000-1 dual transformer outputs...\$425.00 U.S.

YOUR PRICE \$ \_\_\_\_\_

M-1000-2 balanced differential outputs...\$395.00 U.S.

YOUR PRICE \$ \_\_\_\_\_

M-1000 available with switchable 48VDC phantom power.

**SYMETRIX**

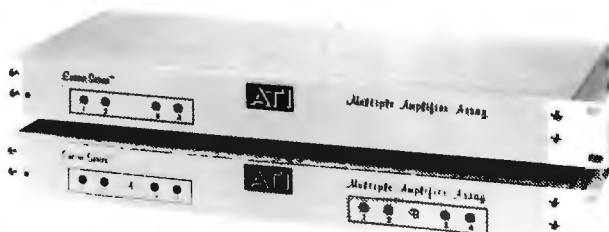


## SX202

The model SX202 dual microphone preamplifier is an ultra-clean two channel stereo/mono preamp, ideally suited for broadcast use. Built around the same chip used in a well-known recording console widely acclaimed for its exceptional sound quality, the SX202 makes world-class performance affordable. Used in place of older preamp designs, the SX202 offers substantial sonic improvements with its solid stereo imaging (less than 10° phase shift at 20 kHz), excellent transient handling (its positive and negative slew rates are symmetrical), very low noise (approaching the theoretical limit), and almost immeasurable distortion (.007%).

Symetrix Price...\$289.00 U.S.

YOUR PRICE \$ \_\_\_\_\_



## MAA

Amplify a microphone to low-level line inputs to full line level at 600 ohms active or transformer balanced outputs, depending on the model chosen. The MAA, available from Harris Allied in four or eight channels, is designed for easy use as a microphone, line buffer, interface, distribution or level matching amplifier. The Multiple Amplifier Array features up to 82 dB of gain, low noise, balanced inputs and up to a clean +25 dBm of output per channel.

ATI Prices start at...\$399.00 each U.S. YOUR PRICE \$ \_\_\_\_\_



# STUDIO ACCESSORIES

**ALLIED**

**R&K**



## SCREWDRIVER SET

Harris Allied's 11-piece screwdriver set features precision slots, shot peened tips, deluxe plastic handles, and magnetized tips. Includes regular and Phillips. Drop forged chrome vanadium construction.

Our Price...\$12.99 U.S.



## R&K 17

USA-manufactured tools include names like Weller,<sup>®</sup> Channellock,<sup>®</sup> Magna<sup>®</sup> and Xcelite<sup>®</sup>. Assembled and neatly packaged in a 17PE case. R&K backs their assembled tool kits with a lifetime guarantee on all of the hand tools in their kits. If a tool breaks, simply return to R&K for a replacement at no charge.

R&K Price...\$450.00 U.S.

YOUR PRICE \$ \_\_\_\_\_

## HANDY BUNDLER

Audiometrics' Handy Bundler is as easy as 1-2-3 to use... 1) Pull belt out, around object, insert into nosepiece until it clicks and stops; 2) Pull loose slack from rear loop to tighten belt; 3) Pull trigger to cut belt. Great for tying electric wires and bundling cables. You'll find many uses around the studio. Comes complete with 65' of belt and 200 clips.

Audiometrics Price...\$49.00 U.S.



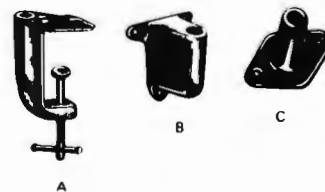
**AUDIOMETRICS**

**ATLAS**

**LUXO**



A wide variety of mic stands, goosenecks and booms are available from Atlas Sound and Harris Allied for every application. Whether it's for the studio, portable or mobile application, there's an Atlas for the job and Harris Allied can supply it.



The LM-1 from Luxo is a high quality piece of studio furniture. You have a choice of three mounting bases. Please specify base A, B or C. Color selection: oyster or black. Specify weight range.

Luxo Price...\$70.25 U.S.

YOUR PRICE \$ \_\_\_\_\_

**CALL US FOR ALL YOUR BROADCAST EQUIPMENT NEEDS**

IN CANADA CALL 800-268-6817

**HARRIS ALLIED**

Specifications subject to change or revision.

**71**

# STUDIO ACCESSORIES

## AUDIOMETRICS



**Model 51900**  
Hold everything mic arm  
(Black or gray)  
1 ft. riser included



**Model 14198R**  
Single mic arm  
Lightweight version of 51900  
(Gray only)  
1 ft. riser included



**Model 51900-3**  
Triple mic arm  
(Gray only)  
1 ft. riser included



**Model 12402**  
Heavy springs (Pr)



**Model 14100**  
1 ft. riser  
(Black or gray)



**Model EB-1**  
Extension arm  
(Black or gray)



**Model 11426**  
Wall mount  
(Black or gray)



**Model 11427**  
Bench mount  
(Black or gray)



**Model 14005**  
Clamp mount  
(Black or gray)

## KEITH MONKS



### FISHPOLES

Fishpoles or hand booms are ideal for miking up audience reaction and comment when a normal stand cannot be used. All models are finished in matte black. For T.V. and film use.

Model	Minimum Length	Maximum Length	Number of Sections
FP 363	25"	65"	3
FP 364	37"	106"	4
FP 365	45"	114"	3
FP 366	30"	75"	3
FP 367	53"	186"	4

## OMNIMOUNT



Wall Mount



Ceiling Mount

The Omnimount mounting system puts added flexibility into a wide variety of equipment mounting functions including speakers, clocks, and some types of equipment including monitors. Omnimount is of industrial quality, built to last a long time. A key to its remarkable performance is the ball joint design. The ball is molded of an ebonite polymer compound, with excellent memory-return and is just about indestructible. The ball is bonded to the thick-walled carbon steel tube the same way that heavy duty motor mounts are bonded. You can mount Omnimount on the wall or ceiling and it does its job with extraordinary flexibility, not limited to the usual "pan and tilt" functions. A wide variety of models and several different weight assemblies are available.

Prices on Application

Due to the importing of Keith Monks products, please call for a current price quote.



# STUDIO ACCESSORIES

**TITUS**



**OAL-HS**

**OAL-VS**

Finally an ON AIR light that adds to the appearance of your studios! Titus Technological Laboratories' ON AIR light provides the broadcaster and recording studio with a beautiful but practical means of indicating a studio is in use. They feature a smoked plexiglass window mounted in either a gold or silver frame which is mounted in a solid oak base for wall mounting. The light uses four 24 VDC bulbs which almost completely eliminates the chance of total failure. Bulb replacement is quick and easy. The ON AIR or RECORDING only appears when illuminated and is blacked out when not in use.

OAL-(xyz) . . . \$125.00 U.S.

YOUR PRICE \$ \_\_\_\_\_

Please Specify:

- x - H = Horizontal, V = Vertical lettering
- y - S = Silver, G = Gold frame
- z - blank = "ON AIR", R = "RECORDING"

**FIDELIPAC**



**340-S**

Your broadcast or recording studio will really be "off limits" when Fidelipac studio warning lights are lit. Their brilliant red lettering on jet black background can be seen even in the brightest ambient light conditions. With a faceplate of unbreakable Plexiglas, the light includes lamps and mounting hardware. RECORDING message also available. Custom legend minimum 6 pieces. Size: 5"H x 10"W x 2½"D.

340-S ON AIR-English, French, German, Greek, Japanese, Polish, Russian, Spanish or Swedish.

Fidelipac Price . . . \$69.00 U.S.

YOUR PRICE \$ \_\_\_\_\_

**ENBERG**



**BA-6R & BA-12R**

Enberg alert monitors can provide your control room with a practical, versatile and attractive system for keeping informed of important status conditions. Three modes of operation on each channel: telephone-latching, auto reset and manual reset. Other features include opto isolated inputs, solid state relays and flashing 4000HR indicators. A DC output for each channel is provided capable of driving remote monitors and piezo buzzers, etc. Thirty standard labels included, custom labels are available.

BA-6R . . . \$199.00 U.S.

YOUR PRICE \$ \_\_\_\_\_

BA-12R . . . \$299.00 U.S.

YOUR PRICE \$ \_\_\_\_\_

FN-6 . . . . . \$35.00 U.S.

YOUR PRICE \$ \_\_\_\_\_

# STUDIO ACCESSORIES

**ALLIED**



## MICRO SERIES

The Allied Micro Series warning light is supplied with one 1820/28 volt lamp. The unit is designed for use with 24 volts for extended life. All models mount on standard single gang wall boxes or plaster rings. The wedge shaped translucent cover is available in red or white.

Model	Voltage	Message	Price
L-101	24 VDC	ON AIR	\$32.50
L-101	24 VDC	BLANK	\$25.50

Enhance the environment of any broadcast application with the Allied Architectural Series of warning lights. The series includes flat wall and wall or ceiling mounted models. These are well constructed warning lights made in a one piece die cast aluminum housing of 1/8" minimum wall thickness. There's no external hardware. The spring clip mechanisms firmly secure the directional panel to the housing



## FLAT WALL



## CEILING MOUNT



## STANDARD

eliminating light leaks. The extending bracket and ceiling units have a cast aluminum canopy. Messages available include ON THE AIR, mic symbol alone or RECORDING. Prices include lenses.

Type	Price
Flat Wall-7 1/2" x 7 1/2"	\$61.00
Ceiling or extended-7 1/2" x 8 1/2"	\$57.00

The model of warning light that has served the broadcast industry for many years is the Allied Standard model. This durable, highly visible and efficient on air warning light measures 7 7/8" H x 5 1/4" W x 4 3/8" D. Available horizontal or vertical, with or without flasher.



The standard in studios and control rooms around the world is the Allied Broadcast Quartz line of clocks. Where accuracy and visibility are a must, the Allied line is just what the announcer or engineer ordered. 12" face size. A similar clock is available from ESE which may be impulse driven.

Allied Price... \$24.95 U.S.

## AUDIOMETRICS



### ST-3

Design of our new timer included features MOST asked for by you. Counting up to a maximum of 23 hrs, 59 mins and 59 secs, the ST-3 has a crystal time base and big, bright 3/4" displays. The front panel soft-feel buttons permit start, stop and reset and their functions are duplicated on rear panel wire capture screw terminals for remote access. The beige color is compatible with your decor and the weighted base and rubber feet prevent unwanted movement of the unit.

Audiometrics Price... \$179.95 U.S.

## ESE



ES-112E & ES-161E



ES-172

The ES-112E is a solid-state 12 hour CMOS, six digit clock. It features three simple controls: fast advance, slow advance and hold, which make setting to the precise second easy. The display is a bright orange, gas-discharge, seven segment, .55" high digital. An optional CMOS compatible BCD output can drive two .55" slaves or two 80 series slaves or one 90 series slave. Option prices are available upon request. Dimensions: 2 1/2" H x 8" W x 6" D.

ES-161E Remote Digital Display designed to function with any ESE master clock, decodes serial time data and displays six digits of clock time on large .55" orange LED displays, in either 12 or 24 hour format as specified. Dimensions: 2 1/2" H x 8" W x 6" D.

The ES-172 is a console mount clock/timer in a compact enclosure, with bright easy to read six digit .4" red LEDs. The controls consist of three settings: Fast Advance, Slow Advance, and Hold. The unit has access to control inputs on rear mounted connector and is entirely enclosed in a high impact black plastic case. Option prices are available upon request. Dimensions: 2.16" H x 4.5" W x 4.13" D.

ES-112E... \$200.00 U.S.

ES-161E... \$201.00 U.S.

ES-172... \$192.00 U.S.

YOUR PRICE \$ \_\_\_\_\_

YOUR PRICE \$ \_\_\_\_\_

YOUR PRICE \$ \_\_\_\_\_



SONEX acoustical foam wages a two-front war on noise. First, the patented SONEX wedge traps, deflects, and scatters noise. The wedge's depth and angle carry noise waves down to the lowest point of each anechoic foam valley. Most of it doesn't have the energy to come back up. Then the foam itself converts sound energy to silent kinetic energy. Sound literally gets lost within open cell pores of this special foam. What the wedge doesn't dissipate, the acoustic foam controls — to give you ideal acoustical performance. Together this two-pronged attack delivers the best sound control you can get. Call, fax or write today for all the facts and prices on SONEX.

SHEETS (4'x4')	Depth	Sheets Per box	Sq. Ft. Per box	Pricing Per box
Charcoal Brown Tan Blue (Only Charcoal available in 4 depth)	2	8	128	\$303.00
	3	6	96	\$298.00
	4	4	64	\$291.00
Painted Colors Silver Blue Brown Orange	2	8	128	\$389.00
	3	6	96	\$381.00
	4	4	64	\$374.00
AUDIO TILES (15"x15")				
Natural colors Charcoal Brown Tan Blue	2'	28	50	\$150.00
	2'	28	50	\$150.00
Painted Colors Silver	2'	28	50	\$150.00

Box of Tiles include 3 tubes of adhesive

### BARRIER AND COMPOSITES

When your sound needs require more than absorption, ProSPEC barriers and Composites from SONEX can provide the solution. The line includes ProSPEC Barrier, a one-pound-square-foot "loaded" vinyl that cuts sound transmission between rooms; ProSPEC acoustical foam, a 1-inch acoustical foam with pressure-sensitive backing and a polyurethane face; and ProSPEC Composite which is a 1-inch laminate of the barrier and acoustical foam. ProSPEC products have a variety of applications in broadcast facilities — call today for performance details and price information.



### "UPS-able" SONEX

Now the same great SONEX acoustical foam is available in 2' X 4' sheets which can ship by UPS. Same unbeatable performance of full-size SONEX sheets but easier to ship and easier to handle. Most sizes and colors can ship in a matter of days — call for all the details.

Thickness	Order number	Sheets per box	Square feet	Pricing per box
2'	UNX-2	8	64	\$152
3'	UNX-3	6	48	\$149

COLORS: Charcoal, beige, blue, brown



### CEILINGS

We now offer the complete line of SONEX ceilings. These 2' x 2' suspended ceiling tiles combine dramatic style which state-of-the-art acoustical performance. The tiles are constructed from light but durable melamine foam and they carry a Class 1 building material rating. If you want to improve the look, and acoustics, of your facility, SONEX ceilings may be the answer. Call today for all the information.



# THE Express Group



A  
**SHOO IN**  
for .....  
Your  
Engineering **FEATS.**

*See Page 79.*



# FURNISHINGS

**A-LINE**

## EQUIPMENT RACK

A-Line rack cabinets are made of 3/4" high-density particle board and covered with walnut, oak, pecan or black laminate. However, any color or wood grain laminate is available on a custom basis. Backs of all equipment racks feature an exclusive snap-out panel for easy access to equipment. Custom heights are available. For overall dimensions add 4" to the panel height, all units are 23 1/4" wide overall, 17" internal depth racks are 18" deep overall. 23" internal depth racks are available at slight increase in price and are 24" deep overall. Please specify. Optional casters are available.

Model	Panel Ht	Price	Model	Panel Ht	Price
A/L R100	7"	\$85.00	A/L R107	19 1/4"	\$175.00
A/L R101	8 3/4"	\$92.00	A/L R108	21"	\$185.00
A/L R102	10 1/2"	\$99.00	A/L R109	24 1/2"	\$189.00
A/L R103	12 1/4"	\$114.00	A/L R110	31 1/2"	\$199.00
A/L R104	14"	\$128.00	A/L R111	35"	\$206.00
A/L R105	15 3/4"	\$141.00	A/L R112	42"	\$219.00
A/L R106	17 1/2"	\$156.00			



**EQUIPMENT RACK**



**RECORD RACK**

## RECORD RACK

Now your music or transcription library can be put in alphabetical or numerical order with these standard or custom size record storage cabinets.

Model	Record Size	Cap	Shipping Weight	Price
A/L 1000A	7"	1000	145 lbs.	\$250.00
A/L 1500A	7"	1500	200 lbs.	\$296.00
A/L 3000A	7"	3000	250 lbs.	\$354.00
A/L 750B	12"	750	185 lbs.	\$256.00
A/L 1000B	12"	1000	250 lbs.	\$297.00
A/L 1500B	12"	1500	340 lbs.	\$363.00

## FX RACK



### FX RACK

FX RACK provides the professional studio with 18 spaces of well-designed rackmount furniture. FX RACK fills the need for an economical 19" equipment rack that can be used for 'outboard' signal processors, patchbays, tape decks, power amps, etc. The all-wood design eliminates ground loop problems normally encountered when "unbalanced semi-pro" equipment is rack mounted. FX RACK is very compact, requiring just over 2 sq. ft. of space. It is shipped flat and requires only a screwdriver for easy assembly. Solid maple rack rails. Dimensions: 39" H x 20" W x 15" D.

FX RACK with casters \$169.90 U.S. YOUR PRICE \$\_\_\_\_\_

**ARRAKIS**



## RECORD RACK

These attractive modules stack and sit side-by-side to accommodate your entire library. Each module holds approximately 200 LPs. Cream laminate with natural oak trim. Matches Modulux™ furniture exactly. Compact dimensions allow shipping via Fed X or UPS... even overnight delivery, if desired. Shipping weight is 52 lbs. per module. Base unit measures 28 1/2" H x 22" W x 13" D. Stacking unit measures 27 1/2" H x 22" W x 13" D. Also available in reel-to-reel tape version.

Arrakis Price.. \$149.00 ea. U.S. YOUR PRICE \$\_\_\_\_\_

# FURNISHINGS

**ALLIED**



## D2

This family of rack mounted drawers provides easy storing with a fully enclosed top that insures no contents get out, or debris in. Front panel has flush spring-loaded handle, latching upon closing so the drawer stays closed. Full extension ball bearing slides extend the drawer 14" out, for easy access. Inside dimensions are 15 7/8" wide x 14 1/2" deep. Faceplate is .090" thick aluminum brushed and black anodized. Top and body are 16 gauge steel with a black baked enamel finish.

3 1/2" (2 space) D2...\$145.00 U.S.      YOUR PRICE \$ \_\_\_\_\_  
 5 1/4" (3 space) D3...\$163.00 U.S.      YOUR PRICE \$ \_\_\_\_\_  
 7" (4 space) D4...\$175.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



## U2

These utility shelves provide quick and easy rack mounting for equipment that is normally not rack mountable. Constructed of 16 gauge steel with black enamel finish. Two sizes available, but taller equipment may be put in each. The 1 space shelf will support up to 35 lbs., the 2 space will support 50 lbs.

1 3/4"H x 10 1/2"D (1 space) U1...\$42.00 U.S.      YOUR PRICE \$ \_\_\_\_\_  
 3 1/2"H x 14 1/2"D (2 space) U2...\$56.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

## ALLIED CHAIR

Action-responsive, secure comfort that's built to withstand years of constant use. The Allied chair features an upholstered floating action back attached to a solid steel back brace. The upholstered waterfall seat rotates a full 360° on a solid steel threaded stem. The base is made of heavy gauge tubular steel with an electronically welded footring for added stability and comfort. Finally, every metal part is finished with top grade baked enamel to insure scratch and chip resistance. Stock chair includes chrome legs and footring, black frame finish with black upholstery, and casters. Shippable via UPS™ and FedEx™

2200 "Low" Chair...adjusts 19"-24" Shipping wt.: 28 lbs.  
 2600 "High" Chair...adjusts 24"-29" Shipping wt.: 29 lbs.

2200 or 2600...\$125.00 U.S.



## EQUIPMENT CABINET

These beautiful, black equipment housings are the most popular we sell. New under the Allied name, these racks stand alone or can be ganged together indefinitely. If your order is for stand alone units, you'll need two end panels for each. If more than one are to be ganged together, you need only 2 end panels for each gauged-together group. End panels are universal (L or R) and are sold separately so that you may order only the panels you actually need.

The cabinet is constructed of rugged 14 gauge C.R.S. Equipment mounting rails are drilled and 10-32 tapped and are constructed of 12 gauge C.R.S. Side panels are constructed of easy to handle 18 gauge C.R.S.

Thirty-seven rack units of mounting space are provided. Ventilation is provided by louvers in the cabinet top and in the rear door. Pre-punched holes for access are standard. Black, only.

- Exterior dimensions: 72"H x 23.5"W x 27"D.
- Equipment mounting space: 64.75"H x 19"W x 24"D.
- Color: black, only.
- EIA equipment mounting rails: 10-32 tapped and adjustable, front and rear.
- Side panels: exterior access for removing to install equipment.
- Rear door: lockable with allen wrench key, which can be easily replaced if key is lost.
- Ventilation: louvers in cabinet top and rear door.
- Wiring provisions: punched holes in cabinet base and at lower edge of both sides for conduit and wiring.



# FURNISHINGS

## SOUNDOLIER

### CABINET RACK

Soundolier cabinet relay racks are designed for standard 19" rack panels. A rear door is provided as standard equipment and is hung on slip jointed hinges. Knockouts and internal louvers are among the exclusive features offered by Soundolier.

Price on Application



## A-LINE

### DUB CENTER

Harris Allied capabilities include custom and standard furniture of every description for the broadcast industry. Here, for example, is the A-Line housing for our dub centers. With our large product line, the user may select exactly the components necessary to transfer any source to another format. We also will assemble and test complete dub centers to your specifications.

Price on Application



## EXPRESS GROUP

**2000 SERIES** — From the smooth, clean lines of high grade laminate over 3/4" void-free birch plywood to the elegance of a "splash" of honey oak, the Series 2000 offers showroom beauty and a price for the budget-minded. It features plenty of storage with 21" racks in all floor modules and 14" rack openings standard in the countertop pods.

**3000 SERIES** — Incorporating all the features required by the contemporary broadcaster, the versatility of the Series 3000 will satisfy the needs and enhance the environment of any facility.

**4000 SERIES** — The clean look of solid multi-colored high pressure plastic laminates, highlighted by the quality look and feel of solid honey oak trim, give the 4000 Series unparalleled style.

**5000 SERIES** — The Series 5000 has set a hallmark of excellence in studio furniture design. Incorporating the richness of walnut or oak with engineering compatibility, the Series 5000 meets the needs of today's broadcaster.

**6000 SERIES** — "The Ultimate" in engineering and operator compatibility. The Series 6000 has all the superb features of the other series plus more accessibility with sweeping "cockpit" modules that put much more rack space within arms reach. Accented with beautiful oak or walnut, the Series 6000 is the ultimate working showcase.

**CUSTOM DESIGNS** — Based on the styling of the Series 5000, custom configurations can be individually tailored to fit any format and facility.

Prices on Application



2000 SERIES



6000 SERIES

# FURNISHINGS

## MODULUX II™



The Modulux II™ series of broadcast studio furniture is designed to be rugged, attractive, and modular like its big brother "Modulux," yet inexpensive. Modulux II is designed around a basic 24" x 30" table that can be converted to a pedestal or rack. Solid oak trim and poly-laminate panels create the ultimate in durability and long lasting

attractive appearance. Quick assembly. In stock for immediate shipment via UPS. Since Modulux II is modular, many configurations are possible with standard components. Talk with us regarding specific dimensions and uses.

Prices on Application

## MODULUX™



Modulux™ is better by design. Until Modulux studio cabinetry, you had to choose: you could pay high prices for strong and durable, well-finished custom-built cabinetry or you could pay less, and settle for considerably lower quality. Now there's a third choice, a better choice — Modulux, built by Arrakis Systems exclusively for Harris Allied.

Modulux cabinetry is custom quality but each cabinet need not be custom made. Arrakis has created a unique aluminum post internal frame and wood outer panel system for Modulux. All panels are 1/4" wood polyboard, permanently laminated on both sides at the factory and guaranteed not to delaminate in the field. Access panels are securely

attached, yet easily removed, with quarter-turn fasteners. Modulux's .125 inch thick aluminum post and solid wood panel construction provides superior durability.

All units are immediately available with cream color laminate side panels and dark brown "leather-look" laminate tops, all trimmed in natural oak. Other colors and finishes can be ordered at a moderate up charge. With Modulux, there's no need to compromise on style, quality, delivery and especially — value.

Each Modulux cabinet is shipped knocked-down, via U.P.S. Assembly is fast and easy with just a few hand tools.

Prices on Application



# FURNISHINGS

## MODULUX SUPREME™

Modulux Supreme™ is engineered for those studios that require a very special touch. This line of furniture features deluxe oak trim and splashguards, touch latch access doors, oversized 36" deep table sizes, overhead and freestanding racks, and many innovative and attractive new features. Ultra-durable, ultra high quality. Ask for Modulux Supreme.

Prices on Application



## MODULINK®



Modulink® has been designed in consultation with, and is built exclusively for Harris Allied by Arrakis Systems, Inc. It's a manufactured studio system that can be custom-tailored to meet your exact specifications, yet its unique design allows your new facilities to be operational in days, not months. Modulink studios come fully pre-wired with multi-pin connector "docking modules" which link all units and interconnect all equipment. The furniture is preassembled, electronics installed and tested. The units are then shipped to you by moving van. At your station, the pre-wired and systemized Modulink units are linked via the

"docking modules" to complete the audio chain as the furniture units are bolted together in your studio. Harris Allied installation crews can handle the final on-site assembly process, or you can have your own local people do the job. Either way, the studio installation usually takes as little as a single day. When the power's turned on... you're on the air. But Modulink isn't just faster, its pre-wired plug-in modules also offer greater electrical reliability than conventional wiring methods.

Prices on Application

## MODULINK PREWIRE®



**THE BEAUTY: MODULINK PREWIRE**

Arrakis introduced the Modulink Prewire® concept to help speed studio design and construction time. This system was designed around their new console, the 12,000, and engineered along with a new approach to system cabling. This studio can be assembled and tested in the factory or sent to site as a kit for rapid installation. The integration of the



**THE SECRET: PREWIRED AUDIO & LOGIC**

console, furniture, and system cabling was so successful that the system cabling can actually be included for free in most complete systems. Consult with your Harris Allied sales professional for the best system to suit your station's prewire needs.

Prices on Application

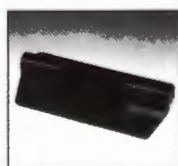
GUARANTEED EXCELLENCE.



Crown's guaranteed excellence is found in the engineering details that go into every Crown amplifier and microphone.

Proof of Crown's guaranteed excellence is their unprecedented 3 + 3 No-Fault Extended Warranty... up to six years of transferable protection for all Crown

amplifiers. And their unprecedented, three year, unconditional guarantee against malfunction on all Crown microphones.



GUARANTEED  
EXCELLENCE

 **CROWN**

See Page 83.



# AMPLIFIERS

**BGW**



**200**

The BGW model 200 delivers 100 watts of power per channel into 8 ohms, high thermal efficiency in a compact 1 3/4" high, rack mounted, all aluminum chassis. Comprehensive input connections and gold plated binding post outputs.

BGW Price...\$999.00 U.S. YOUR PRICE \$\_\_\_\_\_



**85**

The BGW model 85, rack mounted power amp offers 35 watts of power per channel into 8 ohms. Low feed-back circuitry enhances stability and reduces TIM. The output appears on a barrier strip for reliable, low resistance, low cost connections. Options available for balanced inputs.

BGW Price...\$529.00 U.S. YOUR PRICE \$\_\_\_\_\_

## BRYSTON



**BP-1**

This preamp employs novel and fundamentally correct audiophile circuitry which divides the equalization and amplification into two stages. This allows low noise figures and extremely low distortion, with high signal control.



**2B-LB PRO**

Bryston power amplifiers pay very substantial dividends both from the standpoint of audible performance and long, trouble-free life. The 50-watt per channel 2B-LB PRO can handle 24 amperes peak, is a cost effective unit, designed for standard 19" rack mounting. Its low distortion makes it popular with broadcasters worldwide. Power amplifiers in 100, 250, & 500 watts range also available.

**AMP-1**

The AMP-1 audio monitor panel offers high-quality stereo monitoring in the smallest, easiest-to-install package available. With real bass and treble response, at volumes loud enough to be heard in the noisiest environments, the AMP-1's sound is best described as loud, wide and clean. Careful acoustical and mechanical design results in acoustic performance which rivals that of many compact discrete speakers, while avoiding the installation hassle of separate speakers.

AMP-1 . . . \$635.00 U.S. YOUR PRICE \$\_\_\_\_\_

AMP-1A . . . \$720.00 U.S. YOUR PRICE \$\_\_\_\_\_



**350**

BGW's model 350 delivers 200 watts of power per channel into 8 ohms, about 1 1/4 dB less than its big brother, model 750. Offers all the refinements that reinforce BGW's reputation of low noise, low distortion and high reliability. Comprehensive input connections and switchable configurations. Rack mount, single piece steel chassis fits in just 5 1/4" vertical space.

BGW Price...\$1199.00 U.S. YOUR PRICE \$\_\_\_\_\_

## CROWN



**D-75**

The Crown D-75 offers significant benefits to the professional user, benefits like active-balanced XLR connectors as well as unbalanced 1/4" phone plugs and signal presence indicators that notify the user whenever the D-75 output signal is greater than 1/2 watt. 35 watts per channel.

Crown Price...\$549.00 U.S. YOUR PRICE \$\_\_\_\_\_



**D-150A**

The Crown D-150A Series II is rated at 80 watts per channel into 8 ohms. Frequency response is  $\pm 1$  dB DC to 100 kHz, less than .001% harmonic distortion, less than .01 I.M. distortion and 6 volts per microsecond slew rate.

Crown Price...\$879.00 U.S. YOUR PRICE \$\_\_\_\_\_

For other Crown products, see pg. 82.

## WOHLER TECHNOLOGIES



# AMPLIFIERS

## RADIO DESIGN LABS



### STA-6

The STA-3 and STA-6 are audio power amplifiers in the "STICK-ON" series of products by Radio Design Labs that deliver powerful, clean audio in an 8 ohm speaker. The compact size and bottom adhesive strip make it an ideal choice for any application requiring 6 watts or less. Both gain and tone controls are provided by screwdriver-adjust trimpots to discourage tampering. Each amplifier is fully protected by a replaceable fuse. And the mixing of the two inputs even allows summing stereo channels together with isolation.

STA-3...\$79.95 U.S.  
STA-6...\$99.95 U.S.

YOUR PRICE \$ \_\_\_\_\_  
YOUR PRICE \$ \_\_\_\_\_

## FURMAN

### HR-2

The Furman model HR-2 Headphone Remote Station is a compact, unobtrusive box that clamps to a mic stand or belt, providing two headphone jacks, each with its own volume control. Any number of HR-2 stations may be connected to an SP-20 stereo amplifier using standard microphone cables. Comes with snap-on, snap-off mic stand clamp.

HR-2 Price...\$59.00 U.S.

YOUR PRICE \$ \_\_\_\_\_



## HAFLER



### PRO 1200

We feature Hafler's PRO 1200 because it delivers so much for so little. 60 continuous watts per channel in 2 rack spaces plus 1/4" and XLR inputs. All adjustments including level controls are on the back panel keeping them out of sight. Efficient and reliable, the Hafler PRO 1200 is priced right.

Hafler Price...\$500.00 U.S.

YOUR PRICE \$ \_\_\_\_\_

## RAMSA

### WP-9055

Ramsa's new WP-9055 power amplifier was engineered to deliver high sound quality while providing exceptional reliability and stability. High slew rate and controlled rise time minimize RF and oscillation problems without causing transient intermodulation distortion. Backed by Ramsa's exclusive five-year limited warranty.

Ramsa Price...\$540.00 U.S.

YOUR PRICE \$ \_\_\_\_\_



## SYMETRIX

### A-220

The model A-220 stereo amplifier is a compact, high performance power amplifier designed for continuous duty use in professional audio systems. Used as a two channel amplifier, it delivers up to 20 watts per channel, both channels driven into 4 or 8 ohm loads. As a single channel amplifier the A-220 is capable of 40 watts, bridged across an 8 ohm load. Intended for use in medium power applications that require exceptional quality and reliability, such as audio monitoring, near field studio monitors, and for headphone monitoring.

Symetrix Price...\$349.00 U.S.

YOUR PRICE \$ \_\_\_\_\_



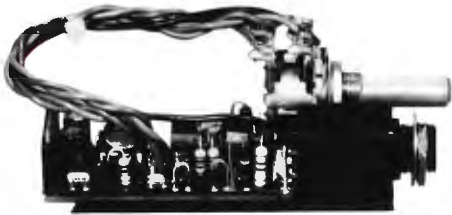
### SX204

The model SX204 headphone amplifier is a 1-in 4-out stereo device, specially designed to drive multiple headphones of any impedance because each listener has control over the volume in his own headphones. Along with the individual level controls, an overall input level control is provided. The SX204's four independent stereo amplifiers can drive even high impedance headphones to maximum levels without distortion.

Symetrix Price...\$299.00 U.S.

YOUR PRICE \$ \_\_\_\_\_





### HPA-1

The Benchmark jack mounted amplifier series can be used *anywhere*. Use them in consoles, at the patch bay, in telephone talkshow roundtables and in test sets, wherever you need individual level control. The HPA-1 features a current boosted NE5532 with a 60 kHz bandwidth at full gain, a gain range of Off to +18 dB and a noise floor of -90 dBu, again at full gain. The HPA-1 is ideal for the "Studio Series" headphones in the 200 to 600 ohm range but will work with 8 ohm devices as well.

Benchmark Price... \$60.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

## EDCOR

### HA 400C

The four channel HA 400C performs well in broadcast studios, theatrical monitor and cuing systems, and audio/visual rooms. Each channel has an independent stereophonic power amplifier with its own gain control and provides you with high fidelity reproduction. The gain controls adjust the right and left ear equally. Phone jacks are designed with limiting resistors placed in series with the headphones to prevent "acoustic shock." Will accept auxiliary line level inputs such as tuners, pre-amps, monitors, and most unbalanced program sources. These inputs may be either stereo or mono. Rack mountable with an accessory rack mount kit. The vertical space required is only 1 3/4" 8 channel version also available.

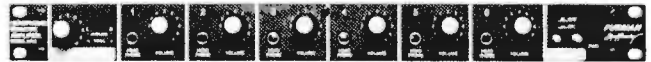
Edcor Price... \$231.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

## FURMAN

### HA-6

The HA-6 headphone monitor amplifier is a unique combination of a headphone amp and a conventional power amp. The HA-6 is basically an economical 20 watt per channel stereo amplifier. It has six headphone outputs (stereo phone jacks) on the front panel, each with an associated volume control. The HA-6 also features an input level control, a pair of yellow LED's and a pair of red LED's. The HA-6's 20 watts-per-channel stereo make it ideal as a low distortion headphone driver. Balanced and unbalanced versions.

HA6 ... \$399.00 U.S.      YOUR PRICE \$ \_\_\_\_\_  
 HA6B... \$419.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



## GENTNER

### 6X

If you're looking for performance and flexibility in a utility amp, look no further. The 6X headset/speaker amplifier is a six output stereo amplifier capable of delivering up to 2 watts per channel. This makes it useful for a variety of low-volume speaker and headphone applications. The 6X has a master stereo input and individual direct inputs for each of six channels. The direct inputs are designed for your flexible applications, providing either mono or stereo input. Normally, insertion of direct inputs interrupts the master input. But with the 6X, you have the option of interruption, or mixing the direct audio with the master input.

Gentner Price... \$795.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

## RANE

### HC-6

The rack-mount HC-6 offers more performance and flexibility than you ever hoped for. Designed into the HC-6 are separate inputs for each of the six stages, which individually bypass the master stereo inputs. The HC-6 can handle up to six totally separate programs for many additional applications including custom headphone monitor mix. All outputs may also be fed from one input.

Rane Price... \$399.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



# AUDIO PROCESSING

**CRL**



## MBL-100

The MBL-100 is designed to increase loudness and coverage area of AM monaural news/talk/sports formats. By combining powerful audio processing topology, and 7.5 kHz audio low-pass filtering, this multi-band limiter provides very high levels of average modulation density. Special correction controls have been included to maximize modulation performance of your transmission system. In addition, a special test signal is provided to allow easy set up of these controls. Several of the processing parameters may be remote controlled for added flexibility.

CRL Price... \$3695.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



## BAP-2000

The CRL BAP-2000 monaural audio processor is an advanced dual band audio AGC and limiter in a slim 1 1/4" package. The design of the BAP-2000 allows it to be used in a wide range of FM & TV applications. Single ended noise reduction dynafex® is included.

CRL Price... \$2150.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

## AUDIO SIGNATURE

Audio Signature is the most advanced audio processor that CRL has ever offered. Audio Signature is a fully software-controlled wideband and four band audio processing system in one package. Unmatched in user friendliness and programmable power, it is ideal for FM, AM stereo, TV and production applications. Combining the power of digital with the best of analog, the Audio Signature is the key to your audio's distinction.

CRL Price... \$5995.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



## PMC-450

The CRL PMC-450 tri-band Peak Modulation Controller offers state-of-the-art circuitry coupled with precise implementation of the NRSC standards for the loudest, cleanest signal on the AM dial. The PMC-450 consists of a powerful input compressor with over 20 dB of input range followed by a tri-band limiter section and NRSC compliant low-pass filter. The flexible design of the PMC-450 allows it to be used as a stand alone processor or in conjunction with various audio AGC's and pre-processors.

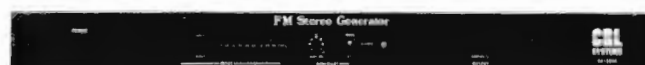
CRL Price... \$2050.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



## MDF-800

Also available is the CRL MDF-400/800 Monitor De-Emphasis/Filter which provides all the functions required to update any AM modulation monitor or wideband monitor receiver approved voluntary transmission standard. This allows easier setup of audio processing equipment by emulating the audio characteristic of the best possible commercially produced radios. Additionally, the unit has features which can reduce interference typically heard in the station air monitor.

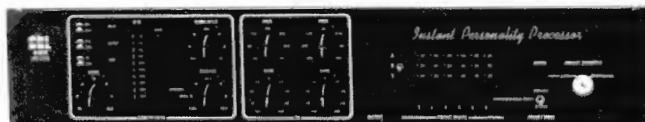
MDF-400 mono... \$645.00 U.S.      YOUR PRICE \$ \_\_\_\_\_  
MDF-800 stereo... \$795.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



CRL's modular approach to audio processing makes it easy to build just the system you need. The systems are comprised of either two, three, or four units. When used together these units provide complete program control to maximize modulation while maintaining tonal clarity and integrity of the original source material.

For FM applications, the units consist of:  
SGC-800 Two-band AGC with dynafex noise reduction system  
SEC-800 Multiband compressor (optional — can be added later)  
SMP-850 Advanced two-band pre-emphasis limiter w/low-pass filters  
SG-800A Digital FM stereo generator

For AM stereo applications, the units consist of:  
SGC-800 Two-band AGC with dynafex noise reduction system  
SEC-800 Multiband compressor (optional — can be added later)  
SMP-950 Tri-band AM stereo matrix processor



## IPP-100

CRL's new digitally-controlled microphone processor, the IPP-100, is the easy way to get digitally-controlled power with the touch of a knob. The controls on the unit look and work like ordinary analog adjustments. The IPP-100 has a wide range built-in mic pre-amp that feeds a two-band constant Q graphic equalizer, followed by a powerful two-band compressor. Select your settings — then store them in one of 18 memories. An optional remote control box is available.

CRL Price... \$1695.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



## DX-2

The CRL Dynafex model DX-2 incorporates patented noise reduction circuitry that provides up to 30 dB of noise reduction. It is a two-channel device that will operate as a full stereo unit with both channels tracking together, or it may be used in the mono mode. The DX-2 can be utilized with -10, 0, +4 and +8 dB reference levels. Rear panel XLR connectors.

Stereo DX-2... \$820.00 U.S.      YOUR PRICE \$ \_\_\_\_\_  
Mono DX-1... \$720.00 U.S.      YOUR PRICE \$ \_\_\_\_\_





The Aphex  
Audiophile  
Air Chain

See Page 89.



# CRL SPOTLIGHT

*Audio Signature™*



## Audio Signature Four Band Audio Processor System

The CRL audio signature is a unique way to think of audio processing. Combine a powerful four band compressor to an advanced microprocessor system: the result is a unit that thinks the way you do about processing. The Audio Signature lets you define the processing parameters you want—it's almost like designing your own audio processing. Your PC and modem can control the audio signature from anywhere.

Plus...



## The MBL-100 News/Talk AM Processor

The MBL-100 is a multi-band audio processor specifically tailored for News/Talk AM transmissions. Powerful audio processing topology provides very high levels of average modulation density to extend the station's coverage area. The unit has a 7.5 kHz audio bandwidth and standard NRSC-1 pre-emphasis. Some processing functions may be remote controlled.

also...

## The IPP-100 Programmable Microphone Processor

The CRL IPP-100 is a new approach to microphone audio processing. The IPP-100 has a built in preamp that drives a two-band constant Q graphic equalizer and two-band compressor. 18 memory preset positions store programs. An optional remote control unit—the IPP-100R is available.



See Page 86.



# AUDIO PROCESSING

**APHEX**

## COMPELLOR

The Compellor™ delivers intelligent compression, leveling, and peak limiting simultaneously! The control circuits are actually analog computers that constantly monitor the input, adapt and control a single VCA per channel for minimal signal path. This versatile, cost effective processor is at home in broadcast preprocessing, microphone control, audio production, and tape duplicating.

Model 300 (stereo)...\$1195.00 U.S. YOUR PRICE \$ \_\_\_\_\_



## DOMINATOR II

Aphex Dominator™ II precision multiband stereo peak limiter models 720, 723 were designed to fit a wide range of audio applications. Through the use of multiband techniques along with new proprietary circuits, the audibility of limiting action has been greatly reduced, especially when compared to conventional limiters. Greater limiting depth is possible, resulting in higher loudness with maintained audio quality. At virtually any limiting depth, the Dominator II is free of "hole punching", "dullness", and most other effects normally associated with limiters. As a peak overshoot protection limiter, the Dominator II is undetectable in line while it absolutely prevents levels from exceeding a user settable output level.

Model 720...\$1350.00 U.S. YOUR PRICE \$ \_\_\_\_\_  
 Model 723...\$1495.00 U.S. YOUR PRICE \$ \_\_\_\_\_

## AURAL EXCITER III

The remarkable Aphex III studio aural exciter is a unique proprietary audio processing device that makes use of highly advanced psycho-acoustic principles to effectively restore and enhance audio presence, brightness and intelligibility. Designed specifically for on-air use, this unit provides AM stations with the clarity and brightness of FM.

Model 250...\$995.00 U.S. YOUR PRICE \$ \_\_\_\_\_



## 160XT

The DBX160XT has all the features the industry loves including XL connectors in place of barrier strips, with balanced inputs and outputs. Separate output circuitry allows independent isolated feeds. Other extras include True Power Sunning, for stereo linking, and a convenient Ground Lift Switch.

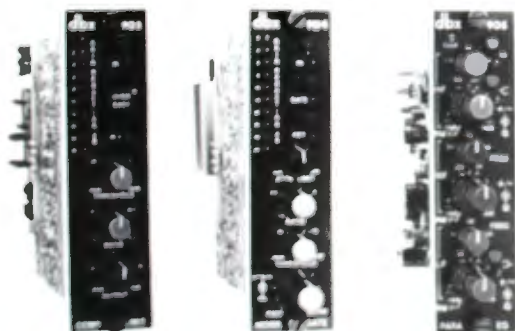
dbx Price...\$459.00 U.S. YOUR PRICE \$ \_\_\_\_\_



**DBX**

DBX has created the Series 900 modular signal processing system. The 903 compressor with its OverEasy compressor gives smoother, more listenable compression. The 904 noise gate is the ultimate noise gate, with a combination of features not found on any other noise gate. Features like adjustable attack and release rates, threshold adjustment from -30 to +30 dB, attenuation limit adjustment from 0 to 60 dB. The 905 parametric equalizer features 3 simultaneous bands of equalization, infinite notch on each band and shelving or contour on Hi and Lo. Series 900 is made to fit the optional F900A and FS900 mainframe enclosures.

dbx 903...\$449.00 U.S. YOUR PRICE \$ \_\_\_\_\_  
 dbx 904...\$499.00 U.S. YOUR PRICE \$ \_\_\_\_\_  
 dbx 905...\$499.00 U.S. YOUR PRICE \$ \_\_\_\_\_



**HOWE**

## 2300A

The Model 2300A Phase Chaser—Howe Tech's fourth generation audio timebase corrector—features accurate real-time performance of these main functions: automatic time delay correction, missing channel fill-in capability, and polarity reversal correction. A unique feature of the Phase Chaser is its ability to discriminate between systematic time delay (due to azimuth error or gap scatter) and normal phase fluctuations that characterize stereo audio.

Howe Price...\$2995.00 U.S. YOUR PRICE \$ \_\_\_\_\_



IN CANADA CALL 800-268-6817

**HARRIS ALLIED**

Specifications subject to change or revision

**89**

# AUDIO PROCESSING

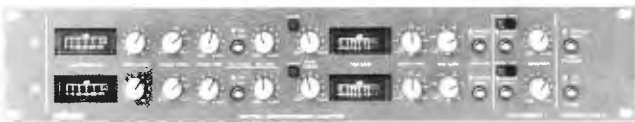
**ORBAN**



## 412A/U

The 412A/U is Orban's entry into the general-purpose compressor/limiter sweepstakes—it's designed to make you, the audio professional, the winner! Based on circuitry from the extremely popular Orban 424A/U, the 412A/U offers the controls and features most demanded by audio professionals. This is a no-frills unit with all the essentials— plus no-compromise sound, performance, quality and reliability at a very attractive price.

412A/U single channel...\$595.00 U.S. YOUR PRICE \$ \_\_\_\_\_  
 414A/U dual channel...\$895.00 U.S. YOUR PRICE \$ \_\_\_\_\_



## 424A/U

The Orban 424A/U gated compressor/limiter offers a full range of control over all key parameters: compression ratio, attack and release times, gate threshold, and de-esser. In addition to its flexibility, the 424A/U is widely heralded for its smooth, transparent action, with no pumping. Ideal for the production room or for mic channel dynamics processing where maximum control is desired.

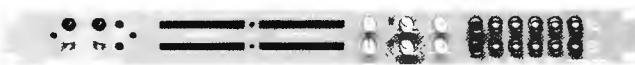
422A/U single channel...\$750.00 U.S. YOUR PRICE \$ \_\_\_\_\_  
 424A/U dual channel...\$1195.00 U.S. YOUR PRICE \$ \_\_\_\_\_



## 536A/U

The Orban 536A/U de-esser is widely recognized as the industry standard when it comes to handling difficult sibilance problems. Two independent channels in one magical, easy-to-use box.

Orban Price...\$695.00 U.S. YOUR PRICE \$ \_\_\_\_\_



## 464A/U

The Orban 464A/U Co-Operator™ is a four-stage, automatic, "assistant operator" that smoothly and unobtrusively rides gain, limits peaks, and offers selectable pre-emphasis in a compact, powerful one rack space unit.

Orban Price...\$1295.00 U.S. YOUR PRICE \$ \_\_\_\_\_

## 4000A

The 4000A, designed for transmission link protection is a transparent transmission limiter. The range of limiting is a maximum of 15 dB. The 4000A cannot create a "competitively processed" sound for radio station use. The 4000A is particularly designed to protect the input to STL links and satellite uplinks. For FM or AM station processing, please consult information on the Optimod 8100A for FM or the 9100A for AM competitive processing.



## 222A/U

The Orban 222A/U stereo spatial enhancer improves the spatial definition of stereo programming. Your listeners will also notice an increase in brightness, impact, and transient clarity. Complements your existing audio processing and offers a strong competitive edge.

Orban Price...\$1200.00 U.S. YOUR PRICE \$ \_\_\_\_\_



## 245F/U

The Orban 245F/U stereo synthesizer utilizes Orban's patented, time-proven comb filter design to create life-like, dramatic pseudo-stereo from any mono source with full mono compatibility.

Orban Price...\$495.00 U.S. YOUR PRICE \$ \_\_\_\_\_



## 275A/U

The Orban 275A/U automatic stereo synthesizer is designed to be placed in the program line to automatically recognize mono and stereo. It smoothly cross-fades and synthesizes when mono is present at its input. Contains automatic polarity detection and correction.

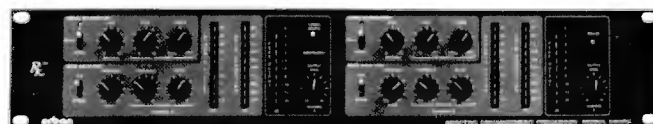
Orban Price...\$2400.00 U.S. YOUR PRICE \$ \_\_\_\_\_



## 787A/U

The Orban 787A/U programmable mic processor is a revolutionary system approach to DJ mic processing which offers 99 pre-set memories for instant repeatability. Level control, EQ, gating, and de-essing are available in one fully programmable package.

Orban Price...\$1595.00 U.S. YOUR PRICE \$ \_\_\_\_\_



## 290RX/U

You know the symptoms — once-spectacular audio that has gotten the life processed out of it. The Orban RX/U will bring it back to life. It contains two independent channels of audio problem solving power, each providing three unique processing functions: harmonic restoration, spectral restoration, and an extraordinary new single-ended noise reduction system. You will be able to psychoacoustically enhance any musical signal you work with.

Orban Price...\$1200.00 U.S. YOUR PRICE \$ \_\_\_\_\_

NOW STANDARD ON ALL ORBAN PRO PRODUCTS — XL-TYPE CONNECTORS AND GRAY ON BLACK FACEPLATES.





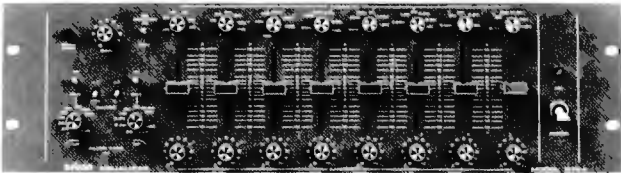
### 8100A1/U OPTIMOD-FM

The Orban 8100A1/U OPTIMOD-FM® controls levels, lets you adjust your station's sound to suit your format and competitive situation, and with its built-in stereo generator, precisely controls peak levels to guarantee maximum loudness without over-modulation. Experience has shown that stations with OPTIMOD-FM stand out, with a strong, solid, high-quality signal that is likely to attract and hold listeners. It's an *open sound*, with a uniquely favorable combination of loudness, impact, clarity, and brightness. More stations use OPTIMOD-FM than all other processors combined.

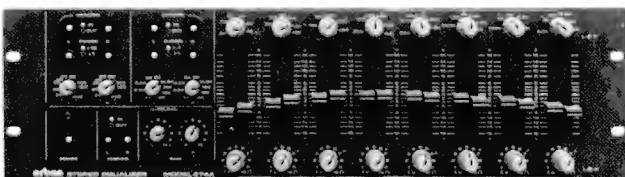
8100A1/U75...\$5550.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

The Orban 8100AST/U studio chassis accessory to OPTIMOD-FM provides level control *before* telephone lines or studio-to-transmitter link (STL) microwave, allowing you to maximize use of the STL's available dynamic range without overload.

Orban Price...\$1000.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



### 672A/U



### 674A/U

The Orban mono model 672A/U and stereo model 674A/U are cost effective, professional, quasi-parametric equalizers with the convenience of graphic type EQ controls. Wide range high and low pass filters with 12 dB/octave Butterworth slopes follow the graphic section for added versatility. Each feature has been thoughtfully chosen and cleverly implemented to make the equalizer a particularly powerful tool in nearly all areas of audio.

672A/U mono...\$795.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

674A/U stereo...\$1695.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

RET006 Optional Output Balancing Transformer, (672A/U)  
(1 per channel)...\$25.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

RET007 Optional Output Balancing Transformer, (674A/U)  
(1 per channel)...\$40.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

### 764A1/U

Orban has united digital control and fourth generation analog audio circuitry in a powerful, expandable, multi-channel parametric EQ system. Called the 764A1/U, it gives you total digital recall and programmability — allowing up to 99 channels of EQ. For meeting your need of superior equalization digital audio recording, the Orban 764A1/U is the answer.

Orban Price...\$1995.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



### 9100B1/U OPTIMOD-AM

The Orban 9100B1/U OPTIMOD-AM® can give your station FM-like audio on the AM band, with a sound that is both very loud and very clean. It includes compensation for less-than-perfect transmitters and antennas.

9100B1/U10 mono...\$4550.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

9100B2/U10 stereo...\$6350.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



### 8100AXT2

The Orban 8100AXT2 six band limiter accessory to OPTIMOD-FM is for those stations that want an even louder or more processed sound than that provided by the OPTIMOD-FM alone. Adding the XT2 can make your station much *louder* and *brighter*, yet still stay remarkably open. The XT2 adds punch and impact to bass, gives a dramatic sense of presence to the mid-range, and keeps the highs in perfect balance.

Orban Price...\$2550.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



### 111B1/U

The versatility of the quasi-parametric midrange equalizer complements the simple, inflexible equalization found on many low-cost mixers, and permits the owners of such systems to get the exact reverb sound they want. In addition, the 111B1/U has very high basic input sensitivity (-30 dBm), and a front-panel input gain control makes it usable with all mixers — even those with unusually low level sends. This versatility is complemented by a fully-professional 0 dBm balanced, floating output.

Orban Price...\$995.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



### 642B/U

The Orban 642B/U parametric equalizer notch filter is an efficient and powerful unit that allows for a wide scope of both creative and corrective enhancement. It will be a welcome addition to your production studio to enhance in-house promos, spots, and IDs.

642B/U...\$1295.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

RET049-XLR Connectors...\$35.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

RET051-Balanced Output Transformer...\$40.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



# AUDIO PROCESSING

## EVENTIDE



### H3000B

With the power of TWO top-of-the-line Eventide Harmonizers™, PLUS a complete high-end digital reverb and effects processor, the Ultra-Harmonizer™ is radio's "special effects department in a box."

The H3000B gives you over 60 built-for-broadcast-production presets, including reverbs, effects, pitch-change programs, even sound effects. The 14 algorithms include three developed especially for radio: Time-Squeeze™ for stereo time compression/expansion and machine control; Stutter; and Patch Factory.

Now you can add six more algorithms—Vocoder, Reverb II, MultiShift, Band Delay, String Modeller and Instant Phaser® — PLUS over a hundred new presets, with the SE ConKit. The HS322 Sampling Board Option turns your H3000B into a CD-quality, 11.8 second stereo (23.7 second mono) sampler. Eventide keeps putting more into the Ultra-Harmonizer, so you can get more out of it.



H3000B . . . . \$2995.00 U.S.  
SE ConKit . . . \$600.00 U.S.  
HS 322 . . . . \$995.00 U.S.  
(internal sampling board)

YOUR PRICE \$ \_\_\_\_\_  
YOUR PRICE \$ \_\_\_\_\_  
YOUR PRICE \$ \_\_\_\_\_

## GENTNER



### AUDIO PRISM

The standard of the industry for multi-band processing for FM, the Audio Prism delivers world-class modulation punch, but without the grunge factors that can drive listeners away. The secret is digital control. (Most other processors use analog control.) Digital control allows you to have the best of both worlds: power and clarity. The Audio Prism includes thorough RF shielding and an internal pink-noise generator. A 6 dB safety buffer watches levels, making it jock-proof. (Two Prisms are required for stereo.)

Audio Prism,  
per channel . . . \$1795.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

Several accessories are available, call us for details.



### PHOENIX

Only Gentner gives you NRSC and Digital Control. Providing everything you need from console output to transmitter input, the all-in-one Phoenix packs a clean, powerful wallop. For monaural AM, you can't buy more processing power for less money. The Phoenix features variable asymmetry, a voice phase rotator to assure maximum modulation, three-stage RF protection, and an internal 80 Hz square-wave generator to simplify adjustment of the low-frequency tilt-corrector. Standard Phoenix has 10 kHz bandwidth. Phoenix-EBU has 5 kHz bandwidth for shortwave, news/talk formats or nighttime skywave considerations. Both conform completely to NRSC standard.

Phoenix NRSC . . . \$2995.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



### LAZER

Gentner's Lazer is the cleanest sounding FM Limiter/Stereo Generator available. No longer do you have to feed your audio through an analog processing chain. Lazer handles audio purely in the digital domain to provide excellent aural specifications including maximum stereo separation, precise limiting and virtually no noise. The result: your audio retains its true sound. Front panel buttons and an LCD display menu allow you to numerically define pilot injection, release times, limiting threshold, and other operating parameters. Once the parameters are set, your worries are over. Lazer's adjustments will never drift. Precise values, along with present programs, allow you to repeat settings exactly. An extensive range of operation parameters, clean manipulation of audio, precise stereo generation with minimal crosstalk, and simple operation let you produce the sound you want.

Preliminary





# REDUCE... RESTORE... ENHANCE...



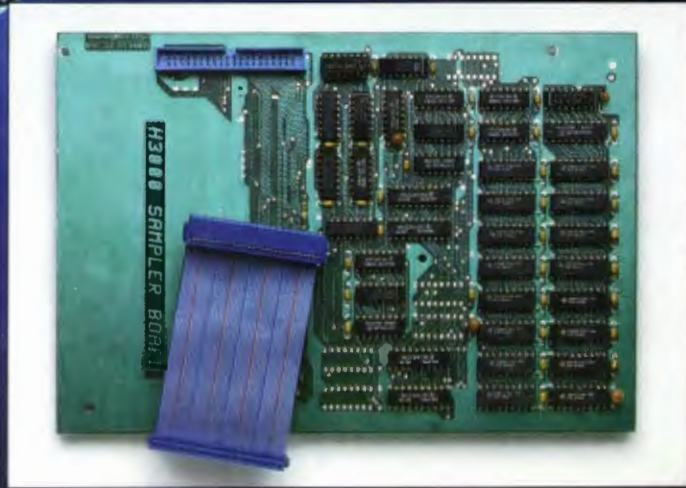
See Page 90.





# Radio's Most Colorful Black Box..

...keeps on getting more colorful. The SE ConKit adds eight new algorithms and 200 new presets. The model HS322 Internal Sampling Board option adds 11.8 seconds of stereo sampling (23.7 seconds mono). Two new reasons why Eventide's H3000B Broadcast Ultra-Harmonizer is the one effects device every production department should have.



DIGITAL  


**Eventide**<sup>®</sup>  
the next step

See Page 9





### ULTI-MATE 91

The Harris Ulti-Mate 91 TRI-band AGC provides true linear VCA gain control for consistent sound; a 110 dB dynamic range for ultra-quiet operation; and phase-coherent filtering for accurate transient response. Adjustable HF to LF output level mix controls and turn over points are featured, as well as adjustable coupling of HF and LF bands to midband control signal. Defeatable high pass and low pass input filters also are incorporated.



### PHASE FIXER

The Harris Phase Fixer eliminates audible phasing errors on encoded stereo carts and tapes and reduces flutter to insignificant levels. Using a true, 16-bit digital audio delay, it achieves low noise, high fidelity audio time base error correction. One Phase Fixer decode unit located in the main program line can source an entire facility.



### DBE-1000

The DBE-1000 Dynamic Baseband Enhancer is an FM composite signal processor designed to increase apparent loudness, eliminate baseband overshoots, and enhance your signal while protecting SCA services. It is sonically compatible with today's digital CD formats. Your stereo pilot signal is completely protected even with the most aggressive settings, and the proprietary processing technique eliminates stereo aliasing while supercharging your audio. Any format can benefit from Dynamic Baseband Enhancement because you control the degree of impact. Dual mode operation tailors the processing scheme to any format.

DBE-1000...\$1895.00 U.S.      YOUR PRICE \$\_\_\_\_\_



### PL-1

PILOT-LOK is the computer-designed phase-linear filter that restores stereo integrity to the most heavily clipped composite signal by protecting the 19 kHz pilot. It works with any composite processor.

The PL-1 totally eliminates the tendency of stereo receivers to blend to mono in the presence of heavy composite processing. Maximum stereo separation, reduced multipath, improved stereo coverage, clean SCAs and maximum dial impact are now available in a simple-to-install filter. Also available for 57, 67, and 92 kHz protection.

PL-1...\$395.00 U.S.      YOUR PRICE \$\_\_\_\_\_

PL-1 (SCA)...\$425.00 U.S.      YOUR PRICE \$\_\_\_\_\_

## MODULATION SCIENCES

### CP-803

The CP-803 composite processor minimizes the distortion that conventional processors sometimes create. Conventional audio processors work with the left and right audio. But the CP-803 deals with the stereo composite signal that comes out of the stereo generator. By working on this signal instead of left and right audio, many audio problems are avoided. Rack mount included. Up to 2 dB more loudness.

Mod. Sciences Price...\$1495.00 U.S.      YOUR PRICE \$\_\_\_\_\_

## AIR CORP

### PRO ANNOUNCER 500

The Pro Announcer 500 uses the latest and most advanced monolithic circuitry to provide impressive processing power with unmatched stability and reliability. From the unique selectable-gain monolithic front end with its integrated overvoltage protection, to the "popless" remotely insertable effects send, to the servo-balanced output stage, the Pro Announcer exemplifies the state of analog processing art.

Pro Announcer 500...\$599.00 U.S.      YOUR PRICE \$\_\_\_\_\_



# AUDIO PROCESSING

## INOVONICS



**222**

Inovonics' 222 is an NRSC audio processor specifically intended for AM broadcasting. It incorporates an adaptive preemphasis characteristic to enhance signal intelligibility and presence, and a sharp-cutoff low-pass function to eliminate adjacent channel interference. Also includes a sophisticated Peak Limiter for stand-alone service between program source and the transmitter.

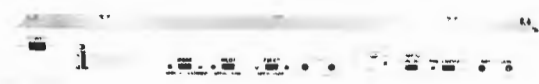
Inovonics Price . . . \$620.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



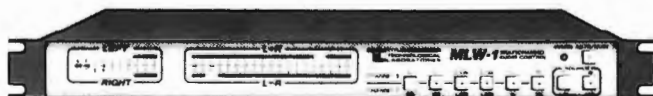
**255**

Inovonics' 255 is a Triband/PWM, stereo audio processor with principal utility in the "contemporary music" FM broadcasting format. The user has been given almost unlimited control over program spectral distribution and density through a series of calibrated wide-range adjustments. This allows processing to be tailored from conservative to aggressive. Particular attention was directed to compatibility of the 255 to the wide range and dynamics of digital program sources.

Inovonics Price . . . \$1990.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



## TITUS



**MLW-1**

The MLW-1 provides the broadcaster with a microprocessor based automatic audio correction device. When used as a stereo in-line device the MLW-1 will detect the loss of a channel, loss of a source, or polarity reversal on it's primary stereo inputs and automatically correct the problem or bring up an alternate or tertiary source. The MLW-1 features automatic change to alternate channel on loss of channel, automatic change to alternate source on loss of channel or loss of signal, full metering and monitoring of Left, Right, L+R, and L-R input channels. It has user programmed time delays and audio source sequencing and is totally remote controllable.

MLW-1 . . . \$1800.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



**250**

Inovonics' 250 is a comprehensive multiband stereo digitally programmable audio processor for demanding applications in the AM, FM or TV broadcasting services. Programmability of the 250 enables the user to adapt processing parameters to alternative program sources or to suit changing station formats and listener profiles over the course of the broadcast day.

Inovonics Price . . . \$3050.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



**706**

Inovonics introduces the 706, a "second generation" FM Stereo Generator incorporating the FMX™ Transmission System as an easily-installed plug-in option. FMX™ Stereo transmission gives the broadcaster a substantial increase in his noise-free stereo coverage area. *Digital synthesis* of composite signal.

Inovonics Price . . . \$3120.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

**705**

The 705 is a full-featured, stand-alone FM Stereo Generator incorporating necessary low-pass filtering and transmission preemphasis functions. The subcarrier and pilot signals are generated by *digital circuitry* to assure optimum performance and drift-free operation. Easy setup and maintenance. FMX™ System plug-in option.

705 Less FMX . . . \$1375.00 U.S.      YOUR PRICE \$ \_\_\_\_\_  
With FMX Plug-in Option installed . . . \$1990.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



**THE LAST WORD 2**

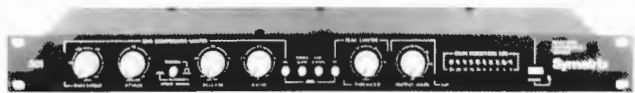
THE LAST WORD 2 is a totally self contained Automatic Stereo Synthesizer and audio correction device. It features an internal Dynamic Stereo Synthesizer, and can automatically insert the synthesizer into the audio chain with loss of channel, monaural detection, or remote command as well as automatic change to alternate channel on loss of channel, automatic change to alternate source on loss of channel or source, and audio polarity correction. It has microprocessor controlled audio routing and VCA control. THE LAST WORD 2 is user programmable for time delays, source sequencing, and stereo synthesizer control, is totally remote controllable, and provides full metering and monitoring of the stereo signal.

TLW-2 . . . \$3900.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



# AUDIO PROCESSING

**SYMETRIX**



## 501

Symetrix' two processor device with variable ratio compressor and an infinity-to-1 peak limiter for the ultimate in compression/limiting. "Soft knee" transition characteristic assures sonic integrity. Selectable automatic mode significantly reduces overshoot and distortion. Balanced and unbalanced inputs and outputs.

Symetrix Price...\$349.00 U.S. YOUR PRICE \$ \_\_\_\_\_

## 528

Complete microphone input signal processor: mic preamp, compressor/limiter, downward expander, parametric equalizer/notch filter, de-esser, all in single rack space package. Phantom powering for condenser mics, balanced line input for high level signals. LED metering indicates output level, gain reduction, de-esser activity.

Symetrix Price...\$679.00 U.S. YOUR PRICE \$ \_\_\_\_\_

**LEXICON**



## LXP-1

The Lexicon LXP-1 Multi-Effects Processing Module's 16 bit linear PCM A/D and D/A converters are extremely accurate, with wide dynamic range necessary for quiet reverb "tails" and crisp delay effects. It uses the latest VLSI technology; has 16 programs with all the sounds you need. The LXP-1 has 128 user registers to store your own personal settings. You store and recall registers using MIDI Program Change commands.

**UREI**

## 535

The UREI 535 dual graphic equalizer offers 10 filter sections per channel with increased control range, and more output capability. The 535 provides 12 dB of boost or cut at each of its 10 frequencies, which are centered at ISO one-octave increments from 31.5 Hz to 16 kHz, with balanced bridging differential amplifier inputs, variable gain, floating transformer isolated outputs of 150 ohms or greater load. Rack-mountable. Stereo.

UREI Price...\$790.00 U.S. YOUR PRICE \$ \_\_\_\_\_



**VALLEY INTERNATIONAL**



## 400

Finally, a mic processor that needs nothing else. The Model 400 was designed specifically to enhance the on-air personality's performance. It features: mic level in Hi- or Lo-level out; extra Hi level send & return for further processing or effects; EQ, compress, gate, de-ess, process; and flexibility in interfacing your signal chain.

Valley Price \$679.00 U.S. YOUR PRICE \$ \_\_\_\_\_

## 440

The Valley International 440 limiter/compressor/dynamic sibilance processor offers the convenience of a peak limiter, a high quality compressor/expander package and a dynamic sibilance processor section, each controlling a common voltage controlled amplifier.

Valley Price...\$1025.00 U.S. YOUR PRICE \$ \_\_\_\_\_

# DELAY LINES

## EVENTIDE



### BD942

Cost-effective protection for controversy-oriented talk radio formats. Now reliable, efficient obscenity protection is so cost-effective, even radio stations that only program occasional live talk shows can afford it. The mono BD941 is available in 6, 12 and 24 second versions — the stereo BD942 offers 3, 6 or 12 seconds of delay. All versions feature full bandwidth and inaudible distortion.

- BD941 Broadcast Delay Line (20 kHz, mono)**  
 6 sec. fixed delay...\$1795.00 U.S. YOUR PRICE \$ \_\_\_\_\_  
 12 sec. fixed delay...\$2195.00 U.S. YOUR PRICE \$ \_\_\_\_\_
- BD942 Broadcast Delay Line (20 kHz, stereo)**  
 3 sec. fixed delay...\$1995.00 U.S. YOUR PRICE \$ \_\_\_\_\_  
 6 sec. fixed delay...\$2395.00 U.S. YOUR PRICE \$ \_\_\_\_\_



### BD980

The BD980 features an advanced, de-glitched catch-up system. When objectionable program audio is "dump"ed with the BD980, delay catch-up is fast and audio quality is clean. Contributing to the unit's superb audio quality is the 16-bit linear PCM design and 50 kHz sampling rate. Frequency response extends to 20 kHz.

Two independent stereo channels of delay are standard. Maximum delay time is an unprecedented 10 seconds. Delay time can also be manually selected with resolution to one millisecond. A delay max switch permits instant return to maximum delay. "Ramp to Zero" and "Wait & Exit" modes automatically get you in and out of delay — perfect for busy drive-time shows.

The BD980 is also the first and only broadcast delay to feature time compression capabilities.

Eventide Price...\$5495.00 U.S. YOUR PRICE \$ \_\_\_\_\_



### BD955

The Eventide BD955 broadcast digital audio delay line offers memory capacity to delay signals up to 6.4 seconds. It also incorporates a unique "catch-up" feature, which eliminates the need for a taped jingle or announcement. The standard unit provides full 15 kHz frequency response. For applications where wide band frequency response is not needed, such as the delaying only of phone signals, the user may opt for a 7.5 kHz model, at substantial cost saving.

- BD955 1564 (15 kHz 6.4 sec) ...\$4300.00 U.S. YOUR PRICE \$ \_\_\_\_\_  
 BD955 7564 (7.5 kHz 6.4 sec) ...\$3350.00 U.S. YOUR PRICE \$ \_\_\_\_\_

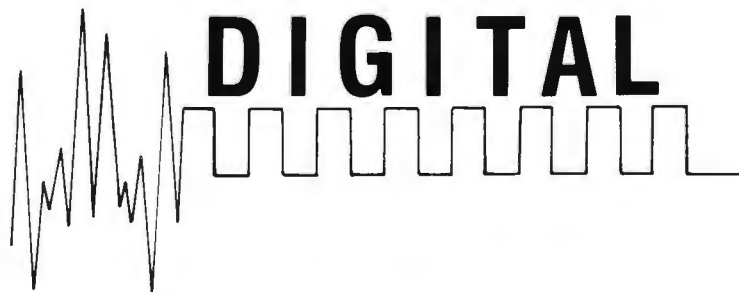
## AUDIO DIGITAL



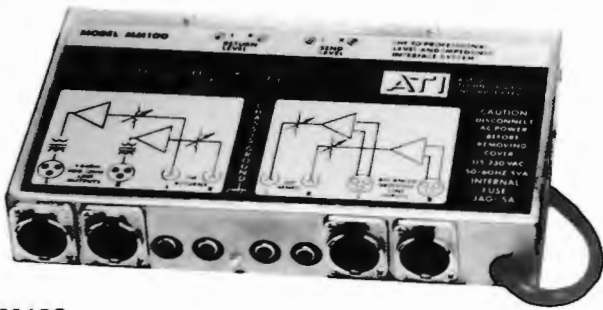
### TC-4

The TC-4 broadcast digital processor is a state-of-the-art advancement in broadcast profanity delay. It features delay time of 6.8 seconds, with a 15 kHz bandwidth and 85 dB dynamic range. The optional (user-installable) auxiliary card allows memory dump in less than two seconds, as well as a delay time catch-up feature to allow starting in near real time.

- TC-4 .....\$1597.00 U.S. YOUR PRICE \$ \_\_\_\_\_  
 Catch-up option...\$286.00 U.S. YOUR PRICE \$ \_\_\_\_\_  
 Stereo sync. option...\$81.00 U.S. YOUR PRICE \$ \_\_\_\_\_



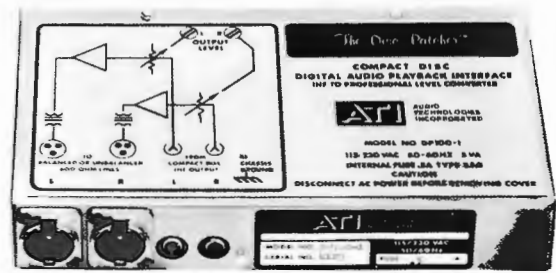




## MM100

Use the MM100 bi-directional stereo interface for record-playback applications interfacing audio or video cassette recorders and also for input-output matching of equalizers, NR units, reverbs and mixers. Jumper the IHF jacks to make a dual line amp, two output DA or a two input summing amp and stereo combiner. Rugged shielded enclosure, shelf mount brackets, accessory 1 1/4" rack panel mounts 2 units, XLRs.

ATI Price... \$269.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



## DP100

The DP100 uni-directional stereo interface is designed to invisibly interface digital compact disc playback units with absolutely no reduction of the superb performance available from the digital system. Equally at home on a newsroom desk, use the Disc-Patcher to patch ENG cassette recorders into your system for dubbing. RF proof, shielded internal power supply, shelf or dual rack mount, XLR out.

ATI Price... \$219.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



## L-1000

The ATI L-1000 dual line series of Micro Amps is rackable, micro-sized, stackable, versatile and RF protected. The series provides +22 dBm at clipping for transformer and single ended outputs, +26 dBm for balanced differential outputs. They're quiet; total amplifier noise is typically within 1 dB of the thermal noise of source impedance.

Prices on Application

## TRISTECH AUDIO



## FX-100

The price is right-on for the FX-100 matching box and we ran our own tests. Here are the results:

	Unbal IHF In/Bal Out	Bal In/Unbal IHF Out
Maximum Output	+25 DBM	+19 DBM
Maximum Input	+19 DBM	+25 DBM
THD	.002 %	.003 %
IMD	.005 %	.003 %
Noise	100 dB (unweighted) 90 dB (unweighted)	98 dB (unweighted) 80 dB (unweighted)

Full facility for stereo IHF/balanced levels and impedances, in and out.

Tristech Price... \$239.95 U.S.      YOUR PRICE \$ \_\_\_\_\_

## BENCHMARK



DOA



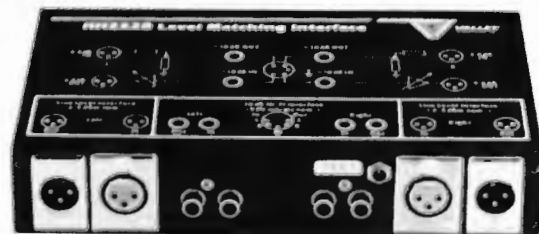
DIA

The DOA 1 & 2 provide the optimum answer to the need for a professional level interface, and at less than half the price of an external device. With the DOA 1 & 2 rabling space mounting and AC power problems are eliminated. The DOA 1A uses a split power from +9V to ±22V D.C. The DOA 2A uses a single (+) supply from +18V to +44V D.C.

The DIA 1A and DIA 2A retrofit into existing equipment and may be used with virtually any existing supply voltages up to ±26VDC volts. These different input amplifiers provide the optimum answer for balanced inputs in your equipment. The DIA 1A uses split ±11 supplies. The DIA 2A uses a single (+) supply.

Prices on Application

## VALLEY INTERNATIONAL



## HH2x2B

While the HH2x2B level matching interface immediately resolves the level and impedance matching problems associated with interfacing +10 dB equipment to the studio and broadcast standards of +4 and +8 dB it also ensures immunity from RF pickup and hum, thanks to electronic balancing of the +4 +8 inputs and outputs. Rack mount available.

Valley Price \$299.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

# INTERFACES

**HENRY**



## MATCHBOX

The MATCHBOX is the ideal, inexpensive way to correctly interconnect semi-pro equipment with pro studio gear. The MATCHBOX is bi-directional, with four independent amplifiers for stereo input and output interface. Two amplifiers convert a stereo IHF HI-Z unbalanced source to LO-Z balanced outputs at studio level. A second pair of amplifiers converts the stereo balanced studio line source to unbalanced IHF outputs to feed the inputs of an IHF device. All circuitry is active and direct coupled for absolute sonic transparency.

Henry Price...\$195.00 U.S.

YOUR PRICE \$ \_\_\_\_\_



## TWIN MATCH

TWIN MATCH is a four channel level & impedance interface for matching -10 dBv unbalanced equipment to +4 dBm professional gear. It's like The Matchbox, but it's "one-way", ideal for CD players. Since TWIN MATCH has four channels, one unit will work with a pair of stereo CD players, or with a four-channel tape deck. All DC-coupled active circuitry. Outputs will drive a 600 ohm load to +25 dBm. Same size & price as a Matchbox.

Henry Price...\$195.00 U.S.

YOUR PRICE \$ \_\_\_\_\_

## RADIO DESIGN LABS



## STR-19

The STR-19 is a rack mount assembly which allows the installer to mount from one to fifteen RDL "STICK-ON" products. The all-steel panel is hinged for convenient access during installation and adjustment. The bottom of the panel holds a wiring duct for neat wire harnessing and routing. "Snap-on" mounts permanently adhere to each "STICK-ON", which is then quickly snapped on or off the mounting rail. The STR-19 is just one more reason to make RDL "STICK-ONS" your first source for ultra convenient, high performance electronics. 5 1/8" x 19".

RDL Price...\$159.00 U.S.

YOUR PRICE \$ \_\_\_\_\_



## STD-1

The STD-1 is a resistive branching network with RF filtering on each of the four channels. Any channel may be either an input or an output. This permits combining stereo signals into mono inputs, splitting mono signals to multiple inputs, and even combining microphones with output shorting switches into a single amplifier input. Available in both 150 ohm and 600 ohm. All inputs and outputs balanced. Only 2.9" x 1.5" x .5" small. The STD-1 is just one of the ultra-convenient "STICK-ON" products available.

RDL Price...\$32.95 U.S.

YOUR PRICE \$ \_\_\_\_\_

## RUSSCO



## CD-100

Despite its small size and inexpensive price tag, the CD-100 is an impedance matching amplifier forged from the anvil of craftsmanship. Using state-of-the-art manufacturing techniques, the overall price is kept down without sacrificing quality, making the CD-100 a true bargain. Designed specifically to interface consumer-type CD players, the CD-100 can be used to interface any high impedance output device to a 600 ohm line; balanced or unbalanced. Frequency response: 15 Hz - 30 kHz; harmonic distortion: <.1%; noise: -82 dB below +4 dB average output level.

Russco Price...\$79.90 U.S.

YOUR PRICE \$ \_\_\_\_\_

## ZERCOM



## GAIN BOX

The GAIN BOX was designed and built as an audio boost amplifier for many applications around the broadcast station. It has two independent channels of gain which means it can be used for stereo or as two separate monaural amplifiers. The two channels can be wired in series for up to 60 dB gain.

Zercom Price...\$149.00 U.S.

YOUR PRICE \$ \_\_\_\_\_



# DISTRIBUTION AMPS

ATI



## DA1008 and DA2016

Easily match differing line level requirements with these high output DAs with 8 or 16 individually adjustable outputs. Active and transformer balanced outputs at +22 or +30 dBm. An LED meter with three selectable 0VU settings allows you to set nominal line levels and monitor peak headroom. Includes input clipping LEDs and a boosted headphone output. Our top-of-the-line unit for your most demanding applications. Rack mounts in only 1 3/4".

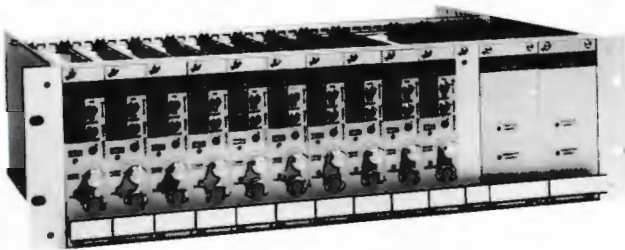
Prices on Application



## DA1000 and DA2008

A single, high output, active balanced driver per channel is resistively split into 4 or 8 outputs each, all driven at precisely the same level. Up to +24 dBm balanced in and out. Features output clipping LEDs and a headphone/metering jack in a half rack package that you can mount singularly or side-by-side in only 1 3/4".

Prices on Application



## DA10,000

Mix the interchangeable DA modules to precisely match your system requirements. From low cost power splitting types you can expand to metered outputs, remote level controls and wide range compressors for critical lines. Individual transformer output models with full metering allow trimming of each output to meet your particular level matching needs.

Price on Application



## DA208 and DA416

Two or four inputs, each driving four individually adjustable, active balanced outputs give you twice the channels for the price, twice the performance in most applications. Need more outputs? Just parallel inputs for up to 1 x 16 operation. Drive everything from balanced 600 ohm lines to Hi-Z IHF phono jack inputs without matching pads or noise compromises. Transparent performance, RF protected.

DA208-Dual 1x4 . . . \$339.00 U.S.      YOUR PRICE \$ \_\_\_\_\_  
 DA416-Quad 1x4 . . . \$489.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

BGW

## 2242

The BGW 2242 professional audio distribution amplifier reliably distributes and isolates without degradation. The ultra-low distortion, wide bandwidth and dual 1 input x 4 output design are ideally suited for radio TV stereo broadcast studio and live remote broadcast applications.

BGW Price \$799.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



## RADIO DESIGN LABS

### ST-DA3

The ST-DA3 "STICK-ON" allows the bridging of any audio line, adjusting the gain, and driving up to three outputs. Each output is driven by a separate amplifier, and is isolated from both the input and from the other outputs. The circuit design allows the input to accept either balanced or unbalanced signals, of either high or low impedance. Each of the outputs is capable of driving into either high or low impedance loads. And each output may be connected either balanced or unbalanced.

ST-DA3 mono . . . . . \$99.95 U.S.      YOUR PRICE \$ \_\_\_\_\_  
 ST-DA3-D stereo . \$149.95 U.S.      YOUR PRICE \$ \_\_\_\_\_



IN CANADA CALL 800-268-6817

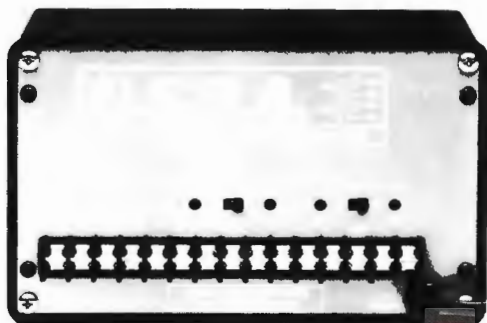
**HARRIS ALLIED**

Specifications subject to change or revision.

101

# DISTRIBUTION AMPS

## HENRY



### U.S.D.A.

The Utility Summing & Distribution Amplifier is a unique 2x4 "Mini-D.A." that can be used to combine or split audio signals for distribution. U.S.D.A. has two inputs (one stereo pair) and four outputs (two stereo pairs). It can be used as a 1x4 or 2x4 DA in mono or stereo. Each stereo output can be independently switched to MONO, so that a stereo input can produce a stereo and/or mono output *without* degrading the separation of the input signal. Inputs and outputs can be balanced or unbalanced. Input levels can be -20 to +8 dBm; gain is adjustable to +20 dB. Each output will drive a 600 ohm load to at least +24 dBm.

Henry Price...\$195.00 U.S.

YOUR PRICE \$\_\_\_\_\_

## GENTNER

### RDA

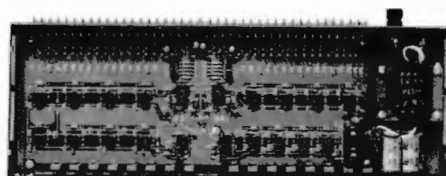
If you're looking for an audio distribution amplifier that can meet your changing needs, the Routing Distribution Amplifier (RDA) is the answer. RDA's unique eight input design gives you uncompromised versatility and flexibility in your installation. Instead of a limited number of inputs (usually one or two) and a fixed number of outputs (usually 8 per input), the RDA has eight (8) inputs and twenty-eight (28) outputs. Any input or any combination of inputs can be routed to any output. And, because it can be changed easily and quickly, it continues to provide versatility long after installation. 3.5"H x 17.2"W x 11.2"D. Shipping weight: 13 lbs.

Gentner Price...\$1295.00 U.S.

YOUR PRICE \$\_\_\_\_\_



## AUDIOMETRICS



### DA8x2

The Audiometrics distribution amplifier combines solid state electronics and functional flexibility into one small package. A single high quality audio op amp provides balanced output, and individual gain adjustments for each channel. Excellent isolation is provided between outputs. Audio sources can be routed to multiple locations with various level requirements and impedances.

Audiometrics Price...\$440.00 U.S.

## AUDITRONICS

### 1100 SERIES

Designed to meet the requirements of the modern broadcast facility, the 1100 Series audio distribution amplifier systems from Auditronics include the mainframe, power supply and a 1 x 6 distribution amplifier module. The DA-6/LC amplifier module includes one balanced input with internal master gain control and six balanced outputs. Each output on the module has an individual front panel control. 8 and 10 module mainframes available. External power supply optional.

Prices on Application



**Ordering information and the Terms and Conditions of Sale are set forth at the end of this catalog. Please read them before placing an order.**

Specifications, illustrations, drawings, descriptions, weights, measurements and prices are subject to change without notice. Leasing and financing are available in most areas with approved credit.

HARRIS ALLIED  
Printed U.S.A. © 1991



# When You Consider Remote Possibilities...



## PLXmicro Frequency Extender/Encoder

Perfect complement to a cellular phone, transforming the sound to broadcast quality. Provides connections for microphone, tape and headphone. Compact size. Battery-operated. Full duplex operation.



## Multiline Frequency Extender

The most sophisticated and easy-to-use frequency extender available. This versatile 1, 2, or 3 line system automatically dials, levels and equalizes your line at the push of a button. Incorporates Comrex unmatched noise reduction.

Consider Comrex. We're the people who pioneered the frequency extender and have set the standard in broadcast quality telephone transmission for nearly 30 years.

Comrex covers every remote possibility—in radio, television and teleconferencing. Comrex equipment is specified by networks and stations worldwide who understand the pay-backs of Comrex dependability.

## TH-1 Hybrid

Users say it's the "best hybrid we've ever worked with." Provides reliable broadband balance plus auto or manual answer, dual cart start, adjustable ring count, caller mute and more.

## TH-X Extender Hybrid

Picks up where the TH-1 Hybrid leaves off. Combines all of the TH-1 features with transmit/receive frequency extenders and automatic caller leveling. Ideal for use with the PLXmicro and cellular phone for two-way, on-air remotes.

See Pages 106 and 107.

**COMREX®**



# ROUTING SWITCHERS

## CONEX



### UM-33

The Conex UM-33 cue amp is a stereo, eight channel in, one channel out general purpose cue, monitor, and line amplifier. The cue amp provides the easiest, least expensive, and most compact way of handling a variety of common monitoring, cueing, amplifying, and switching situations in any audio installation.

Conex Price . . . \$550.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

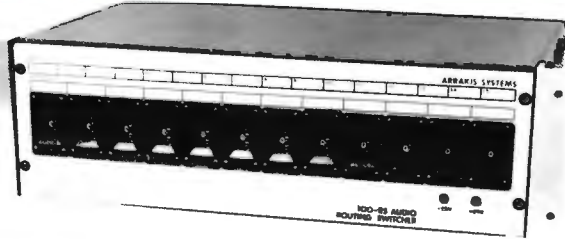


### AS-101

The Conex AS-101 audio switcher allows any one of 10 stereo sources to be switched to the stereo output channel. Switching is accomplished by pressing one of the illuminated buttons on the front panel, or remotely, via the remote control connector on the rear panel. Several remote control devices may be connected in parallel, and all will indicate the selected channel.

Conex Price . . . \$895.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

## ARRAKIS

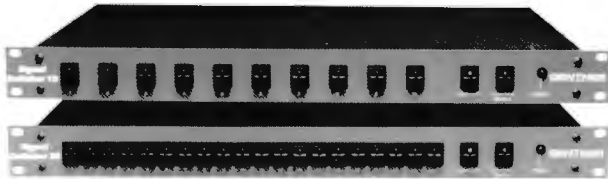


### RS AUDIO

The RS audio routing switchers are the professional alternative to patch panels, mechanical switches and distribution amplifiers. The thumb-wheel control switches are 1,000,000 operation types. These switchers may be used in the most critical sections of the audio chain with total confidence.

Prices on Application

## GENTNER

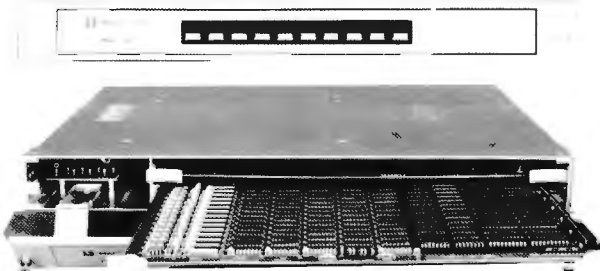


### SIGNAL SWITCHER 10 & 20

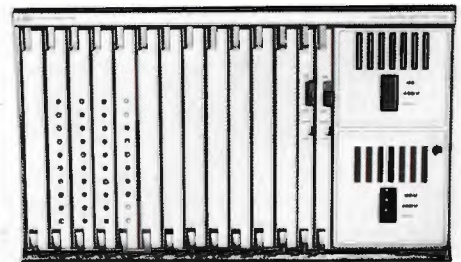
Whether you're selecting on-air signals to a broadcast transmitter, routing extra sources to a console or switching computer terminals or printers, nothing beats a Gentner switcher for reliability. The Signal Switchers use highly dependable magnetically latching relays to route audio, data or control signals through your facility. Because the switching process is passive, with no loads or amplifiers of any kind, it's transparent to your signal. Gentner's Signal Switchers are the ones you'd trust with your most important signals. 1 3/4"H x 19"W x 11"D (1 rack unit)

Gentner Price . . . \$899.00 ea. U.S.      YOUR PRICE \$ \_\_\_\_\_

## IMAGE VIDEO LTD.



## UTAH SCIENTIFIC



### SWITCHING SYSTEMS

From a 10 x 10 to 100s x 100s, Utah Scientific tackles virtually any job. When engineers talk big distribution amplifiers, the conversation always includes Utah Scientific. Let us quote your next distribution system job. With Utah Scientific, no job is too big.

Prices on Application

## 360 SYSTEMS



### AM-16B

AM-16 System Architecture: The AM-16/B Audio Crosspoint Switcher is a self-contained master switcher that supplies everything needed in a 16 input, 16 out system. Full front panel control and display facilities are included on the AM-16/B, which can be configured for 16x16 monaural or 8x8 stereo operation. The AM-16 series may be controlled remotely by the optional AM-16/R intelligent remote controller. The AM-16/E Expander provides 16 additional channels when connected to an AM-16/B. Harris Allied has complete information and comprehensive spec sheets.

The 6010 is a high quality 10 x 1 switcher ideal for production or monitoring applications. It is available in mono or stereo audio, in just one rack unit. One or both audio channels may be replaced with Time Code or Control bus, and is field expandable to 20 x 1 or more. The 601 (AFV) and 602 (dual audio) are the economical solutions for audio switching. Transparent signal path ensures the integrity of the audio signal. The 9521 is a 20 x 10 dual audio routing switcher. This unit brings a new level of sophistication to high density switching systems, creating a new alternative for radio facilities where equipment space consumption is a major concern. Pictured at left, top to bottom: 6010, 9521.



## AUDIOCOM

The Audiocom is a closed circuit headset intercom system of exceptional versatility. Components may be selected for a single or multiple line intercom, suitable for small or large, indoor or outdoor, portable or permanent installations. The system provides clear two-way communications "behind the scenes" at concerts and stage productions, film or TV studios, sports stadiums or race tracks, industrial, military, public safety and security applications.

Prices on Application



## RTS

## TW INTERCOM SYSTEM

The TW intercom system is a high performance conference line intercommunications system that features over 30 different components to allow a broad variety of system configurations. The system is designed for teleproduction and broadcast operations as well as industrial and commercial applications. Proven performance by demanding professionals has established the TW intercom system as a standard in the field of intercommunications.

Prices on Application



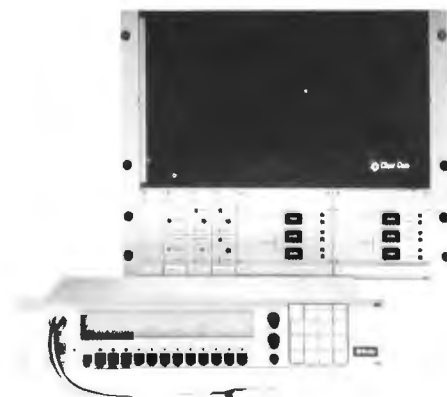
## CLEAR-COM

## MATRIX PLUS

Clear-Com's exceptionally versatile Matrix Plus communication system integrates the best operational features of point-to-point and party-line intercoms. Matrix Plus is a sophisticated microprocessor controlled 50 x 50 Crosspoint Matrix Intercom and a Modular Interface System which link together to provide a total communications package. The system features totally noise-free, fully digitized two-way audio between the central Matrix and the Matrix Stations, utilizing state-of-the-art DSP (Digital Signal Processing), requiring only single pair station to matrix wiring.

Clear-Com's Matrix Plus was designed to provide a total communications capability, easily and correctly interfacing point-to-point, telephones, 2-way radio, 2-wire/4-wire camera intercoms, IFB systems, camera/station ISO, 4-wire systems, and virtually all other types of 1-way and 2-way communication systems and devices. (IBM-compatible PC is optional.) Please call for complete specification details.

Pictured at right, top to bottom: MFA-1 Matrix Frame Assembly, EIF-1 Expansion Interface Frame, ICS-2000 Display Station.



**Call us for all your broadcast equipment needs. Our 800 number makes it simple.**

# TELEPHONE

**COMREX**



**3XP**

The Comrex Multiline frequency extender system consists of the 3XP encoder and the 3XR decoder. It provides the flexibility of one, two or three line operation with a frequency response of 50Hz - 8kHz (using three dial telephone lines). Features include one button auto-dial and setup, automatic line equalization, Comrex multiband noise reduction and real time audio processing.



**3XR**

**3XP**

The 3XP encoder is compact, rugged and easy to use. It will automatically dial your program lines and send all necessary setup signals with the push of one button. There is visual indication of line integrity as well as monitoring on Line 3 for communications. Because real time audio processing is employed, there is no delay when monitoring program 1FB.

3XP Price...\$6000.00 U.S.

YOUR PRICE \$ \_\_\_\_\_



**2XP**

The 2XP portable two-line encoder is for use with an external console, and contains all the features necessary to transmit 5 kHz over two dial or dedicated lines. There is built-in telephone interface for two program lines, with a third for communications. An optional road case is available. 4"H x 9"W x 14"D. Unit Weight: 9¼ lbs.

Comrex Price...\$3500.00 U.S.

YOUR PRICE \$ \_\_\_\_\_

**3XR**

The 3XR decoder contains everything necessary to automatically answer and match the gains of program lines as well as equalize each line across the full telephone band. It is housed in a 3U 19" rack and uses modular Eurocard board construction. Optional automatic satellite delay for international feeds will handle up to one second of time difference among lines.

3XR Price...\$6500.00 U.S.

YOUR PRICE \$ \_\_\_\_\_



**2XR**

The 2XR rack-mount two-line decoder is compatible with both 2XP and STLX encoders. For unattended operation, the 2XR may be used with TCB-2 auto-answer telephone couplers and the 2XL auto leveler, or with TCB-1 couplers where phones will be answered manually. 1¼"H x 19"W x 14"D. Unit Weight: 10½ lbs.

Comrex Price...\$3000.00 U.S.

YOUR PRICE \$ \_\_\_\_\_



**STLX**

The STLX two-line encoder/console is a completely self-contained remote broadcast package ideal for reporting sports and news events. It incorporates a two-line encoder with noise suppression, as well as complete telephone interface for program and talkback. Other features include 4 mixing channels (2 mic/line), switchable AGC on all mic channels, 4 headphone channels for monitoring and intercom, PA feed out/external monitor in and Penny & Giles® conductive plastic slide faders. Optional road case and battery pack are available. 6"H x 15"W x 15½"D. Unit Weight: 18 lbs.

Comrex Price...\$7750.00 U.S.

YOUR PRICE \$ \_\_\_\_\_

**2XL**

Comrex's new 2XL audio leveler, similar in features to the LXL, now incorporates two auto answer couplers. Only preliminary information available at presstime — please call us for more complete details.

Comrex Price...\$1800.00 U.S.

YOUR PRICE \$ \_\_\_\_\_





### LX-T (top) and LX-R (bottom)

This basic extender system was specifically designed for smaller-market stations. The LX-T encoder/LX-R decoder doesn't offer the extra features that some users find unnecessary. What it does offer is a distinct improvement in program quality sent over telephone lines at the lowest possible price. Optional rack adapter available. 1 3/4"H x 9"W x 6 1/2"D. LX-T weighs 2 3/4 lbs. and LX-R weighs 2 1/2 lbs.

LX-T...\$685.00 U.S.      YOUR PRICE \$ \_\_\_\_\_  
 LX-R...\$685.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



### SLX

Comrex's SLX one-line encoder/console is similar to the STLX. The SLX is a complete, self-contained remote broadcast package but with the single-line encoder. 5 1/2"H x 15"W x 1 1/2"D. Unit Weight: 15 lbs.

Comrex Price...\$4200.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



### PLX micro

The PLX micro encoder works with cellular or regular telephones. It's a full-duplex, battery operated, one line extender that packs twice the features of older extenders into half the size. It has mic and tape inputs, AGC, monitor output and built-in coupler. Optional A/C supply available. Used with either the TH-X or LX-R.

Comrex Price...\$1450.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



### TH-X

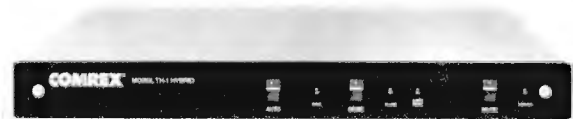
The TH-X extender/hybrid includes all the features of the TH-1 hybrid (see below) and adds a one line frequency extender encoder and decoder. The TH-X is ideal for use with the PLX micro for high quality on air conversation between field reporters using cellular or dial telephones and the studio host.

Comrex Price...\$2750.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

### TH-1

Put callers on the air with the TH-1 telephone interface. The precision wideband hybrid balance maintains full integrity of studio audio and careful filtering gives the best obtainable caller sound. Comrex's Diverta-Coupler is built in for easy connection through any PABX. Hybrid balance tone oscillators are built in for fast uncomplicated set up. Other features include manual operation or automatic answering with calling party disconnect, de-clicking, remote relays for cart start and variable ring count.

Comrex Price...\$1750.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



### TCB-2

The TCB-2 auto-answer coupler automatically answers a telephone line on the first ring and disconnects that line when the calling party hangs up. The TCB-2 needs a momentary open or reversal from the central office to disconnect. Most but not all CO's provide this signal. An optional dial tone detect board is available if required. Ideal for unattended situations such as "listen lines", dial up network, remote transmitter sites and satellite links. Optional external AC supply required which will power up to 4 couplers. 1 3/4"H x 8 1/2"W x 5"D. Unit Weight: 1 lb. 2 oz.

Comrex Price...\$275.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



### TCB-1

Comrex's TCB-1 manual coupler provides a switched hold connection to a telephone line so that the telephone set may be hung up during program feeds. This eliminates the need for special telephone instruments with push-to-talk handsets or exclusion keys. Use with any modular phone to send or receive live or taped material. Does not interfere with normal use of the associated telephone instrument. Does not require batteries or external power. 1 3/4"H x 4 3/4"W x 3 3/8"D. Unit Weight: 9 oz.

Comrex Price...\$135.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

# TELEPHONE

**GENTNER**



## PEOPLELINK

The new multi-line PeopleLink modular telephone system is no more complicated to operate than a simple tone pad and most functions can be initiated with the touch of a single button. PeopleLink is a powerful multi-purpose system that is absolutely user friendly. It is expandable, allowing you to spec exactly what you need to meet today's requirements with a flexible design that easily grows with you. The system handles up to 40 lines and works with any KSU.

Prices on Application



## DIGITAL HYBRID II



Gentner's Digital Hybrid II addresses the needs of today's broadcast facilities. It uses digital signal processing (DSP) technology to deliver the best possible hybrid null, eliminating annoying feedback and hollow sounding announcer audio. Telephone audio is crisp, clear and understandable. And, with its added RECORD and CUE features, the DH-2 easily adapts to your needs.

Gentner Price...\$1795.00 U.S. YOUR PRICE \$\_\_\_\_\_



## EFT-3000



High fidelity telephone remotes are now a reality! Gentner's EFT-3000 Digital Frequency Extender delivers the great sound your programmers and listeners demand, with the ease of set-up you need for smooth operation. The EFT-3000 provides a frequency response of 50 Hz to 7.5 kHz over three standard (dial-up) telephone lines. If you don't have three lines available, the EFT-3000 will operate on two lines (providing 5 kHz) or even one line (2.5 kHz). Totally automatic set-up, utilizing advanced digital signal processing technology, ensures the best possible sound for your remotes. A system requires two units.

Gentner Price...\$4997.50 ea. U.S. YOUR PRICE \$\_\_\_\_\_



## EFT-1000A

The EFT-1000A extended frequency transceiver improves the sound of your telephone. Audio frequencies are shifted up by 250 Hz on the transmitting end and back down on the receiving end. This dramatically improves the quality of the broadcast. It is a complete, self-contained transceiver that is able to transmit, receive, or operate full duplex as a transceiver. This allows you to run your remote broadcasts with a single telephone line! Designed for easy hook-up and simple operation it is able to enter or exit the encode/decode mode and couple to the telephone line automatically.

Gentner Price...\$1295.00 U.S. YOUR PRICE \$\_\_\_\_\_



## EFT-900A

Gentner's EFT-900A makes your remotes easy and inexpensive. The unit gives you the convenience of a standard telephone line, with better quality than you thought possible from the dial-up circuit. The EFT-900A improves telephone audio quality by recovering 2½ octaves of low-end frequency response. The unit's sharp filters reduce line noise while Aphex® processing regenerates higher frequencies above 3 kHz. Easy to hook up and easy to use.

Gentner Price...\$879.00 U.S. YOUR PRICE \$\_\_\_\_\_



## SPH-5E

The SPH-5E combines the same analog hybrid quality of the SPH-5 with built-in frequency extension. If your format calls for a lot of telephone use, including remotes, on-air calls and interviews, the SPH-5E can help simplify your operation with great sounding telephone audio. The SPH-5E eliminates the need for using extra equipment and keeps you from tying up other console inputs for your extended remotes.

Gentner Price...\$1329.00 U.S. YOUR PRICE \$\_\_\_\_\_

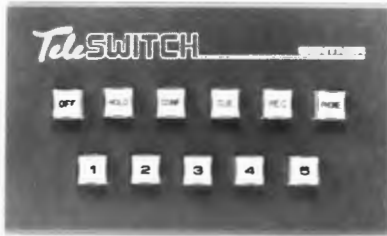


## SPH-5

The SPH-5 is a high performance, full featured analog hybrid that delivers superior audio quality. It is designed after their top-of-the-line Digital Hybrid II and incorporates almost all of the same features. Low distortion, low noise specs, maximum telephone frequency response, and excellent hybrid null to name a few.

Gentner Price...\$899.00 U.S. YOUR PRICE \$\_\_\_\_\_





### TELESWITCH

Gentner's TeleSwitch is the most complete, cost effective means for solving your basic call directing needs. With a single TeleSwitch you can connect up to five telephone lines. If you want to access more than five lines, multiple TeleSwitches can be linked together. Air talent will enjoy the versatility and ease of putting callers on-air with the new TeleSwitch call director. Callers can be placed on-hold, conferenced, or recorded for later playback all from the unit's control panel. All functions are performed from one self-contained box. Engineers will appreciate how simple the unit is to install. Because connections are made with RJ-11C and modular connectors, TeleSwitch is as easy to install as a multi-line telephone. The unit can also be interfaced with most business phone systems including PBX and EKSU systems. Most telephone hybrids are compatible with TeleSwitch.

Gentner Price . . \$995.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



### AUTO & HYBRID COUPLERS

The Auto Coupler is an auto-answer / auto-disconnect telephone coupler designed for your varied telephone needs. Its versatility makes it the ideal choice for automatic telephone coupling requirements. Gentner's Auto Coupler incorporates a hybrid that allows you to send and receive audio simultaneously, providing balanced audio to your equipment. It connects easily to your telephone set and your equipment. CP version with built in call progress decoder also available.

If you're looking for an easy, inexpensive way to get audio on and off the telephone line, a Gentner Hybrid Coupler is the answer. The Hybrid Coupler's versatile design will give you clean, clear audio with easy installation and operation. It connects directly to the telephone line and can be used with almost all analog and digital telephone systems.

Auto Coupler	\$269.00 U.S.	YOUR PRICE \$ _____
Auto Coupler CP	\$299.00 U.S.	YOUR PRICE \$ _____
Hybrid Coupler	\$149.00 U.S.	YOUR PRICE \$ _____



### TELEPROCESSOR

Gentner's Teleprocessor improves the sound of any telephone system. Use in conjunction with telephone hybrids, frequency extenders or other interface equipment to enhance your telephone audio. Features: maintains average send level to caller, has Aphex® processing, Lo and Hi band EQ adjustments and easy to install.

Gentner Price . . \$499.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



### SPH-3A

The Gentner SPH-3A provides an easy and inexpensive method of interfacing broadcast equipment with an existing telephone system. Separate adjustable volume control of caller audio and monitor audio is featured, plus one-time adjustment of null and feed to caller.

Gentner Price . . \$599.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



### TC-100

The TC-100 is the most versatile telephone coupler you'll find. The design not only gives you auto-answer/auto-disconnect and latching or momentary tape starts; it allows you to use the unit as a hybrid for on-air calls as a remote controller, and private party line telephone intercom. Easy to install and operate. Touch-Tone® decoder provides open collector output for incoming tones.

Gentner Price \$499.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

### TELEMIX 2000

Radio's number 1 radio talk system. Your operators and on-air talent will love the easy operation of Gentner's Telemix 2000 system! At the push of a button, Telemix 2000 takes one of up to 18 telephone lines and interfaces it to your equipment. Telemix 2000 operates much like a ten button telephone set. To take a line the operator pushes the appropriate line button. To place the call on hold, the HOLD button is depressed. To drop the call, the OFF button is pushed. Depression of the CONF button allows multi line conferencing. The DUMP button allows you to access your delay system for 'bleeping' callers. Push the CUE button to talk with a caller off air. To automatically record a call, press the REC button. When used in conjunction with frequency extension equipment, press the EXT button to receive frequency extended calls. Telemix 2000 incorporates a modular design to give you the benefits of your own custom on air telephone system with off the shelf delivery.

Prices on Application

# TELEPHONE

## RACOM



### TELE-VOTE

The Tele-Vote basic unit includes one channel, desk top 115VAC, 1.5 minutes storage time, 600 ohm audio output, telephone line answer, and DTMF decoder. Applications include: song of the week, public opinion polls and talk radio. The Tele-Vote features: solid-state memory (no tape or moving parts), simultaneous six line answering, touch tone voting, LCD display, and one year parts and labor warranty.

Racom Prices start at \$2145.00 U.S.

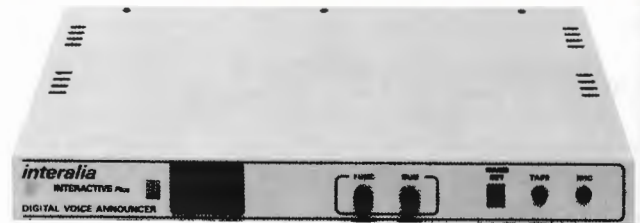
## INTERALIA



### THE VOICE

The "Voice" is a low cost, two message - two line solid state announcer. It is equipped with 64 total seconds of digital storage and features a system operating battery back-up. The "Voice" interfaces easily with all major PBX's and direct lines through 2 RJ11 modular connectors, one for each telephone line. It is even possible to link messages together. Time available per line (up to a maximum of 64 seconds) is at user's option. 3 & 4 minute versions also available.

The Voice, 1 minute...\$786.00 U.S. YOUR PRICE \$ \_\_\_\_\_

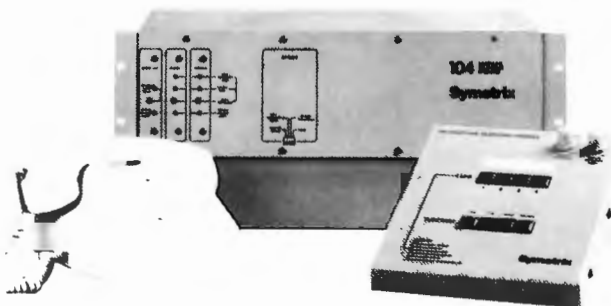


### INTERACTIVE PLUS

The Interactive Plus answers both touch and dial/pulse callers. With up to six lines per unit, the Interactive Plus gives an introductory message to every caller, and then presents a menu from which the caller can choose a topic by pushing a button, dial/pulsing a number or even speaking when the choice is presented. Digital, no moving parts. Simple installation — just plug into power and telephone jacks. Interfaces with any telephone system. You may change any of the 14 messages separately.

Interalia Prices start at \$5800.00 U.S. for 4 minute version.

## SYMETRIX



### 104A

The model 104A multi-line interface broadcast telephone system can connect your audio console directly to incoming phone lines. Fully stand-alone systems, designed to bridge the gap between bi-directional telephone lines and uni-directional audio mixing consoles. Equipped with electronic hybrids which provide full duplex conversation between host and callers. In conjunction with the hybrid, a sophisticated AGC assures that each caller comes through loud and clear. The 104A system is operated from a small (8 x 10 inch) desk control console with 25/25 cable included.

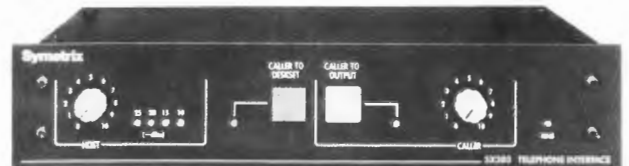
Symetrix Price...\$2395.00 U.S. YOUR PRICE \$ \_\_\_\_\_



### TI-101

The Symetrix TI-101 telephone interface has been designed specifically for the connection of professional audio equipment to telephone lines in broadcast and production operations. The TI-101 employs a carefully engineered electronic hybrid circuit which creates a maximum trans-hybrid loss, yielding effective isolation between your studio's send to the telephone line, and your caller return signal. Your net result is clear, intelligible telephone audio which helps you keep pace with today's rapid improvements in AM, FM, and TV audio.

Symetrix Price...\$549.00 U.S. YOUR PRICE \$ \_\_\_\_\_



### SX203

The model SX203 telephone interface single line coupling device provides high quality audio transfer between telephone lines and professional audio equipment. Very fast hook up and ease of operation make the SX203 ideal for radio and television talk shows and news gathering, and teleconferencing. With Symetrix' positive tracking half-duplex control circuitry, the SX203 responds very naturally, yet requires absolutely no time consuming null balance. Just plug a telephone line into the rear panel modular jack, and it's ready to work.

Symetrix Price...\$389.00 U.S. YOUR PRICE \$ \_\_\_\_\_





## When you make your next "sound investment" look for quality products that meet your distinctive needs.

We at Harris Allied want to provide you with the right product for your unique application. With over 70 Gentner products to choose from, chances are Harris Allied has the solution you need. Gentner quality products include...

Patch Panels  
 Transmitter Remote Control Equipment  
 Telephone Call Directing Systems

Audio Processors (AM and FM)  
 Frequency Extenders  
 Telephone Hybrids

*See Pages 85, 92, 108 and 109.*

# TELEPHONE

## AUDIOMETRICS



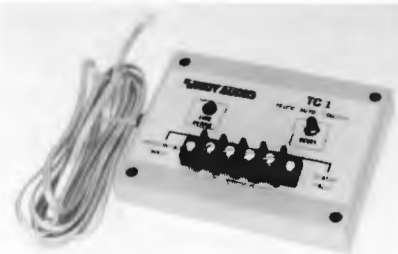
### TELETAP

This ideal news gathering and actuality recording device adapts a tape recorder to either single or multiple line telephones for high fidelity recording of both sides of your conversation. Simple plug-in installation to Merlin\* and other digital systems as well as most older analog systems with modular plugs. Not for playback down the telephone line. Not for use in RF environments.

\*AT&T Trademark

Audiometrics Price...\$47.95 U.S.

## INDY AUDIO



### TC-1

The Indy Audio TC-1 Telco Auto-Coupler answers an incoming call on the first ring, maintains the connection until the calling party hangs up, then releases the line and resets itself. It can feed audio down the line, take audio off the line for broadcast, or can be connected to a hybrid for bidirectional communications.

The TC-1 is powered by the phone line, and requires no connection to AC power. A front panel LED indicates when the unit is in use, and a dry relay closure is provided to start a cart deck, alert the control room operator, etc. The TC-1 is ideal for listen lines, concert lines and weather lines.

Indy Audio Price...\$159.95 U.S. YOUR PRICE \$ \_\_\_\_\_

## ELGIN

### 20721

Also known as the "listen line," the 20721 is expressly for use as an automatic answer device. It will automatically connect your mass feed to a network station simply by having the station call the number assigned to it. The 20721 must see a battery reversal or momentary open from the originating city. Multi-connector DA19603403 + 51225-1 plug and hood assembly optional.

20721-1 station coupler...\$280.00 U.S. YOUR PRICE \$ \_\_\_\_\_  
Plug & hood assembly...\$20.00 U.S. YOUR PRICE \$ \_\_\_\_\_

### EC30A

The EC30A is a totally passive voice coupler that's also known as the "QKT". Total protection is afforded to the phone company's circuits by installation of the EC30A. Elgin was the original manufacturer for the Bell QKT.

Elgin Price...\$60.00 U.S. YOUR PRICE \$ \_\_\_\_\_



## R/SVP



### R/SVP

The R/SVP is an audio coupler built in a standard USA-made 2500 series touchtone phone. The panel on the phone base features a SEND jack (8 ohms) for direct connection to play cassette recorder (or other electronic source) back down a telephone line; and RECORD jack (low imp.) to provide clear balanced signal to record both sides of conversation. The amplified electret condenser microphone provides superior voice quality. Comes complete with modular plug line cord. Telephone included.

R/SVP Price...\$137.50 ea. U.S. YOUR PRICE \$ \_\_\_\_\_

## VOICE-ACT



### VOICE-ACT

Voice-Act makes it possible to transmit any electronic audio material source by telephone. The unit is comprised of a microphone, external input jack, a function selector switch, a transistor amplifier and a stainless steel multilayer windscreen. Voice-Act simply screws on in place of the regular phone transmitter, it does not interfere with normal phone operation and may be left on permanently. It is powered by the telephone and requires no batteries. A tape recorder may be connected directly to the phone through the external jack while still permitting instantaneous 2-way communications. For use with GT or Western Electric type telephones. Specify when ordering.



# TELEPHONE

**TITUS**

## ADS



The Automatic Dialing system (ADS) from Titus Technological Laboratories is a system that allows up to eight studios access to up to eight common telephone line frequency extenders (any mix of single-line, two-line, three-line, or digital 56 kbps extenders). The ADS performs the automatic selection of a frequency extender and automatic dialing of clients using a one to three digit code entered on a studio control unit. The ADS will then provide call progress detection, level set of the phone lines, and studio routing to the appropriate extender. Up to 119 clients (357 telephone numbers) can be stored in the basic system nonvolatile memory. "User friendly" studio control units provide information on clients, call progress, and when the studio is connected via the selected extender to the client.

Titus Price...\$4,800.00 U.S.

YOUR PRICE \$ \_\_\_\_\_

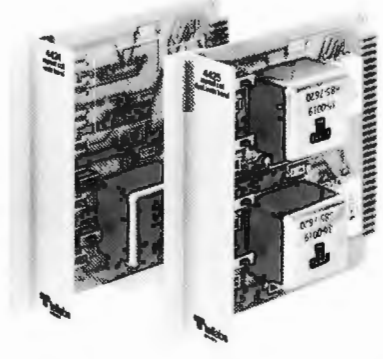
**TELLABS**

Tellabs equalization equipment was designed expressly for use with telephone circuits. No other form of equalization can offer the flexibility or specs necessary to achieve the quality for AM and/or FM (stereo) feeds via leased telephone circuits. If a circuit is unloaded and if the length vs. gauge criterion is not exceeded, you can install your own equalization and pay for it in a very short time. There's no reason for you to also pay for the equalization on a monthly basis.

- #4008 EQ module .....\$255.00 U.S. YOUR PRICE \$ \_\_\_\_\_
- #4425 repeat coil/dual ...\$140.00 U.S. YOUR PRICE \$ \_\_\_\_\_
- #1913 dual card housing...\$92.00 U.S. YOUR PRICE \$ \_\_\_\_\_
- #1911 single card housing . \$36.50 U.S. YOUR PRICE \$ \_\_\_\_\_
- #1912 apparatus case.....\$67.00 U.S. YOUR PRICE \$ \_\_\_\_\_
- #8015 transformer .....\$15.75 U.S. YOUR PRICE \$ \_\_\_\_\_
- #248RF dual amp mounting, RF shielded...\$631.50 U.S. YOUR PRICE \$ \_\_\_\_\_
- #8003 power supply .....\$327.75 U.S. YOUR PRICE \$ \_\_\_\_\_
- #1012 housing.....\$137.00 U.S. YOUR PRICE \$ \_\_\_\_\_



#4008



#4425

**ENERGY CONTROL**

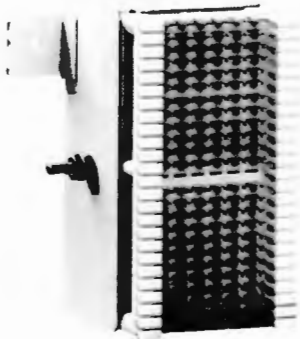
## MDF PROTECTOR

The Protector system can be used to totally isolate your telephone system from the threat of damaging transients on both the AC power side and the incoming telecommunication line side—normally at a cost of 1% to 12% of your equipment investment costs.

ITC MDF 6 Six pair main distribution frame; Punch down block for six pair telephone line/data line; External ground lug...\$560.00 U.S. YOUR PRICE \$ \_\_\_\_\_

ITC MDF 12 Twelve pair main distribution frame; Punch down block for twelve pair telephone line/data line; External ground lug...\$700.00 U.S. YOUR PRICE \$ \_\_\_\_\_

ITC MDF 25 Twenty-five pair main distribution frame; Punch down block for twenty-five pair telephone line/data line; External ground lug...\$906.00 U.S. YOUR PRICE \$ \_\_\_\_\_



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**HARRIS ALLIED**  
BROADCAST EQUIPMENT

# TUNERS

## CARVER



### PSB-11

Carver's PSB-11—it's the latest revision of the famous tuner other companies would like to beat. It is absolutely unique in that its basic AM performance capability is essentially equal to, and in some cases superior to, the performance that FM can deliver. NRSC ready!

In short, the PSB-11 is simply one of the finest stereo FM/AM tuners of all time.

AM Stereo, FM Stereo and high-fidelity-capability on both bands.

Carver Price... \$799.95 U.S.      YOUR PRICE \$ \_\_\_\_\_

## DENON

### TU-660

Denon's TU-660 is the first NRSC AM/FM stereo tuner to be fully compatible with the proposals of the NRSC. The AM section of the TU-660 has switchable Audio bandwidth to provide higher quality audio when reception conditions may be less than optimum. In addition to NRSC, the TU-660 features superior FM reception ability. This new tuner has high sensitivity (15.3 dBf) and outstanding capture ratio (1.3 dB). Its steep quieting slope delivers high quality stereo reception even from weak signals.

Denon Price... \$330.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



## NAD

### 4300

The NAD 4300 Monitor Series tuner establishes new standards for FM tuner performance. The 4300 stands among the world's finest "super-tuners" with regard to sensitivity and immunity to interference. State-of-the-art performance: 55 dB stereo separation, 80 dB selectivity, 120 dB image rejection. The signal-to-noise ratio exceeds 80 dB in strong signals.

4300..... \$499.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



## PROTON

### 300A

The Proton 300A radio combines the best of everything: a superb and Schotz design tuner and a biamplified speaker system. Achieving uncompromised fidelity, the Proton 300A uses a long throw 5¼" woofer with its own 25-watt amp, and a 2" dome tweeter powered by a separate 5-watt amplifier. The tuner section uses the Variable Bandwidth Schotz PLL detector for excellent performance on weak signals. Digital frequency display on AM and FM.

Proton Price... \$330.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



## MAGNUM DYNALAB

### FT 101A

The FT 101A ETUDE analog FM tuner by Magnum Dynalab is the result of extensive and uncompromising pursuit of state-of-the-art technology and is truly an FM tuner for the 1990's. This unit incorporates all of the FT 101's impressive design features, plus a multitude of features such as infinite tuning capability with NO back lash. Call for the total specs on this sound machine! Available through our Canada office only.





**SCA-1**

Burk Technology's SCA-1 Subcarrier Receiver permits the economy of wireless telemetry return. The SCA-1 receives and demodulates sub carrier telemetry information. When ordering, please specify main carrier and subcarrier frequencies. An external antenna, by other, is required.

Burk Technology Price...\$179.00 U.S. YOUR PRICE \$ \_\_\_\_\_



**MARTI**



**SCG-10**

The Marti model SCG-10 subcarrier generator is designed to operate in SCA service with an FM broadcast transmitter or, with a model SCD-10 subcarrier demodulator, to form a subcarrier link on a microwave (STL) system. Audio processing options include selectable pre-emphasis of zero, 75, 150 or 225 microseconds. Low pass audio filters of 3 kHz, 5 kHz or 7.5 kHz are available. 1 1/4"H x 19"W x 12"D. Unit weight: 4.5 lbs.

Marti Price...\$695.00 U.S. YOUR PRICE \$ \_\_\_\_\_



**SCD-10**

The model SCD-10 subcarrier demodulator is designed for use with model SCG-10 subcarrier generator to provide a high quality subcarrier channel on a microwave link (STL) or FM station. 1 1/4"H x 19"W x 12"D. Unit weight: 4.5 lbs.

The combination of Marti's SCG and SCD provide the most advanced performance subcarrier system on the market at a very attractive price. A wide range of options make this equipment flexible and versatile.

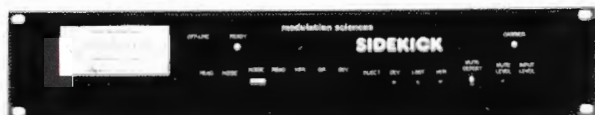
Marti Price...\$695.00 U.S. YOUR PRICE \$ \_\_\_\_\_

**MODULATION SCIENCES**

**SIDEKICK**

The Sidekick SCA186 generator was the first crystal controlled SCA generator in the industry. Because it is crystal controlled, the Sidekick has a frequency stability of  $\pm 0.01\%$  over 0 to 50°C. The SCA carrier is derived from a frequency synthesizer. Any frequency in the SCA region can be selected by user programmable straps. Designed into the Sidekick is a random noise generator and incidental AM noise meter. Includes rack mounts.

Mod Sciences Price...\$3835.00 U.S. YOUR PRICE \$ \_\_\_\_\_



**CRL**

**SCA 300B**

The SCA 300B limiter/subcarrier generator is an advanced concept in SCA generation techniques. The frequency-locked digital design ensures superior carrier frequency stability, while providing linear modulation characteristics. It is designed to handle any type of data or audio application.

CRL Price...\$1795.00 U.S. YOUR PRICE \$ \_\_\_\_\_



**MOSELEY**



**SCG-8**

The Moseley SCG-8 subcarrier generator with automatic muting and front-panel peak-deviation meter, includes self-contained power supply. Available for operation at any standard frequency in the 26-185 kHz spectrum. Specify operating frequency when ordering. Shipping weight: 10.5 lbs.

Moseley Price...\$1490.00 U.S. YOUR PRICE \$ \_\_\_\_\_



**SCD-8**

The SCD-8 subcarrier demodulator with automatic muting and front-panel peak-deviation meter, includes self-contained power supply. Available for operation at any standard frequency in the 26-185 kHz spectrum. Specify operating frequency when ordering. Shipping weight: 10.5 lbs.

Moseley Price...\$1490.00 U.S. YOUR PRICE \$ \_\_\_\_\_

## FAIRCHILD

### DART 384 DIGITAL AUDIO RECEIVER

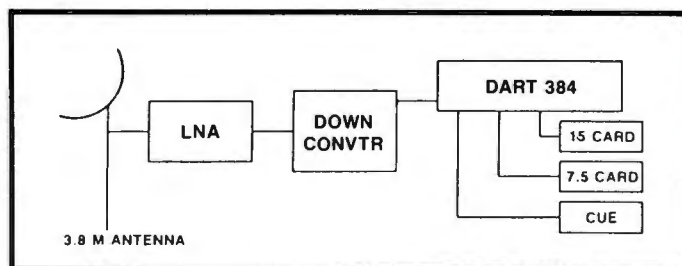
The Fairchild Dart 384 Digital Audio Receiver allows the reception of program material broadcast via satellite, using digital techniques. It is fully compatible with the high quality digital satellite systems currently in use by all digital networks. Many specialty networks and sports programs also utilize this transmission method.

The receiver electronics are supplied in two separate assemblies. The receiver mainframe requires only 10½" of rack space. All active electronics are on modular plug-in cards. The receiver/frame includes the power supply, control-demodulator module and the demultiplexer module in which the digital satellite information is decoded. The control-demod module includes crystals for all four transponders used for digital audio. Selection of transponder is via front panel switch and rear panel remote connector. This feature is found only on the Fairchild Dart Receiver.

Audio program channel modules are available in dual 15 kHz, dual 7.5 kHz and 3 kHz voice/cue configurations. All audio program channel modules are frequency agile and can be remotely controlled via connectors provided on the rear of the chassis.



**DART 384  
DIGITAL AUDIO RECEIVER TERMINAL**



The Fairchild Downconverter is an environmentally sealed unit which can be mounted outside at the antenna or inside near the receiver (another Fairchild exclusive). Outdoor mounting allows the use of less expensive cable. Also longer cable runs are possible. A single coax cable carries all signals between the receiver shelf and down-converter.



**DOWNCONVERTER**

The Fairchild Dart 384, available *exclusively* at Harris Allied.

## WEGENER



**SERIES 1800 RECEIVER**

### SERIES 1800

The Series 1800 Stereo Radio Network Receiver is a commercial C/Ku band satellite receiver that is designed for use in stereo radio networks using either FM2 subcarrier or video subcarrier transmission technology. It accepts the L-band output from an LNB and features synthesized, dip switch controlled transponder and subcarrier control of automated commercial insertion equipment. Equipped with two synthesized audio demodulators which can be tuned to subcarriers from 0.15 to 8.2 MHz, the Series 1800 Stereo Radio Network Receiver produces two 15 kHz audio channels. Audio muting upon loss of signal with front panel indication is a standard feature. The outputs of the audio demodulators are routed through sub-audible cue tone decoders where the cue tones are filtered and corresponding outputs are sent to a six or fifteen function relay interface panel mounted on the rear panel of the receiver. 50 Hz high-pass filters remove the cue tones from the audio. The audio is presented as 600 ohm balanced audio at the rear panel.



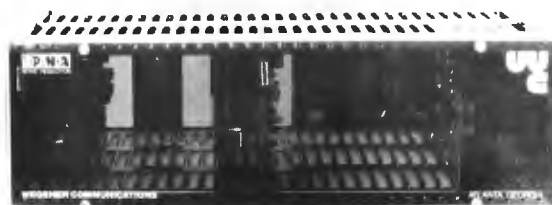
## SERIES 1600 AUDIO & DATA TRANSMISSION

The Wegener Communications, Inc. Series 1600 Audio Transmission System provides high quality 15 kHz bandwidth program channels for the transmission of stereophonic or monaural audio channels above video in satellite distribution networks as well as microwave channels. Stereo channels are transmitted as separate left and right channels using individual narrow bandwidth, low deviation subcarriers for transmission of each discrete channel. At the receiving end of the link (downlink), the left and right audio channels are available to the studio equipment.

### Mainframes:

The model 1601 Mainframe/Power Supply provides nine module slots to accommodate the 1600 family of products.

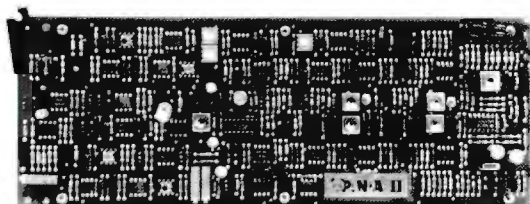
The model 1602 Mainframe/Power Supply provides two module slots to accommodate the 1600 family of products.



1601



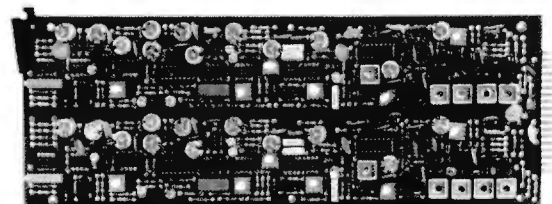
1602



### 1610 PANDA II

The Wegener 1610 PANDA II Demodulator provides extremely high quality program audio demodulation of satellite and terrestrial sub-carrier audio transmission utilizing the encode/decode process known as PANDA II.

Each card contains a precision subcarrier demodulator. Subcarrier frequency selection is crystal controlled. The demodulated signal is passed to the on board PANDA II audio processor to provide a full 90 dB dynamic range, exceeding CD audio quality.



### 1626

Wegener modulators are available in PANDA II, PANDA I, and non-companded versions. The 1600 series are synthesis tuned to desired frequency. Highly linear modulator characteristics provide low distortion audio transmission. Input is 600 ohm balanced.

## CONTROLLER CARDS

Wegener specializes in special purpose cue/data/control equipment which is generally used for signaling or automated commercial insertion. Three of the more popular "families" of cue methods are:

1. Sub-audible with program audio.
2. DTMF-tone within program audio.
3. Data-stream next to program audio.

Wegener sub-audible encoder/decoders utilize 25 Hz and 35 Hz tones to provide 3 to 15 specific cues to the receive site. The encoder board provides program audio filter to remove all products under 50 Hz and then inserts the cue tones in that spectrum. At the decode site the cue tones are routed to the output as logic or contact closure. Some of the more popular versions are:

ENCODERS: Wegener 1695 25Hz 3 function encode for 2 ch.  
 Wegener 1696 35Hz 3 function encode for 2 ch.  
 Wegener 1697 25/35Hz 3 function encode for 1 ch.  
 Wegener 1698 25/35Hz 15 function encode for 2 ch.

DECODERS: Wegener 1645 25Hz 3 function decode for 2 ch.  
 Wegener 1646 35Hz 3 function decode for 2 ch.  
 Wegener 1647 25/35Hz 3 function decode for 1 ch.  
 Wegener 1648 25 35Hz 15 function decode for 2 ch.

## DTMF CONTROLLER EQUIPMENT

Wegener DTMF encode and decode equipment uses standard dual tone signals to provide cue or signaling to the remote/receive site. DTMF are in the audible audio spectrum and as such will pass thru even low quality audio circuits. Generally DTMF tones are used between program sends, and allow up to sixteen functions to be signaled or cued per audio channel.

ENCODERS: Wegener 1699-01 6 function  
 Wegener 1699-02 16 function

DECODERS: Wegener 1649-01 6 function relay contact output  
 Wegener 1649-02 16 function hexadecimal output

## DATA CONTROLLER EQUIPMENT

Wegener data controller encode and decode equipment combine a data demodulator, demultiplexer, and optional features such as on-board microprocessing, address decoding, programmable relay outputs, and DTMF generation on a single plug-in-card. These systems are designed for specific satellite network applications. Transmission is accomplished over a single, low-level subcarrier.

ENCODERS: Contact Harris Allied

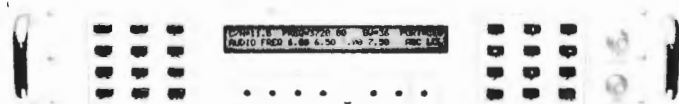
DECODERS: Wegener 2046-03/07 300 baud RS 232C serial or 20MA loop plus relay and expansion.

**MICRODYNE**



## 1100-FFC-X1 RDC(L)

The 1100-FFC-X1 RDC(L) is designed to downconvert any one of the 24 transponder channels which may be used for SCPC receiving systems. This unit has been widely used by many of the national, state and regional radio networks currently delivering their programming via satellite. It has become an industry standard. If you need a reliable downconverter which converts C-band transmissions to a very stable 70 MHz output, you would be wise to choose the 1100-FFC-X1 RDC(L).



## CSD-BQR 1

The CSD-BQR 1 is a high quality, satellite video receiver designed to meet the requirements of RS-250B, C and NIC-7 performance standards for video and audio. The receiver accepts L band input signals in the 950 to 1700 MHz range. It will operate with down converted signals from any S, C, or Ku band transponder accessible to domestic and international TVRO downlinks.

Features of the CSD-BQR 1 include:

1. True broadcast quality.
2. Synthesized tuner with selectable steps.
3. Non-volatile memory.
4. Three audio bandwidths.
5. Audio synthesized tuning range 5.0 to 8.5 MHz.
6. Compatible with all current descrambling.
7. 120 VAC 60 Hz or 240 VAC 50 Hz.



## 1100 PCDR-5

The PCDR-5 is the high performing/feature packed audio SCPC demodulator. Standard features include wide and narrow IF sections, full synthesized tuning and excellent stability. Also included are 2/1 and 3/1 companding, audio filter, and front panel selectable de-emphasis switches. Year after year the 1100PCDR-5 has been the "benchmark" of fine SCPC performance... the tradition continues!



## 1100IVR/IVR-S

The IVR/IVR-S video receivers, with respective frequency ranges of 3.7-4.2 GHz and 2.45-2.75 GHz, are designed to receive programming from domestic and international C-band satellites (Satcom, Westar, Intelsat, Galaxy, Anik, Ghorizont and Symphony) or S-band satellites (Arabsat, Insat and others).

One rack unit high, two video outputs and a balanced 600 ohm audio output are standard. Options include remote tuning and PAL 625 line standard. Contact Harris Allied for details.

## Leasing Satellite Equipment from



- Means convenience
- Conserves capital
- Protects from obsolescence
- Allows you to pay as you go
- Provides tax advantages

- Offers better terms
- Permits Alternative Minimum Tax (AMT)
- Leaves bank lines untouched
- Helps overcome budget limitations
- Allows more liberal credit criteria

Talk to us about leasing. We'll explain how a lease can work for you!

317-962-8596



### 3.5 METER Ku-BAND ANTENNA

The 3.5M was specially designed for transmit and receive applications of Ku band and is microprocessor controlled and fully automatic. It features cassegrain feed, parabolic accuracy with full arc coverage. Has a transportable version and also available in E over Z configuration or as a dual axis motorized version. Easy assembly without special tools or crane.

### 3.8 METER ANTENNA

The 3.8M is the perfect antenna for reception of any format audio network, whether the transmission is Digital, Sub-carrier, or SCPC. Careful, tight tolerance construction assures maximum gain and minimum beamwidth so necessary for today's crowded satellite arc. Range tested gain spec of 42.9 dB!

### "OFFSAT" ANTENNA

Here's a unique one-piece antenna design with an innovative offset feed that makes the "OFFSAT" the *only* antenna in its size category capable of *exceeding all FCC specifications for 2 degree spacing*. Comtech's "OFFSAT" is the intelligent response to the new, stricter requirements and it has the surface tolerance necessary for Ku-band. As with all Comtech antennas, the "OFFSAT" is precision-made of fiber glass and is available for uplink and downlink applications in AZ/EL, Polar or Transportable configurations, both C-band and Ku-band.

### 5.0 METER ANTENNA

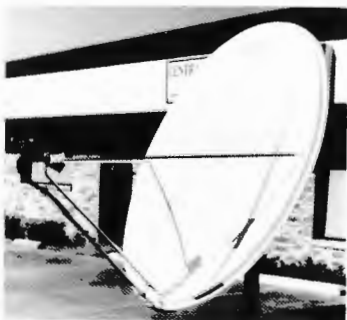
The 5.0M is the choice for professional reception of video for television broadcast, or where additional antenna gain is required for low-powered audio network reception. Rugged, three-piece fiberglass construction maintains extremely good surface tolerance for maximum gain and minimum side-lobe performance. Rated gain of 44.9 dB.

### 2.4 METER Ku VSAT ANTENNA

The 2.4M is a three-piece fiberglass parabolic with full offset, prime focus. Power handling is 750 watts, CW, max with a receiver operating frequency of 11.7-12.2 GHz (Transmit frequency of 14.0-14.5 GHz) and single or dual linear polarization. Sidelobe envelope per FCC 25.209.

### 2.5 METER C BAND ANTENNA

The 2.5M gives you the ultimate in savings, flexibility and convenience in a 250 lb. unit. It is easily installed, lightweight and employs a powerful offset feed system conforming with all FCC requirements. The 3 piece composite reflector is manufactured whole, then precision-cut for low cost shipping and trouble-free assembly. Call Harris Allied for all the details.



## ALLIED



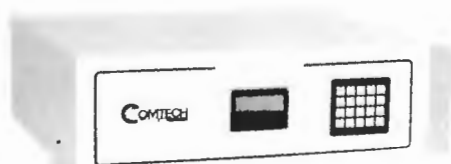
### POWER INSERTER/DC. BLOCK

The Allied Power Inserter/D.C. Block is used as a power inserter for supplying external bias to an LNA independently of the satellite receiver.



### POWER DIVIDER/SPLITTER

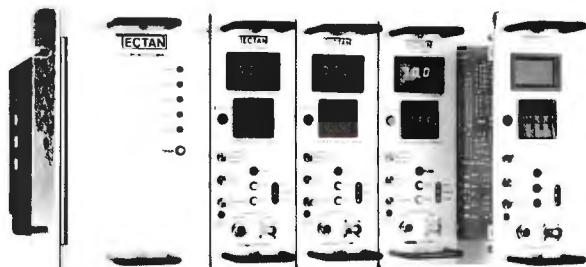
The Allied PD-2 series of Power Dividers/Splitters are employed to two-way split an RF input signal in the 3.7-4.2 GHz (C-band) satellite band.



### EC6 ANTENNA CONTROLLER

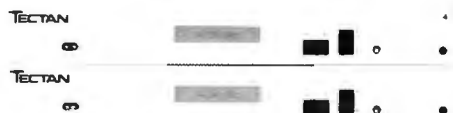
The EC6 Antenna Controller is designed for use with Comtech's motorized antenna systems. The EC6 is a microprocessor control which stores up to 64 different satellite locations. The LCD display not only displays the current satellite position, but also provides visual prompting during the installation phase. The 20-button keyboard provides manual adjustment of three different axes (6 adjustments) as well as complete numeric programming capability. An exceptional feature of the EC6 is the "Program Pak" concept. All software is incorporated in a removable cartridge.

## TECTAN



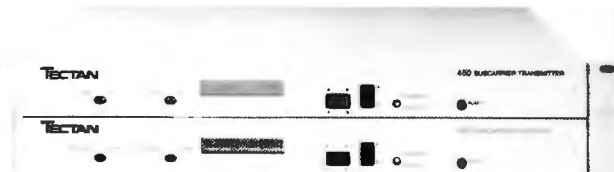
### 412

Tectan's 412 is a frequency agile, single-channel-per-carrier (SCPC) wideband FM receiver for satellite transmission and reception of high quality audio, voice or data. The standard mainframe accepts up to four modulators or demodulators or any combination of either. Demodulators are available in two models. The 412-basic is PROM driven for NPR network reception. The 412-360 is agile thru 360 standard channels. Both the mods and demods are available in wide (15 kHz) or narrow (7.5 kHz) or switchable. Tectan mods and demods are rated tops in audio performance and reliability.



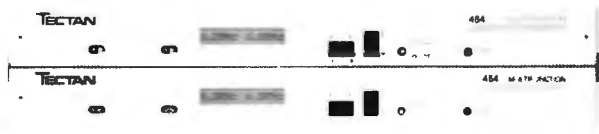
### 455

The Tectan 455 composite subcarrier system is engineered to provide a transparent path for the complete MIS/BISC composite signal over any video microwave system. Extremely low distortion, flat frequency response and outstanding long-term stability, the 455 has almost no measurable effect on stereo audio performance. Now television can enjoy the benefits of composite audio via the existing video link. Contact Harris Allied for full details.



### 450

The Tectan 450 is a frequency agile, synthesized FM subcarrier designed specifically for narrow band multi-channel applications. Each unit (1 rack unit high) contains two completely independent transmitters or receivers for stereo applications over terrestrial microwave, satellite or analog fiberoptic facilities. The superior audio performance is due in part to the noise reduction system developed from the Tectan 3:1 compandor presently in use worldwide for satellite SCPC channels. Exceedingly high quality audio in a limited baseband spectrum. Call Harris Allied for your audio solutions.



### 454

The Tectan 454 is a frequency agile, synthesized FM subcarrier designed for satellite audio reception with ultra low distortion. Both channels are digitally synthesized and frequency agile from 1 MHz to 9.99 MHz compatible with most non-companded subcarrier audio channels. To get the best audio recovery from your video receiver add the Tectan 454.

## CONEX



### UM-33

The Conex UM-33 is a stereo, eight channel in, two channel out general purpose cue, monitor, and line amplifier. Features include: 8 balanced bridging stereo inputs, stereo VU meters, stereo monitor amp, speakers and more, all in a 1-rack-unit-high package.



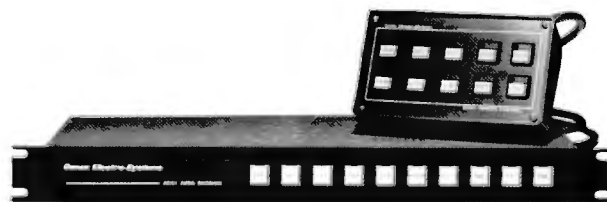
### CG-25(R)

The Conex CG-25(R) Tone Generator provides a simple, low-cost method of encoding reel tapes for automation/unattended playback. It provides adjustable pre-roll and stop timing as well as tone timing to keep your format execution consistent. Harris Allied can provide table-top or rack mount versions.



### CS-25

The Conex CS-25 is a dual bridging type 25 Hz tone sensor for reel tape machine control in broadcast automation and tape control systems. It features "dry" contact closure for duration of sensed tone as well as momentary pulse at end of tone, and adjustable delay stop for total compatibility. The front panel has indicator lights (one per channel) to show presence of tone. A front panel inhibit switch allows convenient bypass of control when desired.



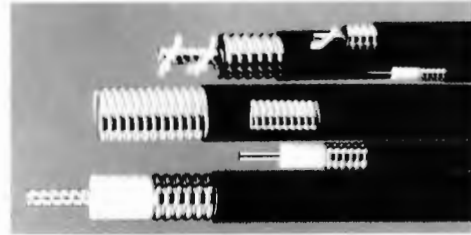
### AS-101

The Conex AS-101 Audio Switcher allows any one of ten stereo sources to be switched to the stereo output buss. Switching is accomplished by pressing one of the illuminated buttons on the front panel or via the remote connector on the rear panel. Features include two switching modes (immediate and overlap). Individual audio level controls, transformerless inputs and output, 600 ohm or 10K bridging.



## HELIAX

Andrew's low-loss, HELIAX foam-dielectric and air-dielectric cables provide an efficient connection between the satellite antenna and satellite electronics. Popular sizes for satellite applications include 1/4", 5/8", 1/2" and 3/8". Larger sizes are available for other broadcast applications, contact Harris Allied for assistance. Andrew elliptical waveguide is the optimum choice for most satellite transmit applications. Andrew quality line, connectors and accessories are available at Harris Allied.



## COLORADO MAGNETICS

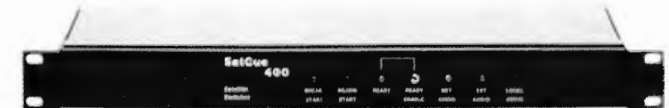


### SAT CUE 500

Colorado Magnetics Sat Cue 500 was designed to allow radio stations to tailor their walk-away time to suit their needs. Up to 15 stop-sets can be programmed on a take or skip fashion. In addition a second set of 15 programmed breaks can be set up in a day/nite or heavy/light spot load routine to accommodate format clock variations. Interfacing to studio equipment is via relay to assure compatibility. The network cue provides the switch cue, while the return cue can originate from the network or the local commercial machine. The best in flexibility from the company with satellite solutions, Colorado Magnetics.

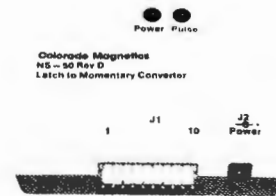
### NS-50

The Colorado Magnetics NS-50 is a logic converter. It provides a complete, properly timed pulse from a latched contact. This might be a small simple solution, but when a pulse is needed this is the fix. Harris Allied Satellite, with the help of excellent manufacturers covers all the details!



### SAT CUE 400

Colorado Magnetics Sat Cue 400 is an audio switching unit designed to be used with satellite radio program networks. Activation is provided at the proper times by the satellite network cue system, both to lease the network for local commercial insert and again to rejoin the network. A second network input is provided for the optional news network.



## STANDARD COMMUNICATIONS



### MT-830

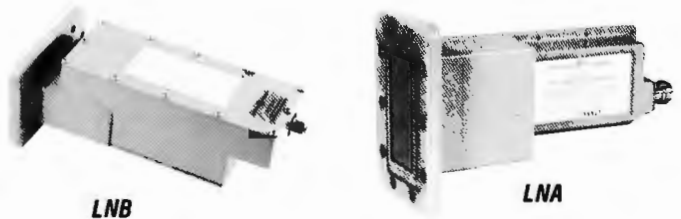
The standard agile Omni Broadcast model MT-830 is a television rebroadcast quality satellite receiver offering RS250B (satellite) proof of performance with the broadcast package option. The ease of use, flexibility and vast array of options make the Omni Broadcast the most advanced satellite receiver in the commercial TVRO market. Features include: C/Ku selection, IF bandwidth select, synthesized tuning, two audio agile sub-carriers, computer remote control, and many additional features and accessories. Contact Harris Allied for the complete specs.

## CABLEWAVE



Cablewave Systems low loss foam flexwell coaxial cables are proprietary designed, featuring a closed cell foam dielectric with low density and high velocity specification. These cables provide low loss performance characteristics that are almost as low as air dielectric cables put with none of the pressurization requirements of air cable. Cables are supplied with a black polyethylene jacket for direct burial applications. Available in 1/2" and 3/8" for satellite, other sizes for broadcast. All available at Harris Allied.

## CALIFORNIA AMPLIFIER



### ACTIVE POWER DIVIDER

The Active Power Divider (not pictured) from California Amplifier makes multiple-receiver hookups simple and cost effective. Simply connect your LNA to the active divider, and the divider to any down converters that provide DC power thru the cable. You are now connected! DC isolation between ports while permitting either receiver to power the LNA. A perfect solution to adding receivers to your existing satellite system. Ask Harris Allied for the HDS-LPD.

### LNB

The highest performing LNBs are from California Amplifier. For broadcast applications the HEMT commercial LNB offers additional gain and low noise performance. This higher gain helps keep your reception solid, and California Amplifier's excellent reliability provides performance, broadcasters demand.

### LNA

California Amplifier has been providing rugged LNAs for many years. Currently standard high gain and low noise specifications, assure you of a quality product. Reliable, long life proven by the many in use by broadcasters indicate the California Amplifier LNA should be your first choice. In stock now at Harris Allied.

# SATELLITE

## MONROE



### 5002

The Monroe Model 5002 Remote Control provides remote control channel selection of two dual audio modules or voice cue modules for the Scientific Atlanta model DAT-32® and the Fairchild Dart-384®. It also will permit remote transponder selection for the Fairchild Dart-384. Model 5002 includes an integral telephone line interface and utilizes DTMF signalling to permit access and control from any Touch-Tone telephone. A two-wire, 600-ohm balanced audio input permits access and control from a non-switched communications path. Tone responses are returned to advise the calling party that the remote control sequence has been accepted. The remote control retains the channel configurations in memory during power interruptions and returns to these configurations when power is restored.

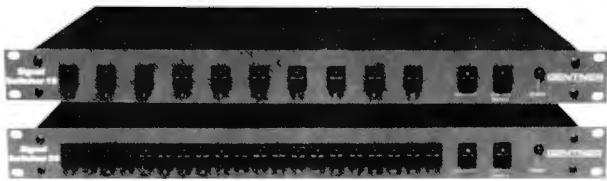
## HENRY ENGINEERING



### NET COMMANDER

Air satellite formats without automation! Henry Engineering's Net Commander is an economical method to switch audio during satellite programming. Designed for formats with up to 5 stop-sets per hour, the net commander will break away from the network audio to run commercials or other local material. The net commander allows you to select 1 to 5 stop-sets per hour before repeating the format, allowing walk away time for other station duties. Simple to program, reliable performance and economical price, as expected from Henry Engineering.

## GENTNER



### PROGRAM SWITCHERS

Gentner Program Switchers give you a simple, reliable way to switch sources such as on-air audio, tape machines, computer printers, telephone lines and more. They are passive (using sealed, socket-mounted magnetic latching relays), so you get instantaneous, noise-free selection of a source—and it will stay selected even in voltage fluctuations or total power failure.

## ENVIRONMENTAL TECHNOLOGIES



### ADH-2

The ADH-2 is a rack mountable (optional weather proof box) automatic dehydrator for the pressurization of waveguide, feed horns, and air-dielectric coaxial cable. Standard pressure is a precise 0.5 PSI for the protection of waveguide windows. Quiet operation, low vibration level, low heat, digital display and malfunction alarm come together to make the Environmental Technology ADH-2 a must at up link sites. Contact Harris Allied for all the details.



### LCD-3

The LCD-3 is an inexpensive way to control snow and ice melting equipment. Intended for smaller satellite antennas with heaters, the LCD-3 operates only between 17 and 38 degrees F. during precipitation and for one hour thereafter. Environmental Technology has a complete line of snow, ice, and rain sensors with various options to solve your problems. For information contact Harris Allied.

If you did not find the satellite equipment listed herein that you are seeking—please call the Harris Allied satellite experts and allow them to resolve your search.



# THE CHOICE IS CLEAR



**STL — See Page 132.**



**RPL — See Page 127.**

# Moseley



## CONEX



### CG-25A

The Conex CG-25A Hz tone generator has built-in high pass filters for both the left and right channels, front panel LED indication of tone duration, silence and maximum length of untimed tone. All timing intervals, tone lengths and audio levels are easily adjustable from the rear panel. Standard six-pin "Cinch Jones" type connectors are provided for simple connection between the console and the recorder.

Conex Price...\$420.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



### CS-25

The Conex CS-25 B-10 dual 25 Hz tone sensor is a compact and reliable bridging-type for use in broadcast automation and tape control systems. Front panel stop-delay adjustment accommodates any tape format. Indicator lights on the front panel indicate presence of tone. Front panel disable switches inhibit the relays allowing the tape to run without stopping at tones or signalling of the automation system.

CS-25 B-10...\$417.00 U.S.      YOUR PRICE \$ \_\_\_\_\_  
 CS-25 B-11...\$502.00 U.S.      YOUR PRICE \$ \_\_\_\_\_  
 w/stereo high pass filter

## GENTNER



### SILENCE SENSOR

The Silence Sensor monitors your audio source, observing both rising and falling edges of audio. If it notes a loss of audio or "silence," an open collector output is activated and the time-out sequence begins. If audio returns before time-out, the unit reverts to a "ready" state. However, if audio does not return after a programmed delay time, a second open collector output is activated along with a relay closure. These outputs can be used to turn on lights, sound alarms or start other sources.

Gentner Price...\$449.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

## IMAGE VIDEO, LTD.

### 7105

The 7105 Silence Sensor automatically monitors up to 10 audio inputs and issues audible and visual alarms if any input falls below a preset level for a pre-determined period. It is ideal for use in isolated, non-supervised areas, is compact and offered at a low cost.



## SENTRY SYSTEMS



### AIR SENTRY II

The Air Sentry II is designed to constantly monitor the presence of an audio signal and to energize a relay when the audio is absent. Activation of the relay is front panel adjustable from 4 to 20 seconds. The relay may in turn be used to monitor any stereo or mono audio source such as audio from an AM/FM tuner, TV receiver or modulation monitor. Air Sentry is built to broadcast standards of reliability. Quick and easy rear panel connections via "Molex" type connectors (mating ends supplied).

Sentry Price...\$295.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



### FORMAT SENTRY

Now, you can have broadcast automation control starting at less than \$5,000! There are 3 operating modes: live assist, fully automated and satellite operation. Format Sentry provides up to 50,000 walk away event memory with a standard 360k diskette. The software is user-friendly. Interfaces are available for most older random cart equipment, and traffic software may be integrated.

Sentry Price...\$4900.00 U.S.      YOUR PRICE \$ \_\_\_\_\_





### AUDISK

Walk-away time, dependability and superb digital audio quality. A broadcaster's dream that becomes reality with Audisk!

Audisk provides up to seven days of walk-away time, digital automation and digital storage in one compact, convenient, easy-to-use system. Cart-based systems can't begin to compare to Audisk's flexibility. Your entire commercial inventory — plus PSAs, liners and IDs, and more — can all be on line at the same time.

The "Smart Audio" software heart of the Audisk system will automatically play your liners and IDs in random rotation. Tell Audisk the kill-date of commercial and a PSA will be automatically inserted, avoiding embarrassment and client dissatisfaction. Switch ID calls in time with rotation of satellite jocks. Many other "Smart Audio" features.

Ease of use has made Audisk a hit with clients of all sizes. Even a computer novice can manually schedule an entire weekend of commercial stopsets in less than 15 minutes. Yet, Audisk is unsurpassed in sophistication of on-air sound.

Two reasons Audisk's popularity increases daily are that it's digital and it's affordable! Call Harris Allied and let us run the figures for you. We can show you how the dependable Audisk system is more cost-effective than cart-based automation.

Prices on Application



## IGM COMMUNICATIONS



### GO-CART 24

The IGM Communications Go-Cart 24, with the unique bi-directional drive logic, has reduced the travel time between cartridge selections to no more than 8 seconds. These unusually fast times are a result of the Go-Cart's microprocessor control which automatically determines the shortest route to the next required cartridge and rotates the cartridge carrier in that direction. The Go-Cart also features exceptional audio quality, rugged construction, easy loading trays, random or sequential modes, state-of-the-art components and much more.

Prices on Application

### IGM-SC

The growing family of PC-based program automation systems from IGM now includes the IGM-SC, the IGM-MC, and the IGM-EC. High quality audio switchers and controllers with an impressive array of features and functions now available in a size and price range to meet



### INSTACART

The Instacart multiple cartridge playback unit was designed with the station engineer in mind. Accessibility to the unit is simple and direct for inspection, cleaning, routine adjustment and functional tests. A plug-in connection mates each removable precision head to its associated electronics. Components are mounted on Mil-spec fiber glass printed circuit cards. Instacart is available from Harris Allied in 12, 24, 36 and 48 cartridge capacities.

Prices on Application

every station's needs. The economy of personal computers coupled to audio switchers covers the range of programming from fully automated to live assist with interfaces to a wide variety of digital, analog, and satellite sources.

Prices on Application

# REMOTE PICK-UP

**MARTI**



## CR-10

Model CR-10 is a rack-mounted VHF or UHF base station receiver designed for broadcast remote pickup service. This receiver has dual frequency capability built in. Marti technology has provided the highest frequency response with the lowest noise and distortion possible for the assigned channel bandwidth. Special attention has been given to solving today's high interference problems. The CR-10 features a built-in test meter, squelch relay, optional DC operation, built-in sub-audible tone decoder, special noise reduction circuit, 90 dB spurious rejection. 3½"H x 19"W x 12"D. Unit Weight: 10 lbs.

CR-10 single freq. w/monitor spkr...\$1195.00 U.S. YOUR PRICE \$ \_\_\_\_\_

CR-10 dual freq. w/monitor spkr...\$1225.00 U.S. YOUR PRICE \$ \_\_\_\_\_



## AR-10

The Marti AR-10 Series receiver is a portable or mobile repeat receiver. This receiver has a built-in AC power supply, and will operate from an external source of 12-15 volts DC. A built-in sub-audible tone decoder meets FCC rule 74.431 allowing this receiver to automatically turn on a mobile transmitter upon receiving an encoded signal from a hand-carried portable transmitter, thus automatically relaying a broadcast to the base station receiver over a greater distance. The receiver operates on all remote pickup frequencies and bandwidths. 3½"H x 9"W x 13½"D. Unit Weight: only 5½ lbs.

AR-10 single freq...\$1195.00 U.S. YOUR PRICE \$ \_\_\_\_\_

AR-10 dual freq...\$1225.00 U.S. YOUR PRICE \$ \_\_\_\_\_



## RPT-30

RPT-30 featuring 45 watts at 140 MHz and 30 watts at 480 MHz is today's hottest selling RPU product. Single and dual frequency models available. 100% duty cycle with 4 inputs (all mic level or 3 mic/1 line). FM-quality limiter included. 120VAC and 12VDC supplies included. 3½"H x 11½"W x 13½"D. Unit Weight: 12.4 lbs.

RPT-30 single freq...\$1695.00 U.S. YOUR PRICE \$ \_\_\_\_\_

RPT-30 dual freq...\$1725.00 U.S. YOUR PRICE \$ \_\_\_\_\_



## RPT-15

The Model RPT-15 is a compact 15 watt transmitter designed for portable or mobile remote broadcast service. It delivers the maximum power allowed by the Commission for airborne remotes such as traffic reports. The RPT-15 has a built in power supply for operation on 115 VAC. It will also operate on an external 12-14 VDC supply. Standard features include dual frequency and subaudible encoder for use with Marti mobile repeaters and automatic repeaters. All this plus famous Marti broadcast quality and continuous duty operation. 3¼"H x 8¾"W x 12½"D. Unit Weight: 9¼ lbs.

RPT-15 single freq...\$1075.00 U.S. YOUR PRICE \$ \_\_\_\_\_

RPT-15 dual freq...\$1105.00 U.S. YOUR PRICE \$ \_\_\_\_\_

## RPT-2

The RPT-2 is a hand-carried broadcast quality continuous duty transmitter. It will operate from its internal ni-cad battery, from 115 VAC power or from external 12 VDC power. A special subaudible encoder enables the RPT-2 to access Marti mobile repeaters for coverage of indoor events. 3¼"H x 8¾"W x 11"D. Unit Weight: only 5¼ lbs.

RPT-2 single freq...\$995.00 U.S. YOUR PRICE \$ \_\_\_\_\_

RPT-2 dual freq...\$1025.00 U.S. YOUR PRICE \$ \_\_\_\_\_

RPT-2 single freq. w/battery pac...\$1045.00 U.S. YOUR PRICE \$ \_\_\_\_\_

RPT-2 dual freq. w/battery pac...\$1075.00 U.S. YOUR PRICE \$ \_\_\_\_\_



**TFT**

## 8888

The 8888 transmitter features 2 channels selectable via front panel toggle switch. Internal dip switches permit frequency agility in 2.5 kHz steps. The two carrier frequencies may be located up to 6 MHz apart. The power output of the 8888 is capable of 20 watts RF output with AC power supply. 12 watts or 6 watts output may be selected with the AC power supply. On DC vehicular supply, the 8888 has a transmitter power output of 20 RF watts.

The companion 8889 receiver also features frequency agility and is suitable as a repeater as well as for use at the studio. On-board microprocessing in conjunction with DTMF allows many clever and useful remote functions such as selecting bandwidth of the 8889 and, with optional 881 remote control unit, control external apparatus. For complete details, please call us.

Model 8888...\$2635.00 U.S.  
Model 8889...\$1975.00 U.S.

YOUR PRICE \$ \_\_\_\_\_  
YOUR PRICE \$ \_\_\_\_\_





# REMOTE PICK-UP

**MOSELEY**

## RPL 4020

RPL 4020 Series remote programming system includes 4010 transmitter and 4020 receiver with self-contained power supplies. 20-watt continuous duty output, variable to 2.5 watts. Synthesized transmitter. Two-frequency receiver operation. Subaudible/DTMF encoder and decoder. Full metering. 450 MHz. Shipping Weight: 33 lbs.

RPL 4000 system . . .	\$4250.00 U.S.	YOUR PRICE \$ _____
RPL 4010 only . . . . .	\$2150.00 U.S.	YOUR PRICE \$ _____
RPL 4020 only . . . . .	\$2150.00 U.S.	YOUR PRICE \$ _____



**WILL-BURT**



## HURRY-UP MAST

The 25-foot HURRY-UP Telescoping Mast is designed for fast and easy deployment of lightweight antennas and instruments. This portable 20 lbs. telescoping mast is ideal for elevating equipment such as small ENG microwave antennas, Marti antennas and meteorological instruments.

The HURRY-UP consists of 6 graduated aluminum tubes which nest one inside another. The mast is extended manually by pushing up the sections and fixing them in position using quick lock/release collars. It can be extended to its 25 foot height in one minute or less even when wearing thick gloves. The HURRY-UP mast design allows for quick direction adjustment with rigid azimuth locking. When supporting a 2 square foot topload, this mast has a survival wind speed capacity of 54 mph when fully extended and deflects less than 2 feet in 35 mph winds.

HURRY-UP is free standing (without guylines) in its universal vehicle mounting stand. This vehicle stand is a "drive-on" aluminum plate with an attached reinforced holding tube into which the telescoping mast is lowered and locked in position. The vehicle mounting stand can also be used with an optional 2 level guy kit if the mast is to be field mounted away from the vehicle. For permanent vehicle mountings, external support brackets are available.

Will-Burt Price. . \$1000.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

## WE BUY, SELL & TRADE SELECTED USED RADIO EQUIPMENT

Turn that old used equipment into "CASH" on your next transaction with Harris Allied! Look in the closet under the bench transmitter room etc. Let us know what you find. Then give us a call and "wheel & deal" with Jim Jones or Chuck Yount.



CALL THIS SPECIAL NUMBER

**317-962-1471**

or FAX 317-966-6321

# WEATHER EQUIPMENT

**GORMAN-REDLICH**



## CRW

The CRW weather receiver is rack mounted, removable with a black anodized rack panel. Demuting and remote alarm are initiated by a 1050 Hz "alert" tone. A relay closure is initiated by either the 1050 Hz tone or a 1650 Hz forecast update signal tone. The CRW features crystal and ceramic IF filters, plus a double tuned dual gate MOSFET RF stage.

Gorman-Redlich Price... \$540.00 U.S. YOUR PRICE \$ \_\_\_\_\_

## COMPUTEMP

### COMPUTEMP 5

The Computemp 5 is your station's source of temperature information. It features continuously-alternating readouts displaying both the time of day and temperatures at each location you are monitoring. The Computemp monitors temperatures at two locations. It provides updated temperature information constantly. The unique memory function keeps track of daily temperature extremes and the temperature alarm alerts you to critical temperature changes. Computemp 5 features indoor & outdoor temperature, remote temperatures, temperature history, temperature alarm and clock & time alarm. You may choose either F or C display. Dimensions: 2¼"H x 6½"W x 4½"D. Shipping weight: 3 lbs.

Computemp Price... \$89.95 U.S. YOUR PRICE \$ \_\_\_\_\_



 **HARRIS  
ALLIED**

## LEASING: GETTING THE EQUIPMENT YOU NEED NOW!

Leasing is not mysterious! Why then, are so many reluctant to find out more about this form of financing that is used daily by thousands of successful business people? With approved credit, leasing is yet another source of creative financing.

Leasing provides the flexibility to tailor an equipment acquisition that meets your needs. Most radio equipment is available for leasing at attractive monthly payment terms.

100% financing conserves working capital through the very small upfront costs of leasing. It allows working capital to be used for other valuable areas like promotions, programming, and personnel.

Leasing preserves bank lines and other lines of credit enabling you to meet short term needs.

Long term fixed rate financing can simplify budgeting and cash requirements. When interest rates change, your payments don't.

Leasing spreads the cost of the equipment over its use. Lease payments are made as the equipment provides the benefits.

Leasing makes more equipment available. Since the lease payments fit your cash flow, more equipment can be acquired for a given dollar allocation.

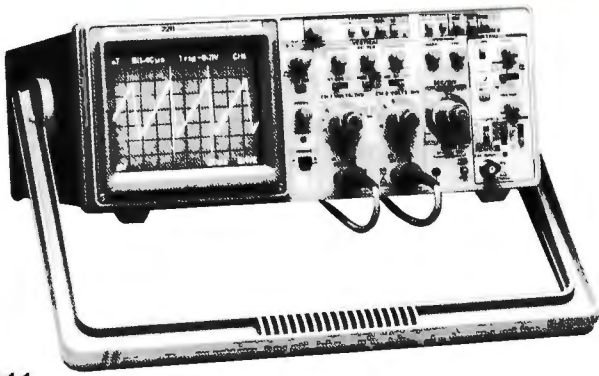
Leasing provides a hedge against inflation. New and modern-day equipment is obtained today and paid for with tomorrow's dollars at a fixed rate.

Harris Allied pioneered broadcast equipment leasing. Call us for the total leasing picture.

**In USA 800-622-0022**

**In Canada 800-268-6817**





### 2211

Tektronix offers a low-cost portable oscilloscope with advanced features and both digital and analog capabilities. 50 MHz bandwidth and 20MS/sec sampling rate per channel, 8-bit vertical resolution and 4K record length per channel. On-screen cursors, CRT readout, and a hardcopy serial interface. The 2211 fills the specific need for an easy-to-use digitizing oscilloscope with enhanced features, at an exceptionally affordable price.

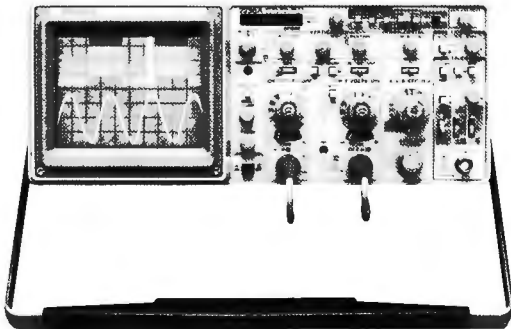
Tektronix Price...\$2795.00 U.S. YOUR PRICE \$ \_\_\_\_\_



### 2225

Expect Tektronix's professional quality and performance in this low-cost, 50 MHz scope backed by a 3-year warranty. No portable scope in its class can match the 2225 for features, versatility, convenience and value. Two independent channels with 50 MHz bandwidth and independent bandwidth limiting on each channel to 5 MHz, 500  $\mu$ V/div sensitivity for low-level signal measurements and differential applications. Low-cost probes (with nearly unbreakable tips) complement the rugged scope design. 5.4"H x 15"W w/handle x 20.1"D handle extended. Weighs 14.6 lbs. w/power cord.

Tektronix Price...\$1195.00 U.S. YOUR PRICE \$ \_\_\_\_\_

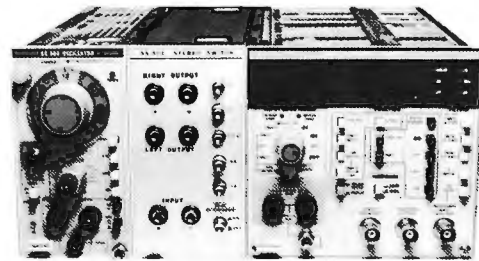


### 2236A

Both the 2235A and 2236A scopes feature a low price made possible by the 2200 Series' innovative, reduced-component architecture. The 2236A introduces a new concept in waveform measurement: a counter/timer/DMM, integrated into the scope's vertical, horizontal and trigger systems. Its capabilities simplify set-up, heighten measurement confidence and expand scope versatility in innumerable ways. The scope and DMM also can be applied simultaneously, with concurrent CRT and digital readout displays. DMM auto ranging simplifies set-up.

An ohm-meter range of  $2\Omega$  — a hundred times the range of most such devices — lets the technician quickly pinpoint even small amounts of transformer leakage. The 2235A ensures measurement quality and reliability while reducing instrument cost. 3-year warranty. 2235A and 2236A both measure 5.4"H x 14.2"W w/handle x 17.3"D and weigh 13.5 lbs.

2235A...\$1995.00 U.S. YOUR PRICE \$ \_\_\_\_\_  
2236A...\$3595.00 U.S. YOUR PRICE \$ \_\_\_\_\_



### AA 501A and SG 505

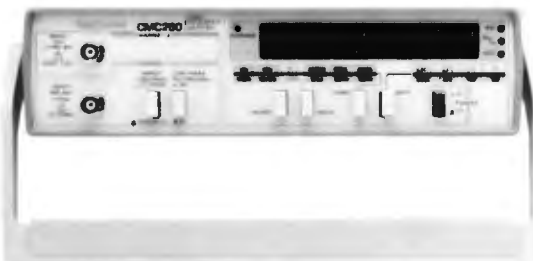
Used together, the AA 501A distortion analyzer and SG 505 oscillator provide the *automatic* solution to your distortion measurement needs. The AA 501A is so automatic that no level setting, tuning or nulling is necessary.

An optional package would be the SG 505 option 2 audio oscillator (balanced, +28 dBm, multi-impedance) and AA 501A option 1 distortion analyzer (level, THD, plus multi-impedance) in the TM 503 mainframe.

The AA 501A and SG 505 combination permits harmonic distortion, intermodulation distortion, frequency response, gain/loss, and signal-to-noise measurements to be accomplished with minimal operator skill.

Today's best tested noise and distortion generator/analyzer has a new enhancement. The Audiometrics matrix switcher facilitates testing with the Tektronix AA 501A & SG 505 combo. Pre-emphasis in or out... isolated left and right channels... L+R... L-R. No Tektronix system should be without it. AA 501A weighs 10 lbs., SG 505 with option 2 weighs 7 lbs.

SG 505 Oscillator w/option 2...\$1980.00 U.S. YOUR PRICE \$ \_\_\_\_\_  
AA 501A Distortion Analyzer...\$2995.00 U.S. YOUR PRICE \$ \_\_\_\_\_



### CMC250

Tek's new CMC250 multi-functions counter offers many useful features in a compact package that can be stacked together nicely with the other members of the series. With 0.1 Hz resolution, totalize and period measurements, the analysis of a wide variety of signals is possible. In addition, the prescaled 1.3 GHz enables easy RF measurements. All at an attractive price.

CMC250...\$445.00 U.S. YOUR PRICE \$ \_\_\_\_\_

# TEST EQUIPMENT

## DIGIMAX



### D-1200

The Digimax digital frequency counter meets or exceeds all FCC requirements. The D-1200 offers a frequency range of 20 Hz - 1.0 GHz, full 9-digit readout, sensitivity of 5 to 50 mV from 50 Hz to 25 MHz, 15 to 50 mV from 25 MHz to 450 MHz, and 50 to 75 mV at 1 GHz. Accuracy of  $\pm 1$  Hz at 1 MHz,  $\pm 1$  Hz at 10 MHz,  $\pm 100$  Hz at 1 GHz. AC-12 required for 110VAC, 8-15VDC at 500 ma. Package includes AC adapter, rechargeable battery pack and antenna.

Digimax Price . . . \$352.00 U.S.

YOUR PRICE \$ \_\_\_\_\_

## POTOMAC

### AA-51 and AG-51

Designed primarily for commercial broadcast proof-of-performance measurements and equipment maintenance. The AG-51 audio generator and AA-51 audio analyzer are packaged separately for remote measurements requiring physical separation of signal source and signal analyzer. Both units are RFI shielded to enable accurate measurements in high level radio frequency environments. The AA-51 measures harmonic distortion, intermodulation distortion, volts, dB, signal-to-noise ratio, wow and flutter, stereo phasing, and differential gain in stereo channels.

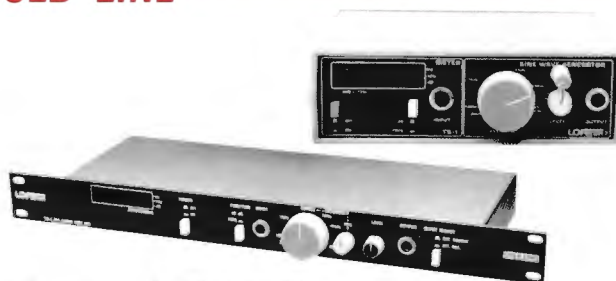
AT-51 Complete system including AA-51 and

AG-51 . . . \$4525.00 U.S. YOUR PRICE \$ \_\_\_\_\_

IX-51 Optional balancing transformer  
(ea.) . . . . . \$290.00 U.S. YOUR PRICE \$ \_\_\_\_\_



## GOLD LINE



### TS-1 (top) and TS-1 RMX (bottom)

The Gold Line TS-1 provides a combination of three precision test instruments featuring a current controlled, state-variable oscillator. Distortion components are typically 0.1%. Full frequency sweeps can be made from 20 Hz to 20 kHz in a single range. The frequency counter is internally connected to the oscillator until a signal is plugged into the meter input.

TS-1-unbalanced 1/4" connectors, benchtop, 2 1/2"H x 8"W x 6 1/4"D, 2 lbs. . . . \$349.95 U.S. YOUR PRICE \$ \_\_\_\_\_

TS-1 RMX-balanced XLR connectors, rack mount, 1 3/4"H x 19"W x 7"D, 4 lbs. . . . \$515.00 U.S. YOUR PRICE \$ \_\_\_\_\_

## STL



### TEST TAPES

STL test tapes are recorded directly from precision generating equipment to provide the most accurate reference possible. An independent standards laboratory, STL provides a completely objective service, with test tapes available to major manufacturers, governments, and all who need a precision reference tool.

Please call us for the STL order form. STL tape sales are final.

## FOSTEX

### TT-15



The Fostex TT-15 test tone oscillator features user-selectable 40, 400, 1 K, 10 K and 15 kHz internal oscillator test tones. The 0 dBV output is ideal for broadcast use. -10 dBV and -30 dBV levels are also selectable. The TT-15 is powered by a 9V battery which, under normal use, will power the TT-15 for up to 30 hours. 4 1/8"H x 1 3/8"W x 3"D. Weight: 11 1/2 oz.

Fostex Price . . . \$48.00 U.S.  
YOUR PRICE \$ \_\_\_\_\_



# STANDBY POWER

## ENERGY CONTROL



### SAFE 500

The SAFE model 500 backup power system provides protection against voltage drops and power outages with a true 500 watts of clean voltage regulated power. Standard features include overload detection on both AC line and inverter, with audible and visual indicators (including a battery status indicator light). The very fast 1-2 millisecond transfer time, combined with the unique overvoltage and undervoltage detection system means worry-free operation. Synchronized transfer to inverter and back to AC line allows proper operation of all phase sensitive devices. Built-in surge suppression. It is an excellent choice for fully loaded hard drive systems, such as the PC/AT or compatible.

Energy Control Price...\$687.50 U.S. YOUR PRICE \$\_\_\_\_\_

## KAY

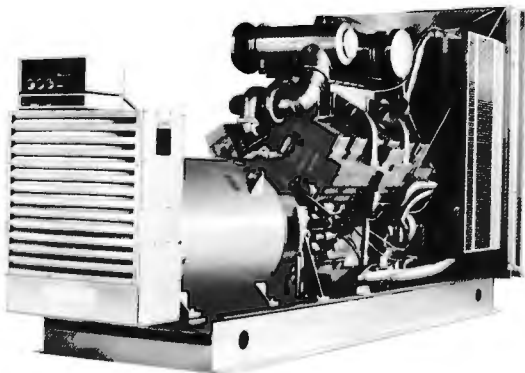
### PHASEMASTER

The Phasemaster® T-Series rotary phase converter is specially designed and engineered for use with all types of radio transmitters for the conversion of single phase power to 3-phase in locations which are not serviced by 3-phase lines. A Phasemaster T-Series rotary phase converter can be installed for a fraction of the cost of installing utility supplied 3-phase power. Also, for open Delta circuits.

Prices on Application



## ALLIED



Standby power generators simply save the only inventory you have to offer for sale. Unexpected outages can happen anytime, anywhere.

Allied power generators are available in single- and 3-phase models with power ranges from 5 kw to 1000 kw.

Gasoline, diesel and natural or propane gas may be specified to suit your needs. Many accessories are available including small and large storage tanks and auto transfer.

Your Harris Allied representative has the details and will be happy to quote based on your needs.

Prices on Application

**TO ORDER DIAL TOLL-FREE**

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800-622-0022**

**IN CANADA  
800-268-6817**

# TRANSMITTING ACCESSORIES

## MOSELEY

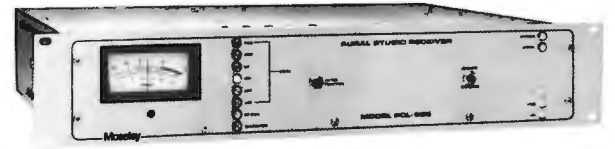
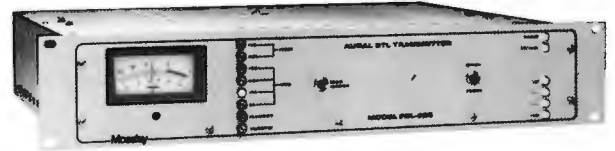


### PCL 6030 SYSTEM

Moseley's PCL 6000 Series systems are fully synthesized with selectable mono or composite operation. Tuned and tested on operating frequency. 300-330, 450-470, 890-960 MHz. PCL 6020 — double conversion receiver, auto receiver transfer circuitry. PCL 6030 — triple conversion receiver, auto receiver transfer circuitry. Ship. wt. 43 lbs. ea.

PCL 6020...\$7800.00 U.S.  
PCL 6030...\$8800.00 U.S.

YOUR PRICE \$ \_\_\_\_\_  
YOUR PRICE \$ \_\_\_\_\_



### PCL-606 & PCL-606/C

The PCL-606 is an all solid-state STL consisting of a mono transmitter and receiver with self contained power supplies, crystals and tested on the operating frequency. Versions available from 148 to 960 MHz. Discrete. The PCL-606/C is an all solid-state composite STL consisting of a transmitter and receiver with self-contained power supplies, crystals and tested on the operating frequency. Transmits a composite stereo waveform on a single STL. Versions available from 148 to 960 MHz.

PCL-606 . . . . \$10,700.00 U.S.  
PCL-606/C . . . \$10,700.00 U.S.

YOUR PRICE \$ \_\_\_\_\_  
YOUR PRICE \$ \_\_\_\_\_



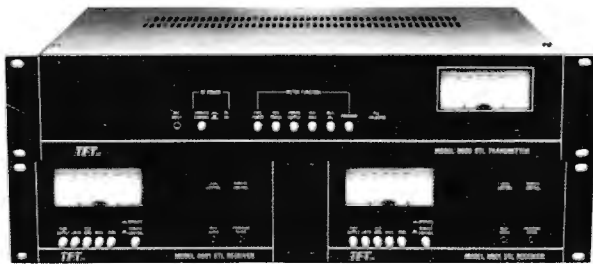
### CL100-1

The CL100-1 is a telemetry return link consisting of an all solid-state transmitter and receiver. Tuned and tested on the operating frequency. Nominal one watt transmitter output. Receiver designed specifically for narrowband service. For 10F2/10F3 channels FCC group P. Ten watt version also available.

Moseley Price . . . \$3980.00 U.S.

ALLIED PRICE \$ \_\_\_\_\_

## TFT

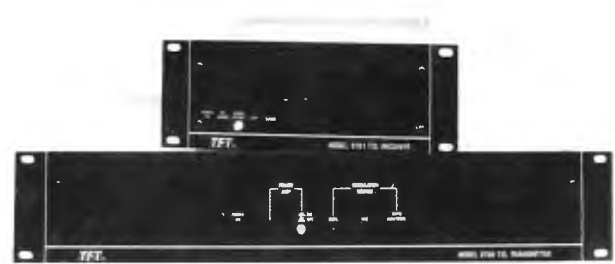


### 8600A SYSTEM

The model 8600A STL is a discrete 950 MHz system. Designed for either single or dual monaural operation, it is the ideal choice for congested areas or STL drop-ins. It features a built-in subcarrier generator and demodulator for voice or data, spurious-free power amp, mic and headphone jacks and the capability to properly match phase and gain between dual links for either AM stereo or FM stereo applications. Also available on FCC part 94 frequencies (private fixed microwave).

TFT Price . . . \$3040.00 U.S.

YOUR PRICE \$ \_\_\_\_\_



### 8700 SYSTEM

The TFT model 8700 450 MHz transmitter and model 8701 receiver are specifically designed to convey data or voice grade audio. Suited for the telemetry return of a remote control system using FSK data modems, it eliminates the need to use a telephone line or broadcast SCA channel at FM stations. At AM stations, it provides a data link many times faster than a sub-audio data channel. This TSL has an audio bandwidth of 300 Hz to 3 kHz, which allows you to convey FSK signals from a modem for either one way control or telemetry functions under part 74.

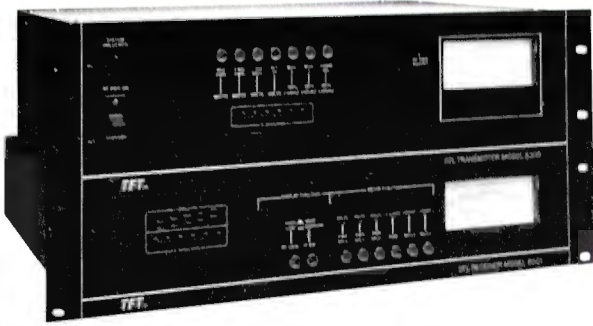
TFT Price . . . \$3040.00 U.S.

YOUR PRICE \$ \_\_\_\_\_



# TRANSMITTING ACCESSORIES

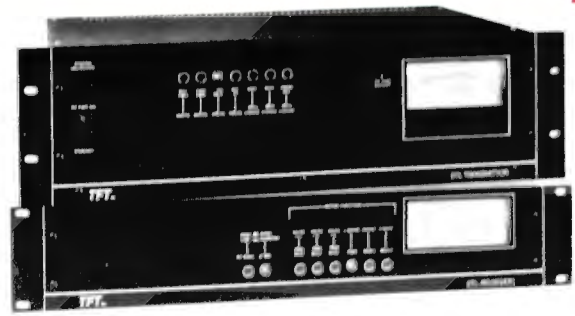
TFT



## 8300 SYSTEM

When it comes to transporting the cleanest, most transparent audio via microwave, the 8300 composite STL is ahead of the rest... even in dense RF environments. If multi-hop links are involved, the 8300 features exclusive IF repeater circuitry to ensure audio quality at the origin is accurately relayed and maintained through 3.4 (or more!) hops to the transmitter.

TFT Price...\$9990.00 U.S. YOUR PRICE \$\_\_\_\_\_



## 7700B SYSTEM

The 7700B is the 8300's economical counterpart. Available in composite, mono, or dual mono configurations without degradation of separation, signal-to-noise ratio, or added distortion. As with the 8300 series, an FM stereo decoder is optional and provides L & R channel outputs for local monitoring, or AM stereo applications.

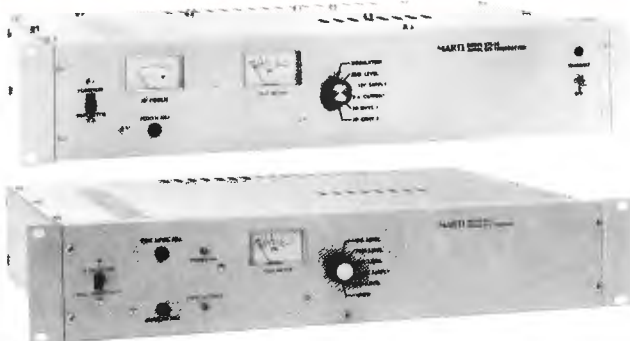
TFT Price...\$7590.00 U.S. YOUR PRICE \$\_\_\_\_\_



## RECITER

The Reciter, model 8900, is a single chassis equipment combining the functions of an STL receiver and an FM exciter using an Intermediate Frequency (IF) as the interface. By utilizing the IF to transfer the FM modulation from the STL receiver to the exciter, it is not necessary to demodulate the STL signal to the baseband, thus eliminating the weakest link in the FM broadcast chain, the STL receiver's demodulating circuitry.

MARTI



## STL-10 (top) & R-10 (bottom)

Marti's STL-10 features superior stereo separation for digital disc programming. The STL-10 is also suitable for part 94 applications for satellite feeds, data and background music transmission. When you play compact discs on your station have it mean something to your listeners. Team a Marti STL-10 stereo system with a new high separation processor/stereo generator and get some serious digital compact disc stereo on the air.

STL-10/950 10 watt transmitter, complete with crystal and tuned to frequency. 120/220VAC for AM or FM broadcast application.  
R-10/950 receiver, complete with crystal and tuned to frequency, 120/220VAC for AM or FM broadcast application. Includes down-converter.

STL-10 mono system, typical...\$3250.00 U.S. YOUR PRICE \$\_\_\_\_\_  
STL-10 stereo system, typical...\$6925.00 U.S. YOUR PRICE \$\_\_\_\_\_

## TSL-10

TSL-10 telemetry links: Many TV and radio stations wish to purchase telemetry links but cannot find interference-free frequencies in the congested "P" channels of the 450-456 MHz band. By licensing telemetry links in part 94 "Private Operational-Fixed Microwave Service" in the 928-960 MHz band, many interference-free channels are now available to broadcasters using the TSL-10 system. 15 and 30 watt transmitter-studio links also available for use in the 450 MHz band, part 74.

Single channel package starts at \$3250.00 U.S.



## MW-500

Marti's MW-500 microwave booster is designed to receive, amplify and re-direct an aural STL signal over or around an obstructing object in the direct path between the transmitting and receiving antennas. Since the booster uses the same frequency for re-transmitting, scarce spectrum is conserved. The booster will provide a maximum of 500 milliwatts output power. It will also provide 60 dB power gain at any point it is inserted in the microwave path.

Marti Price...\$2495.00 U.S. YOUR PRICE \$\_\_\_\_\_



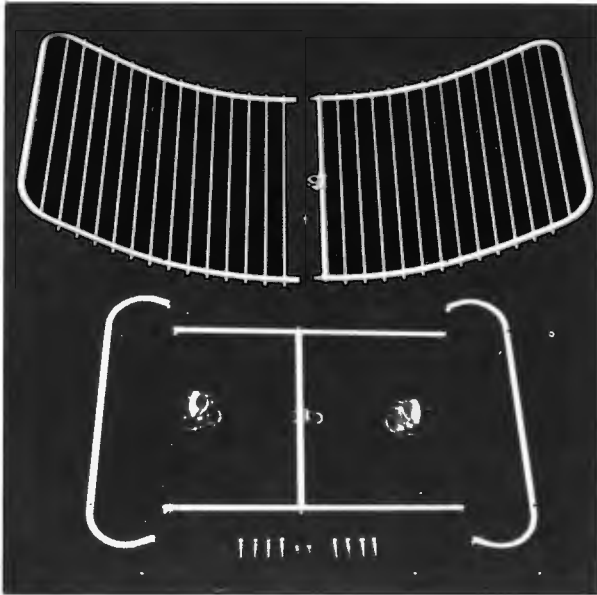
## UPS-12

Marti Electronics' UPS-12 uninterruptible power system provides automatic battery backup for Marti STL-10/R-10 radio link systems as well as Marti RPT-15/CR-10 automatic relay stations and TSL-10,15,30 data links. The UPS-12 is equipped with a precision constant voltage "Taper" battery charger to maintain a 24, 36 or 60 amp-hour sealed maintenance free battery in a charged condition.

Marti Price...\$425.00 U.S. less battery YOUR PRICE \$\_\_\_\_\_

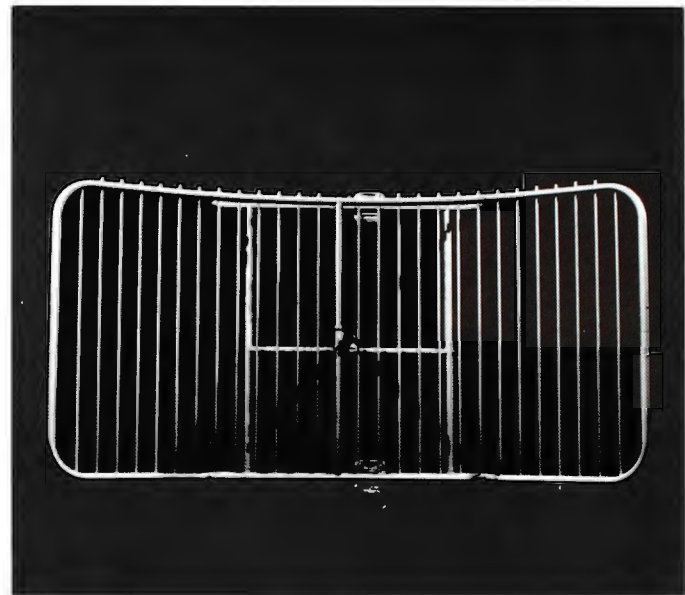
# TRANSMITTING ACCESSORIES

## SCALA



### PR-450-U (ready to ship)

Scala's PR-450-U™ is broadcasting's most popular STL antenna. It's also rather large which helps it do its superior job. Shipping costs have never been a small consideration on antennas of any type. Recent changes have compounded the problem. Scala solves the problem! The new PR-450-U knocks down, cutting shipping costs to the bare minimum. UPS ground for less than \$25.00 is typical. We can FedEx it to you overnight if necessary.



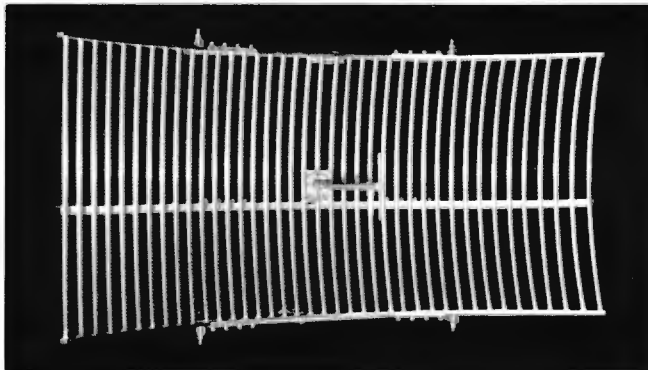
### PR-450-U (assembled)

The Scala PR-450-U™ is widely used in point communications and telemetry systems in the 350 to 1000 MHz spectrum. Paraflector™ performance approximates that of a parabolic dish of the same aperture, and is easier to assemble and install. The PR-450-U offers rugged construction for reliable long-term service, even in severe environmental conditions.

Scala Price . . . \$580.00 U.S.

YOUR PRICE \$ \_\_\_\_\_

## MARK



Mark Antennas Division is proud to offer the new super short haul antenna. It is a welded aluminum grid parabolic section antenna for point-to-point communication in the 940-960 MHz frequency range providing an increased gain of 1.5 dBi over the standard short haul antenna. New significant improvements made include the narrowing of the main beam, side-lobe performance and front-to-back. No increase in size and windloading. Can be shipped overnight by FedEx™ or UPS™



Mark Antennas Division offers a variety of sizes of Heli-Arc welded aluminum multi-element grid parabolas for point to point relay operation in the 400 to 2700 MHz frequency range. The patented grid construction is lightweight, yet extremely strong. One of the outstanding advantages of the grid antenna is that it has wind loading characteristics of only 25 to 40% of comparable size solid parabolas.

Prices on Application



# TRANSMITTING ACCESSORIES

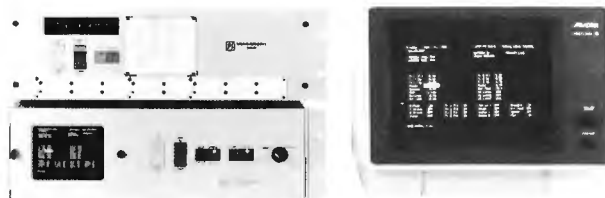
**POTOMAC**



## RC16+

RC16+ remote control system includes the SU-16 studio unit (16 channels): This unit contains the master controller and time clock. It sends commands to the transmitter unit and receives data from it. It is pre-programmed for each station according to user specifications. This unit accepts analog telemetry and status inputs and provides relay closure control outputs.

Potomac Price . . . \$6540.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

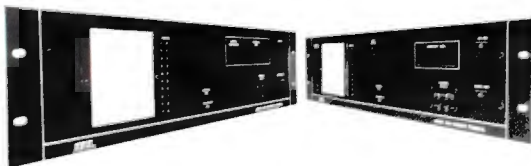


## 1500 SERIES

The 1500 PC remote control is designed as a universal controller offering greater flexibility to a broader spectrum of AM, FM, and TV users. The field programmable 1500 Series units insure operating flexibility. The operating program for the 1500 is set by the user, using an interactive menu display and front panel keys. Once the program is set, it is stored in EPROM. The principal unit in this series is the 1500 PC. This programmable controller may be used to provide full control of a transmitter when the transmitter and studio are located in the same building. It may also be used in conjunction with a studio terminal unit (1510 ST) to provide transmitter control from a remote location.

Prices on Application

**TFT**



## 8610 SYSTEM

The TFT 8610 system permits any size AM, FM and TV station or other facility to have direct digital control of remote transmitters and facilities. Designed to meet today's growing needs, the system is totally modular for tailoring it to your own specific control and budget requirements. The system's telemetry and status channels may be easily field expanded to meet the needs of even the largest stations. It features 10 channels each for raise, lower, telemetry & status, and is expandable.

TFT Price . . . \$5220.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

**MOSELEY**



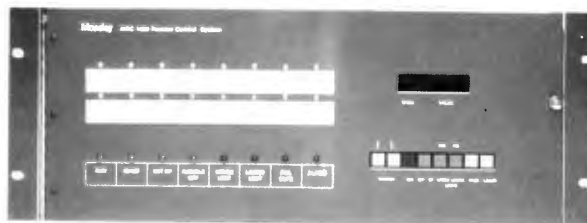
## MRC-2

MRC-2 microprocessor remote control system with stand-alone remote terminal, consists of one control terminal, one remote terminal. System is configured with 16 command lines (open collector electronic switching), 16 status channels (TTL contact closure), and 16 analog telemetry channels

Moseley Price    \$12,850.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

PC control terminal software for MRC-2 allows interconnection of IBM® AT XT or compatible computer over RS-232 communications to an MRC-2 remote terminal. Includes firmware, remote terminal software, interconnecting cable and Hayes 1200 modem. *Does not include PC*

Moseley Price    \$4995.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



## MRC-1620

In broadcast applications, the 1620 system may be configured as a standard remote control with an optional control terminal at the studio and the optional remote terminal at the transmitter. The remote terminal may also be interrogated over dial-up lines using the TaskMaster20 software and modems. The TaskMaster20 can also be used to directly connect a PC at the control or remote terminal for automatic logging and automatic controls.

Prices on Application

# TWO COMPANIES, ONE GOAL

**O**ur goal: to provide the most sophisticated broadcast operations possible. You've trusted Allied for years, because you know that the finest broadcast equipment is here for you. But equipment alone doesn't make a great broadcast station. You need a qualified, trained staff on duty to assure peak performance. Now, with your call to Allied, your station can add the most advanced off-premise control service in the world: the National Supervisory Network.

## **Experienced Operators On Duty**

Through a dedicated, Ku-Band satellite link, the National Supervisory Network provides your facility with FCC legal off-premise control **continuously**—24 hours a day, seven days a week. The National Supervisory Network monitors



and commands your transmitter and EBS equipment. Logs readings on all technical parameters every 30 minutes. Furnishes trend analysis & equipment performance reports. Monitors security and fire alarm systems. And, the National Supervisory

Network responds immediately and intelligently to all alarms. Your staff has the freedom to concentrate on programming without the worry of technical logs

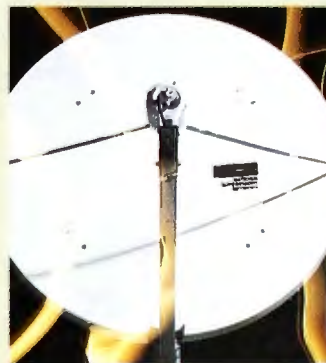
## **Allied Broadcast Equipment and the National Supervisory Network.**



and operations. Or, you can lock the doors and go out into the community to gather news, participate in events, and sell advertising. You'll know that experienced, trained operators are on duty to monitor, control, log, anticipate trouble, and keep your station running at its

optimum—regardless of format or scheduling.

To minimize up-front costs, NSN supplies the



computer and satellite hardware needed for the data link as part of your low, monthly service fee.

## **Satellite Sub-Networking**

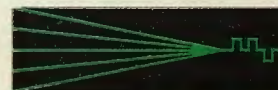
In addition, NSN now offers private Sub-Networking for station groups. These high-speed computer interconnections

between stations help centralize business operations with easy transfers of files and data including: electronic mail, commercial copy, program logs, spreadsheets, promotion ideas, sales proposals, even CD quality audio spots and NTSC color video frames.

Consult your **Allied** representative today  
to learn how one call can provide it all.

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**NATIONAL OFF-PREMISE CONTROL**



**NATIONAL  
SUPERVISORY  
NETWORK**  
SM

Avon, Colorado



# TRANSMITTING ACCESSORIES

**HARRIS**



## SENTINEL

Harris' Sentinel Series Remote Control is an intelligent, visual system designed to grow as the broadcaster's needs do. Automatic correction capabilities enable Sentinel to resolve problems without operator intervention. User-friendly, Sentinel Series Remote Control features a color CRT, color-coded display conditions, and light pen operation. Available in single or multi-site models for remote control between a studio and up to six transmitter or other locations, Sentinel Remote Control offers unique user-design capabilities, and is available with multiple communication modes, a logger/printer, and floppy disk back-up. The broadcaster may specify, in multiples of 16, to a total of 64 telemetry ports and 96 status and control ports.

## FACILITY CONTROL 9100

The Harris 9100 Facilities Control Systems are available in various configurations to provide intelligent remote control; automatic transmitter control; automatic logging; plant protection through intrusion and fire alarms; automatic control of such items as antenna lights and building temperature, and automatic operation of standby equipment. The system is composed of a family of microcomputer controlled "building blocks" which are configured on the basis of specific applications and needs. Components include studio units; transmitter units and automatic control units. Optional monitor and alarm panels, channel expansion panels and loggers are available.

**GENTNER**

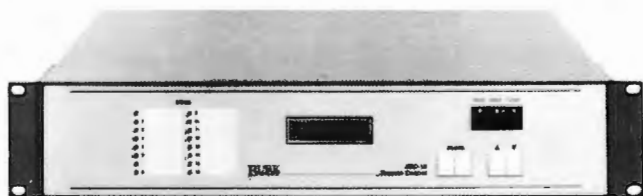
## VRC-2000

The VRC-2000 Voice Remote Control operates on the dial-up telephone system to allow you the freedom of remote control from anywhere. You communicate with the VRC-2000 by listening to its synthesized voice and commanding it with a Touch-Tone® (DTMF) key pad or portable automatic dialer. The VRC-2000 can be controlled from any location with a telephone — your home, a car, a pay phone, the studio, etc. It literally talks to you to report conditions. With 790 English words in memory, it can be programmed (using a simple set-up procedure) to say what you need it to say in reporting conditions at your transmitter.



Basic system starts at \$2995.00 U.S. YOUR PRICE \$ \_\_\_\_\_

**BURK TECHNOLOGY**



## ARC-16

The ARC-16, 16-channel transmitter remote control system includes 16 analog metering channels, 16 status channels and 32 control outputs (16 raise, 16 lower). The single unit configuration includes transmitter unit with front panel display and one telephone/speech unit (DSU) to allow full remote control from any telephone. Other options available. 3½"H x 19"W x 11"D.

## TC-8

The TC-8 is designed to provide highly reliable transmitter control at a modest cost. Eight metering channels are displayed on a large, easy to read dot-matrix array. The status display provides continuous tally for eight on/off inputs. Pushbutton setup and calibration make the TC-8 a dream to install and operate. Non-volatile memory stores all setup and calibration data for ten years without power, allowing convenient maintenance and providing orderly recovery from power outages.

Single unit configuration \$2995.00 U.S. YOUR PRICE \$ \_\_\_\_\_  
Dual unit configuration \$3895.00 U.S. YOUR PRICE \$ \_\_\_\_\_

TC-8... \$2495.00 U.S. YOUR PRICE \$ \_\_\_\_\_

# TRANSMITTING ACCESSORIES

## DORROUGH

### 1200

Dorrough's model 1200 is ideal for FM stereo, recording, duplicating, uplink and stereo television applications. This simple and easy to operate gain set allows stereo measurements of level, balance, crosstalk, and signal-to-noise over the entire dynamic range of your system from noise floor to clipping. The solution for balanced stereo lines.

Dorrough Price...\$1650.00 U.S. YOUR PRICE \$ \_\_\_\_\_



## SYMETRIX



### SX205

The SX205 precision audio meter is a two-channel level display that indicates both voltage and power. A 1 kHz sinewave oscillator is included for calibration and alignment. Unlike old style electro-mechanical meters, the SX205's microprocessor controlled display driver delivers outstanding unit-to-unit accuracy. 5 lbs. shipping weight.

Symetrix Price...\$339.00 U.S. YOUR PRICE \$ \_\_\_\_\_

## B&B SYSTEMS

### AM-2B

The Phasescope AM-2B gives a complete "picture" of the stereo audio signal at a quick glance. For AM and FM stereo radio broadcasters and sound recording studios, the AM-2B features CRT X/Y display of stereo audio phase, LED display of peak audio levels for left and right channels showing headroom availability, VU level meters for left and right channels, and magnetic and EMI/RF shielding. The space-saving AM-2B in two EIA rack units weighs 20 lbs.

B&B Price...\$2250.00 U.S. YOUR PRICE \$ \_\_\_\_\_



## ATI



### VU800, VU600, VU400, VU200

Give yourself that warm, secure feeling by economically displaying all your important lines simultaneously. Know at a glance where your signals are (or are not). Expandable ATI MicroMeters display one, two, three or four stereo lines (eight channels) on bright, two color vacuum fluorescent bar-graph indicators. Balanced, bridging inputs are switchable for 0VU at -10, +4 and +8 dBm line levels. Displays -20 to +8VU with peaks stored for several seconds. Backlit, compact 3 1/2" rack mount.

Prices start at \$499 for 1 display (VU200) to \$1249.00 for 4 displays (VU800).

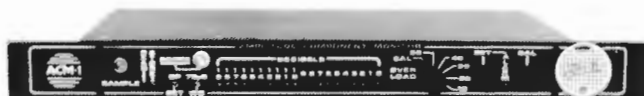


### VU1000

Capable of many functions, use the VU1000 as an input line selector, a remote line selector into your console and for general metering and monitoring of critical signals. Eight balanced bridging inputs are panel and remotely selectable to feed an LED bargraph meter with both VU and PPM ballistics plus a balanced line output and a headphone jack. A range switch sets the reference line output and 0VU indications for five levels from -10 to +18 dBm. An optional built-in 6 watt power amp drives external speakers. Interconnect two for slaved stereo switching.

VU1000-1...\$645.00 U.S. YOUR PRICE \$ \_\_\_\_\_  
VU1000-2...\$745.00 U.S. YOUR PRICE \$ \_\_\_\_\_

## RADIO DESIGN LABS



### ACM-1

The ACM-1 is designed to be a constant watchdog of the integrity of your potential RF signal. Natural shifts in transmitter tuning, tube aging, interstage coupling mismatches and antenna problems will all increase the AM noise in your FM transmitter. And it often goes undetected. In fact, proper ongoing detection of AM noise is a BIG problem. Until now, product technology has not offered a way to read the AM noise at the studio, or to alert the engineer that the AM noise is reaching a level which will audibly affect the station signal. The ACM-1 does all this and more.

RDL Price \$1595.00 U.S. YOUR PRICE \$ \_\_\_\_\_



# TRANSMITTING ACCESSORIES

**HARRIS**



## AM-90

The Harris AM-90 Medium Wave Modulation Monitor is designed for continuous monitoring of the amplitude modulation envelope in the 450 kHz to 30 MHz frequency range. An easy-to-read neon bar display accurately measures carrier and modulation levels. Two fixed flashers are adjusted to +125 percent and -100 percent for constant monitoring of modulation levels. Carrier and modulation alarms illuminate when carrier amplitude drops below 50 percent of the pre-set level or when modulation remains under 10 percent for ten seconds. The unit is available with a remote meter panel.



## 844A and 845

To maximize your FM station's market coverage, you need more than a powerful transmitter. You also need all the modulation you're legally entitled to. TFT designed the model 844A FM/baseband/stereo and model 845 SCA modulation monitors for just that reason. They give you the ability to modulate your transmitter to the maximum legal limit—with absolute confidence. The model 844A can be used for remote, off-air monitoring or for direct transmitter measurements.

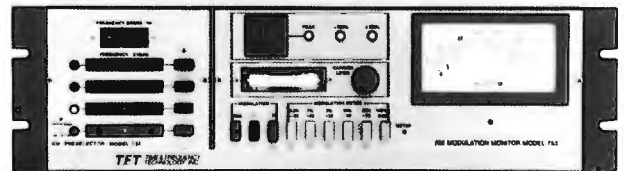
Model 844A . . . . . \$4920.00 U.S.      YOUR PRICE \$ \_\_\_\_\_  
 Model 845 . . . from \$2610.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



## 884

The TFT model 884 FM stereo modulation monitor is a cost-effective alternative to TFT's popular model 844. The 884 allows you to maximize your coverage with maximum modulation levels while maintaining the highest signal quality. The 884 can be used for transmitter proof-of-performance measurements, or at the studio for off-air monitoring. The frequency-synthesized pre-selector can be used to select your own station's signal or the signal of another station for easy and convenient comparison. Modulation monitoring at an affordable price.

TFT Price . . . \$3595.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



## 753

The model 753 AM broadband modulation monitor is designed with linear-phase filters to eliminate transient filter overshoot which results from the heavy amplitude clipping of today's audio limiters. It makes extremely accurate proof-of-performance measurements and allows

you to monitor your transmitter so precisely that you can modulate it to the maximum legal limits in absolute confidence.

TFT Price . . . from \$1680.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

**BELAR**



## TVM-200

The Belar TVM-200 TV stereo modulation monitor system consists of two separate units; the TVM-210 BTSC reference monitor and the TVM-220 BTSC program monitor. The TVM-210 is designed to operate in conjunction with the Belar TVM-10 TV aural monitor or other precision wide band demodulators. The TVM-220, when used with the TVM-210 and the TVM-101, provides full time monitoring of L + R and composite signal modulation levels. Both functions include digitally selectable peak indicators along with fixed 100% peak modulation indicators.

Belar System Price . . . \$5550.00 U.S.      YOUR PRICE \$ \_\_\_\_\_



## TVM-101

The Belar model TVM-101 precision aural monitor is a wide-band TV aural modulation monitor designed to measure the total modulation characteristics of mono as well as multi-channel television transmitters. Designed to conform with the latest EIA/BTSC standards, the TVM-101 is also used as a low-distortion, low-noise main channel demodulator for driving audio monitor amplifiers and audio distortion analyzers at proof time. Wide band composite outputs are provided for Stereo, SAP, PRO and SCA monitors.

Belar Price . . . \$3550.00 U.S.      YOUR PRICE \$ \_\_\_\_\_

IN CANADA CALL 800-268-6817

**HARRIS ALLIED**

Specifications subject to change or revision.

**139**

# TRANSMITTING ACCESSORIES

**BELAR**



## AMM-2B

The AMM-2B modulation monitor sets standards in accurate AM monitoring. It's the first AM monitor to incorporate true ratio-type peak indicators. The AMM-2 contains a unique modulation cancellation scheme to recover unmodulated carrier to reference the modulation peaks to.

Belar Price...\$1320.00 U.S.      YOUR PRICE \$\_\_\_\_\_



## AMM-3

The AMM-3 modulation monitor is basically the same as the AMM-2B except for an ability to read both positive and negative modulation peaks.

Belar Price...\$1590.00 U.S.      YOUR PRICE \$\_\_\_\_\_



## RFA-2

The RFA-2 AM RF amplifier offers a selective, high gain, all silicon solid-state unit with AGC and makes it possible to monitor off-the-air AM signals accurately and conveniently without the problems associated with changes in transmitter power level, antenna patterns and signal fading. The RFA-2 when used in conjunction with AMM-2B, AMM-3 or AMM-4 allows monitoring of modulation characteristics at a remote point.

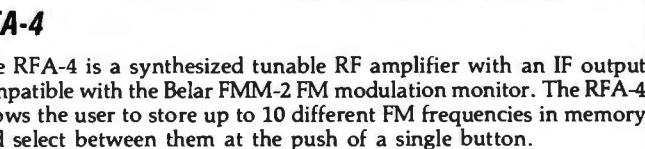
Belar Price...\$650.00 U.S.      YOUR PRICE \$\_\_\_\_\_



## AMM-4

The AMM-4 frequency monitor is designed especially for ATS. Any frequency from 10 kHz to 50 MHz may be monitored for deviation.

Belar Price...\$1190.00 U.S.      YOUR PRICE \$\_\_\_\_\_



## RFA-4

The RFA-4 is a synthesized tunable RF amplifier with an IF output compatible with the Belar FMM-2 FM modulation monitor. The RFA-4 allows the user to store up to 10 different FM frequencies in memory and select between them at the push of a single button.

Belar Price...\$900.00 U.S.      YOUR PRICE \$\_\_\_\_\_



## FMM-2

The FMM-2 is the first to incorporate a sample hold peak modulation meter circuit independent of modulation polarity to allow the meter to respond to program peaks of the shortest duration. The heart of the FMM-2 is an ultra-linear digital discriminator which provides a distortion-free baseband signal for accurate monitoring as well as precise stereophonic and SCA decoding.

Belar Price...\$1590.00 U.S.      YOUR PRICE \$\_\_\_\_\_



## FMS-2

Working in conjunction with the FMM-2, the FMS-2 offers two independent peak modulation meters for simultaneous monitoring of left and right channels or L + R and L - R. It also has two independent auto-ranging voltmeters with LED displays.

Belar Price...\$1790.00 U.S.      YOUR PRICE \$\_\_\_\_\_



## SCM-2

The SCM-2 SCA modulation monitor, when added to the FMM-2 provides complete monitoring and test functions for SCA storecasting, data transmission and remote telemetering applications. Up to four crystal switch positions allow four channels to be operated and tested.

Belar Price...\$1790.00 U.S.      YOUR PRICE \$\_\_\_\_\_



## FMM-4A

The FMM-4A is a digital FM frequency monitor designed especially for automatic broadcast transmitter monitoring. The counter will accurately monitor any frequency from 50 MHz to 150 MHz. A large 3½ digit LED readout provides a display range of 19.99 kHz deviation from the assigned channel. The monitor also provides two off-frequency alarms.

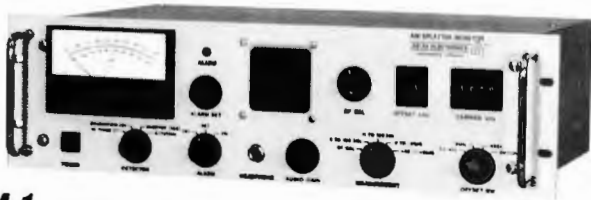
Belar Price...\$1450.00 U.S.      YOUR PRICE \$\_\_\_\_\_

Harris Allied carries the complete line of Belar's TV monitors for mono and stereo aural applications.



# TRANSMITTING ACCESSORIES

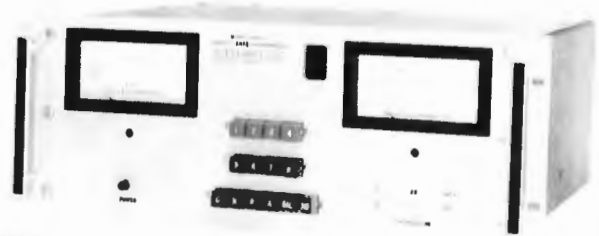
**DELTA**



## SM-1

The model SM-1 AM splatter monitor provides AM broadcast engineers with a means of accurately and easily measuring their station's off-channel emissions to ensure compliance with the FCC regulations and NRSC. This instrument provides many of the features of an expensive spectrum analyzer at a significantly reduced price. 5 1/4"H x 19"W x 12"D. Shipping weight: 14 lbs.

Delta Price...\$2500.00 U.S. YOUR PRICE \$ \_\_\_\_\_



## AAM-1

The AAM-1 analog antenna monitor is designed specifically for measuring the parameters of AM broadcast frequency directional antenna systems. The monitor measures the relative current in each tower, the ratio of the current in each tower to that of a reference tower and the phase of the current in each tower relative to that of the reference tower.

Prices on Application



## AMC-1/FMC-1

The only modulation control systems which provide a completely closed loop around the transmitter. The Amplitude and Digital Modulation Controllers sample actual modulation levels after the PA output network assures precise adjustment for optimum modulation levels. AMC-1 for AM transmitters, FMC-1 for FM transmitters.

Prices on Application



## APC-1

The APC-1 automatic power controller measures the operating power of an AM or FM station, and by interconnection to the transmitter's RAISE/LOWER controls causes the power to remain well within limits.

Prices on Application



## RG-4

The RG-4 receiver/generator provides an RF signal generator to excite the impedance bridge and a sensitive receiver for external null detection. With an OIB-1 or OIB-3, the RG-4 forms a portable impedance measuring system. Operates from 100 kHz to 29.999 MHz in 1 kHz increments.

Prices on Application



## OIB

Delta OIB operating impedance bridges measure the operating impedance of the individual radiators, networks, transmission line sections, and common point of directional antenna systems while they are functioning under normal power.

Prices on Application



## CPB-1

The CPB-1 is designed for permanent installation in existing phase equipment to provide an accurate indication of the common point impedance. The CPB-1 will handle common point powers of up to 5 kW with 100% modulation. The CPB-1A is designed for powers up to 50 kW.

CPB-1 to 5 kW . . . . \$2360.00 U.S. YOUR PRICE \$ \_\_\_\_\_  
 CPB-1A to 50 kW . . . \$2810.00 U.S. YOUR PRICE \$ \_\_\_\_\_



## SNG-1

The Delta Electronics model SNG-1 Stereo Noise Generator is designed to meet the requirements of NRSC standards NRSC-1 and NRSC-2 for testing AM radio transmission facilities. The model SNG-1 meets these requirements for both monophonic and stereophonic stations.

Delta Price...\$550.00 U.S. YOUR PRICE \$ \_\_\_\_\_

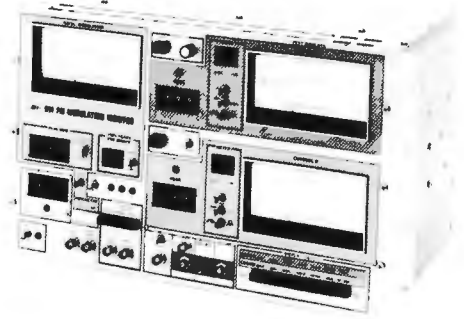
# TRANSMITTING ACCESSORIES

**QEI**

**691**

The 691 FM monitor/test set is a high technology, precision instrument employing a combination of new techniques in a single, highly versatile, but very compact package. It is a complete FM test package with facilities for all proof-of-performance measurements and a wide range of trouble-shooting tests. Operator convenience and simplicity of use were primary considerations in the design of the system. It occupies only 10½" of vertical rack space in a standard 19" rack.

- 691 modulation monitor/test set. . . \$5610.00 U.S.  
 YOUR PRICE \$ \_\_\_\_\_
- 691/01 modulation monitor/test set w/1 SCA. . . \$6675.00 U.S.  
 YOUR PRICE \$ \_\_\_\_\_
- 691/02 modulation monitor/test set w/2 SCA. . . \$7100.00 U.S.  
 YOUR PRICE \$ \_\_\_\_\_



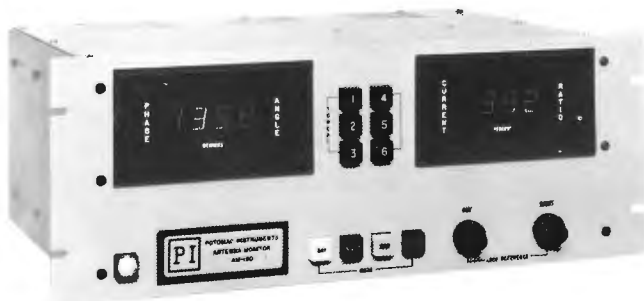
**POTOMAC**



## FIELD STRENGTH METERS

The Potomac line of field strength meters represents a new generation of precision instruments for direct measurement of electromagnetic fields in the 100 kHz to 960 MHz frequency spectrum. These units are intended for portable field use and include a laboratory quality receiver, integral shielded loop antenna, precision attenuator, internal calibration source, and voltage regulated battery power supply. Batteries are not included.

- FIM-21 535-1605 kHz. . . \$3190.00 U.S.  
 YOUR PRICE \$ \_\_\_\_\_
- FIM-22 200-550 kHz. . . \$4130.00 U.S.  
 YOUR PRICE \$ \_\_\_\_\_
- FIM-41 540-5000 kHz. . . \$3820.00 U.S.  
 YOUR PRICE \$ \_\_\_\_\_
- FIM-71 45-225 MHz. . . \$6615.00 U.S.  
 YOUR PRICE \$ \_\_\_\_\_
- FIM-72 470-960 MHz. . . \$7980.00 U.S.  
 YOUR PRICE \$ \_\_\_\_\_



**AM-19**

The AM-19 is the current model of the industry's most widely used solid-state antenna monitor. It provides direct meter readout of phase angle and loop current ratio. Tower selection is accomplished with push buttons on the front panel or by external contact closure in remote operation. Directional antenna arrays of 2 to 12 towers with DA-1, DA-2 or DA-3 patterns may be monitored with this instrument.

The AM-19D is identical to the AM-19 (204) except for the digital panel meters and associated circuitry. Four digit LED numeric displays provide resolution of 1/10 of one degree (phase angle) and 1/10 of one percent (current ratio). The digital readout feature of this instrument virtually eliminates operator error related to meter interpretation.



**AM-19-D**

The PMA-19 precision monitor adaptor is used in conjunction with either of the above monitors. This unit is required, for the most part, in very critical arrays. The current deviation mode provides a third measured parameter which displays directly the deviation of the current ratio from the licensed ratio.

- | Model  | #Towers                | YOUR PRICE \$ |
|--------|------------------------|---------------|
| AM-19  | 2 . . . \$4900.00 U.S. | _____         |
| AM-19D | 2 . . . \$5100.00 U.S. | _____         |
| PMA-19 | 2 . . . \$7025.00 U.S. | _____         |

Additional prices on application



# TRANSMITTING ACCESSORIES

**DAVTRONICS**

## RFA-5

The RFA-5 AM RF amplifier is designed to operate frequency and modulation monitors at a location remote from the transmitter, typically at the studio. When driven by a local antenna with an RF signal as low as 0.6 mv, the RFA-5 will drive most contemporary AM monitoring equipment, as well as provide a low-level output for an oscilloscope, and a clipped/limited output for a standard frequency counter.

Davtronics Price...\$1725.00 U.S. YOUR PRICE \$\_\_\_\_\_



## MAGNUM DYNALAB

### FT101

Magnum Dynalab presents the FT101 analog FM tuner/monitor; better known as the "Pro101". This professional monitor provides a realistic and highly accurate sampling of program signal quality while being fully tunable across the FM band for evaluation of in-range FM stations. It incorporates carrier loss alarm, modulation loss alarm, wideband adjustable output, two SCA demodulators and adjustable 600 ohm audio output. Available through our Canada office only.

## MTS



### SYSTEM 3000

Meet System 3000, the ultimate EBS monitor. System 3000 incorporates three monitor receivers, the EBS encoder and decoder into one unit. A single System 3000 can monitor your area's CPCS1, CPCS2, and the local NOAA weather service. Or it can monitor your CPCS1, CPCS2, and an adjacent area CPCS1! Or with 2 or more systems you can monitor EBS and NOAA services over a large area thereby offering your community the best information and protection available. Continuous self test keeps you informed of system status.

Additional features include: three channel scan, continuous automatic self test, program audio loop through, NOAA weather service receiver option, NOAA priority alert decoder option, and left and right channel outputs.

MTS Price...\$1900.00 U.S. YOUR PRICE \$\_\_\_\_\_



### SYSTEM 1000

The System 1000 EBS monitor, from Multi-Technical Services, is an integrated Emergency Broadcast System monitor. The System 1000 incorporates the EBS encoder, the decoder, and an FM receiver all in the same single rack space enclosure.

The System 1000 offers many of the advanced EBS features found in the System 3000 such as: continuous automatic self test, full program audio loop through, digital remote control, stereo outputs, independent encoder output, alarm relay, and HI-Z RX monitor port. Specify receiver frequency when ordering.

MTS Price...\$899.95 U.S. YOUR PRICE \$\_\_\_\_\_

Antenna package also available that includes everything from the mast pipe to the feed-lines with instructions that are very simple and straightforward.

## TFT

### AM/FM EBS SYSTEM

The models 886 and 887 Emergency Broadcast System (EBS) encoder/decoder systems are designed for broadcasters to meet FCC Rules and Regulations.

The AM receiver version, model 886, is tunable across the AM broadcast band. Tuning is accomplished with a 3-digit, front-panel push-button switch in 10 kHz increments.

The FM receiver version, model 887, is a high-performance, digitally tunable receiver, using a 4-digit front-panel push-button switch in 100 kHz increments.

To assist with compliance, there are separate 2-digit LED displays on the front panels. They show the number of days, up to twelve, since EBS test transmission were last received and/or sent. On the 12th day, the displays start flashing. This assists in avoiding FCC citations for incorrect use or non-use of the EBS system.



Order 886 for a complete encode/decode AM receiver EBS system or 887 for a complete encode/decode FM receiver EBS system. A 2-tone EBS generator is included with either system.

TFT Price...\$1920.00 ea. U.S. YOUR PRICE \$\_\_\_\_\_



**Reciter**  
See Page 133.



**Model 8300**  
See Page 133.



**Model 8888**  
See Page 126.



# TRANSMITTING ACCESSORIES

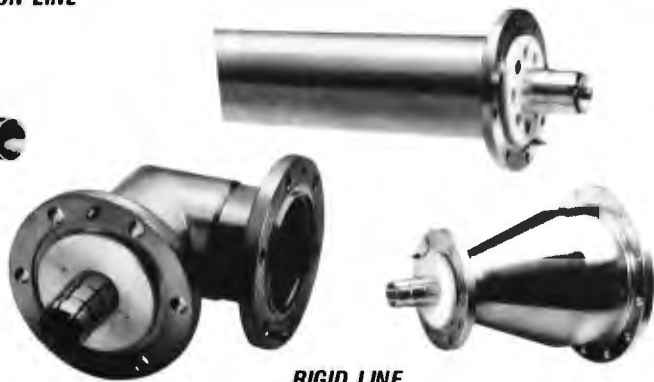
## CABLEWAVE



### COAXIAL TRANSMISSION LINE



**FLEXWELL**



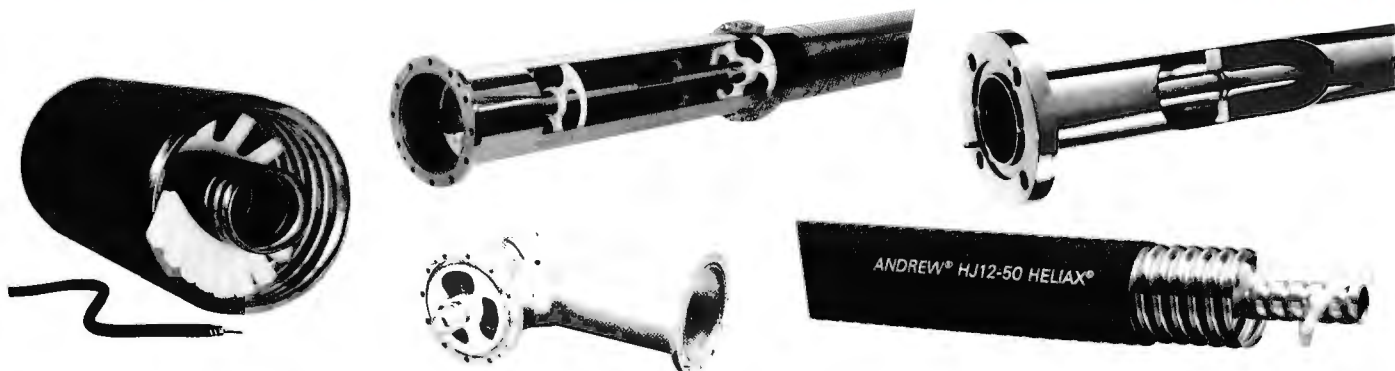
**RIGID LINE**

Cablewave Systems semi-flexible FLEXWELL coaxial cables are used in electronics and communications systems operating from VLF through the microwave frequency bands. Since each basic cable construction offers specific advantages, the company manufactures both smooth wall aluminum and corrugated copper coaxial cables in foam and air dielectric. This allows the user engineer to consider technical and economic factors for each type, and select the best construction for his requirements. Cables are cut to length and connectors factory attached upon request.

Rigid coaxial transmission line is fabricated from high conductivity hard-drawn copper tubing with precision machined, pin-type, Teflon dielectric insulators. The standard 50 ohm line is offered in sizes from 3/8" through 6". The EIA bolt type flanges and inner connectors are compatible with EIA standards, US MIL specifications, and international IEC recommendations. Aluminum outer conductor 50 ohm and copper 75 ohm lines are available on special order. Harris Allied carries the complete Cablewave line including connectors. Further information on Cablewave's entire line is available.

Prices on Application

## ANDREW



For more than 50 years, Andrew has offered a comprehensive line of broadcast products. These include both foam and air dielectric HELIAX® flexible coaxial cables, pressurization equipment, installation accessories, as well as standard and premium rigid transmission lines and components. Andrew standard coaxial transmission line has PTFE dielectric peg insulators and silver soldered flanges. Fully compatible with both EIA standard RS-225 and IEC recommendations, standard rigid line flanges and inner connectors do not require adaptors or special sections. Andrew MACXLine™ premium rigid line is a high performance coaxial line designed for exceptional reliability and long life. It is ideal for high power, FM, VHF and UHF television transmit applications. A unique patented bellows section incorporated into the

inner conductor compensates for differential expansion between the inner and outer conductors. MACXLine™ premium rigid lines are offered in 3 1/2" 50 Ohm, and 6 1/8" 75 Ohm sizes. Transmission lines are manufactured from high conductivity, hard drawn copper tubing for low attenuation.

The Andrew 2 1/4" HJ12-50 HELIAX® air-dielectric coaxial cable delivers the low attenuation you expect from 3" cable while it's easier to install, more cost effective and provides lower windloading! Only Andrew offers this new dimension in system flexibility! Low VSWR versions of the HJ12-50, and, of course, a complete line of HELIAX connectors and accessories are also available. Detailed information on the entire Andrew line of products is available upon request.

Prices on Application



### EASIAx™

Andrew's EASIAx™ eliminates hacksawing cable while precisely and consistently cutting through the outer jacket. Clean cut makes flaring easier than ever. The EASIAx blade depth makes it impossible to cut the inner conductor. EASIAx kits consisting of tool, instruction sheet and 5 extra blades are available for LDF4-50A, LDF4-75A, FSJ1-50, FSJ1-75, FSJ4-50B and FSJ4-75A Andrew cable.

Prices on Application

# TRANSMITTING ACCESSORIES

## COMARK



Comark rigid coaxial transmission line provides outstanding features such as constant impedance, high power capacity, and low insertion loss. Sizes to 8 $\frac{3}{8}$ " Heliarc-welded flanges and wrist band bullet construction 3 $\frac{1}{2}$ " and above.

Prices on Application



### COAXIAL SWITCHES

Low VSWR and low insertion loss combined with maximum isolation make Comark coaxial switches the ideal instrument for routing RF, especially in remote control applications. The positive action switching solenoid may be remotely controlled or overridden manually.

Prices on Application

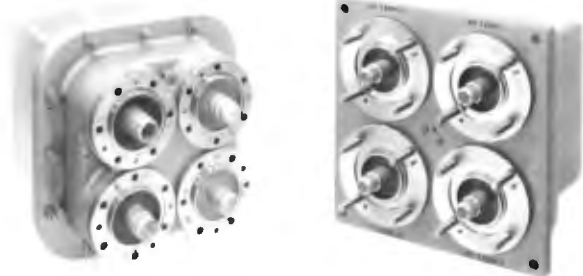
## MYAT

If you're looking for superior rigid coaxial transmission line and RF components, your transmitter or tower might be a good place to start. Take a look around—you'll probably find the bright blue Myat logo. TV and radio RF engineers at major manufacturers routinely specify Myat products. Call us with your requirements.

Prices on Application



## DELTA



### 6700 SERIES

The Delta 6700 Series of coaxial transfer switches provides the engineer with the capability to switch between transmitters, antennas, or dummy loads with a minimum of off-the-air time. Both models can be operated by remote control or manually. Remote operation can be achieved using either 120V or 220/240V, 50/60 Hz. The transfer switch is fully interlocked with two isolated interlock circuits that duplicate the RF path exactly. The 6730 6732E is a 1 $\frac{1}{2}$  inch switch. The 6740B/6742B is a 3 $\frac{1}{2}$  inch switch and may be pressurized up to 16 lb./sq. in. A gas barrier is built into each terminal, and an air inlet port is also provided in the 6740B 6742B model.

Prices on Application

## DIELECTRIC

### A 50000 SERIES

The A 50000 Series are motorized blade type (with silver plated contacts) coaxial SPDT or 4 port transfer switches 1 $\frac{1}{8}$ ", 3 $\frac{1}{8}$ " and 4 $\frac{1}{8}$ ". Reliable design and construction allow as many as 100,000 cycles without failure. Manual operation is provided for by the included knob. Terminations are standard EIA fixed flanges with non-removable male inner conductor connectors. Adaptors are available for mating with other types of terminations.

Prices on Application





# TRANSMITTING ACCESSORIES

## MICRO COMMUNICATIONS



Micro Communications offers coaxial transfer switches in power levels to suit most needs. MCI also produces complete RF systems and rectangular and circular waveguide transmission line systems. Combiners, multi channel TV and FV combiners, diplexers, filters, directional couplers, loads, hybrids and switching systems are also available. These systems are available in a broad range covering VHF, UHF, LPTV, FM, MDS and ITFS.

Prices on Application

## MICROWAVE FILTER

Microwave Filter offers an entire line of harmonic low-pass filters for FM broadcast that don't cost a fortune. Wattages range from 500-30,000. Model 7123-500 watts, N connectors, 5.85" max. length; 6692-1000 watts, N connectors, 11.04" max. length; 7131-1,500 watts, 7/8" EIA, 16.938" max. length; 6612-6000 watts, 1 1/8" EIA, 75" max. length; 6516-30,000 watts, 3 3/8" EIA, 72" max. length.

Prices on Application



## ENVIRONMENTAL TECH

### ADH-2

The ADH-2 Automatic Air Dehydrator provides 0.5 psi dry air for pressuring coaxial cables, waveguides, feed horns and similar applications. User friendly features include digital display for operating information, fault diagnosis capability and a malfunction alarm with a relay contact for remote indication. Quiet operation, low vibration level, low heat output, rack mounting, light weight and bright light emitting diode display ideally suit the ADH-2 to the electronic environment.

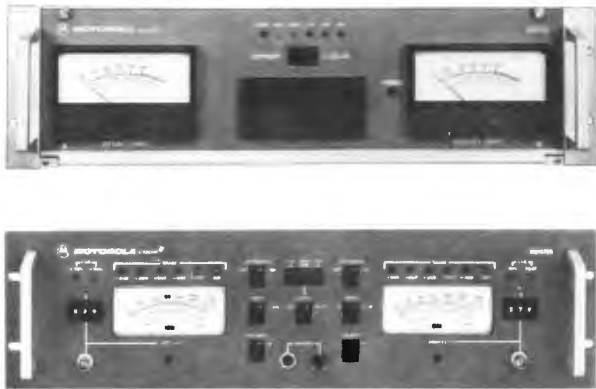
The ADH-2 regenerates automatically at a frequency depending upon operating conditions. An evaporator eliminates the need for a water drain line. The ADH-2 employs a microcontroller for simplicity and reliability. The ADH-2 easily pressurize up to 1100 ft. of 3" coax, rack mounts in 5 1/4" of vertical space and under normal conditions requires no operator attention.

Environmental Tech Price . . . \$1995.00 U.S. YOUR PRICE \$ \_\_\_\_\_



# TRANSMITTING ACCESSORIES

## MOTOROLA



### C-QUAM AM STEREO SYSTEM

In the Motorola C-Quam AM Stereo System, as in present AM broadcast standards, the angle modulated carrier is amplitude modulated with the sum of the audio information present in the program source. Thus to a monophonic receiver, the signal is no different from the signals being received under the present standards. Existing AM broadcast transmitters may be used with relatively simple and inexpensive modifications.

1400 C-Quam AM Stereo Exciter & 1410 C-Quam AM Stereo Modulation Monitor... \$11,850.00 U.S.

YOUR PRICE \$ \_\_\_\_\_

## DELTA



### ASE-1/ASM-1

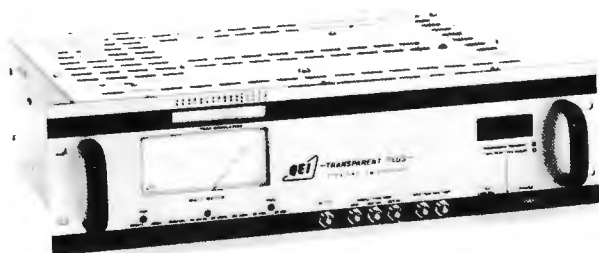
AM stereo without compromise. The ASE-1 AM stereo exciter and ASM-1 modulation monitor provide a C-Quam™ quadrature modulated stereo signal featuring low distortion and channel separation greater than 35 dB throughout the audio spectrum. The ASE-1 exciter circuitry includes all required processing features. Limiters are provided to prevent excessive positive and negative modulation. A blend processor makes high single channel modulation possible by blending a little of each channel with the other. Pre-emphasis is not required.

C-Quam is a registered trademark of Motorola, Inc.

Delta Price... \$11,855.00 U.S.

YOUR PRICE \$ \_\_\_\_\_

## QEI



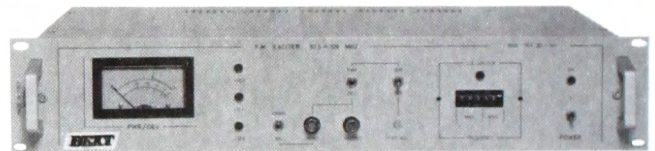
### 695

The 695 is QEI's advanced technology FM exciter with more features and better performance than heretofore available. It is designed for unparalleled transparency in the transformation of program material to an FM signal. Noise and distortion of all kinds are reduced to a point where they become difficult to measure.

QEI Price... \$5295.00 U.S.

YOUR PRICE \$ \_\_\_\_\_

## BEXT

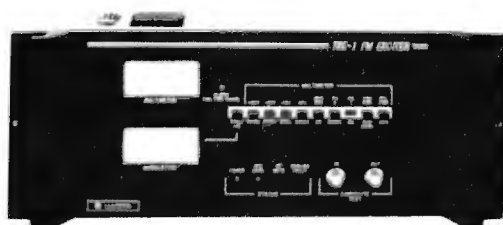


### TEX-20

The most popular of the BEXT family of exciters, the TEX-20 is a Phase Locked Loop, instantly front panel-programmable FM exciter with continuously variable power from 2W to 20W. Newly redesigned electronics are completely modular for easy test and service, and all remote control parameters are brought out to the back panel. One MPX and three SCA inputs are provided, all with adjustable levels. Ultra-linear modulation oscillator provides superior performance. Compatible with external references for custom phase locking.

TEX 20 exciters start at \$2795.00 U.S.

## HARRIS



### THE-1

THE-1 is Harris' fifth generation solid-state FM exciter designed for retrofit in any FM transmitter or for stand-alone operation as a low power FM transmitter. Standard features include monaural input with selectable pre-emphasis, front-panel composite test input/output, built-in remote control interface, and two composite and two SCA inputs for use with optional external generators. For more details and specifications, see page 166.



# Bird wrote the book on RF power measurement for the broadcast industry.



## Here is the index:

- ▼ THRULINE® RF Directional Wattmeters
- ▼ Line Sections, Directional Couplers and Samplers
- ▼ WATTCHEER® RF Power Monitor/Alarms
- ▼ Digital High-power RF Calorimeters
- ▼ TERMALINE® RF Absorption Wattmeters
- ▼ TERMALINE® Coaxial Load Resistors
- ▼ MODULOAD® and ECONOLOAD® Coaxial Load Resistors
- ▼ TENULINE® Attenuators
- ▼ All needed accessories including carrying cases, adaptors, connectors, cable assemblies, batteries, dollies

who else but  
**BIRD**

See Page 150.

# TRANSMITTING ACCESSORIES

## BIRD



8572



THRU-LINE SERIES



8645

Model 8572 is a well-matched termination for 50 ohm rigid line systems to 25,000 watts for testing and alignment of transmitters. The RF power is dissipated in a large number of rugged parallel/series connected resistor elements, which not only provide an extensive total surface for heat transfer, but assure that the load is not rendered inoperative due to the unlikely failure of one or two of the elements. As a dry load, model 8572 is very nearly maintenance-free.

Bird Electronics known for accuracy for more than a quarter of a century, offers Thru-line® RF directional watt meters, RF load resistors, and Wattcher® protection systems.

Bird's model 8645 offers a power rating 25 kW continuous duty up to 900 MHz, choice of distilled water or ethylene glycol operation. 10 kW and 80 kW in this series plus 2½ to 7 kW dry loads and Econo wet loads up to 80 kW. Weight: 155 lbs.

Prices on Application

Prices on Application

## ELECTRO IMPULSE



DPTC 50K FM



DPTC 10K FM

Electro Impulse pioneered the development of dry, forced air cooled loads for use up through FM frequencies, which are now extremely popular in the broadcast industry. E.I. offers RF coaxial loads with oil dielectric, twin line loads in a balanced input configuration, coaxial water loads, waveguide coaxial water loads, dry baluns, calorimeters, automatic test equipment, high power RF attenuators, RF power meters, in-line directional wattmeters and special cooling systems.

Prices on Application

## KINTRONICS



### FMC SERIES

The use of Kintronics FMC Series isocouplers at the base of an AM tower permit the installation of an AM antenna and connecting transmission line on the tower without requiring insulation and tuning of the transmission line. Since the shunting capacity of these units across the base insulator of the AM tower is less than 150 pf, the effect on the base input impedance of the tower will be negligible for most single radiators or directional elements. 4 units available from 10 watts through 30 kilowatts.

Prices on Application

## HARRIS

**For Harris Phasing Systems See Page 163.**

## ELECTRONIC RESEARCH



ERI isolation transformers are designed to couple the FM power across the base insulator of a transmitting tower used jointly for AM or FM antennas without introducing objectionable mismatch into the FM feed line. Captive bullets in and out. 10, 25, 40 & 50 kW sizes.

Prices on Application

## PI-ROD



Pi-Rod towers are solid rod, all-welded construction which provides greatest strength with minimum surface exposure to wind and icing conditions. Slim line design offers minimized air resistance. Computerized analysis of loading factors for structure conformity meets and exceeds customer specifications. Working with this data, licensed professional engineers review your specific requirements and determine the ultimate solution. Pi-Rod designs systems to meet critical space limitations, with 50% and small guy radii available.

Prices on Application

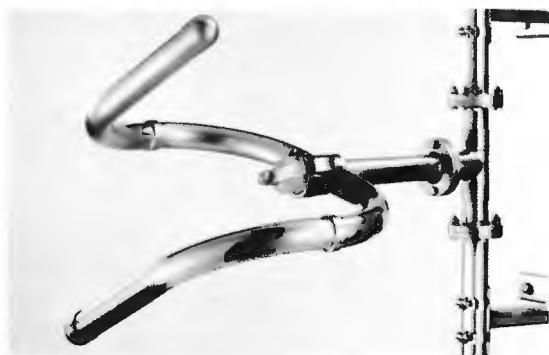


# TRANSMITTING ACCESSORIES

## CABLEWAVE

Cablewave Systems circularly and horizontally polarized FM broadcast antennas are available in low and high power configurations with element arrays of 1 to 16 bays and power ratings up to 40 kW. High power antennas utilize 3/8" rigid feed line, and low power antennas use 1/8" rigid line for a low power rating of 10 kW. Null fill and beam tilt is available for both low power and high power versions. Antenna elements are constructed of durable 1 1/8 inch O.D. thick-walled copper tubing and element deicers are available for both high and low power antennas. Educational FM antennas, similar in design to the higher power broadcast antennas, are constructed of 3/8" stainless tube for a power rating of 500 watts and are fed with 1/2" flexible coaxial cable.

Prices on Application



## JAMPRO

## COMARK



The Comark series of FM circularly polarized antennas utilize identical radiating elements for both the lower power and high power series. The low power utilizes 1/8" feedlines while the high power uses 3/8" feedline. Both series of antennas are available in systems that incorporate 1 to 14 elements. This series is basically a 1 1/2 turn helix separated one wavelength apart. The radiation centers of both the vertical and horizontal components are identical. De-icers are available. Comark educational antennas utilize the same basic design as the high and low power models. However, due to their low power requirements, the radiating elements are constructed from a single piece of 3/8" stainless steel tubing complete with flexible coaxial interconnect cables and mounting hardware.

Prices on Application



## JSCP SERIES

The JSCP Series B FM broadcast antennas offer rugged construction, low wind loading, excellent performance for stereo, SCA broadcasting, VSWR bandwidth, true circular polarization, and are available with 1 to 16 bays with de-icers and radomes. The JBCP series is a circularly polarized FM antenna designed for applications requiring relative insensitivity to icing along with high antenna input power. The JBCP antenna will handle up to 40 kW per bay and up to 120 kW per system. The JBCP is available with 1 to 8 bays. The JLCP series 2 gives the class A station several good choices. Power rating is 3 kW per bay or maximum 7.5 kW above two bays. The JLLP series elements are cable fed from a central power divider. They are rated at 1 kW per bay and provided as a standard antenna. The JSDP panel antenna is also available.

Prices on Application

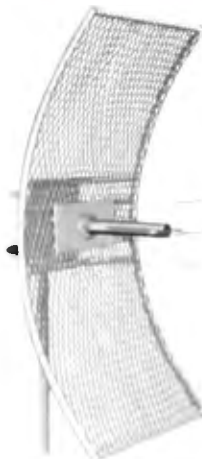
## SHIVELY



Shively engineered and manufactured antennas are recognized by leading broadcast authorities worldwide. Shively antennas feature sectionalized construction and can be topped out with as many sections as are required for a given ERP and/or TFO. Weatherproof materials and tested power ratings are standard. Formal directional patterns and studies are undertaken on a regular and successful basis. Deicers and radomes are available for most models.

Prices on Application

## SINCLAIR



SRL-460



SRL-402

Sinclair Radio Laboratories has played a leading role in the design and development of radio antenna systems. Their broad range of standard antennas in various frequencies includes corner reflector, yagi, enclosed dipole array, radialector, fiberglass collinear, sectoral, cellular and collinear transmission applications. Modification to your specific requirement is available.

TI RPT-2  
TRANSMITTER

ELY 8020  
RECEIVER

K TO  
OTE CONTROL

# SINGLE SOURCE SYSTEMS EXPERTISE, WORLDWIDE CAPABILITIES





# TRANSIENT LINE PROTECTION

TRANSIENT  
VOL  
SU  
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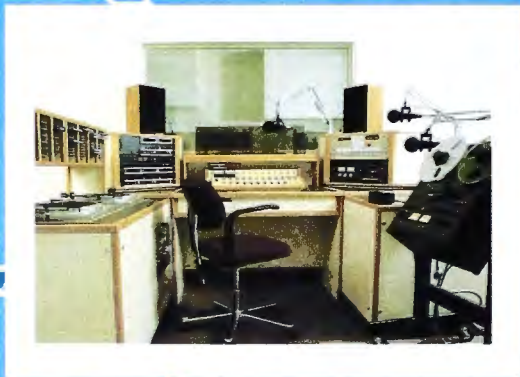




# HARRIS ALLIED SYSTEMS



**H**arris Allied Broadcast Equipment has distinguished itself globally as a single source for broadcast systems of the highest technical integrity. We are ready to provide any level of support you may require, from facilities upgrades to complex multi-site installations and fully-integrated national communications systems, anywhere in the world.



Our systems staff is composed of experts in planning, design, engineering, financing and program management. Our staff is available to work with you from initial planning through final commissioning.

Working closely with a select network of other top broadcast companies, we can provide virtually any or all of the components or services you require—even for systems that do not require products we manufacture or distribute.

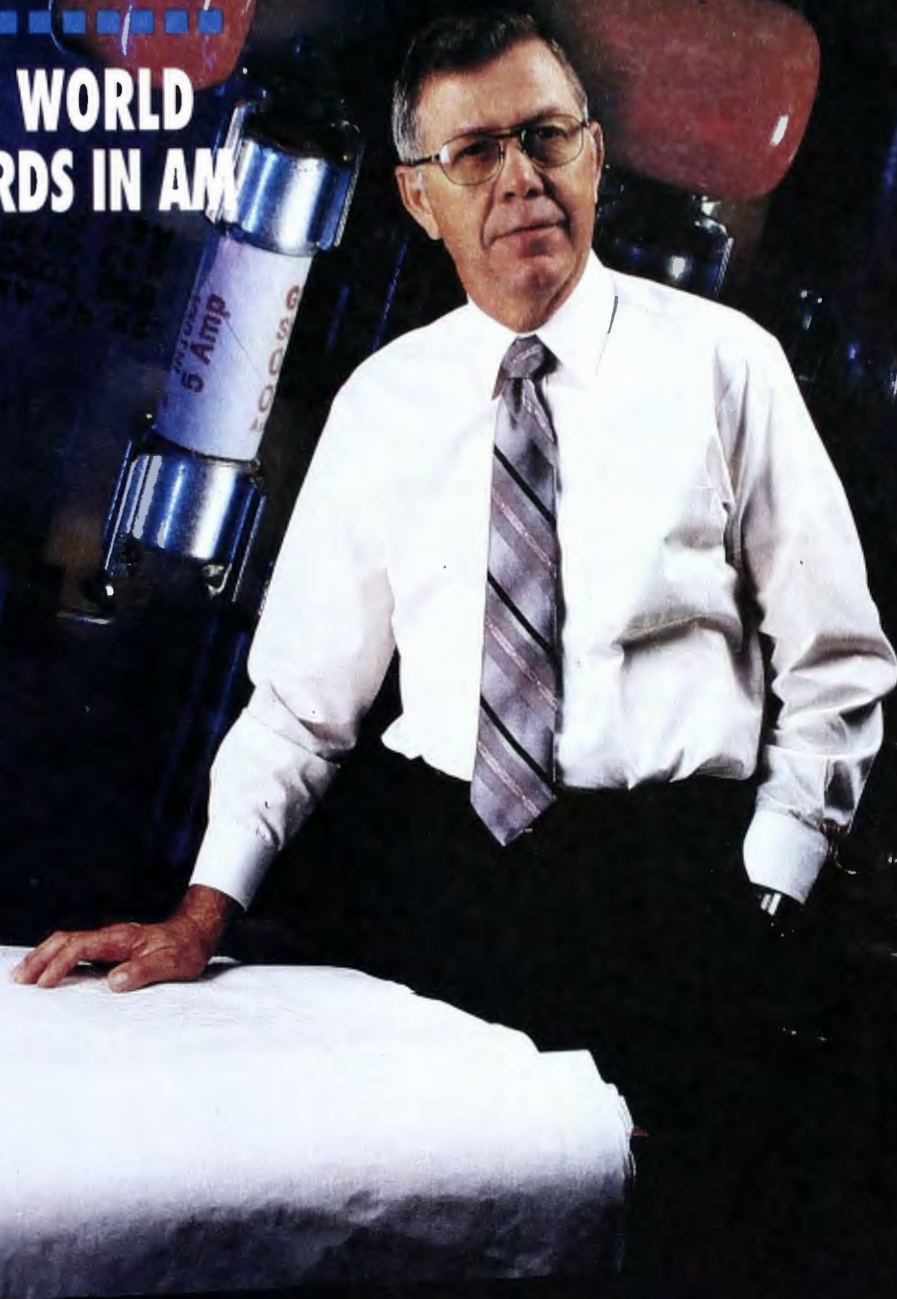
We can provide any combination of broadcast studios, civil construction, transmitter installations, towers, antenna systems, terrestrial microwave links, satellite interfaces or OB vans. No matter how large your project, Harris Allied will provide functional, ergonomic systems that meet the most exacting standards of performance, reliability and technical integrity. Let us help you plan your next project. Telephone Harris Allied Systems at 217/222-8290.



**HARRIS**  
**ALLIED**  
S Y S T E M S



## SETTING WORLD STANDARDS IN AM



Harris Allied Senior Staff Scientist Hilmer I. Swanson, 1990 recipient of the National Association of Broadcasters Engineering Achievement Award, holds 13 U.S. patents for such innovations as Pulse Duration Modulation (PDM) and Digital Amplitude Modulation. Since 1969, PDM has reduced the world's transmitter power bill by an estimated U.S. \$50 million; significantly improved performance, and today is used by virtually every medium wave transmitter manufacturer. Digital amplitude modulation, emerging as the world standard medium wave transmitters, dramatically improves efficiency and performance.

## HARRIS GATES SERIES 1, 2.5, 5 kW SOLID-STATE AM TRANSMITTERS

### Power Levels\*:

GATES ONE: 100 W - 1100 W

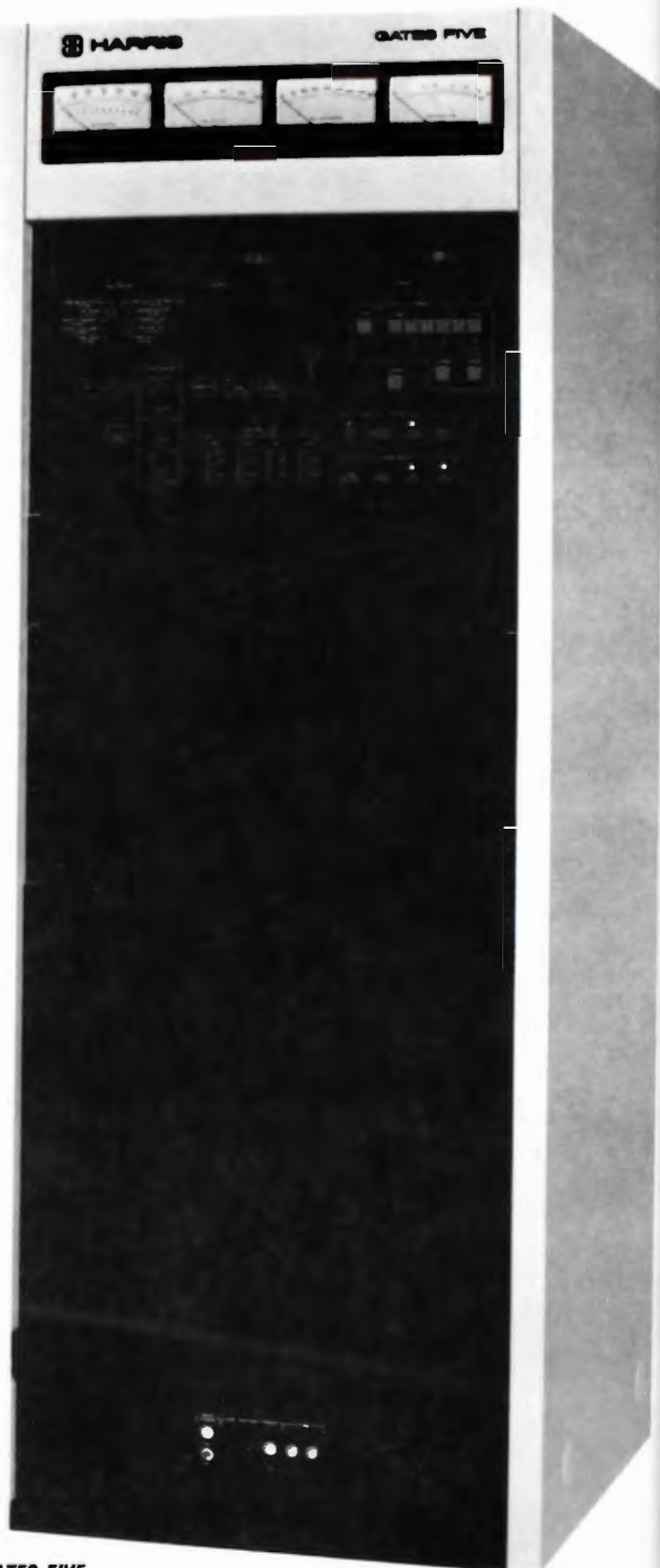
GATES TWO: 250 W - 2750 W

GATES FIVE: 500 W - 5600 W

\*Main alternate or combined configurations available.

### KEY BENEFITS:

- Reliable 100% solid-state design eliminates tube replacement costs.
- Built-in high speed automatic VSWR protection with power stepback for sustained VSWR conditions; constant output power and modulation tracking despite line voltage fluctuations, and six standard, adjustable power levels.
- Provides overall efficiencies up to 72%.
- Designed for use by any operator with simple discrete logic controller; extensive front-panel status information including ColorStat™ signal flow diagram for at-a-glance status, and simple push button controls.
- Largely modular design with socketed PA MOSFETS facilitates maintenance; all control circuitry adjustable from front of transmitter. Centralized, easily accessible remote control interface provided; TTL compatible.
- Built-in output matching network accommodates 1:1 matching for loads up to 1.5:1 VSWR.
- Harris' patented polyphase PDM ensures outstanding performance with lowest available levels of harmonic and intermodulation distortion.
- Designed for +130% peak capability and 100% continuous tone modulation at full rated output power.
- Exclusive bandpass output network provides superior phase and amplitude linearity for low distortion and minimal overshoot while minimizing the effects of lightning on the PA transistors.



GATES FIVE



<b>TRANSMITTER TYPE</b>	Medium wave, 100% solid-state
<b>RF FREQUENCY RANGE</b>	531 kHz - 1705 kHz. Supplied, tuned and tested on one frequency as specified.
<b>POWER OUTPUT RANGE</b>	GATES ONE: 1,000 watts (rated); six power levels adjustable between 100 - 1100 watts; capable of lower power PSA/PSSA operation. GATES TWO: 2,500 watts (rated); six power levels adjustable between 250 - 2750 watts; capable of lower power PSA/PSSA operation. GATES FIVE: 5,000 watts (rated); six power levels adjustable between 500 - 5600 watts; capable of lower power PSA/PSSA operation.
<b>CARRIER FREQUENCY STABILITY</b>	Crystal controlled oscillator meets FCC specifications. $\pm 4$ Hz in typical operating environment.
<b>RF OUTPUT IMPEDANCE</b>	50 ohms, unbalanced.
<b>RF OUTPUT TUNING</b>	Integral T network will match a VSWR of 1.5:1 to 1.0:1 at carrier.
<b>RF OUTPUT TERMINAL</b>	GATES ONE: "N" female connector. GATES TWO and GATES FIVE: $\frac{1}{4}$ " EIA male/female flange connector.
<b>CARRIER SHIFT</b>	Less than 1.0% at 100% modulation at 1000 Hz.
<b>RF HARMONICS AND SPURIOUS OTHER EMISSIONS</b>	Exceeds FCC and CCIR specifications.
<b>TYPE OF MODULATOR</b>	Meets FCC NRSC 2 when presented with audio signal conforming to NRSC 1 standard. Patented Harris Polyphase PDM.
<b>AUDIO FREQUENCY RESPONSE</b>	$\pm 0.5$ dB from 20 Hz to 10,000 Hz.
<b>AUDIO HARMONIC DISTORTION</b>	GATES ONE: Less than 1.0% at 1000 watts, 20 Hz to 10,000 Hz at 95% modulation. GATES TWO: Less than 1.0% at 2500 watts, 20 Hz to 10,000 Hz at 95% modulation. GATES FIVE: Less than 0.8% at 5 kW, typically less than 1.5% at 1 kW, 20 Hz to 10,000 Hz at 95% modulation.
<b>INTERMODULATION DISTORTION</b>	GATES ONE: Less than 1.0%, 60/7000 Hz 1:1; less than 1.5%, 60/7000 Hz 4:1, SMPTE standard at 1 kW operation at 95% modulation. GATES TWO: Less than 1.0%, 60/7000 Hz 1:1; less than 1.5% 60/7000 Hz 4:1, SMPTE standard at 2.5 kW operation at 95% modulation. GATES FIVE: Less than 1.0%, 60/7000 Hz 1:1; less than 1.5%, 60/7000 Hz 4:1, SMPTE standard at 5 kW operation at 95% modulation.
<b>SQUAREWAVE OVERSHOOT</b>	Typically less than 3.5% at 400 Hz, at 90% modulation.
<b>SQUAREWAVE TILT</b>	Less than 3% at 20 Hz, 90% modulation. Less than 1.5% at 40 Hz, 90% modulation.
<b>NOISE (UNWEIGHTED)</b>	Better than 60 dB below 100% modulation, 1000 Hz.
<b>POSITIVE PEAK CAPABILITY</b>	GATES ONE: Greater than 130% at 1100 watts. GATES TWO: Greater than 130% at 2750 watts. GATES FIVE: Greater than 130% at 5600 watts.
<b>INCIDENTAL QUADRATURE MODULATION (IQM)</b>	30 dB typical below 95% modulation of L + R channel at 1 kHz at rated power.
<b>AUDIO INPUT</b>	Continuously adjustable from -10 to +10 dBm, transformerless active balanced 600 ohm input.
<b>AC VOLTAGE INPUT</b>	GATES ONE, GATES TWO, GATES FIVE (Single Phase): 197 - 251 VAC, 50/60 Hz, single phase. AC voltage variation: +5, -10% for full performance. AC line protection standard, includes built-in MOV protection. GATES FIVE (Three Phase): 197 - 251 VAC, 50/60 Hz, three phase or international 341 to 434 VAC, three phase 50/60 Hz, compatible with WYE or closed Delta power sources. AC voltage variation: +5, -10% for full performance. Meets ANSI/WWW C62.41-1980. AC line protection standard, includes built-in MOV protection.
<b>OVERALL EFFICIENCY</b>	Better than 65% at rated power.
<b>POWER CONSUMPTION</b>	GATES ONE: At 1000 watts carrier: 1538 watts or less at 0% modulation; 2307 watts or less at 100% sinewave modulation; 1923 watts or less during typical programming. GATES TWO: At 2500 watts carrier: 3846 watts or less at 0% modulation; 5769 watts or less at 100% sinewave modulation; 4807 watts or less during typical programming. GATES FIVE: At 5000 watts carrier: 7692 watts or less at 0% modulation; 11538 watts or less at 100% sinewave modulation; 9615 watts or less during typical programming.
<b>POWER SUPPLY</b>	Self-contained internal, dry.
<b>MONITOR PROVISIONS</b>	GATES ONE: Adjustable to 5 volts nominal RMS modulated output sample at 50 ohms for six power levels from 100 watts - 1100 watts. GATES TWO: Adjustable to 5 volts nominal RMS modulated output sample at 50 ohms for six power levels from 250 watts - 2750 watts. GATES FIVE: Adjustable to 5 volts nominal RMS modulated output sample at 50 ohms for six power levels from 500 watts - 5600 watts.
<b>REMOTE CONTROL/MONITORING</b>	Self-contained interface for most remote control systems; TTL compatible.
<b>AMBIENT TEMPERATURE RANGE</b>	-10°C to +50°C AMSL (derate upper limit 2°C per 1000 feet altitude).
<b>AMBIENT HUMIDITY RANGE</b>	0 to 95% non-condensing.
<b>AIR FLOW</b>	GATES ONE: Unique chimney design; convection cooled. GATES TWO: Unique chimney design, 250 CFM, (7.08 CMM). GATES FIVE: Unique chimney design, 500 CFM, (14.16 CMM).
<b>ALTITUDE</b>	Up to 13,000 feet (4000 meters).
<b>SIZE</b>	72" H x 28" W x 30" D (1830 mm x 712 mm x 762 mm).
<b>WEIGHT (Approximate)</b>	GATES ONE: Unpacked-400 lbs. (181 kg); Domestic pack-600 lbs. (275 kg); Export pack-700 lbs. (320 kg.) GATES TWO: Unpacked-450 lbs. (204 kg); Domestic pack-650 lbs. (298 kg); Export pack-750 lbs. (343 kg). GATES FIVE: Unpacked-500 lbs. (230 kg); Domestic pack-700 lbs. (320 kg); Export pack-800 lbs. (370 kg).
<b>CUBAGE</b>	68.7 cubic feet (2 cubic meters) packed.

All specifications taken with transmitter connected to test load.

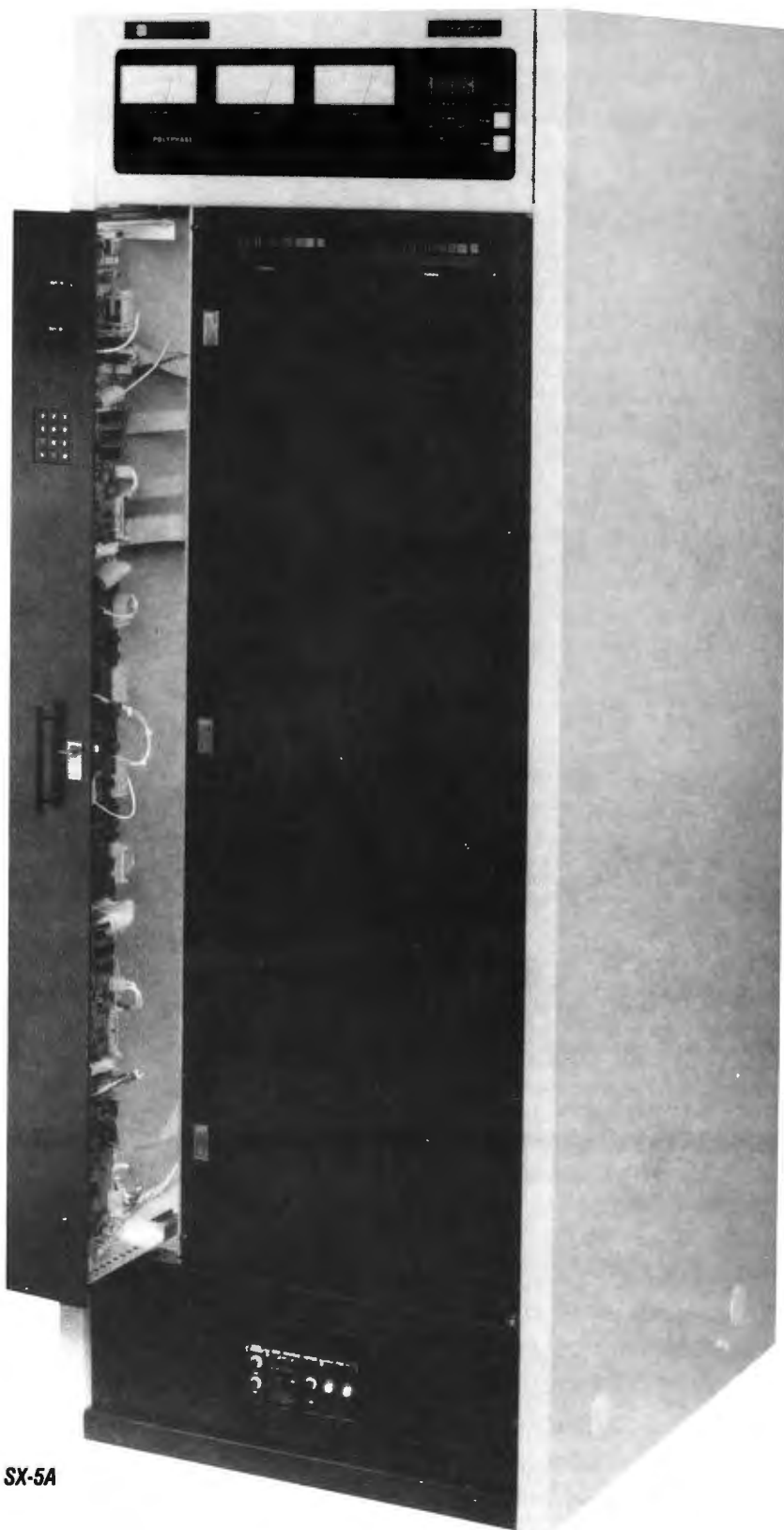


**GATES ONE**



**GATES TWO**

## HARRIS SX-"A" SERIES DIGITALLY CONTROLLED 1, 2.5, 5 kW SOLID-STATE AM TRANSMITTERS



SX-5A

### Power Levels\*:

SX-1A: 100 W - 1100 W

SX-2.5A: 250 W - 2750 W

SX-5A: 500 W - 5600 W

\*Main/alternate or combined configurations available.

### KEY BENEFITS:

- Reliable 100% solid-state design totally eliminates tube replacement costs.
- Low-cost ownership with efficiencies up to 72%.
- Exclusive Harris dual microprocessor control and status monitoring features fully-redundant front-panel readout and a keyboard to provide complete status information.
- Outstanding performance with Harris' patented polyphase PDM for lowest available levels of harmonic and intermodulation distortion.
- Designed for +130% peak capability and 100% continuous tone modulation.
- Exclusive bandpass output network provides superior phase and amplitude linearity for low distortion and minimal overshoot while minimizing the effects of lightning on the PA transistors.
- Standard features include high speed VSWR protection for transmitter and antenna and constant output power and modulation tracking despite line voltage fluctuations.
- Designed for simple operation with largely modular construction and exclusive "chimney design" air handling which reduces maintenance time by keeping transmitter cleaner.

### SUNWATCH OPTION

#### KEY BENEFITS:

- Available exclusively on Harris SX-"A" Series Transmitters.
- Provides straightforward programming for an entire year's pre-sunrise, daytime and multiple post-sunset operating schedules.
- Designed for easy programming review and edit with simple front keypad commands.
- Can be programmed to control a phasor or antenna switch to ensure correct operating mode for desired time of day.



# HARRIS SX-"A" SERIES SPECIFICATIONS

<b>TRANSMITTER TYPE</b> <b>RF FREQUENCY RANGE</b> <b>POWER OUTPUT RANGE</b>	Medium wave, 100% solid state 531 kHz - 1705 kHz. Supplied, tuned and tested on one frequency as specified SX-1A: 1,000 watts (rated); 100 - 1100 watts; capable of lower power PSA/PSSA operation. SX-2A: 2,500 watts (rated); 250 - 2750 watts; capable of lower power PSA/PSSA operation. SX-5A: 5,000 watts (rated); 500 - 5600 watts; capable of lower power PSA/PSSA operation.
<b>CARRIER FREQUENCY STABILITY</b>	A) At crystal oscillator: $\pm 20$ Hz over temperature range; B) Frequency synthesizer (optional): $\pm 10$ Hz over temperature range.
<b>RF OUTPUT IMPEDANCE</b>	50 ohms, unbalanced.
<b>RF OUTPUT TUNING</b>	Integral T network will match a VSWR of 1.5:1 to 1.0:1 at carrier.
<b>RF OUTPUT TERMINAL</b>	SX-1A: "N" female connector; SX-2.5A and SX-5A: $\frac{1}{4}$ " EIA male/female flange connector.
<b>CARRIER SHIFT</b>	Less than 2.0% at 100% modulation at 1000 Hz.
<b>RF HARMONICS AND SPURIOUS</b>	Exceeds FCC and CCIR specifications.
<b>OTHER EMISSIONS</b>	Meets FCC NRSC 2 when presented with audio signal conforming to NRSC 1 standard
<b>TYPE OF MODULATOR</b>	Patented Harris Polyphase PDM.
<b>AUDIO FREQUENCY RESPONSE</b>	+0.5 dB from -1.5 dB from 20 Hz to 12,500 Hz (1000 Hz with Bessel filter out).
<b>AUDIO HARMONIC DISTORTION</b>	SX-1A: (20 to 12,500 Hz at 95% modulation): 1.0% or less at 1 kW; 1.5% or less at 500 watts; 2.0% or less at 250 watts; 3.0% or less at 100 watts. SX-2.5A: (20 to 12,500 Hz at 95% modulation): 1.0% or less at 2.5 kW; 1.5% or less at 1000 watts; 3% or less at 250 watts. SX-5A: (20 to 12,500 Hz at 95% modulation): 1.0% or less at 5 kW; 2% or less at 1000 watts; 3% or less at 500 watts.
<b>INTERMODULATION DISTORTION</b>	SX-1A: 1.0% or less, 60/7000 Hz 1:1; 1.5% or less, 60/7000 Hz 4:1, SMPTE standard at 1 kW operation at 95% modulation. SX-2.5A: 1.0% or less, 60/7000 Hz 1:1; 1.5% or less, 60/7000 Hz 4:1, SMPTE standard at 2.5 kW operation at 95% modulation. SX-5A: 1.0% or less, 60/7000 Hz 1:1; 1.5% or less, 60/7000 Hz 4:1, SMPTE standard at 5 kW operation at 95% modulation.
<b>SQUAREWAVE OVERSHOOT</b>	4.5% or less at 20 Hz, at 90% modulation.
<b>SQUAREWAVE TILT</b>	3% or less at 20 Hz, 90% modulation.
<b>NOISE (UNWEIGHTED)</b>	Better than 60 dB below 100% modulation, 1000 Hz at rated power.
<b>POSITIVE PEAK CAPABILITY</b>	130% peak program capability at rated power.
<b>INCIDENTAL QUADRATURE MODULATION (IQM)</b>	SX-1A: 25 dB or better below 95% modulation of L + R channel at 1 kHz. SX-2.5A and SX-5A: 30 dB typical below 95% modulation of L + R channel at 1 kHz.
<b>AUDIO INPUT</b>	Continuously adjustable -10 to +10 dBm, transformerless active balanced 600 ohm input.
<b>AC VOLTAGE INPUT</b>	SX-1A, SX-2.5A: 197 - 251 VAC, 50/60 Hz, single phase. AC voltage variation: +5, -10% for full performance. AC line protection standard, includes built-in MOV protection. SX-5A: 197 - 251 VAC, 50/60 Hz, three phase or international 341 to 434 VAC, three phase 50/60 Hz, compatible with WYE or closed Delta power sources. AC voltage variation: +5, -10% for full performance. Meets ANSI/WWW C62.41-1980. AC line protection standard, includes built-in MOV protection. SX-5A: Single phase optional. 65% or better at rated power.
<b>OVERALL EFFICIENCY</b>	SX-1A: At 1000 watts carrier: 1.5 kW at 0% modulation; 2.2 kW at 100% sinewave modulation; 1.9 kW during typical programming. SX-2.5A: At 2500 watts carrier: 3.85 kW at 0% modulation; 5.8 kW at 100% sinewave modulation; 5.4 kW during typical programming. SX-5A: At 5000 watts carrier: 7.7 kW at 0% modulation; 11.6 kW at 100% sinewave modulation; 10.6 kW during typical programming.
<b>POWER SUPPLY</b>	Self-contained, dry.
<b>MONITOR PROVISIONS</b>	10 volts RF (RMS) modulated output sample at 50 ohms (High/Medium/Low) power.
<b>REMOTE CONTROL/MONITORING</b>	Self-contained interface for most remote control or facilities control systems.
<b>AMBIENT TEMPERATURE RANGE</b>	-20°C to +50°C AMSL (derate upper limit 2°C per 1000 feet altitude).
<b>AMBIENT HUMIDITY RANGE</b>	0 to 95% non-condensing.
<b>AIR FLOW</b>	SX-1A: Unique chimney design; convection cooled. SC-2.5A: Unique chimney design, 250 CFM, (7.08 CMM). SX-5A: Unique chimney design, 500 CFM, (14.16 CMM).
<b>OPERATING ACOUSTICAL NOISE</b>	Better than 54 dBA.
<b>ALTITUDE</b>	Up to 13,000 feet (4000 meters).
<b>SIZE</b>	72" H x 28" W x 30" D (1830 mm x 712 mm x 762 mm).
<b>WEIGHT (Approximate)</b>	SX-1A: Unpacked-400 lbs. (181 kg); Domestic pack-600 lbs. (275 kg); Export pack-700 lbs. (320 kg). SX-2.5A: Unpacked-450 lbs. (204 kg); Domestic pack-650 lbs. (298 kg); Export pack-750 lbs. (343 kg). SX-5A: Unpacked-500 lbs. (230 kg); Domestic pack-700 lbs. (320 kg); Export pack-800 lbs. (370 kg).
<b>CUBAGE</b>	68.7 cubic feet (2 cubic meters) packed.
<b>All specifications taken with transmitter connected to test load.</b>	

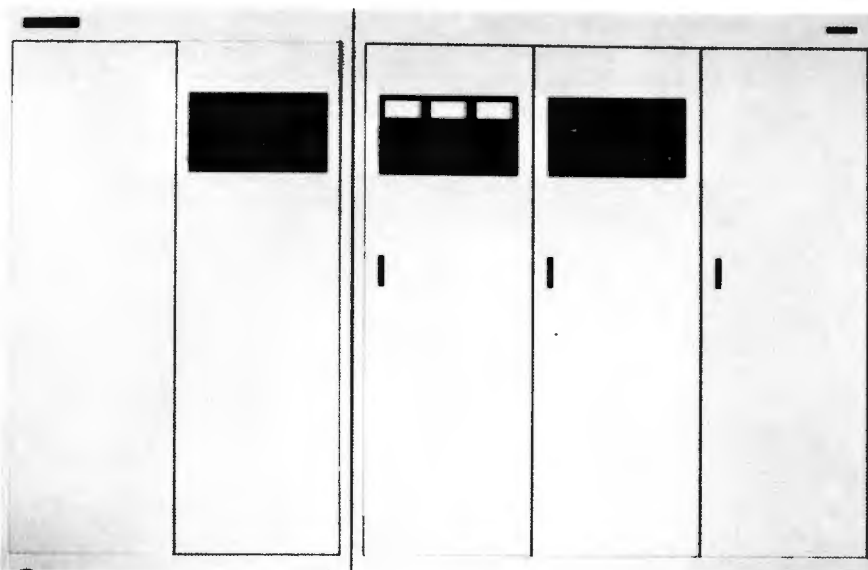


SX-1A



SX-2.5A

# HARRIS DX SERIES DIGITALLY-MODULATED 10, 25, AND 50 kW SOLID-STATE MEDIUM WAVE TRANSMITTERS



**DX50**



**DX10**

### Power Levels\*:

DX10	1 to 11 kW
DX25U**	10 to 27.5 kW
DX50	10 to 60 kW

\* DX transmitters are available in combined configurations.  
\*\* Field upgradable to 50 kW.

### KEY BENEFITS:

- Typical efficiency of 85% or more significantly reduces power costs.
- FM-like sound with superb signal transparency.
- High average modulation with capability for 100% continuous sinewave tone modulation.

- High peak modulation capability (145%) easily handles the most demanding formats. Excellent stereo performance with IQM typically -40 dB.
- 100% solid-state design improves reliability and totally eliminates tube replacement costs.
- Output matching for loads of other than 50 + j0 allows for adjustment to maximize RF transfer.
- Designed for easy operation, with extensive front-panel information for at-a-glance transmitter status.
- Modular construction with interchangeable plug-in RF power amplifiers.
- Easily accessible remote control interface panel.

## A HARRIS DX TRANSMITTER — DRAMATIC POWER COST REDUCTIONS

Formula: Annual Operating Cost = P/E x H x C

### KEY:

- H = Operating hours per year
- P = Average power output with program modulation (kW):
  - P = 65 kW for 50 kW transmitter
  - P = 32.5 kW for 25 kilowatt transmitter
  - P = 13 kW for 10 kilowatt transmitter
- C = Cost per kilowatt hour
- E = Efficiency of present transmitter (%)

### EXAMPLE:

Annual savings by replacing a 55% efficient 50 kilowatt transmitter with an 86% efficient DX-50 transmitter:  
 H = 24 hour per day station; 50 kilowatts day/night (8760 operating hours per year)  
 P = 65 kW  
 C = U.S. \$.10 per kW hour  
 E = 55 percent  
 $65 / .55 \times 8760 \times \$.10 = \$103,527.00$  at 55% efficiency  
 $65 / .86 \times 8760 \times \$.10 = \$66,209.00$  at 86% efficiency  
 Annual cost savings = \$ 37,318.00

### CALCULATE YOUR SAVINGS:

H = Hours per day x 365 = \_\_\_\_\_  
 P = 65 at 50 kW; 32.5 at 25 kW; 13 at 10 kW  
 C = Your cost per kilowatt hour = \_\_\_\_\_  
 E = Efficiency of your current transmitter = \_\_\_\_\_





**GENERAL**

<b>TYPE OF MODULATION</b>	Harris patented AM digital modulation.
<b>TRANSMITTER TYPE</b>	Medium wave, 100% solid state
<b>POWER OUTPUT RANGE</b>	DX10: 1 kW - 11 kW (10 kW). DX25U: 10 kW - 27.5 kW (25 kW). DX50: 10 kW - 60 kW (50 kW). Transmitters capable of combined operation. Three adjustable pre-set power levels are provided.
<b>FREQUENCY RANGE</b>	531 kHz - 1705 kHz. Supplied, tuned and tested on one frequency as specified.
<b>AC MAINS INPUT</b>	DX10: 197 - 281 VAC, 3 phase, 341-468 VAC, 3 phase; optional 197 - 281 VAC, 1 phase. DX25U/50: Any voltage between 363 and 502 VAC, 3 phase, plus 240 VAC, 1 kVA, 50/60 Hz. Optional 480/240 VAC, 1 kVA stepdown transformer available.
<b>POWER SUPPLY VARIATION</b>	DX10: ±10% voltage, 48-63 Hz. DX25U/50: ±5% voltage, 48 - 63 Hz.
<b>TRANSIENT PROTECTION</b>	Meets IEC 587 requirements.
<b>POWER FACTOR</b>	.98 typical
<b>FREQUENCY STABILITY</b>	±10 Hz, 0 to 50° C, ±2 Hz at typical conditions.
<b>AUDIO INPUT</b>	-10 to +10 dBm, adjustable transformerless input. 600, 150, and 50 ohm terminations provided.
<b>RF OUTPUT</b>	DX10: 1½" EIA flange; DX25U/50: 3¼" EIA flange. Accepts male or female connectors.
<b>RF LOAD</b>	DX10: 50 ohms, unbalanced. Front panel matching range of 1.4:1 VSWR at carrier. DX25U/50: 50 ohms, unbalanced. Front panel matching range of 1.2:1 VSWR at carrier.
<b>CABINET &amp; HARMONIC/ SPURIOUS RADIATION</b>	Meets FCC, DOC and CCIR requirements.
<b>OTHER EMISSIONS</b>	Meets FCC NRSC 2 when presented with audio signal conforming to NRSC 1 standard.
<b>OVERALL EFFICIENCY</b>	DX10: 84% or better. Typically 86% at 10 kW. DX25U: 83% or better. Typically 85% at 25 kW. DX50: 83% or better. Typically 85% at 50 kW.

**AUDIO PERFORMANCE**

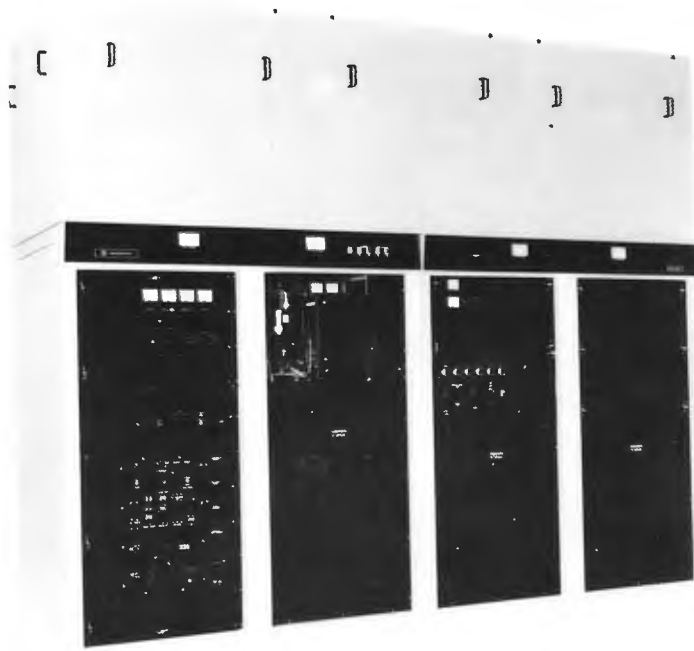
<b>AUDIO FREQUENCY RESPONSE</b>	±0.5 dB 20 Hz to 10 kHz.
<b>TOTAL HARMONIC DISTORTION</b>	DX10: 0.9% or less at 95% modulation, 30 Hz to 10 kHz (1 - 11 kW), typical 0.3%. DX25U/50: 0.9% or less at 95% modulation, 30 Hz to 10 kHz (10 - 55 kW), typical 0.5%.
<b>INTERMODULATION DISTORTION</b>	0.8% or less 1:1, 60/7000 Hz; 1.3% or less 4:1, 60/7000 Hz; SMPTE at 95% modulation.
<b>TIM</b>	0.5% or less at 95% modulation, 2.96/8.0 kHz, 4:1.
<b>SQUAREWAVE OVERSHOOT</b>	0.5% or less at 400 Hz, 85% modulation.
<b>SQUAREWAVE TILT</b>	1% or less at 40 Hz, 80% modulation.
<b>CARRIER SHIFT</b>	Less than 1%.
<b>HUM AND NOISE</b>	-65 dB or better below 100% modulation (unweighted).
<b>IQM</b>	-36 dB at 1 kHz, 95% modulation, typical -40 dB.
<b>POSITIVE PEAK CAPABILITY</b>	DX10: +145% at 10 kW; +125% at 11 kW (pgm mod). DX25U: +145% at 25 kW; +135% at 27.5 kW (pgm mod). DX50: +145% at 50 kW; +135% at 55 kW; +125% at 60 kW (pgm mod).

**SERVICE CONDITIONS**

<b>RF MONITOR PROVISIONS</b>	Up to 10 volt RMS RF modulated output sample (constant sample level at High, Medium or Low power settings). 5 volt RMS RF frequency monitor sample, nominal over specified power range.
<b>POWER CONSUMPTION</b>	DX10: 11.9 kW typical at 10 kW, 0% modulation; 17.9 kW typical at 10 kW, 100% tone modulation. DX25U: 29.4 kW or less typical at 25 kW, 0% modulation; 44.1 kW or less typical at 25 kW, 100% tone modulation. DX50: 59 kW or less typical at 50 kW, 0% modulation; 88 kW or less typical at 50 kW, 100% tone modulation.
<b>AMBIENT TEMPERATURE</b>	0°C to +50°C (derate 2°C/1000 feet of altitude).
<b>TEMPERATURE RISE (INLET/OUTLET AIR)</b>	Approximately 6°C at 100% modulation at rated power.
<b>ALTITUDE</b>	Up to 13,000 feet.
<b>HUMIDITY RANGE</b>	0 to 95%, non-condensing.
<b>SAFETY</b>	Meets IEC 215 specifications
<b>SIZE</b>	DX10: Unpacked: 78" H, 72" W, 33" D; Domestic Packed: 78" H, 80" W, 40" D; Export Packed: 84" H, 81" W, 41" D (161 cubic feet). DX25U/50: Unpacked: 78" H, 120" W, 33" D. Packed (three pieces): PA Cabinet: 81" L; 46" W, 85" H; output cabinet: 57" L, 41" W, 85" H; step-start assembly: 48" L, 36" W, 17" H.
<b>WEIGHT</b>	DX10: Unpacked: 1535 lbs. (698 kg); Packed: 1675 lbs. (761 kg); Export Packed: 2025 lbs. (920 kg). DX25U: Unpacked: 3660 lbs. (1660 kg); Packed: 4330 lbs. export (1964 kg). DX50: Unpacked: 3770 lbs. (1710 kg); Packed: 4670 lbs. export (2123 kg).

NOTES: 1. All measurements made into test load. 2. Noise may degrade if AC main lines are unbalanced. 3. Allow 81 1/8" H to accommodate for crossover bar on top of PA cabinet. Size of crossover bar is 3 1/8" H, 2 1/2" L, 3 3/4" W.

# HARRIS SW SERIES 50 AND 100 kW SHORTWAVE TRANSMITTERS



SW-100B

## HARRIS SW TRANSMITTERS SPECIFICATIONS

POWER OUTPUT	SW-50B: 50,000 watts nominal, unmodulated. SW-100B: 100,000 watts nominal, unmodulated.
RF FREQUENCY RANGE	3.2 to 22 MHz.
METHOD OF TUNING	Manual, or selection of 10 pre-set channels.
RF OUTPUT IMPEDANCE	300 ohms balanced, 2.0 to 1 maximum VSWR.
RF FREQUENCY STABILITY	$\pm 1 \times 10^{-6}$ .
SPURIOUS & HARMONIC EMISSION	Less than 50 mW.
CARRIER SHIFT	Less than 2% at 95% modulation at 1000 Hz.
AUDIO FREQUENCY RESPONSE	$\pm 1.5$ dB from 50 to 10,000 Hz referenced to 1,000 Hz at 95% modulation.
AUDIO HARMONIC DISTORTION	3% or less from 50 to 10,000 Hz at 95% modulation.
NOISE	55 dB below 400 Hz, 100% modulated level.
AUDIO INPUT LEVEL	0 dBm $\pm 2$ dB for 100% modulation.
AUDIO INPUT IMPEDANCE	600/150 ohms, balanced or unbalanced.
MODULATION LEVEL	100% sinusoidal, 10 minutes, 500-5000 Hz.
TRAPEZOIDAL MODULATION	Less than 5% tilt or overshoot, 100 Hz to 2000 Hz measured using 12 dB clipped sine wave.
POWER INPUT	Any specified voltage 380V to 480V, 3 phase, 50/60 Hz. Phase unbalance 5%, Regulation 5%.
POWER CONSUMPTION	SW-50B: 89 kW, 0% modulation; 92 kW, average modulation; 130 kW, 100% modulation. SW-100B: 180 kW, 0% modulation; 190 kW, average modulation; 250 kW, 100% modulation.
POWER FACTOR	Greater than .95
VOLTAGE REGULATION	Electronic voltage regulation for all power supplies.
OVERALL EFFICIENCY	SW-50B: 56% at average modulation. SW-100B: 55% at average modulation.
TUBES	Two 4CV100,000E/P, one 4CX1500A, one 2CX10,000F.
AMBIENT TEMPERATURE RANGE	0 to 50°C.
HUMIDITY	95% relative humidity, maximum.
STORAGE TEMPERATURE	-35°C to +60°C.
ALTITUDE	Up to 1829 meters (6000 feet) above sea level.
SIZE	The two main cabinets measure 366cm W x 137cm D x 304cm H.

Specifications subject to change without notice.

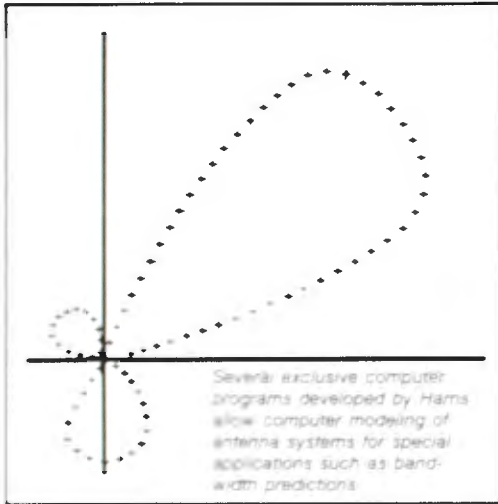
### Power Levels:

50 kW    100 kW

### KEY BENEFITS:

- Harris' patented PDM technology increases sideband power and provides more audio signal to your listeners.
- Designed for long-term value with PA efficiency approaching 90% and typical overall efficiency greater than 55% with average modulation.
- Uses only three tube types.
- Provides field-proven, reliable operation in wide variety of climates, from hot and humid to dry and dusty.
- Solid-state power line control ensures uniform transmitter operation during moderate line voltage fluctuation.
- Provides tuning simplicity with pre-set tuning for up to 10 different crystal controlled frequencies from 3.2 to 22 MHz.
- Available with optional external frequency synthesizer port.





### Power Levels:

250 watts through 200 kilowatts

### KEY BENEFITS:

- Computer aided design and analysis of complete phasing system to ensure the best bandwidth attainable for a chosen pattern.
- Factory pre-tuning to predicted values with a network analyzer and vector impedance meter provides accuracy in impedance match and desired phase shift, and can greatly reduce initial setup time.
- New design phasing cabinets feature a removable front panel and rear lift off door for easy setup and maintenance.
- Fold-down bridge shelves are standard of all phasing cabinets and ACUs.
- Silver plated coin and copper ground straps are provided in all phasing system construction.
- Available with following options: Delta Custom Front Impedance Bridge and RF ammeter on a less attractive panel; main auxiliary current used switching; Delta Rear Control Meter; and Delta TCT Samplets.



PHASOR

### ANTENNA COUPLING UNITS

Harris offers a variety of antenna coupling units on panels or in outside housings at 40 power levels and for various antenna heights.



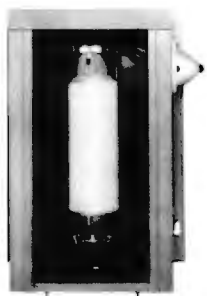
1 kW ACU

IN CANADA CALL 800-268-6817



Specifications subject to change without notice.

## HARRIS MEDIUM WAVE ANTENNA ACCESSORIES



**Tower Light  
Isolation  
Chokes**

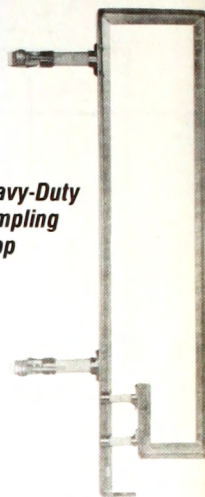


**Diode-Type  
Remote Meter  
Sampler**



**HS-4P 30 Amp  
RF Contactor**

**Heavy-Duty  
Sampling  
Loop**



### TOWER LIGHT ISOLATION CHOKES

Harris' tower light isolation chokes provide power to insulated towers for tower lighting requirements and are available in two- or three-wire models, with or without outdoor enclosures.

### ISOLATION COILS

½-inch or ¾-inch phase-stabilized foam transmission line coils are available with optional resonating capacitor and can be mounted on a flat aluminum panel or in an outdoor enclosure with "N" or "UHF type" connectors.

### DIODE-TYPE REMOTE METER SAMPLER

Harris' diode-type remote meter sampler provides remote indication of RF current. It is used primarily in attaining RF remote metering samples when thermocouple base meters are used. A pick-up loop is included.

### HS-4P 30 AMP RF CONTACTOR

The Harris HS-4P 30 Amp RF Contactor provides trouble-free use in phasors, ACU, transmitter dummy load switching, or any similar RF switching application. It requires no adjustments; has an expected life of 30 years under normal use, and requires only ¼ the power of conventional contactors. Reliable operation is provided over wide temperature ranges.

### HEAVY DUTY SAMPLING LOOP

This rugged, fixed, non-shielded RF sampling loop is heavily galvanized after welding. It is fitted with large steatite insulators and heavy-duty tower leg clamps for easy, positive mounting. The loop has an "N" female connector input.

### 4 PORT MOTORIZED TRANSFER SWITCH

Handling up to 8 kW RF power at 125% modulation, this switch can be used to transfer either main or auxiliary transmitter to station antenna system or test load (optional). Designed around the Harris HS-4P RF Motorized Contactor, transfer time is less than 0.5 seconds. Features pushbutton control operation and switch position indicator lights on a rack-mount panel. Accommodates 208/240 VAC, 50/60 Hz voltage. Remote operation by contact closure rated at 24 VDC, 0.5 amp.

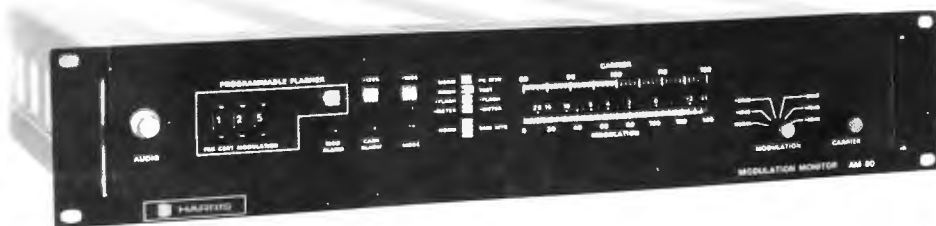
Harris Allied also offers phase monitors, operating impedance bridges, RF frequency synthesizer detectors, and field intensity monitoring equipment.

## HARRIS AM ACCESSORIES

### AM-90 MODULATION MONITOR

The Harris AM-90 is designed for continuous monitoring of the amplitude modulation envelope in the 450 kHz to 30 MHz frequency range. An easy-to-read neon bar display accurately measures carrier and modulation levels. Two fixed flashers are adjusted to +125 percent and -100 percent for constant

monitoring of modulation levels. Carrier and modulation alarms illuminate when carrier amplitude drops below 50 percent of the preset level or when modulation remains under 10 percent for ten seconds. The unit is available with a remote meter panel.



**AM-90**



**Dummy Load**

### 1100 WATT DUMMY LOAD

Harris' 1100 W dummy load provides proper termination for 1 kW transmitters for testing. Ten non-inductive resistors provide a nominal 40 ohm impedance from 0.5 to 1.7 MHz and have a rated power of 1650 W which includes carrier with 100 percent tone modulation. The unit is convection-cooled, and a female "N" connector provides easy and convenient hook-up during transmitter maintenance.



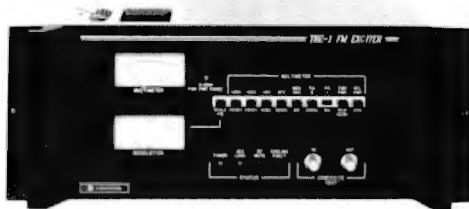
# REVOLUTIONIZING FM TECHNOLOGY



When WMMO—an FM station that is completely housed in the downtown Orlando's Sun Bank Center—chose broadcast equipment for its unique facility, it turned to Harris Allied. Our engineers repeatedly have revolutionized FM technology. The tradition of superior performance and reliability extends through the complete line of Harris FM transmission products. We also distribute more than 5,000 different radio studio and satellite products from over 250 manufacturers, including many digital and exclusive products.



# HARRIS THE-1 SOLID-STATE FM EXCITER/TRANSMITTER



THE-1

## Power Levels:

- 3 - 15 W
- 3 - 55 W

## KEY BENEFITS:

- Harris' fifth generation solid-state FM exciter.
- Designed for retrofit in any FM transmitter or for stand-alone operation as a low power FM transmitter.
- Ultra-linear voltage controlled oscillator offers superb linearity for virtually transparent passage of stereo and multiple subcarriers.
- Audio performance approaches the best digital program source material and far exceeds most STLs and telco program links.
- Modular design and conveniently located controls simplify adjustment and servicing, and the broadband output amplifier requires no tuning.
- Comprehensive metering, status and control functions provided.
- Other standard features include monaural input with selectable pre-emphasis, front-panel composite test input/output, built-in remote control interface, and two composite and two SCA inputs for use with optional external generators.

## GENERAL

### POWER OUTPUT

FREQUENCY RANGE  
RF OUTPUT IMPEDANCE  
OUTPUT CONNECTOR  
RF OUTPUT SAMPLE  
FREQUENCY STABILITY  
TYPE OF MODULATION  
MODULATION CAPABILITY  
AC INPUT POWER

### RF HARMONICS

ALTITUDE  
AMBIENT TEMPERATURE RANGE  
OVERALL SIZE/WEIGHT

### CONSTRUCTION

### AUDIO/CONTROL CONNECTIONS

### MODULATION METER MULTIMETER

### TOTAL METERING FUNCTIONS REMOTE METERING/SAMPLES

### STATUS INDICATION

## STANDARD WIDEBAND COMPOSITE OPERATION

INPUTS  
INPUT IMPEDANCE  
INPUT CONNECTORS  
INPUT LEVEL  
AMPLITUDE RESPONSE  
FM SIGNAL TO NOISE

### HARMONIC DISTORTION INTERMODULATION DISTORTION CCIF INTERMODULATION DISTORTION

ASYNCHRONOUS AM  
SIGNAL TO NOISE  
SYNCHRONOUS AM  
SIGNAL TO NOISE  
PHASE RESPONSE  
TRANSIENT INTERMODULATION  
DISTORTION  
TEST INPUT (FRONT PANEL)

### TEST OUTPUT (FRONT PANEL)

## STANDARD MONAURAL OPERATION

AUDIO INPUT IMPEDANCE  
AUDIO INPUT LEVEL  
AUDIO FREQUENCY RESPONSE

HARMONIC DISTORTION  
INTERMODULATION DISTORTION  
CCIF INTERMODULATION DISTORTION  
TRANSIENT INTERMODULATION  
DISTORTION  
FM SIGNAL TO NOISE RATIO

## STANDARD SCA INPUTS

EXTERNAL SCA GENERATOR INPUTS  
INPUT CONNECTORS  
INPUT IMPEDANCE  
INPUT LEVEL  
RANGE OF SUBCARRIER FREQUENCIES  
AMPLITUDE RESPONSE

## TYPICAL PERFORMANCE WITH HIGH QUALITY STEREO/SCA GENERATORS AND DEMODULATORS (NOT SUPPLIED)

### STEREO

STEREO SEPARATION  
LINEAR CROSSTALK  
NON-LINEAR CROSSTALK  
FM NOISE

HARMONIC DISTORTION  
INTERMODULATION DISTORTION  
CCIF INTERMODULATION DISTORTION

### SCA OPERATION

INTERMODULATION DISTORTION  
FM NOISE

### CROSSTALK

3 to 55 watts or 3 to 15 watts, continuously variable. Output power range user-selectable.

87.5 MHz to 108 MHz (50 kHz steps).  
50 ohms, fully VSWR protected (automatic foldback).  
BNC female.  
-25 dBc (BNC female connector).

±300 Hz 0° to 50°C temperature-compensated oscillator.  
Direct carrier frequency modulation (DCFM).

±200 kHz.  
90 to 132 VAC or 198 to 264 VAC, 50/60, 1-phase; 275 watts (typical) at 55 watts RF output.

Meets all FCC/DOC/CCIR requirements for operation as FM exciter or low power FM transmitter.

To 15,000 feet above mean sea level.  
0° to 50°C; operational to -20°C.  
7" (17.78 cm) H x 12.5" (31.25 cm) D x 19" (48.26 cm) W; EIA rack mounting standard including rack slides and mounting tray. 47 lbs.

Slide-out drawer with plug-in modules and subassemblies; internal adjustments easily accessible.

16 connections on rear-panel modular barrier strip, paralleled by 36-pin male socket. RF bypassing on input and output lines. Includes: Monaural audio input (balanced); remote RF forward power; remote RF reflected power; remote RF mute (logic-selectable); AFC relay (N.O.); AFC relay (N.C.); AFC relay common; remote PA voltage; remote PA current; cooling fault and ground.

Dual scale fast rise time AC metering (adjustable to meet FCC ballistics).  
Selectable metering of +20 VDC, -20 VDC, +5 VDC, AFC volts, modulated oscillator power, PA voltage, PA current, forward RF power, and reflected RF power (9 positions).

10.  
PA voltage, PA current, forward power, reflected power. Samples +4 VDC at full scale.

5 independent LED indicators (AC power, AFC lock, RF mute, cooling fault, output power range indication).

Two: one balanced, floating, one unbalanced.

2000 ohms resistive.  
Female BNC (rear panel).  
1.0 volt RMS nominal for ±75 kHz deviation.  
±1 dB, 30 Hz to 53 kHz; down -0.2 dB at 100 kHz (typical).  
60 dB below 100% modulation (ref. 400 Hz at +75 kHz deviation with 75 microsecond de-emphasis, 20 Hz to 200 kHz bandwidth).

0.08%.  
0.02% (60 Hz/7 kHz 1:1 tone pair).  
All distortion products below 80 dB (ref. 14 kHz/15 kHz tone test pair).

55 dB below equivalent 100% amplitude modulation.  
55 dB below equivalent 100% amplitude modulation of 15 or 55 watt output carrier with 75 microsecond de-emphasis (FM modulation ±75 kHz @ 400 Hz).  
+0.5/-1.0 degrees from linear phase, 20 Hz to 53 kHz.

0.5%, 2.96 kHz square wave/14 kHz sine wave modulation.  
Nominal 1.0 volt for ±75 kHz at 400 Hz (10,000 ohm input impedance, balanced BNC female connector).  
Nominal 1.0 volt for ±75 kHz at 400 Hz (200 ohm source impedance, balanced BNC female connector).

600 ohms, balanced, resistive, transformerless.  
+10 dBm, ±1 dB for ±75 kHz deviation at 400 Hz.  
Standard 75 microsecond FCC pre-emphasis curve ±0.5 dB, 30 Hz to 15 kHz. Selectable flat 25, 50, or 75 microsecond pre-emphasis.  
0.08%, 30 Hz to 15 kHz, de-emphasized.  
0.04%, 60 Hz/7 kHz test tone pair, 4:1 ratio.  
All distortion products down 70 dB (ref. 14 kHz/15 kHz test tone pair).

0.05%, 2.96 kHz square wave/15 kHz sine wave modulation.  
At least 80 dB below 100% modulation (ref. 400 Hz @ ±75 kHz deviation, measured 20 Hz to 200 kHz bandwidth, 75 microsecond de-emphasis).

Two.  
BNC female (rear panel).  
10,000 ohms, unbalanced.  
0.1 volt (nominal) for 10% injection.  
57 kHz to 92 kHz (25 kHz to 92 kHz in monaural operation).  
+0.1 dB, -0.2 dB; 20 kHz to 100 kHz.

50 dB, 30 Hz to 15 kHz; typically 60 dB at midband frequencies.  
-52 dB.  
-60 dB.  
(Left or Right) -74 dB minimum below 100% modulation (ref. 400 Hz, 75 microsecond de-emphasis, ±75 kHz deviation, measured 30 Hz to 15 kHz bandwidth).  
(Left or Right) 0.2% or less, 30 Hz to 15 kHz.  
(Left or Right) 0.1%, 60 Hz/7 kHz test tone pair, 4:1 ratio.  
(Left or Right) All distortion products down 80 dB (ref. 14 kHz/15 kHz test tone pair).

1%, 60 Hz/7 kHz, 1:1 ratio (audio low pass filter and pre-emphasis bypassed).  
-63 dB (Main channel not modulated; ref. 100% modulation = ±5 kHz deviation at 400 Hz).  
(SCA to main or stereo sub-channel) -60 dB or better; (Main or stereo sub-channel to SCA) 57 dB below ±5 kHz deviation of SCA with mono or stereo channels modulated by 30 Hz to 15 kHz, SCA demodulated with 150 microsecond de-emphasis; (SCA to SCA) 41 kHz/67 kHz, 50 dB demodulated with 150 microsecond de-emphasis.



# HARRIS HT 250/500/1FM SOLID-STATE 250,500,1000 WATT TRANSMITTERS

## GENERAL

<p><b>POWER OUTPUT</b></p> <p><b>FREQUENCY RANGE</b></p> <p><b>FREQUENCY STABILITY</b></p> <p><b>EXCITATION</b></p> <p><b>TYPE OF MODULATION</b></p> <p><b>MODULATION CAPABILITY</b></p> <p><b>RF LOAD IMPEDANCE</b></p> <p><b>RF OUTPUT TERMINATION</b></p> <p><b>MAXIMUM LOAD VSWR</b></p> <p><b>RF HARMONIC/SPURIOUS OUTPUT</b></p> <p><b>AC INPUT POWER</b></p> <p><b>POWER CONSUMPTION (Nominal)</b></p> <p><b>AMBIENT TEMPERATURE RANGE</b></p> <p><b>MAXIMUM ALTITUDE</b></p> <p><b>MAXIMUM HUMIDITY</b></p> <p><b>CABINET SIZE</b></p> <p><b>WEIGHT</b></p> <p><b>WIDEBAND COMPOSITE OPERATION (Standard)</b></p> <p><b>INPUTS</b></p> <p><b>INPUT IMPEDANCE</b></p> <p><b>INPUT CONNECTORS</b></p> <p><b>INPUT LEVEL</b></p> <p><b>AMPLITUDE RESPONSE</b></p> <p><b>FM SIGNAL TO NOISE</b></p> <p><b>HARMONIC DISTORTION</b></p> <p><b>INTERMODULATION DISTORTION</b></p> <p><b>CCIF INTERMODULATION DISTORTION</b></p> <p><b>ASYNCHRONOUS AM SIGNAL TO NOISE</b></p> <p><b>SYNCHRONOUS AM SIGNAL TO NOISE</b></p> <p><b>PHASE RESPONSE</b></p> <p><b>TRANSIENT INTERMODULATION DISTORTION</b></p> <p><b>TEST INPUT (Front Panel)</b></p> <p><b>TEST OUTPUT (Front Panel)</b></p>	<p>HT 250FM: 55 to 265 watts; HT 500FM: 235 to 525 watts; HT 1FM: 300 to 1050 watts.</p> <p>87.5 MHz to 108 MHz (50 kHz steps). ±300 Hz, 0 to 50° C.</p> <p>Harris THE-1 High Power FM Exciter or equivalent.</p> <p>Direct carrier frequency modulation (DCFM). ±200 kHz.</p> <p>50 ohms.</p> <p>HT 250/500FM: N female; HT 1FM: 1/2" EIA flange, female.</p> <p>1.5:1 VSWR, maximum for full output power; automatic power reduction into high VSWRs.</p> <p>Suppression meets or exceeds FCC/DOC/CCIR specifications. 197 - 250 vac, 50 or 60 Hz, single phase, 2-wire.</p> <p>HT 250FM: 700 watts; HT 500FM: 1450 watts; HT 1FM: 2900 watts.</p> <p>0°C to 50°C at sea level; derated 2°C/1000 ft. altitude.</p> <p>10,000 feet, 50 or 60 Hz.</p> <p>To 95% non-condensing.</p> <p>22 1/2" (56.2 cm) W x 25 1/2" (64.8 cm) D x 72" (182.9 cm) H.</p> <p>HT 250FM: 185 lbs.; HT 500FM: 275 lbs.; HT 1FM: 400 lbs.</p> <p>Two: One balanced, floating, one unbalanced.</p> <p>2000 ohms resistive.</p> <p>Female BNC (rear panel).</p> <p>1.0 volt RMS nominal for ±75 kHz deviation. ±0.1 dB, 30 Hz to 53 kHz; -0.2 dB at 100 kHz.</p> <p>80 dB below 100% modulation (reference 400 Hz at ±75 kHz deviation with 75 microsecond de-emphasis, 20 Hz to 200 kHz bandwidth). 0.08%.</p> <p>0.02% (60 Hz/7 kHz 1:1 tone pair).</p> <p>All distortion products below 80 dB (reference 14 kHz/15 kHz tone pair).</p> <p>55 dB below equivalent 100% amplitude modulation.</p> <p>50 dB below equivalent 100% amplitude modulation at output carrier with 75 microsecond de-emphasis (FM modulation ±75 kHz @ 400 Hz). +0.5/-1.0 degrees from linear phase, 20 Hz to 53 kHz.</p> <p>0.05%, 2.96 kHz square wave/14 kHz sine wave modulation.</p> <p>Nominal 1.0 volt for ±75 kHz deviation at 400 Hz (10,000 ohm input impedance, BNC female connector).</p> <p>Nominal 1.0 volt for ±75 kHz deviation at 400 Hz (200 ohm source impedance, BNC female connector).</p> <p>600 ohms, balanced, resistive, transformerless. +10 dBm, ±1 dB for ±75 kHz deviation at 400 Hz.</p> <p>Standard 75 microsecond FCC pre-emphasis curve ±0.5 dB, 30 Hz-15 kHz. Selectable: Flat, 25, 50 or 75 microsecond pre-emphasis.</p> <p>0.08%, 30 Hz-15 kHz, de-emphasized.</p> <p>0.04%, 60 Hz/7 kHz test tone pair, 4:1 ratio.</p> <p>All distortion products down 70 dB (reference 14 kHz/15 kHz test tone pair).</p> <p>0.05%, 2.96 kHz square wave/14 kHz sine wave modulation.</p> <p>At least 80 dB below 100% modulation (reference 400 Hz @ ±75 kHz deviation, measured 20 Hz to 200 kHz bandwidth, 75 microsecond de-emphasis).</p> <p>Two</p> <p>BNC female (rear panel).</p> <p>10,000 ohms, unbalanced</p> <p>0.1 volt (nominal) for 10% injection.</p> <p>57 kHz to 92 kHz (25 kHz to 92 kHz in monaural operation). +0.1 dB, -0.2 dB: 20 kHz to 100 kHz</p>
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SPECIFICATIONS REFERENCED TO MAXIMUM OUTPUT POWER UNLESS OTHERWISE NOTED.

### Power Levels\*:

HT 250FM: 55 W - 265 W\*\*

HT 500FM: 235 W - 525 W\*\*

HT 1FM: 300 W - 1050 W

\* Main/alternate configurations with automatic switchover available.

\*\* Field expandable to 1000 watts

## KEY BENEFITS:

- 100% solid-state transmitters replace tubes with FET solid-state RF amplifiers.
- Integrated RF amplifier modules— each with their own AC power supply and cooling— offer long life and require no tuning or adjustment to produce full rated power from 87.5 - 108 MHz.
- Each amplifier block self-protected for AC and DC overloads and will withstand open or shorted RF loads. RF amplifier assemblies are field-proven, with hundreds currently in service.
- Each amplifier block will operate independently outside of the transmitter, enabling maintenance on any block while the rest of the transmitter continues to operate.
- THE-1 FM exciter standard. FLEXPatch™ emergency RF patching allows the exciter or any of the amplifiers to be easily patched to the transmitter's output connector.
- Designed for easy installation and service, these transmitters feature slide-out subassemblies.
- Standard features include automatic power control, proportional VSWR foldback, auto-restart in event of AC failure, comprehensive monitoring, and remote control interface.
- Ideal for booster or standby service.



HT 1FM

## **HARRIS HT 3.5/5/7/10FM** **3.5, 5, 7, 10 kW FM TRANSMITTERS**

### **Power levels\*:**

HT 3.5FM, 800 W - 4 kW

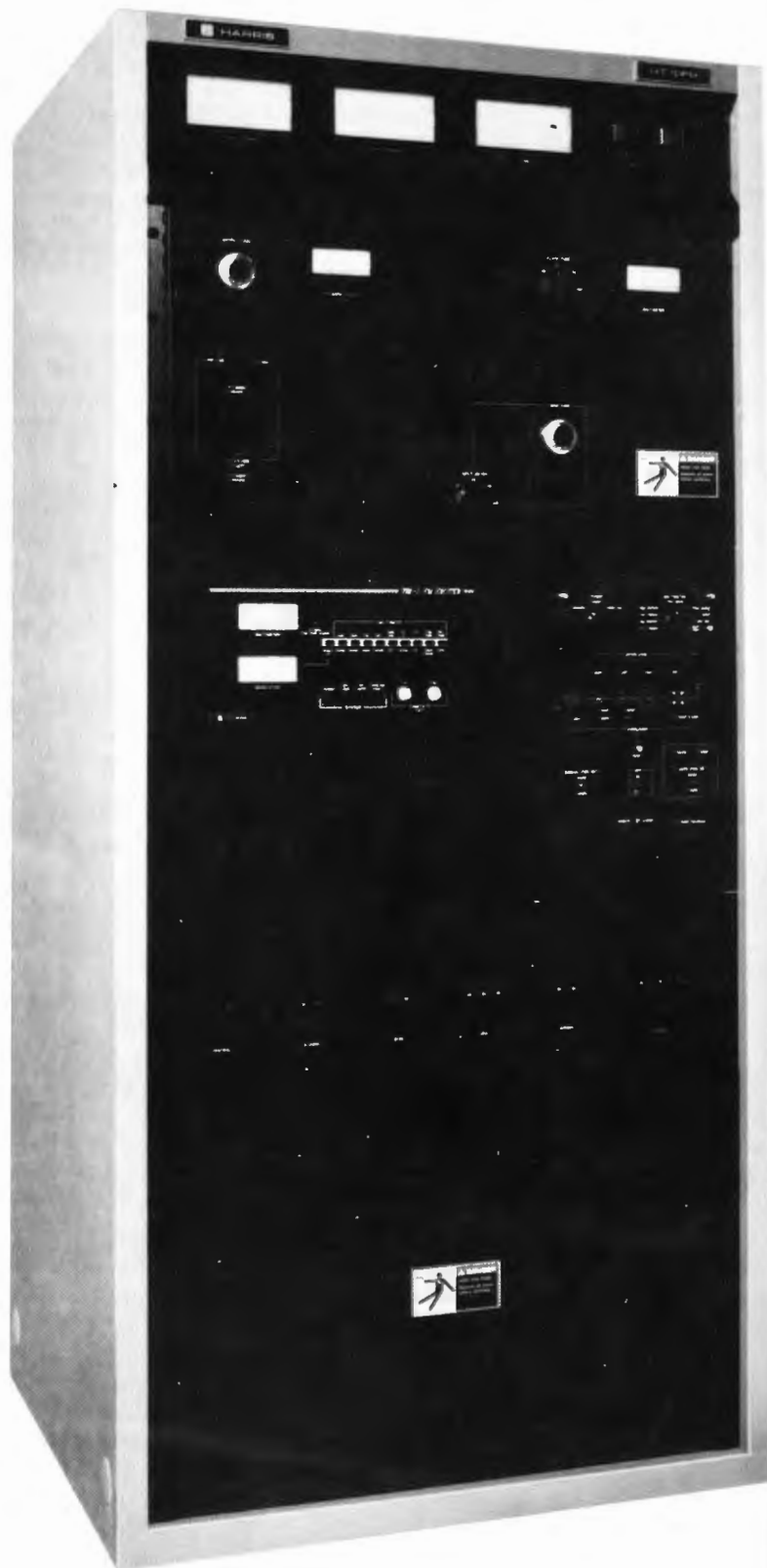
HT 5FM, 1.5 kW - 5 kW

HT 7FM, 3 kW - 8 kW

HT 10FM, 5 kW - 10 kW

### **KEY BENEFITS:**

- Features single tube design with a long-life, high efficiency tetrode operating in a wideband, quarter-wave cavity.
- Single phase power standard on the HT 3.5FM, HT 5FM and HT 7FM, with HT 7FM also available for three-phase installation; HT 10FM available in standard three-phase or optional single phase models.
- THE-1 FM exciter delivers super-clean signals; monaural, composite and SCA subcarrier inputs standard.
- RF patch-around capability provides continued on-air operation at reduced power in emergencies.
- Front-panel block diagram facilitates monitoring; LED indicators show circuit status in each major functional stage and have fault memory in case of power failure.
- Modular design ensures easy access during maintenance.
- Standard features include automatic AC re-start, automatic power control, proportional VSWR foldback and full remote control interface.



**HT 10FM**



# HARRIS HT 3.5/5/7/10FM SPECIFICATIONS

## GENERAL

### POWER OUTPUT

HT 3.5FM: 800 to 4000 watts (FCC type-notified range).  
 HT 5FM: 1500 to 5000 watts (FCC type-notified range).  
 HT 7FM: 3000 to 8000 watts (FCC type-notified range).  
 HT 10FM: 5000 to 10,000 watts (FCC type-notified range).  
 87.5 to 108 MHz in 50 kHz steps. Tuned to single frequency.  
 Harris THE-1 high power FM exciter.

### FREQUENCY RANGE

### EXCITATION

### TYPE OF MODULATION

### MODULATION CAPABILITY

### RF LOAD IMPEDANCE

### RF OUTPUT TERMINATION

### PA MATCHING RANGE

### RF HARMONIC/SPURIOUS OUTPUT

### AC INPUT POWER

Direct carrier frequency modulation (DCFM).

±200 kHz.

50 ohms.

HT 3.5FM/HT 5FM: 1½" EIA flange, female.

HT 7FM/HT 10FM: 3¼" EIA flange, female.

HT 3.5/5FM: 2:1 VSWR, maximum for full output power; automatic power reduction into high VSWRs.

HT 7/10FM: 1:7 VSWR, maximum for full output power; automatic power reduction into high VSWRs.

Suppression meets or exceeds FCC/DOC CCIR specifications.

HT 3.5/HT5FM: 197-251 VAC, 50/60 Hz, single phase, 2-wire.

HT 7FM: 197-251 VAC, 50/60 Hz, single phase, 2-wire. Optional: 197-250 VAC, 50/60 Hz, three phase, 3-wire closed delta or 360-415 VAC 4-wire WYE.

HT 10FM: 197-250 VAC, 50/60 Hz, three phase, 3-wire closed delta or 360-415 VAC 4-wire WYE. Optional: 197-251 VAC, 50/60 Hz, single phase, 2-wire.

### POWER CONSUMPTION

HT 3.5FM: 7.5 kW typical at 4 kW RF output.

HT 5FM: 8.9 kW typical at 5 kW RF output.

HT 7FM: 13.5 kW typical at 8 kW RF output.

HT 10FM: 15.7 kW typical at 10 kW RF output.

-20°C to +50°C at sea level; derated 2°C/1000 ft. altitude.

10,000 feet at 60 Hz; 7,500 feet at 50 Hz.

To 95% non-condensing.

400 CFM at 60 Hz; 350 CFM at 50 Hz. No back pressure.

33" (84cm) W x 34" (99cm) D x 72" (183 cm) H.

HT 3.5 FM: 880 lbs./46.7 cubic feet, domestic packed.

HT 5FM: 1025 lbs./46.7 cubic feet, domestic packed.

HT 7FM: 1050 lbs./46.7 cubic feet, domestic packed.

HT 10FM: 1125 lbs./46.7 cubic feet, domestic packed.

### AMBIENT TEMPERATURE RANGE

### MAXIMUM ALTITUDE

### MAXIMUM HUMIDITY

### AIR REQUIREMENTS

### CABINET SIZE

### WEIGHT/VOLUME

## WIDEBAND COMPOSITE OPERATION (STANDARD)

### INPUTS

### INPUT IMPEDANCE

### INPUT CONNECTORS

### INPUT LEVEL

### AMPLITUDE RESPONSE

### FM SIGNAL TO NOISE

### HARMONIC DISTORTION

### INTERMODULATION DISTORTION

### CCIF INTERMODULATION DISTORTION

### ASYNCHRONOUS AM SIGNAL TO NOISE

### SYNCHRONOUS AM SIGNAL TO NOISE

### PHASE RESPONSE

### TRANSIENT INTERMODULATION DISTORTION

### TEST INPUT (FRONT PANEL)

### TEST OUTPUT (FRONT PANEL)

Two: one balanced, floating; one unbalanced.

2000 ohms resistive.

Female BNC (rear panel).

1.0 volt RMS nominal for ±75 kHz deviation.

±0.1 dB, 30 Hz to 53 kHz; -0.2 dB at 100 kHz.

80 dB below 100% modulation (reference 400 Hz at ±75 kHz deviation with 75 microsecond de-emphasis, 20 Hz to 200 kHz bandwidth).

0.08%.

0.02% (60 Hz/7 kHz 1:1 tone pair).

All distortion products below 80 dB (reference 14 kHz/15 kHz test tone pair).

55 dB below equivalent 100% amplitude modulation.

50 dB below equivalent 100% amplitude modulation at output carrier with 75 microsecond de-emphasis (FM modulation ±75 kHz @ 400 Hz).

+0.5/-1.0 degrees from linear phase, 20 Hz to 53 kHz.

0.05%, 2.96 kHz square wave/14 kHz sine wave modulation.

Nominal 1.0 volt for ±75 kHz deviation at 400 Hz (10,000 ohm input impedance, BNC female connector).

Nominal 1.0 volt for ±75 kHz deviation at 400 Hz (200 ohm source impedance, BNC female connector).

## MONAURAL OPERATION (STANDARD)

### AUDIO INPUT IMPEDANCE

### AUDIO INPUT LEVEL

### AUDIO FREQUENCY RESPONSE

### HARMONIC DISTORTION

### CCIF INTERMODULATION DISTORTION

### TRANSIENT INTERMODULATION DISTORTION

### FM SIGNAL TO NOISE

600 ohms balanced, resistive, transformerless.

+10 dBm ±1 dB for ±75 kHz deviation at 400 Hz

Standard 75 microsecond FCC pre-emphasis curve ±5 dB, 30 Hz-15 kHz.

Selectable Flat, 25, 50 or 75 microsecond pre-emphasis.

0.08% 30 Hz-15 kHz de-emphasized

All distortion products down 70 dB (reference 14 kHz/15 kHz test tone pair).

0.05%, 2.96 kHz square wave/14 kHz sine wave modulation.

At least 80 dB below 100% modulation (reference 400 Hz @ ±75 kHz deviation measured 20 Hz to 200 kHz bandwidth, 75 microsecond de-emphasis)

## SCA INPUT (STANDARD)

### EXTERNAL SCA GENERATOR INPUTS

### INPUT CONNECTORS

### INPUT IMPEDANCE

### RANGE OF SUBCARRIER FREQUENCIES

### AMPLITUDE RESPONSE

Two

BNC female (rear panel)

10 000 ohms unbalanced

57 kHz to 92 kHz (25 kHz to 92 kHz in monaural operation)

+0.1 dB -0.2 dB 20 kHz to 92 kHz

NOTE: Specs. referenced as follows unless noted HT 3.5FM to 4 kW operation HT 5FM to 5 kW operation HT 7FM to 8 kW operation; HT 10FM to 10 kW operation



HT 3.5FM

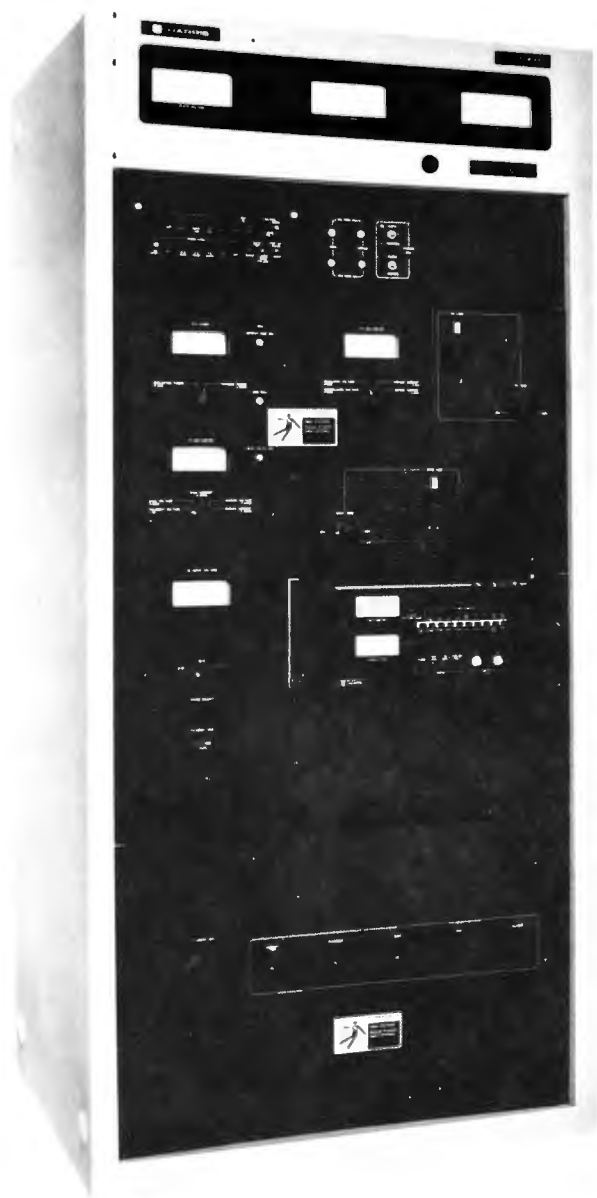


HT 5FM

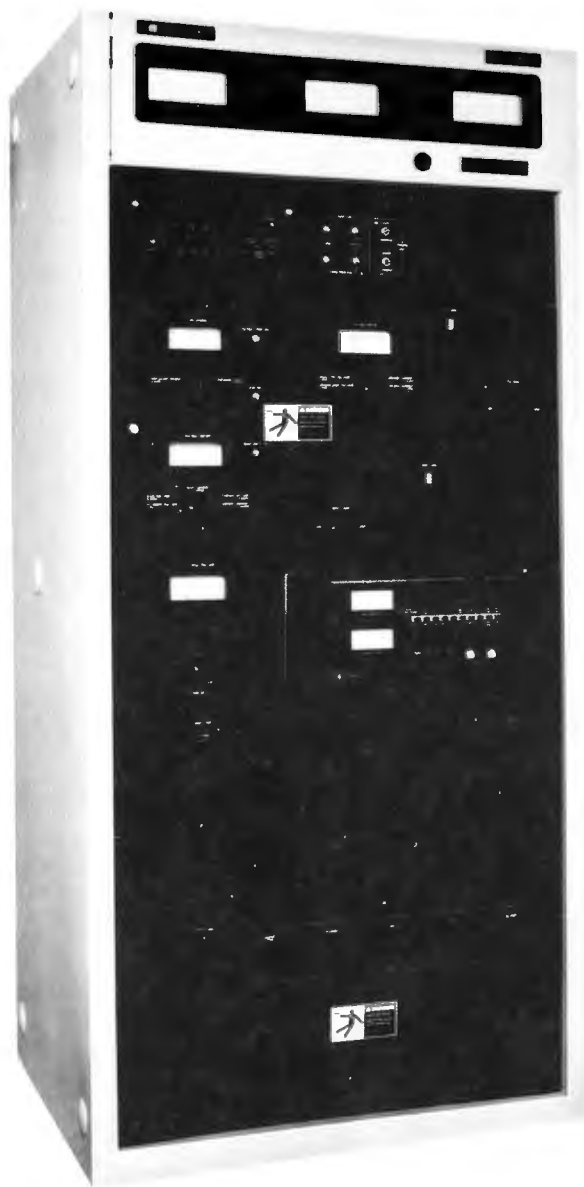


HT 7FM

**HARRIS HT 20/25FM  
20, 25 kW FM TRANSMITTERS**



**HT 20FM**



**HT 25FM**

**Power Levels:**

Single	Dual
HT 20FM, 8 - 20 kW	HTD 40FM, 16 - 40 kW
HT 25FM, 8 - 25 kW	HTD 50FM, 16 - 50 kW

**KEY BENEFITS:**

- Quarter-wave PA cavity for lowest synchronous AM and best stereo and SCA performance.
- Performance also enhanced by wide RF bandwidth for signal transparency and THE-1 FM exciter.
- Typical PA efficiency of greater than 77%.
- Highly efficient low-noise cooling system for quiet operation.
- Single rugged long-life tetrode for low-cost ownership.
- FlexPatch™ capability permits the preamplifier, IPA or even the PA to be bypassed for continued operation during an emergency.
- Other standard features include proportional VSWR foldback, automatic AC re-start, automatic power control and remote control interface.
- For dual combined transmitters, automatic output switching and automatic exciter switching are available.



# HARRIS HT 20/25FM SPECIFICATIONS

## GENERAL

### POWER OUTPUT

HT 20FM: 8,000 to 20,000 watts (FCC type notified range).

HT 25FM: 8,000 to 25,000 watts (FCC type-notified range).

87.5 to 108 MHz in 50 kHz steps. Tuned to single frequency.

Harris THE-1 high power FM exciter.

Direct carrier frequency modulation (DCFM).

±200 kHz.

50 ohms.

3/4" EIA flange, female.

1:7 VSWR, maximum for full output power; automatic power reduction into high VSWRs.

Suppression meets or exceeds FCC/DOC/CCIR specifications.

197-250 VAC, 50/60 Hz, three phase, 3-wire closed delta or 360-415 VAC 4-wire WYE.

HT 20FM: 30.8 kW typical at 20 kW RF output (0.95 PF).

HT 25FM: 37.5 kW typical at 25 kW RF output (0.95 PF).

-20°C to +50°C at sea level; derated 2°C/1000 ft. altitude.

10,000 feet 50/60 Hz.

To 95% non-condensing.

Main Cabinet: 760 CFM at 60 Hz; 710 CFM at 50 Hz. Power Supply: 250 CFM at 60 Hz, 200 CFM at 50 Hz at zero back pressure.

33.4" (85cm) W x 30.2" (77cm) D x 72" (183 cm) H. Power Supply: 48" (122cm) W x 24.1" (61cm) D x 60.25" (153cm) H.

HT 20FM: 2550 lbs./150 cubic feet, domestic packed.

HT 25FM: 2700 lbs./150 cubic feet, domestic packed.

### FREQUENCY RANGE

### EXCITATION

### TYPE OF MODULATION

### MODULATION CAPABILITY

### RF LOAD IMPEDANCE

### RF OUTPUT TERMINATION

### PA MATCHING RANGE

### RF HARMONIC/SPURIOUS OUTPUT

### AC INPUT POWER

### POWER CONSUMPTION

### AMBIENT TEMPERATURE RANGE

### MAXIMUM ALTITUDE

### MAXIMUM HUMIDITY

### AIR REQUIREMENTS

### CABINET SIZE

### WEIGHT/VOLUME

## WIDEBAND COMPOSITE OPERATION (STANDARD)

### INPUTS

### INPUT IMPEDANCE

Two: one balanced, floating; one unbalanced.

2000 ohms resistive.

### INPUT CONNECTORS

Female BNC (rear panel).

### INPUT LEVEL

1.0 volt RMS nominal for ±75 kHz deviation.

### AMPLITUDE RESPONSE

±0.1 dB, 30 Hz to 53 kHz; -0.2 dB at 100 kHz.

### FM SIGNAL TO NOISE

80 dB below 100% modulation (reference 400 Hz at ±75 kHz deviation with 75 microsecond de-emphasis, 20 Hz to 200 kHz bandwidth).

0.08%.

0.02% (60 Hz/7 kHz 1:1 tone pair).

### HARMONIC DISTORTION

### INTERMODULATION DISTORTION

All distortion products below 80 dB (reference 14 kHz/15 kHz test tone pair).

### CCIF INTERMODULATION DISTORTION

55 dB below equivalent 100% amplitude modulation.

### ASYNCHRONOUS AM SIGNAL TO NOISE

50 dB below equivalent 100% amplitude modulation at output carrier with 75 microsecond de-emphasis (FM modulation ±75 kHz @ 400 Hz).

### SYNCHRONOUS AM SIGNAL TO NOISE

+0.5/-1.0 degrees from linear phase, 20 Hz to 53 kHz.

### PHASE RESPONSE

### TRANSIENT INTERMODULATION DISTORTION

0.05%, 2.96 kHz square wave/14 kHz sine wave modulation.

### TEST INPUT (FRONT PANEL)

Nominal 1.0 volt for ±75 kHz deviation at 400 Hz (10,000 ohm input impedance, BNC female connector).

### TEST OUTPUT (FRONT PANEL)

Nominal 1.0 volt for ±75 kHz deviation at 400 Hz (200 ohm source impedance, BNC female connector).

## MONAURAL OPERATION (STANDARD)

### AUDIO INPUT IMPEDANCE

600 ohms, balanced, resistive, transformerless.

### AUDIO INPUT LEVEL

+10 dBm, ±1 dB for ±75 kHz deviation at 400 Hz.

### AUDIO FREQUENCY RESPONSE

Standard 75 microsecond FCC pre-emphasis curve ±5 dB, 30 Hz-15 kHz. Selectable: Flat, 25, 50 or 75 microsecond pre-emphasis.

### HARMONIC DISTORTION

0.08%, 30 Hz-15 kHz, de-emphasized.

### CCIF INTERMODULATION DISTORTION

All distortion products down 70 dB (reference 14 kHz/15 kHz test tone pair).

### TRANSIENT INTERMODULATION DISTORTION

0.05%, 2.96 kHz square wave/14 kHz sine wave modulation.

### FM SIGNAL TO NOISE

At least 80 dB below 100% modulation (reference 400 Hz @ ±75 kHz deviation, measured 20 Hz to 200 kHz bandwidth, 75 microsecond de-emphasis).

## SCA INPUT (STANDARD)

### EXTERNAL SCA GENERATOR INPUTS

Two.

### INPUT CONNECTORS

BNC female (rear panel).

### INPUT IMPEDANCE

10,000 ohms, unbalanced.

### RANGE OF SUBCARRIER FREQUENCIES

57 kHz to 92 kHz (25 kHz to 92 kHz in monaural operation).

### AMPLITUDE RESPONSE

+0.1 dB, -0.2 dB; 20 kHz to 92 kHz.

NOTE: Specs referenced as follows unless noted: HT 20FM to 20 kW operation; HT 25FM to 25 kW operation.

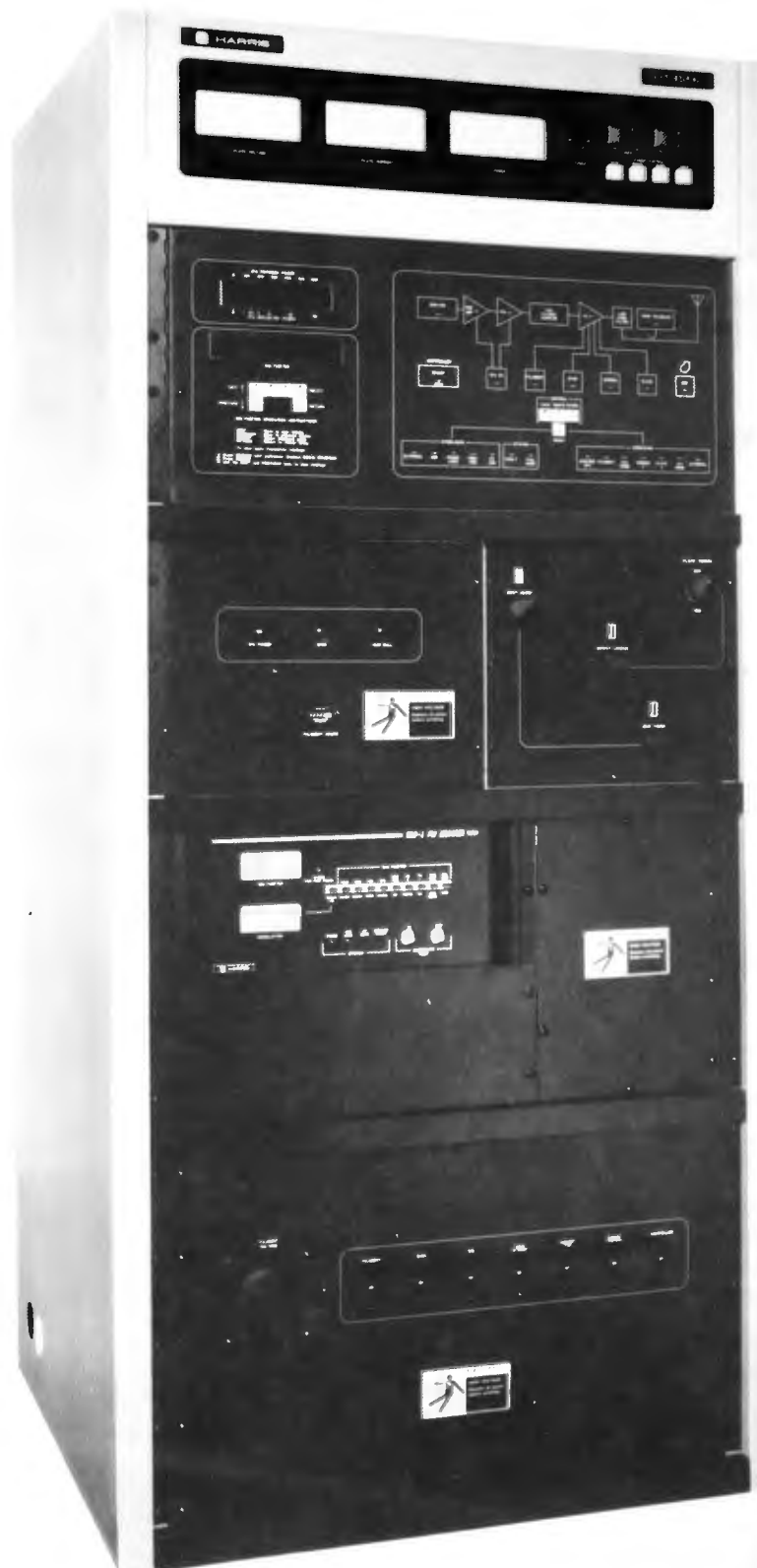
## HARRIS HT 30/35FM 30, 35 kW FM TRANSMITTERS

### Power Levels:

Single	Dual
HT 30FM, 10 - 30 kW	HTD 60FM, 20 - 60 kW
HT 35FM, 10 - 35 kW	HTD 70FM, 20 - 70 kW

### KEY BENEFITS:

- Quarter-wave cavity for the best stereo and SCA performance and lowest synchronous AM.
- 80% efficient PA stage for reduced operating costs and long tube life.
- High efficiency low-noise blower for ample cooling to 10,000-foot altitudes.
- Advanced microprocessor-based main controller works in parallel with a discrete logic back-up controller.
- THE-1 FM exciter provides high-power/high performance signal source.
- Built-in FlexPatch™ capability permits the pre-amplifier, IPA or even the final PA to be bypassed for continued operation at reduced power in emergency conditions.
- ColorStat™ front panel signal flow diagram provides at-a-glance status information.
- Front panel StatusPlus™ feature automatically logs date and time for any of seven major overloads, assisting with problem isolation.
- Standard features also include automatic AC re-start, automatic power control, proportional VSWR foldback, and interface for remote or extended control.
- For dual combined transmitters, automatic output switching and automatic exciter switching are available.



HT 35FM



# HARRIS HT 30/35FM SPECIFICATIONS

## GENERAL

### POWER OUTPUT

HT 30FM: 10,000 to 30,000 watts (FCC type-notified range).  
HT 35FM: 10,000 to 35,000 watts (FCC type-notified range).

### FREQUENCY RANGE

87.5 to 108 MHz in 50 kHz steps. Tuned to single frequency.

### EXCITATION

Harris THE-1 High Power FM exciter.

### TYPE OF MODULATION

Direct carrier frequency modulation (DCFM).

### MODULATION CAPABILITY

±200 kHz.

### RF LOAD IMPEDANCE

50 ohms.

### RF OUTPUT TERMINATION

3/4" ELA flange, female.

### PA MATCHING RANGE

1:7 VSWR, maximum for full output power; automatic power reduction into high VSWRs.

### RF HARMONIC/SPURIOUS OUTPUT

Suppression meets or exceeds FCC/DOC/CCIR specifications.

### AC INPUT POWER

197-250 VAC, 50/60 Hz, three phase, 3-wire, closed delta or 360-415 VAC 4-wire WYE; phases to be balanced within 3%.

### POWER CONSUMPTION

HT 30FM: 46 kW typical at 30 kW RF output (0.95 PF).

HT 35FM: 52 kW typical at 35 kW RF output (0.95 PF).

### AMBIENT TEMPERATURE RANGE

0°C to +50°C at sea level; derated 2°C/1000 ft. altitude.

### MAXIMUM ALTITUDE

10,000 feet, 50/60 Hz.

### MAXIMUM HUMIDITY

To 95% non-condensing.

### AIR REQUIREMENTS

Main Cabinet: 1185 CFM at 60 Hz; 1130 CFM at 50 Hz. Power Supply: 250 CFM at 60 Hz, 200 CFM at 50 Hz at zero back pressure.

### CABINET SIZE

33.5" (85cm) W x 33.5" (85cm) D x 72" (183 cm) H. Power Supply: 52" (132cm) W x 26" (66cm) D x 52" (132cm) H.

### WEIGHT/VOLUME

HT 30FM: 2850 lbs. 164 cubic feet, domestic packed.

HT 35FM: 2900 lbs. 164 cubic feet, domestic packed.

## WIDEBAND COMPOSITE OPERATION (Standard)

### INPUTS

Two: One balanced, floating; one unbalanced.

### INPUT IMPEDANCE

2000 ohms resistive.

### INPUT CONNECTORS

Female BNC (rear panel).

### INPUT LEVEL

1.0 volt RMS nominal for ±75 kHz deviation.

### AMPLITUDE RESPONSE

±0.1 dB, 30 Hz to 53 kHz; -0.2 dB at 100 kHz.

### FM SIGNAL TO NOISE

80 dB below 100% modulation (reference 400 Hz at ±75 kHz deviation with 75 microsecond de-emphasis, 20 Hz to 200 kHz bandwidth).

### HARMONIC DISTORTION

0.08%.

### INTERMODULATION DISTORTION

0.02% (60 Hz 7 kHz 1:1 tone pair).

### CCIF INTERMODULATION DISTORTION

All distortion products below 80 dB (reference 14 kHz/15 kHz test tone pair).

### ASYNCHRONOUS AM SIGNAL TO NOISE

55 dB below equivalent 100% amplitude modulation.

### SYNCHRONOUS AM SIGNAL TO NOISE

50 dB below equivalent 100% amplitude modulation at output carrier with 75 microsecond de-emphasis (FM modulation ±75 kHz @ 400 Hz).

### PHASE RESPONSE

+0.5 -1.0 degrees from linear phase, 20 Hz to 53 kHz.

### TRANSIENT INTERMODULATION DISTORTION

0.05% 2.96 kHz square wave 14 kHz sine wave modulation.

### TEST INPUT (Front Panel)

Nominal 1.0 volt for ±75 kHz deviation at 400 Hz (10,000 ohm input impedance, BNC female connector).

### TEST OUTPUT (Front Panel)

Nominal 1.0 volt for ±75 kHz deviation at 400 Hz (200 ohm source impedance, BNC female connector).

## MONAURAL OPERATION (Standard)

### AUDIO INPUT IMPEDANCE

600 ohms balanced resistive, transformerless.

### AUDIO INPUT LEVEL

+10 dBm ±1 dB for ±75 kHz deviation at 400 Hz.

### AUDIO FREQUENCY RESPONSE

Standard 75 microsecond FCC pre-emphasis curve ±5 dB, 30 Hz-15 kHz. Selectable: Flat, 25, 50 or 75 microsecond pre-emphasis

### HARMONIC DISTORTION

0.08% 30 Hz-15 kHz de-emphasized

### CCIF INTERMODULATION DISTORTION

All distortion products down 70 dB (reference 14 kHz 15 kHz test tone pair).

### TRANSIENT INTERMODULATION DISTORTION

0.05% 2.96 kHz square wave 14 kHz sine wave modulation.

### FM SIGNAL TO NOISE

At least 80 dB below 100% modulation (reference 400 Hz @ ±75 kHz deviation, measured 20 Hz to 200 kHz bandwidth 75 microsecond de-emphasis).

## SCA INPUT (Standard)

### EXTERNAL SCA GENERATOR INPUTS

Two

### INPUT CONNECTORS

BNC female (rear panel)

### INPUT IMPEDANCE

10 000 ohm unbalanced

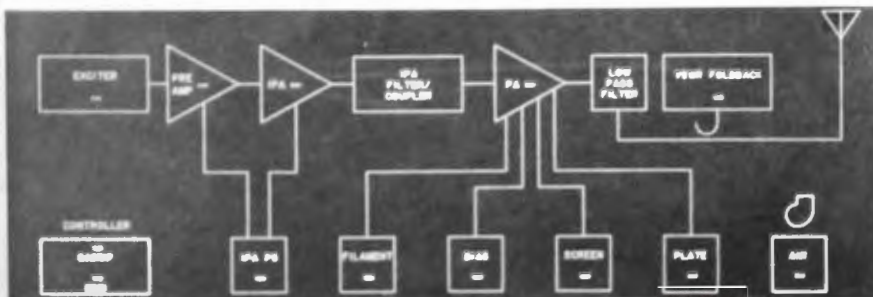
### RANGE OF SUBCARRIER FREQUENCIES

57 kHz to 92 kHz (25 kHz to 92 kHz in monaural operation)

### AMPLITUDE RESPONSE

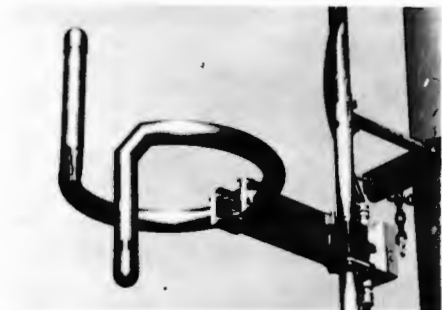
+0.1 dB -0.2 dB 20 kHz to 92 kHz

NOTE: Specs referenced as follows unless noted: HT 30FM to 30 kW operation; HT 35FM to 35 kW operation



COLORSTAT™  
SIGNAL FLOW  
DIAGRAM

## HARRIS FM ANTENNAS



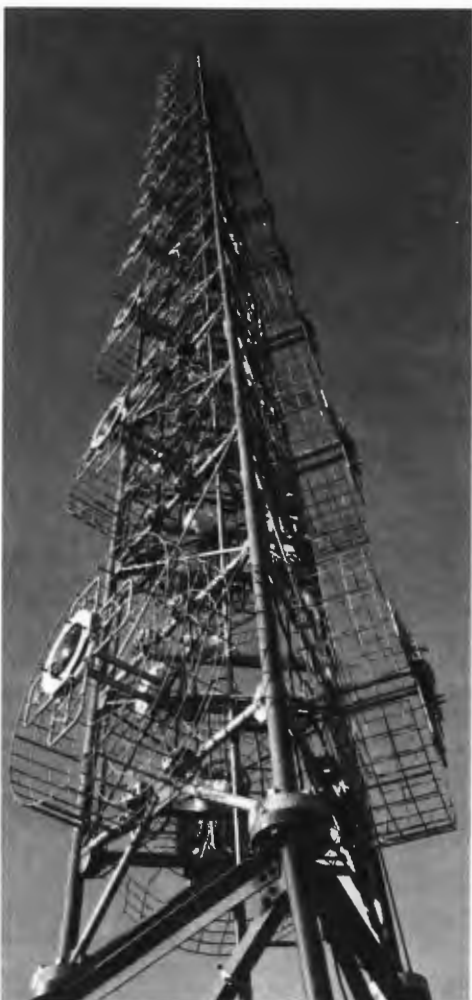
FMC



FML



FMH



CBR

Models:  
 Educational FM-XX Series  
 FMC-A FMC-B  
 FML FMXL  
 FMH FMXH  
 FMWH FMS  
 Cavity-Backed Radiator (CBR)

### KEY BENEFITS:

#### FM Series

- Power ratings to meet every application.
- Excellent bandwidth for top stereo/SCA performance.
- Designed for long-life and trouble-free maintenance with rugged brass and stainless steel construction.
- Fully assembled and tested to ensure top performance.
- Brackets included for face or leg mount on typical tower.
- Options include half-wave element spacing; electrical deicers or radomes, and pattern testing/optimization with custom measurements on your frequency and tower size.

#### CBR

- Multi-channel Cavity-Backed Radiator (CBR) antenna allows up to ten stations to share expense.
- Superb axial ratio and pattern circularity for optimal coverage.

All standard Harris FM antennas\* have the same published gain for equivalent number of bays as shown below:

No. of Bays	Power Gain
1	0.4611
2	0.9971
3	1.5588
4	2.1322
5	2.7154
6	3.3028
7	3.8935
8	4.4872
9	5.0826
10	5.6800
11	6.2783
12	6.8781
13	7.4785
14	8.0800

\*Omnidirectional, circularly polarized models without beam tilt and null fill, and with one wavelength vertical element spacing.

## HARRIS FM ACCESSORIES

### AUTOMATIC CHANGEOVER PANEL

Harris' Automatic Changeover Panel provides automatic switching for minimum off-air time should a transmitter failure occur. Full "on" sequencing enables the standby transmitter to be in a hot or cold mode. All transfer functions are provided by the panel, with no direct control of the transfer switch required. All "off-on" and "mode" commands are remote controllable, with full control of both transmitters and the switcher panel from the remote control point. Dry contacts are provided for control of the transmitters and the transfer switch. Harris' Automatic Changeover Panel is compatible with virtually all transmitters.

### CONSTANT VOLTAGE FILAMENT REGULATOR

Designed for any Harris FM transmitter with a PA tube that operates in an environment where the AC power source is subject to fluctuation, the Constant Voltage Filament Regulator provides tight voltage regulation for the PA tube's filament. The results are controlled filament heat, controlled peak filament emission, and extended tube life.

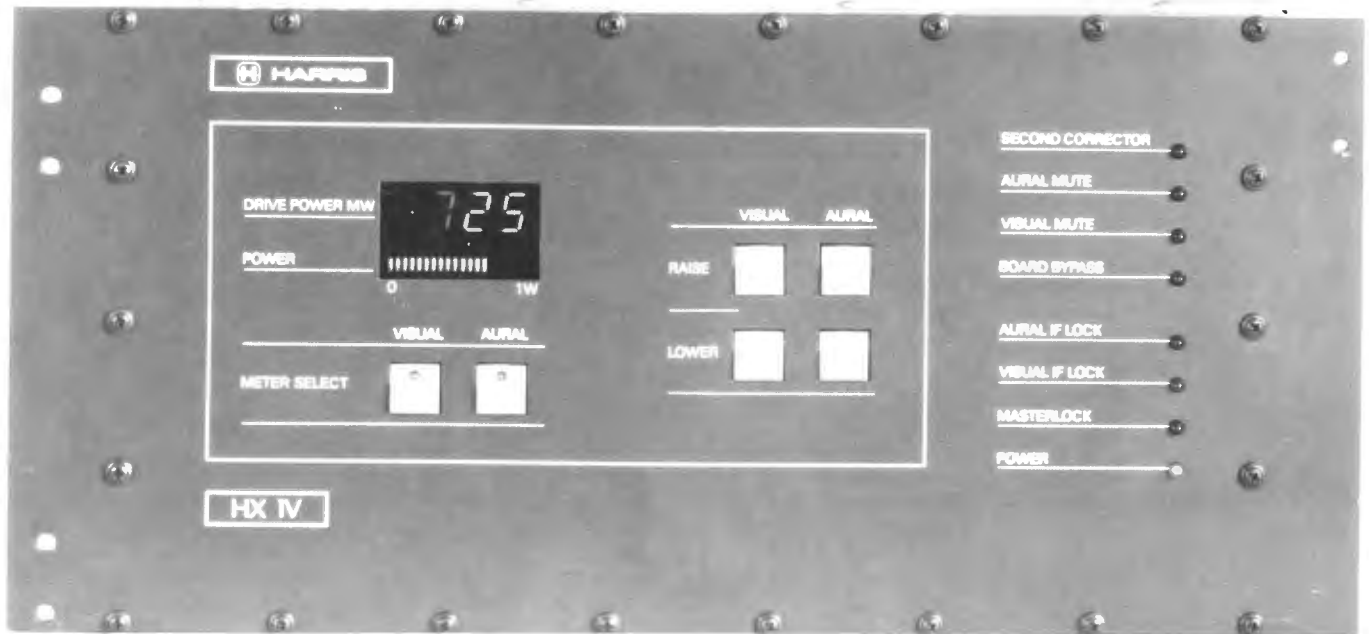


## VHF TRANSMITTERS OF CHOICE



Over 70% of all U.S. broadcasters purchasing VHF solid state transmitters in the past year and a growing number of broadcasters worldwide have chosen Harris Platinum Series™ transmitters. A special combination of features offers exceptional on-air reliability and simplicity. Broadband self-protecting FET power amplifier modules and distributed cooling and control ensure top reliability. The new HXIV visual-aural exciter gives exceptional performance. The Platinum design makes it easy for virtually any user to operate and monitor the transmitter, and can reduce recommended routine maintenance by up to 90%. These are only some of the reasons Platinum Series transmitters are gaining global leadership.

**HARRIS HX1V VHF TV  
SOLID-STATE VISUAL/AURAL EXCITER**



**HX1V EXCITER**

**KEY BENEFITS:**

- Extensive built-in transmitter pre-correction circuitry facilitates transmitter set-up and provides stable operation.
- Enhanced reliability with 100% solid-state design and fewer parts than previous generation VHF excitors.



**HX1V IS STANDARD IN HARRIS PLATINUM SERIES™  
TRANSMITTERS: 10 KW PLATINUM TRANSMITTER SHOWN.**

- Advanced SAW filter design with built-in receiver group delay function for System M or System B reduces maintenance adjustments.
- Single temperature-controlled crystal oscillator and PLL circuitry develops all required frequencies, including  $\pm 10$  kHz offsets.
- Full capability for remote control operation.
- DC restoration circuit automatically mutes exciter if video is removed; keeps track of the status change, and prevents the transmitter from running at full carrier power.
- "Slide-out drawer" 19-inch rack-mount exciter contains all video, audio, IF, RF boards and power supply; common package for visual and aural exciter circuits simplifies interconnects.
- Space for an optional notch diplexer equalizer and a stereo aural group delay corrector.
- Typical audio performance equivalent to high quality FM broadcast transmitter.
- Long-life front-panel LEDs provide at-a-glance status information.
- Can be used as 1 watt transmitter with addition of filtering.
- Available with Precise Frequency Control.
- Dual Carrier Sound available for CCIR system M, N, B, and G.



# HARRIS HX1V VHF EXCITER SPECIFICATIONS

## VISUAL PERFORMANCE

POWER OUTPUT  
LOAD IMPEDANCE  
FREQUENCY RANGE  
FREQUENCY STABILITY<sup>1</sup>  
REGULATION OF RF OUTPUT  
VARIATION OF RF OUTPUT  
VISUAL SIDEBAND RESPONSE

## SYSTEM M<sup>2</sup>

1.0 watt peak<sup>3</sup>.  
50 ohms BNC connector.  
54-88 MHz; 174-216 MHz.  
±250 Hz (over 30 days).  
<1%.  
<1%.  
-1.25 MHz.....-40 dB or better.  
-0.75 to 4.10 MHz .....±0.4 dB.  
4.18 MHz.....±0.5 dB.  
+4.5 MHz .....-40 dB or better.  
±0.25 dB.  
0%.  
2% or better.  
1° or better.  
±1° or better.  
2% or better.  
2T: 1%; 20T: 2% or less baseline disturbance.  
58 dB RMS.  
0.2 to 2.1 MHz ..... ±40 nsec.  
@ 3.58 MHz ..... ±25 nsec.  
@ 4.18 MHz ..... ±60 nsec.  
(relative to FCC standard)  
0.75 to 2.0 volts, 75 ohms,  
36 dB return loss

FREQUENCY RESPONSE V. BRIGHTNESS  
MODULATION CAPABILITY  
DIFFERENTIAL GAIN  
DIFFERENTIAL PHASE  
INCIDENTAL PHASE MODULATION<sup>4</sup>  
LUMINANCE NON-LINEARITY  
K FACTORS  
SIGNAL TO NOISE<sup>5</sup>  
EQUIVALENT ENVELOPE DELAY

## VIDEO INPUT LEVEL

## AURAL PERFORMANCE

POWER OUTPUT  
LOAD IMPEDANCE  
MODULATION CAPABILITY (Any Channel)

## FREQUENCY

## INTERMODULATION PRODUCTS<sup>6</sup>

## AUDIO PERFORMANCE

INPUT LEVEL  
INPUT IMPEDANCE  
COMMON MODE REJECTION RATIO  
FM NOISE<sup>7</sup>  
AM NOISE  
SYNCHRONOUS AM NOISE  
HARMONIC DISTORTION<sup>8</sup>  
IMD DISTORTION

## FREQUENCY RESPONSE

## PRE EMPHASIS

## CHANNEL CROSSTALK

## SCA CHARACTERISTICS

## LEVEL

## FREQUENCY RESPONSE

## STEREO PERFORMANCE

## STEREO SEPARATION

## CROSSTALK (STEREO OR MAIN TO SAPI)

## INPUT LEVEL

## SERVICE CONDITIONS

## AMBIENT TEMPERATURE RANGE

## AMBIENT HUMIDITY RANGE

## ALTITUDE

## PHYSICAL AND MECHANICAL DIMENSIONS

## ELECTRICAL REQUIREMENTS

## POWER CONSUMPTION

## Single Channel

1.0 watt RMS  
50 ohms.  
±100 kHz ( $f_m < 100$  Hz)  
±200 kHz ( $f_m \geq 100$  Hz)  
Visual Carrier +4.5 MHz

## N A

## Monaural

0 to 20 dBm adjustable  
600 ohm  
-60 dB (up to 1 kHz)  
-60 dB (at 25 kHz deviation)  
-55 dB  
-40 dB  
0.2%  
0.5%  
±0.5 dB (30 to 15 000 Hz)  
Flat 50  $\mu$ Sec. 75  $\mu$ Sec. (selectable)  
N A  
2 inputs  
1 volt RMS adjustable  
±0.5 dB 20 Hz to 110 kHz

BTSC (without companding)  
45 dB or better (50 to 15 000 Hz)  
-50 dB or better  
1 volt RMS into 75 ohms

0 to 50 °C  
0 to 95% non-condensing,  
Sea level to 10 000 ft  
19 W x 22 D x 8.75 H 31 lbs  
208-240 volts  $\pm 10\%$  50-60 Hz 1 phase  
150 VA

## SYSTEMS B<sup>1</sup>

1.0 watt peak.  
50 ohms BNC connector.  
47-88 MHz Band I; 170-230 MHz Band III.  
±250 Hz (over 30 days).  
<1%.  
<1%.  
-1.25 MHz.....-40 dB or better.  
-0.75 to 5.0 MHz.....±0.5 dB.  
+5.5 MHz.....-40 dB or better.  
±0.25 dB.  
0%.  
2% or better.  
1° or better.  
±1° or better.  
2% or better.  
2T: 1%; 20T: 2% or less baseline disturbance.  
58 dB RMS.  
0.25 MHz..... ±10 nsec.  
1.0 to 4.43 MHz..... ±30 nsec.  
4.8 MHz..... ±40 nsec.  
(relative to CCIR Report 624, Fig. 3, Curve B)  
0.75 to 2.0 volts, 75 ohms,  
36 dB return loss.

## Dual Carrier Sound

Channel 1, -13 dB; Channel 2, -20 dB.  
50 ohms.  
±100 kHz, ( $f_m < 100$  Hz)  
±200 kHz, ( $f_m \geq 100$  Hz)  
Channel 1: Visual Carrier +4.5 or 5.5 MHz.  
Channel 2: Visual Carrier +4.724 or 5.742 MHz.  
-60 dB

## Either Channel

0 to 20 dBm adjustable  
600 ohm  
-60 dB (up to 1 kHz)  
-66 dB (at 50 kHz deviation)  
-55 dB  
-40 dB  
0.35%  
0.5%  
±0.5 dB (30 to 15 000 Hz)  
Flat 50  $\mu$ Sec 75  $\mu$ Sec (selectable)  
80 dB  
N A

## IRT system

40 dB typical 32 dB min (50 to 15 000 Hz)  
N A  
0 to 20 dBm adjustable

0 to 50 °C  
0 to 95% non-condensing  
Sea level to 3048 m  
48 cm W x 56 cm D x 22 cm H 23 kg  
208-240 volts  $\pm 10\%$  50-60 Hz 1 phase  
150 VA

<sup>1</sup> Inquire about availability of other U.S. system standards.  
<sup>2</sup> All specs guaranteed at 0.1  $\mu$  without correction, at 1.0  $\mu$  with correction.  
<sup>3</sup> 4.2 Hz with optional Precise Frequency Control for System M.  
<sup>4</sup> Relative to blanking.  
<sup>5</sup> Relative to visual peak level.  
<sup>6</sup> With de-emphasis.  
<sup>7</sup> Relative to 100% AM modulation.

# HARRIS PLATINUM SERIES™

## 1 - 60 kW SOLID-STATE VHF TV TRANSMITTERS



### HT 30LS

#### Power Levels\*:

HT 1LS/HS: 1 kW    HT 15LS/HS: 15 kW  
 HT 2LS/HS: 2 kW    HT 20LS/HS: 20 kW  
 HT 5LS/HS: 5 kW    HT 30LS/HS: 30 kW  
 HT 10LS/HS: 10 kW    HT 45LS/HS: 45 kW  
 HT 60LS/HS: 60 kW

\*LS Models: System M/NTSC: 54-88 MHz (Channels 2 - 6);  
 Systems B/PAL, B/SECAM: 47-88 MHz  
 (Channels E2-E4).

HS Models: System M/NTSC: 174-216 MHz (Channels  
 7 - 13); Systems B/PAL, B/SECAM: 174-230  
 MHz (Channels E5-E12).

### KEY BENEFITS:

- Unsurpassed solid-state reliability with FET power amplifier modules; highly redundant design, and distributed architecture for cooling and control.
- Interchangeable visual and aural power amplifier modules self-protected from six fault conditions— standing wave ratio (SWR), RF input overdrive, amplifier balance, under/overvoltage, overtemperature, and DC FET switch failure.
- Hot-pluggable power amplifier modules designed for safe removal and insertion while transmitter continues to operate; field repairable with readily available, multiple-sourced FET output devices.
- Linear power supplies regulated to handle up to  $\pm 10$  percent incoming AC voltage variations and varying load currents; fault-protected from overcurrent, overvoltage and overtemperature.

- Reduced technical labor costs with low-maintenance design: annual maintenance time only 10% of requirement for older, tube transmitters.
- Maintenance can be performed while transmitter is operating.
- Provides simple operation, monitoring and maintenance for use by virtually any operator.
- Exceptional performance with new combined visual/aural exciter; available with Dual Carrier Sound (See HX1V Visual/Aural Exciter, Page 176).
- Excellent factory support with 24-hour technical assistance, parts, field service and customer training.

### PLATINUM SENTRY PC INTERFACE

- Gives Platinum™ Series users easy access to complete transmitter status information: Enables users to review all status screens that are accessible from the control panel of a Platinum transmitter.
- Tracks real-time data in memory; provides full alarms cue accessibility, and can print screens.
- Allows users to edit Platinum Sentry screens and manipulate data; uses same data retrieval commands featured on a Platinum transmitter.
- Available for either remote or extended use: Complete remote package includes personal computer (AT), EGA monitor, modem, printer and software; extended package includes a personal computer (AT), EGA monitor, cable, printer and software.
- Platinum Sentry software available for customers who already have other components.



# HARRIS PLATINUM SERIES™ SPECIFICATIONS

## VISUAL PERFORMANCE

### VISUAL POWER OUTPUT

HT 1LS HS:	1 kW peak.
HT 2LS HS:	2 kW peak (at diplexer output).
HT 5LS HS:	5 kW peak (at diplexer output).
HT 10LS HS:	10 kW peak (at diplexer output).
HT 15LS HS:	15 kW peak (at diplexer output).
HT 20LS HS:	20 kW peak (at diplexer output).
HT 30LS HS:	30 kW peak (at diplexer output).
HT 45LS HS:	45 kW peak (at diplexer output).
HT 60LS HS:	60 kW peak (at diplexer output).

### RF LOAD IMPEDANCE

HT 1LS HS-HT 10LS HS:	50 ohms, connector 1 1/4" EIA.
HT 15 30 60LS HS:	50 ohms, connector 3 1/4" EIA.
HT 45LS HS:	50 ohms, connector 3 1/4" EIA.

### FREQUENCY RANGE

LS Models	54-88 MHz (Channels 2-6).
HS Models	174-216 MHz (Channels 7-13).

### CARRIER FREQUENCY

STABILITY <sup>1</sup>	±250 Hz (maximum variation over 30 days).
	±2 Hz with precise frequency control.

### REGULATION OF

OUTPUT POWER <sup>2</sup>	3% or less relative to peak sync.
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VARIATION OF OUTPUT <sup>3</sup>	2% or less.
----------------------------------	-------------

### VISUAL SIDEBAND RESPONSE<sup>4</sup>

(At output of PA)	-3.58 MHz	-42 dB or better.
	-1.25 to +4.25 MHz	-23 dB or better.
	-0.75 to +3.58 MHz	±0.5 dB.
	+4.18 MHz	+0.5 to -1 dB.
	+4.50 MHz	-30 dB or better.
	+4.75 to +7.75 MHz	-40 dB or better.

### FREQUENCY RESPONSE V

BRIGHTNESS <sup>5</sup>	±0.75 dB.
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MODULATION CAPABILITY	0%
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DIFFERENTIAL GAIN <sup>6</sup>	3% or better.
--------------------------------	---------------

DIFFERENTIAL PHASE	1° or better.
--------------------	---------------

INCIDENTAL CARRIER PHASE MODULATION <sup>7</sup>	±1.5° or better relative to blanking.
--	---------------------------------------

## SYSTEMS B/PAL, B/SECAM

1 kW peak.
2 kW peak (at diplexer output).
5 kW peak (at diplexer output).
10 kW peak (at diplexer output).
15 kW peak (at diplexer output).
20 kW peak (at diplexer output).
30 kW peak (at diplexer output).
45 kW peak (at diplexer output).
60 kW peak (at diplexer output).

50 ohms, connector 1 1/4" EIA.
50 ohms, connector 3 1/4" EIA.
50 ohms, connector 4 1/4" EIA.

47-68 MHz (Channels E2-E4).
174-230 MHz (Channels E5-E12).

±250 Hz (maximum variation over 30 days).
±2 Hz with precise frequency control.

3% or less relative to peak sync.
-----------------------------------

2% or less.	
-4.43 MHz	-30 dB or better.
-1.25 MHz and lower	-20 dB or better.
-0.75 to +5.0 MHz	±0.5 dB.
+5.5 MHz	-30 dB or better.

±0.75 dB.
-----------

0%
----

3% or better.
---------------

1° or better.
---------------

±1.5° or better relative to blanking.
---------------------------------------

<sup>1</sup> After initial aging of 60 days

<sup>2</sup> Variation of peak output power with a change in average picture level from black to white (0% to 100%)

<sup>3</sup> Peak to peak variation of peak sync voltage during one field using a field square wave test signal

<sup>4</sup> Response specified for transmitter operating into a resistive load of 1.05:1 VSWR or better

<sup>5</sup> Measured using a 20% p-p amplitude swept video modulation with pedestal set at 10%, 50% and 90% APL. All percentages relative to a blanking to white excursion.

<sup>6</sup> Measured with a 5 step staircase signal from 75% to 12.5% of peak sync level. Subcarrier modulation level at 12.5% p-p

(Continued on following page)

## PLATINUM SERIES— EASY OPERATION AND MINIMAL ROUTINE MAINTENANCE REQUIREMENTS

If you compare recommended maintenance schedules for a tube transmitter and a Platinum Series transmitter, you will find that routine transmitter maintenance requirements can be reduced by as much as 90 percent.

Frequency	Typical Tube Type Transmitter	Harris Platinum Series Solid State Transmitter	Frequency	Typical Tube Type Transmitter	Harris Platinum Series Solid State Transmitter
Weekly	Read all meters.	Check display screen.	Semi-Annual	Clean filters (transmitter off the air).	Replace filters (transmitter on the air).
Monthly	Calculate tube dissipations.		Annual	Output power calibration.	Output power calibration (check AGC).
	IPA input and output tuning, loading and coupling.			AGC or automatic power control set-up.	
Monthly	IPA input and output tuning, loading and coupling.		Adjust filaments.		
	Adjust and replace belts.		Clean tubes.		
	Adjust hum null.		Clean and zero meters.		
	Adjust all tube bias voltages.		Change tubes, clean cavities and replace finger stock.		
Adjust group delay.		Measure three oscillator frequencies.	Annual	Measure one oscillator frequency.	
Adjust differential gain, differential phase, KFM and frequency response.		Check dashpot fluids.	Estimated Time	Tighten hardware.	
		Adjust differential gain, differential phase, KFM and frequency response.	Annual	140 hours.	14 hours.

# HARRIS PLATINUM SERIES™ SPECIFICATIONS (continued)

## VISUAL PERFORMANCE

DIFFERENTIAL GAIN V. APL<sup>7</sup>  
LUMINANCE NON-LINEARITY<sup>8</sup>  
SIGNAL TO NOISE (Total random and periodic noise unweighted.)  
2t K-FACTOR  
20t GAIN AND DELAY RESPONSE  
EQUIVALENT ENVELOPE DELAY  
(Referenced to FCC Standard Curve)

## VIDEO INPUT LEVEL

## HARMONIC RADIATION

## AURAL PERFORMANCE

### AURAL POWER OUTPUT

(At diplexer output)

HT 1LS/HS: 100 W.  
HT 2LS/HS: 200 W.  
HT 5LS/HS: 500 W.  
HT 10LS/HS: 1 kW.  
HT 15LS/HS: 1.5 kW, 3 kW optional.  
HT 20LS/HS: 2 kW.  
HT 30LS/HS: 3 kW, 6 kW optional.  
HT 45LS/HS: 4.5 kW, 9 kW optional.  
HT 60LS/HS: 6 kW, 12 kW optional.

### RF LOAD IMPEDANCE

HT 1LS/HS - HT 10LS/HS: 50 ohms, connector type N female.  
HT 15LS/HS - HT 30LS/HS: 50 ohms, connector 1 1/4" female.  
HT 45LS - HT 60LS: 50 ohms, connector 1 1/2" female.  
HT 45HS - HT 60HS: 50 ohms, connector 3 1/4" female.

### FREQUENCY STABILITY

### MODULATION CAPABILITY

### WIDEBAND PERFORMANCE

#### INPUT LEVEL

### FREQUENCY RESPONSE

### FM NOISE

### DISTORTION (THD)

### DISTORTION (IMD)

### STEREO SEPARATION

(Equivalent mode)

### CROSSTALK

(Stereo or Main to SAP)

### MONAURAL PERFORMANCE

#### INPUT LEVEL

## SYSTEM M/NTSC

±5% or better (10% to 90% APL).  
1.0 dB or better.  
  
-55 dB RMS or better relative to sync peak.  
1.5% or better.  
3% or less total baseline distortion.  
  
0.2 to 1 MHz.....±40 nS.  
@ 3.58 MHz.....±30 nS.  
@ 4.18 MHz.....±60 nS.

0.7 to 2.0 volts, 75 ohm, -36 dB return loss.

-70 dB RMS, relative to peak of sync.

100 W.  
200 W.  
500 W.  
1 kW.  
1.5 kW, 3 kW optional.  
2 kW.  
3 kW, 6 kW optional.  
4.5 kW, 9 kW optional.  
6 kW, 12 kW optional.

50 ohms, connector type N female.  
50 ohms, connector 1 1/4" female.  
50 ohms, connector 1 1/2" female.  
50 ohms, connector 3 1/4" female.  
±20 Hz, relative to visual carrier frequency.

±200 kHz peak deviation.

(At ±75 kHz deviation)

1 volt RMS nominal into 75 ohms.

±0.1 dB, 50 Hz to 50 kHz.

±0.5 dB, 50 kHz to 110 kHz.

-70 dB or better after de-emphasis.

0.25% or less 50 Hz to 15 kHz.

0.75% or less 15 kHz to 50 kHz.

0.5% or less (SMPTE 4:1 test signal).

45 dB or better, 50 Hz to 15 kHz, diplexer input.

50 dB or better, 50 Hz to 15 kHz, diplexer input.

(At ±25 kHz deviation)

0 to +16 dBm (adjustable) into 600 ohms.

## SYSTEMS B/PAL, B/SECAM

±5% or better (10% to 90% APL).  
1.0 dB or better.

-55 dB RMS or better relative to sync peak.  
2% or better.

5% or less total baseline distortion.

Transmitter supplied with receiver equalizer compliant with CCIR report 624, Figure 3, Curve A or B.

0.7 to 2.0 volts, 75 ohm, -36 dB return loss.

-70 dB RMS, relative to peak of sync.

100 W.  
200 W.  
500 W.  
1 kW.  
1.5 kW, 3 kW optional.  
2 kW.  
3 kW, 6 kW optional.  
4.5 kW, 9 kW optional.  
6 kW, 12 kW optional.

50 ohms, connector type N female.  
50 ohms, connector 1 1/4" female.  
50 ohms, connector 1 1/2" female.  
50 ohms, connector 3 1/4" female.  
±20 Hz, relative to visual carrier frequency.

±200 kHz peak deviation.

(At ±75 kHz deviation)

1 volt RMS nominal into 75 ohms.

±0.1 dB, 50 Hz to 50 kHz.

±0.5 dB, 50 kHz to 110 kHz.

-70 dB or better after de-emphasis.

0.25% or less 50 Hz to 15 kHz.

0.75% or less 15 kHz to 50 kHz.

0.5% or less (SMPTE 4:1 test signal).

45 dB or better, 50 Hz to 15 kHz, diplexer input.

50 dB or better, 50 Hz to 15 kHz, diplexer input.

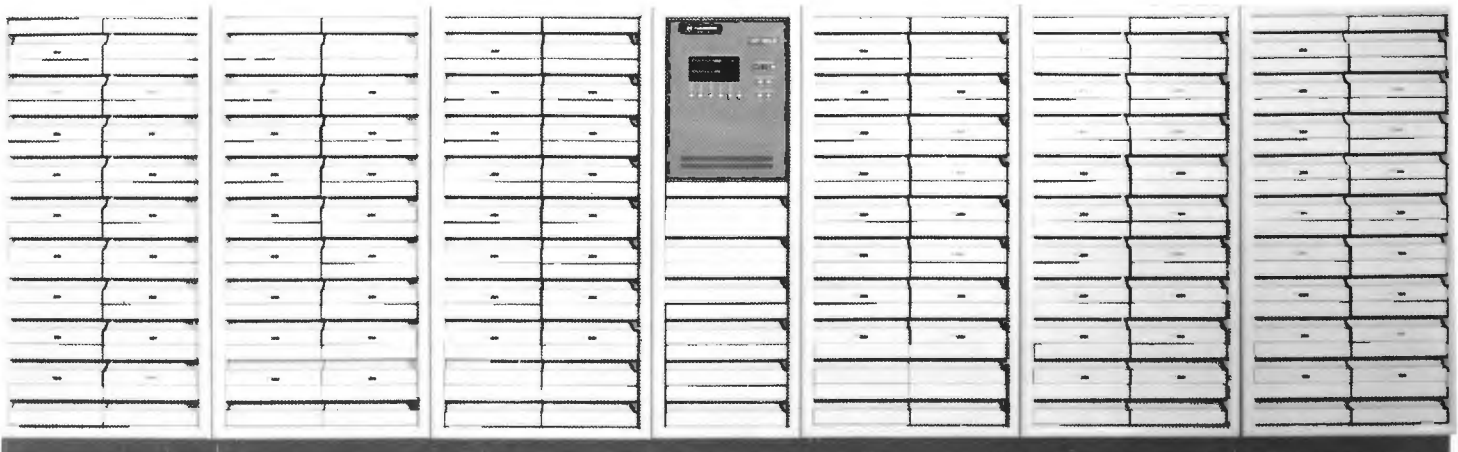
(At 50 kHz deviation)

0 to +16 dBm (adjustable) into 600 ohms.

<sup>7</sup> Average picture level defined as the pedestal level over 4 horizontal lines set to 10%, 50% & 90% of maximum white level with every 5th line activated with standard linearity signal of note (6).

<sup>8</sup> Measured with 5 step staircase signal. Test signal #3 CCIR REC. 421-2.

(Continued on next page)



HT 60LS/HS



# HARRIS PLATINUM SERIES™ SPECIFICATIONS (continued)

## MONAURAL PERFORMANCE

PRE-EMPHASIS  
FREQUENCY RESPONSE  
DISTORTION (THD)  
FM NOISE  
AM NOISE  
AM SYNCHRONOUS NOISE  
(PA Cabinet Output)

## SYSTEM M/NTSC

Flat, 50  $\mu$ S to 75  $\mu$ S, selectable.  
 $\pm 0.5$  dB, 30 Hz to 15 kHz.  
0.2% or less 30 Hz to 15 kHz after de-emphasis.  
-60 dB or better after de-emphasis.  
-55 dB relative to 100% modulation.  
  
-40 dB or better, relative to 100% amplitude modulation.

## SYSTEMS B/PAL, B/SECAM

Flat, 50  $\mu$ S to 75  $\mu$ S, selectable.  
 $\pm 0.5$  dB, 30 Hz to 15 kHz.  
0.2% or less 30 Hz to 15 kHz after de-emphasis.  
-60 dB or better after de-emphasis.  
-55 dB relative to 100% modulation.  
  
-40 dB or better, relative to 100% amplitude modulation.

## SCA (2 INPUTS)

1 volt RMS nominal adjustable into 75 ohms.  
 $\pm 0.5$  dB, 20 kHz to 110 kHz.

1 volt RMS nominal (adjustable) into 75 ohms.  
 $\pm 0.5$  dB, 20 kHz to 110 kHz.

## SERVICE CONDITIONS

AMBIENT TEMPERATURE RANGE  
AMBIENT HUMIDITY RANGE  
ALTITUDE

0° to 50°C (+32° to +122° F).  
0% to 95% relative humidity, non-condensing.  
Sea level to 10,000 ft.

0° to 50°C.  
0% to 95% relative humidity, non-condensing.  
Sea level to 3,048m.

## ELECTRICAL REQUIREMENTS

### POWER CONSUMPTION (Typical)

HT 1LS HS:  
HT 2LS HS:  
HT 5LS HS:  
HT 10LS HS:  
HT 15LS:  
HT 15HS:  
HT 20LS:  
HT 20HS:  
HT 30LS:  
HT 30HS:  
HT 45LS:  
HT 45HS:  
HT 60LS  
HT 60HS

208/240 volts,  $\pm 10\%$ , 3 phase, 50/60 Hz.

Black Picture	Average Picture
5.8 kW	5.6 kW
7.5 kW	6.9 kW
13.2 kW	11.2 kW
24.4 kW	19.3 kW
32 kW	25 kW
35 kW	28 kW
48 kW	37 kW
48 kW	37 kW
63 kW	50 kW
69 kW	55 kW
93 kW	74 kW
102 kW	81 kW
123 kW	98 kW
135 kW	108 kW

208/240 volts,  $\pm 10\%$ , 3 phase, 50/60 Hz.

Black Picture	Average Picture
5.8 kW	5.6 kW
7.5 kW	6.9 kW
13.2 kW	11.2 kW
24.4 kW	19.3 kW
32 kW	25 kW
35 kW	28 kW
48 kW	37 kW
48 kW	37 kW
63 kW	50 kW
69 kW	55 kW
93 kW	74 kW
102 kW	81 kW
123 kW	98 kW
135 kW	108 kW

380/415 volts,  $\pm 10\%$ , 3 phase, 50 Hz.

## PHYSICAL AND MECHANICAL DIMENSIONS

### SIZE

HT 1LS HS - HT 10LS HS  
HT 15LS HS  
HT 20LS HS  
HT 30LS HS  
HT 45LS HS  
HT 60LS HS

Transmitter: 57"W x 61.3"D x 72"H.  
Transmitter: 91"W x 61.3"D x 72"H.  
Transmitter: 91"W x 61.3"D x 72"H.  
Transmitter: 125"W x 61.3"D x 72"H.  
Transmitter: 159"W x 61.3"D x 72"H.  
Transmitter: 227"W x 61.3"D x 72"H.

Transmitter: 145cmW x 156cmD x 183cmH.  
Transmitter: 231cmW x 156cmD x 183cmH.  
Transmitter: 231cmW x 156cmD x 183cmH.  
Transmitter: 318cmW x 156cmD x 183cmH.  
Transmitter: 404cmW x 156cmD x 183cmH.  
Transmitter: 577cmW x 156cmD x 183cmH.

### WEIGHT

HT 1LS HS  
HT 2LS HS  
HT 5LS HS  
HT 10LS HS  
HT 15LS HS  
HT 20LS HS  
HT 30LS HS  
HT 45LS HS  
HT 60LS HS

LS 1,815 lbs. HS: 1,890 lbs.  
LS 1,840 lbs. HS: 1,840 lbs.  
LS 2,475 lbs. HS: 2,500 lbs.  
LS 2,720 lbs. HS: 2,720 lbs.  
LS 4,200 lbs. HS: 4,900 lbs.  
LS 5,000 lbs. HS: 5,000 lbs.  
LS 6,300 lbs. HS: 6,750 lbs.  
LS 8,590 lbs. HS: 9,313 lbs.  
LS 12,630 lbs. HS: 13,760 lbs.

LS: 823 kg.; HS: 857 kg.  
LS: 835 kg.; HS: 835 kg.  
LS: 1,122 kg.; HS: 1,134 kg.  
LS: 1,234 kg.; HS: 1,234 kg.  
LS: 1,905 kg.; HS: 2,223 kg.  
LS: 2,268 kg.; HS: 2,268 kg.  
LS: 2,860 kg.; HS: 3,068 kg.  
LS: 3,896 kg.; HS: 4,224 kg.  
LS 5,606 kg. HS: 6,242 kg.



HT 15LS/HS



## HARRIS TV SERIES VHF (TUBE) 10 THROUGH 100 kW TRANSMITTERS

### Power Levels

#### Low Band Models:

##### Single:

TV-20L: 20 kW

TV-30L: 30 kW

##### Dual

TVD-60L: 60 kW

#### High Band Models:

##### Single

TV-10H: 10 kW TV-35H: 35 kW

TV-30H: 30 kW TV-50H: 50 kW

##### Dual

TVD-60H: 60 kW TVD-70H: 70 kW

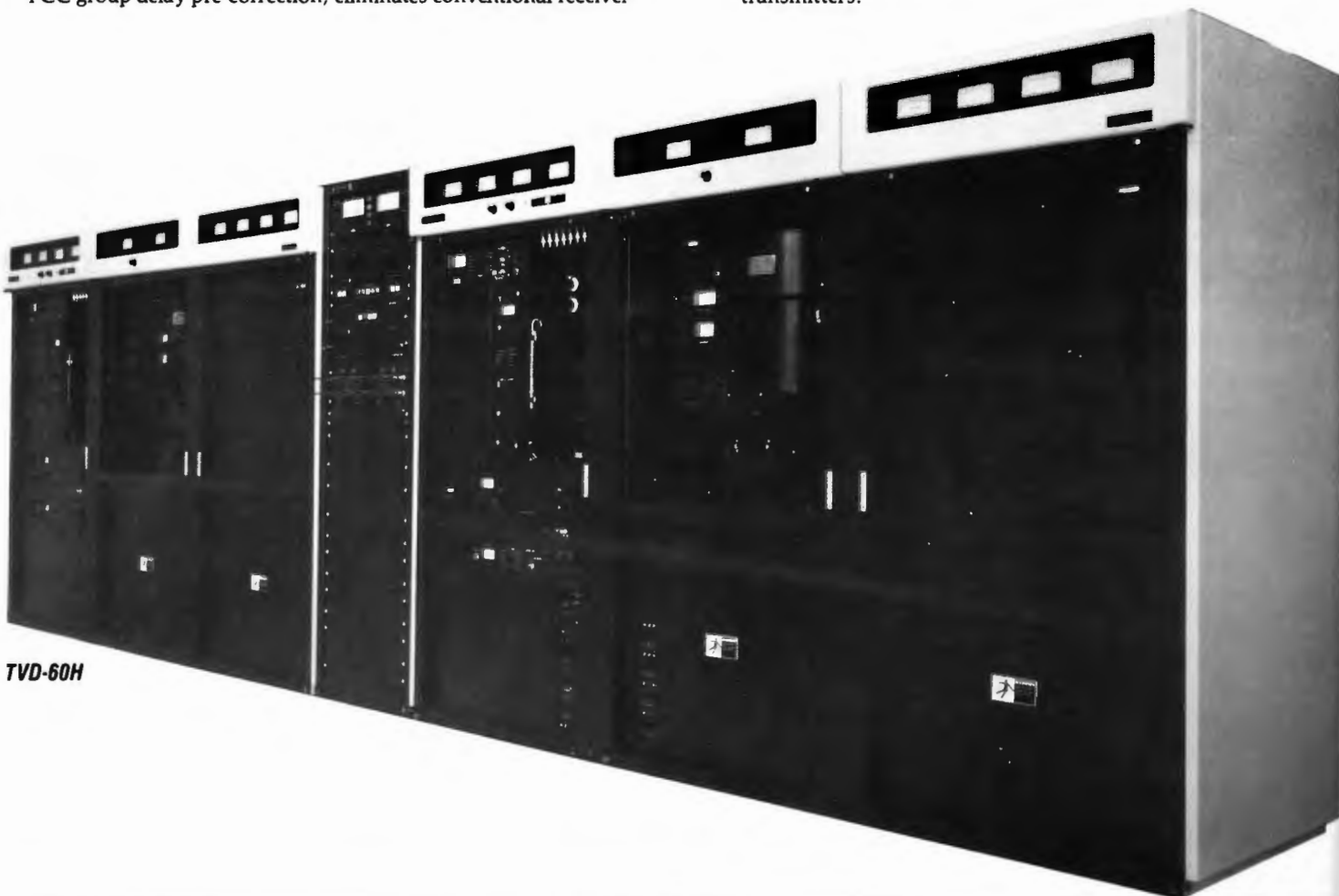
TVD-100H: 100 kW

### KEY BENEFITS:

- Highly linear IF modulation provides superior visual and audio performance.
- Rugged and straightforward construction ensures high reliability with minimal operator intervention.
- MCP-2V visual exciter uses Harris' VIDEO (Visual IF Delay Equalized Output) SAW filter for vestigial sideband shaping and FCC group delay pre-correction; eliminates conventional receiver

equalizers that require periodic maintenance with special test equipment.

- Wideband aural exciter is stereo-ready; provides highly linear modulation.
- Visual and aural exciters in independent slide-out drawers can be operated external to the transmitter for test purposes; modular circuits facilitate servicing.
- Designed for remote control, automatic and unattended operation.
- Automatic gain control of all RF amplifier stages for essentially constant power output, even with line voltage fluctuations.
- Solid-state memory, timing and logic control circuitry for complete control of all transmitter functions.
- Built-in memory enables the transmitter to return to the air automatically, in the state it was operating prior to a power failure.
- Control logic and protective circuitry command normal AC control functions and visually indicate the operating status of the transmitter.
- Single configurations available with multiplex for common amplification of visual and aural signals through the visual RF amplifier chain in emergencies.
- Ultra-linear driver stage minimizes amount of correction required and allows transmitter to operate for extended periods without adjustment.
- 20% aural power, precise frequency control available on most transmitters.



TVD-60H



## VISUAL PERFORMANCE

### VISUAL POWER OUTPUT

TV-20L:	22.5 kW peak (at diplexer output).
TV-30L:	30 kW peak (at diplexer output).
TVD-60L:	60 kW peak (at diplexer output).
TV-10H:	13 kW peak (at diplexer output).
TV-30H:	30 kW peak (at diplexer output).
TV-35H:	35 kW peak (at diplexer output).
TV-50H:	50 kW peak (at diplexer output).
TVD-60H:	60 kW peak (at diplexer output).
TVD-70H:	70 kW peak (at diplexer output).
TVD-100H:	100 kW peak (at diplexer output).

### RF LOAD IMPEDANCE

TV-L, TVD-L, TV-H:	50 ohms, connector 3 1/4" EIA.
TVD-H:	50 ohms, connector 6 1/4" EIA.

### FREQUENCY RANGE

TV-L, TVD-L Models:	54-88 MHz (Channels 2-6).
TV-H, TVD-H Models:	174-216 MHz (Channels 7-13).

### CARRIER FREQUENCY STABILITY<sup>1</sup>

	±250 Hz (maximum variation over 30 days).
	±2 Hz with optional precise frequency control.

### REGULATION OF

### OUTPUT POWER

### VARIATION OF OUTPUT

### VISUAL SIDEBAND RESPONSE<sup>2</sup> (At output)

	3% or less relative to peak sync.
	2% or less.
-3.58 MHz.....	-42 dB or better.
-1.25 to -4.25 MHz.....	-26 dB or better.
-0.75 to +3.58 MHz.....	±0.5 dB.
+4.18 MHz.....	+0.5 to -1 dB.
+4.50 MHz.....	-30 dB or better.
+4.75 to +7.75 MHz.....	-40 dB or better.

### FREQUENCY RESPONSE V. BRIGHTNESS<sup>3</sup>

### MODULATION CAPABILITY

### DIFFERENTIAL GAIN<sup>4</sup>

### DIFFERENTIAL PHASE<sup>4</sup>

### INCIDENTAL CARRIER

### PHASE MODULATION<sup>4</sup>

### DIFFERENTIAL GAIN V. APL<sup>5</sup>

### DIFFERENTIAL PHASE V. APL<sup>5</sup>

### ICPM V. APL<sup>5</sup>

### LUMINANCE NON-LINEARITY<sup>6</sup>

### SIGNAL TO NOISE<sup>7</sup> (Total random and periodic noise unweighted)

### 20 K FACTOR

### 20% GAIN AND DELAY RESPONSE

### SYNC OVERSHOOT

### EQUIVALENT ENVELOPE DELAY<sup>8</sup> (Referenced

to FCC Standard Curve)

### VIDEO INPUT LEVEL

### HARMONIC RADIATION

### SPLURIOUS EMISSION (3 MHz beyond channel edges)

## AURAL PERFORMANCE

### AURAL POWER OUTPUT (At diplexer output)

TV-20L:	4.5 kW peak
TV-30L:	6 kW peak
TVD-60L:	12 kW optional
TV-10H:	1.3 kW, 2 kW optional
TV-30H:	3 kW, 6 kW optional
TV-35H:	3.5 kW, 7 kW optional
TV-50H:	5 kW
TVD-60H:	6 kW, 12 kW optional
TVD-70H:	7 kW, 12 kW optional
TVD-100H:	10 kW

50 ohms, connector 3 1/4" EIA.
50 ohms, connector 6 1/4" EIA.

54-88 MHz (Channels 2-6).
174-216 MHz (Channels 7-13).

±250 Hz (maximum variation over 30 days).
±2 Hz with optional precise frequency control.

3% or less relative to peak sync.	
2% or less.	
-3.58 MHz.....	-42 dB or better.
-1.25 to -4.25 MHz.....	-26 dB or better.
-0.75 to +3.58 MHz.....	±0.5 dB.
+4.18 MHz.....	+0.5 to -1 dB.
+4.50 MHz.....	-30 dB or better.
+4.75 to +7.75 MHz.....	-40 dB or better.

±0.75 dB.
0%.
±3% or better.
±1° or better.
±1.5° or better relative to blanking.
±1.5% or better (10% to 90% APL).
±0.75° or better (10% to 90% APL).
±0.75% or better (10% to 90% APL).
1.0 dB or better

-55 dB RMS or better relative to sync peak
1% maximum
3% or less total baseline distortion
2% or less within ±200 nS
of leading trailing edge

0.2 to 2.1 MHz	±40 nS
@ 3.58 MHz	±30 nS
@ 4.18 MHz	±60 nS
0.7 to 2.0 volts, 75 ohm	-36 dB return loss
-80 dB RMS relative to peak of sync	

-60 dB RMS relative to peak of sync
-------------------------------------

## SYSTEMS B PAL, B SECAM

20 kW peak (at diplexer output).
25 kW peak (at diplexer output).
50 kW peak (at diplexer output).
10 kW peak (at diplexer output).
25 kW peak (at diplexer output).
30 kW peak (at diplexer output).
42 kW peak (at diplexer output).
50 kW peak (at diplexer output).
60 kW peak (at diplexer output).
84 kW peak (at diplexer output).

50 ohms, connector 3 1/4" EIA.
50 ohms, connector 6 1/4" EIA.

54-68 MHz (Channels E3-E4).
174-230 MHz (Channels E5-E12).

±250 Hz (maximum variation over 30 days).
±2 Hz with optional precise frequency control.

3% or less relative to peak sync.	
2% or less.	
-4.43 MHz.....	-30 dB or better.
-1.25 MHz and lower.....	-22 dB or better.
-0.75 to +5.0 MHz.....	±0.5 dB.
+5.5 MHz.....	-30 dB or better.

±0.75 dB.
0%.
±3% or better.
±1° or better.
±1.5° or better relative to blanking.
±1.5% or better (10% to 90% APL).
±0.75° or better (10% to 90% APL).
±0.75% or better (10% to 90% APL).
1.0 dB or better

-55 dB RMS or better relative to sync peak
1% maximum.
3% or less total baseline distortion
2% or less within ±200 nS
of leading trailing edge

Transmitter supplied with receiver	
equalizer compliant with CCIR report	
624 Figure 3 Curve A or B	
0.7 to 2.0 volts, 75 ohm	-36 dB return loss
-80 dB RMS relative to peak of sync	

-60 dB RMS relative to peak of sync
-------------------------------------

<sup>1</sup> After initial aging of 60 days.

<sup>2</sup> Response specified for transmitter operating into a resistive load of 1.05:1 VSWR or better.

<sup>3</sup> Measured using a 20% p-p amplitude swept video modulation with pedestal set at black 10%, white 90% with reference gray level of 50%. All percentages relative to a blanking.

<sup>4</sup> Measured with a 5 step staircase signal from 75% to 12.5% of peak sync level. Subcarrier modulation level at 12.5% p-p.

<sup>5</sup> Average picture level (APL) defined as the pedestal level over 4 horizontal lines set to either 10%, 50% or 90% of maximum white level with every 5th line activated with standard linearity signal of note (4).

<sup>6</sup> Measured with 5 step staircase signal. Test signal #3 CCIR REC. 421-3.

(Continued on following page)

# HARRIS TV SERIES SPECIFICATIONS (continued)

## AURAL PERFORMANCE

### RF LOAD IMPEDANCE

TV-L, TV-10H:  
TVD-60L; TV-20H through TVD-100H:

### FREQUENCY STABILITY

MODULATION CAPABILITY  
TV-L, TVD-L, TV-H, TVD-60H  
TVD-70H, TVD-100H:

### STEREO PERFORMANCE

#### INPUT LEVEL

#### INPUT IMPEDANCE

#### FREQUENCY RESPONSE

#### FM NOISE

#### DISTORTION (THD)

#### DISTORTION (IMD) (SMPTE 4:1 test signal)

#### STEREO SEPARATION

(Equivalent mode)

#### CROSSTALK (Stereo or Main to SAP)

## MONAURAL PERFORMANCE

### INPUT LEVEL

### INPUT IMPEDANCE

### PRE-EMPHASIS

### FREQUENCY RESPONSE

### DISTORTION (THD)

### FM NOISE

### AM NOISE

### AM SYNCHRONOUS NOISE

(PA Cabinet Output)

### SCA (2 INPUTS)

#### INPUT LEVEL

#### INPUT IMPEDANCE

#### FREQUENCY RESPONSE

## SERVICE CONDITIONS

### AMBIENT TEMPERATURE RANGE<sup>7</sup>

### AMBIENT HUMIDITY RANGE

### ALTITUDE

TV-L, TVD-L, TV-10H:  
TV-30H through TVD-100H:

### ELECTRICAL REQUIREMENTS

All except TV-50H, TVD-100H:

TV-50H, TVD-100H:

## PHYSICAL AND MECHANICAL DIMENSIONS

### SIZE AND WEIGHT:

TV-20L and TV-30L:

TVD-60L:

TV-10H:

TV-30H, TV-35H, TV-50H:

TVD-60H, TVD-70H, TVD-100H:

## POWER CONSUMPTION (Typical)

TV-20L:

TV-30L:

TVD-60L:

TV-10H:

TV-30H:

TV-35H:

TV-50H:

TVD-60H:

TVD-70H:

TVD-100H:

## SYSTEM M/NTSC

50 ohms, connector 1 1/4" EIA.

50 ohms, connector 3 1/4" EIA.

±20 Hz, relative to 4.5 MHz visual  
frequency offset.

±120 kHz peak deviation.

±120 kHz peak deviation.

(At ±75 kHz deviation)

1 volt RMS nominal.

75 ohms unbalanced.

±0.15 dB, 50 Hz to 50 kHz.

±0.5 dB, 50 kHz to 110 kHz.

-70 dB or better after de-emphasis.

1% or less 50 Hz to 15 kHz.

2% or less 15 kHz to 50 kHz.

2% or less.

40 dB or better, 50 Hz to 15 kHz.

45 dB or better, 50 Hz to 15 kHz.

(At ±25 kHz deviation)

+10 dBm nominal adjustable.

600 ohms balanced.

75 uS, defeatable.

±0.5 dB, 30 Hz to 15 kHz.

0.5% or less 30 Hz to 15 kHz after de-emphasis.

-60 dB or better after de-emphasis.

-55 dB relative to 100% modulation.

-40 dB or better, relative to 100%  
amplitude modulation.

1 volt RMS nominal (adjustable).

75 ohms unbalanced.

±1 dB, 20 kHz to 110 kHz.

-10° to 50°C (+14° to +122° F).

0% to 95% relative humidity, non-condensing.

Sea level to 10,000 ft.

Sea level to 7,500 ft.

208/240 volts, ±5%, 3 phase, 60 Hz.

480 volts, ±5%, 3 phase, 60 Hz.

TRANSMITTER: 98.3" (250cm) W x 32" (82cm) D x 72" (183cm) H; 2,200 lbs. (1,000 kg.).

POWER SUPPLY: 57" (145cm) W x 34" (86cm) D x 54.3" (138cm) H; 1,500 lbs. (680 kg.).

TRANSMITTER: 218.7" (556cm) W x 32" (82cm) D x 72" (183cm) H; 4,500 lbs. (2,041 kg.).

POWER SUPPLIES (2): 57" (145cm) W x 34" (86cm) D x 54.3" (138cm) H; 1,500 lbs. (680 kg.).

RF OUTPUT SYSTEM: 75" (191cm) W x 39.8" (101cm) D x 67.5" (171cm) H.

TRANSMITTER: 71" (180cm) W x 32" (82cm) D x 72" (183cm) H; 1,875 lbs. (851 kg.).

POWER SUPPLY: 48" (122cm) W x 24" (61cm) D x 60.7" (154cm) H; 1,477 lbs. (670 kg.).

TRANSMITTER: 106" (269cm) W x 32.2" (82cm) D x 72" (183cm) H; 2,385 lbs. (1,082 kg.).

POWER SUPPLY: 70" (178cm) W x 34" (86cm) D x 54" (137cm) H; 3,000 lbs. (1,360 kg.).

TRANSMITTER: 234" (594cm) W x 32" (82cm) D x 72" (183cm) H; 5,070 lbs. (2,300 kg.).

POWER SUPPLIES (2): 70" (178cm) W x 34" (86cm) D x 54" (138cm) H; 3,000 lbs. (1,360 kg.).

RF OUTPUT SYSTEM: 53" (135cm) W x 26" (66cm) D x 68.4" (174cm) H; 770 lbs. (349 kg.).

### Black Picture

#### 10% aural

48kW.

60 kW.

132 kW.

28.5 kW.

61 kW.

78 kW.

107 kW.

130 kW.

158 kW.

216 kW.

### Black Picture

#### 20% aural

51 kW.

67 kW.

146 kW.

68 kW.

88 kW.

## SYSTEMS B/PAL, B/SECAM

50 ohms, connector 1 1/4" EIA.

50 ohms, connector 3 1/4" EIA.

±20 Hz, relative to 5.5 MHz visual  
frequency offset.

±120 kHz peak deviation.

±100 kHz peak deviation.

(At ±75 kHz deviation)

1 volt RMS nominal.

75 ohms unbalanced.

±0.15 dB, 50 Hz to 50 kHz.

±0.5 dB, 50 kHz to 110 kHz.

-70 dB or better after de-emphasis.

1% or less 50 Hz to 15 kHz.

2% or less 15 kHz to 50 kHz.

2% or less.

40 dB or better, 50 Hz to 15 kHz.

45 dB or better, 50 Hz to 15 kHz.

(At ±25 kHz deviation)

+6 to +20 dBm adjustable.

600 ohms balanced.

50 uS, defeatable.

±0.5 dB, 30 Hz to 15 kHz.

0.5% or less 30 Hz to 15 kHz after de-emphasis.

-60 dB or better after de-emphasis.

-55 dB relative to 100% modulation.

-40 dB or better, relative to 100%  
amplitude modulation.

1 volt RMS nominal (adjustable).

75 ohms unbalanced.

±1 dB, 20 kHz to 110 kHz.

-10° to 50°C.

0% to 95% relative humidity, non-condensing.

Sea level to 3,048 m.

Sea level to 2,286 m.

208/240 volts, ±5%, 3 phase, 60 Hz;

380/415 volts, ±5%, 3 phase, 50 Hz.

380/415 volts, ±5%, 3 phase, 50 Hz.

380/415 volts, ±5%, 3 phase, 50 Hz.

Specifications subject to change without notice.

<sup>7</sup> Derate 2°C per 1,000 feet (305 meters) altitude above sea level.



### TAB BATWING VHF ANTENNA

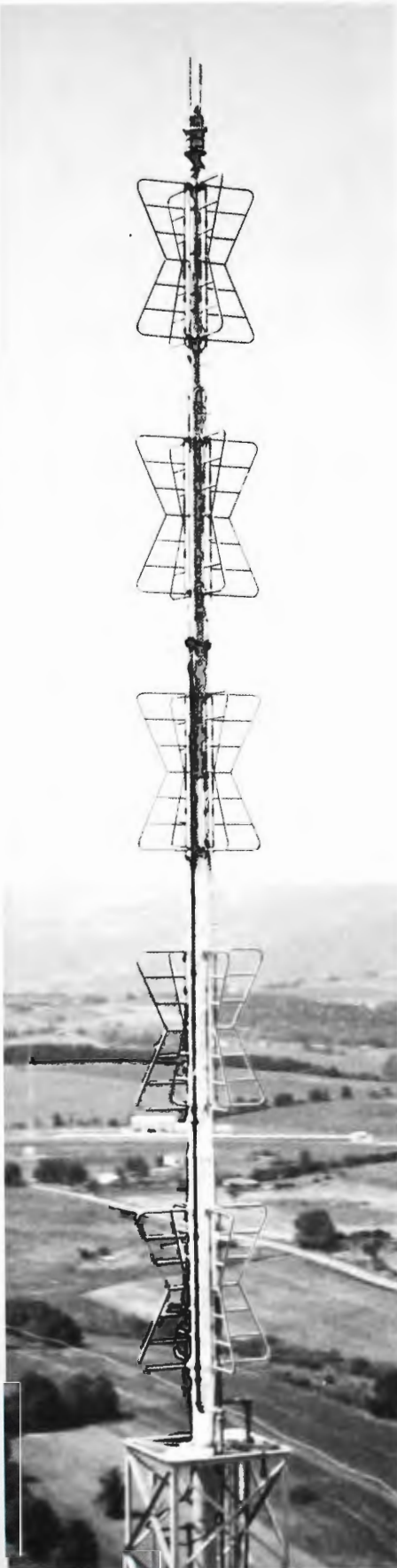
#### KEY BENEFITS:

- High power handling capability: Up to 77 kW for high band (174 through 216 MHz) and up to 120 kW for low band (54-88 MHz) applications.
- High band models (2 through 12 bays) and low band models (1 through 6 bays).
- Optional multiplex for two channels allows stations to share expenses.
- Top mount design; smaller models may be side-mounted for standby antenna service.
- Provides omnidirectional pattern in the horizontal plane; can be customized for peanut pattern.
- Dual 3/8", 50 ohm input requires only a simple hybrid diplexer; available with single line input.
- Inherently low feed-point impedance withstands moderate icing; available with factory-installed electrical de-icers for areas where severe icing occurs.
- Available with top-half/bottom-half feed for emergency operation.
- Rugged construction with corrosion-resistant components prevents mechanical and electrical degradation.
- Fully assembled and factory-tested at Harris' antenna range.

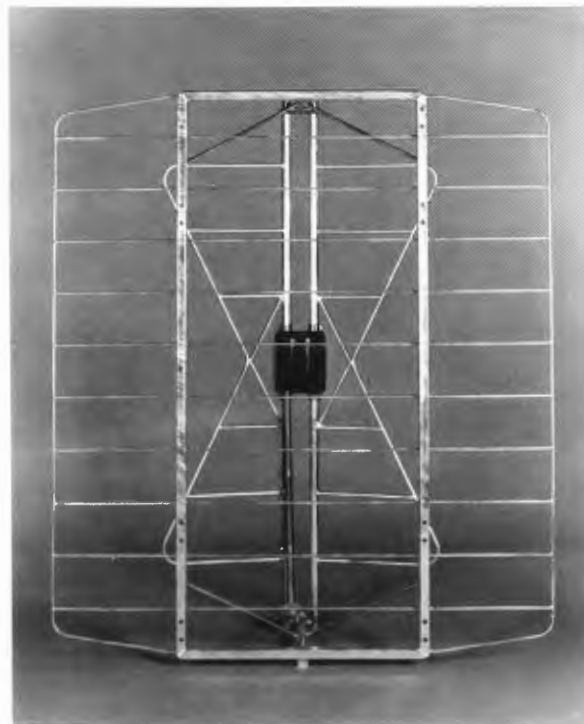
### TAD DELTAWING VHF ANTENNA

#### KEY BENEFITS:

- Unlimited pattern control for directional applications for all power requirements.
- Models available for mounting on triangular or square towers; can be side-mounted on existing towers.
- Wide impedance and pattern bandwidth for multiplexed operation.
- Ideal for stacked configurations.
- Rugged, field-proven design with galvanized steel construction with no aluminum parts provides long-term mechanical integrity in any environment.
- Constructed to operate in severe environments subject to high winds and heavy ice loading; optional electrical de-icers available.
- Fully pressurized to feedpoint for enhanced reliability.
- Features low wind-loading design.
- Computer modeling, design and data measurement for accurate prediction of antenna patterns.
- Optional measurement of fully-assembled antenna available on Harris antenna test range.



TAB BATWING ANTENNA



TAD DELTAWING ANTENNA

## HARRIS VHF TV ANTENNAS

### TAV-CPV CIRCULARLY POLARIZED VHF ANTENNA

#### KEY BENEFITS:

- Capable of handling high powers up to 100 kW.
- High band models (174 through 216 MHz) - 8 through 16 bays; low band models (54 through 88 MHz) - 4 through 6 bays.
- Top mount design.
- Optimal coverage with excellent axial ratio and pattern circularity; directional pattern capability.
- Multiple elements provide excellent vertical pattern control.
- Standard fiberglass radome covers eliminate need for electrical de-icing.
- Lightning protection with elements at DC ground potential.
- Available with dual or single line input.
- Optional extended five-bay mast provides radiation center equivalent to six-bay low band Batwing antenna.
- Available with top-half/bottom-half feed for emergency operation.
- Rugged construction with corrosion-resistant components prevents mechanical and electrical degradation.
- Fully assembled and factory-tested at Harris' antenna range.

### TAC CBR (CAVITY BACKED RADIATOR) CIRCULARLY POLARIZED VHF ANTENNA

#### KEY BENEFITS:

- High power handling capability; power rating based on number of bays, frequency and feed harness.
- High band (174 through 216 MHz) models - 1 through 12 bays; low band (54 through 88 MHz) models - 1 through 6 bays.
- Superior axial ratio for reduced "ghosting" effects.
- Ideal for mounting on new or existing tower in stacked configuration.
- Excellent horizontal pattern control allows placement of power as desired for omnidirectional and directional applications.
- Superb vertical pattern control.
- Extremely wide bandwidth permits two or more high band channels to be multiplexed on the same antenna.
- No electrical de-icers required when used with optional radomes.
- Lightning protection with elements at DC ground potential.
- Low wind-load design.
- Available with support brackets for mounting on existing towers.

### HARRIS NOTCH AND HYBRID DIPLEXERS

#### Power Levels: (Notch and Hybrid Diplexers)

High band: 10 kW through 100 kW,  
peak of sync, 20% aural power.

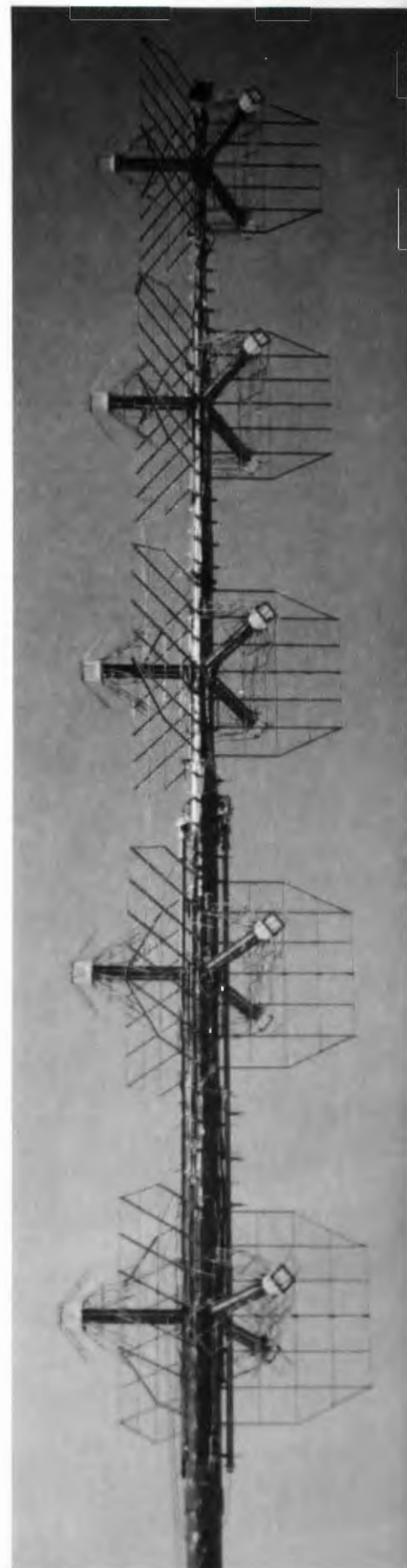
Low band: 20 kW through 60 kW,  
peak of sync, 20% aural power.

#### NOTCH DIPLEXERS

- Dual aural notch cavities for wider bandwidth and excellent BTSC performance.
- Increased reliability with no forced air cooling requirement.
- Designed for minimum insertion loss and low VSWR for optimum picture and sound quality.

#### HYBRID DIPLEXERS

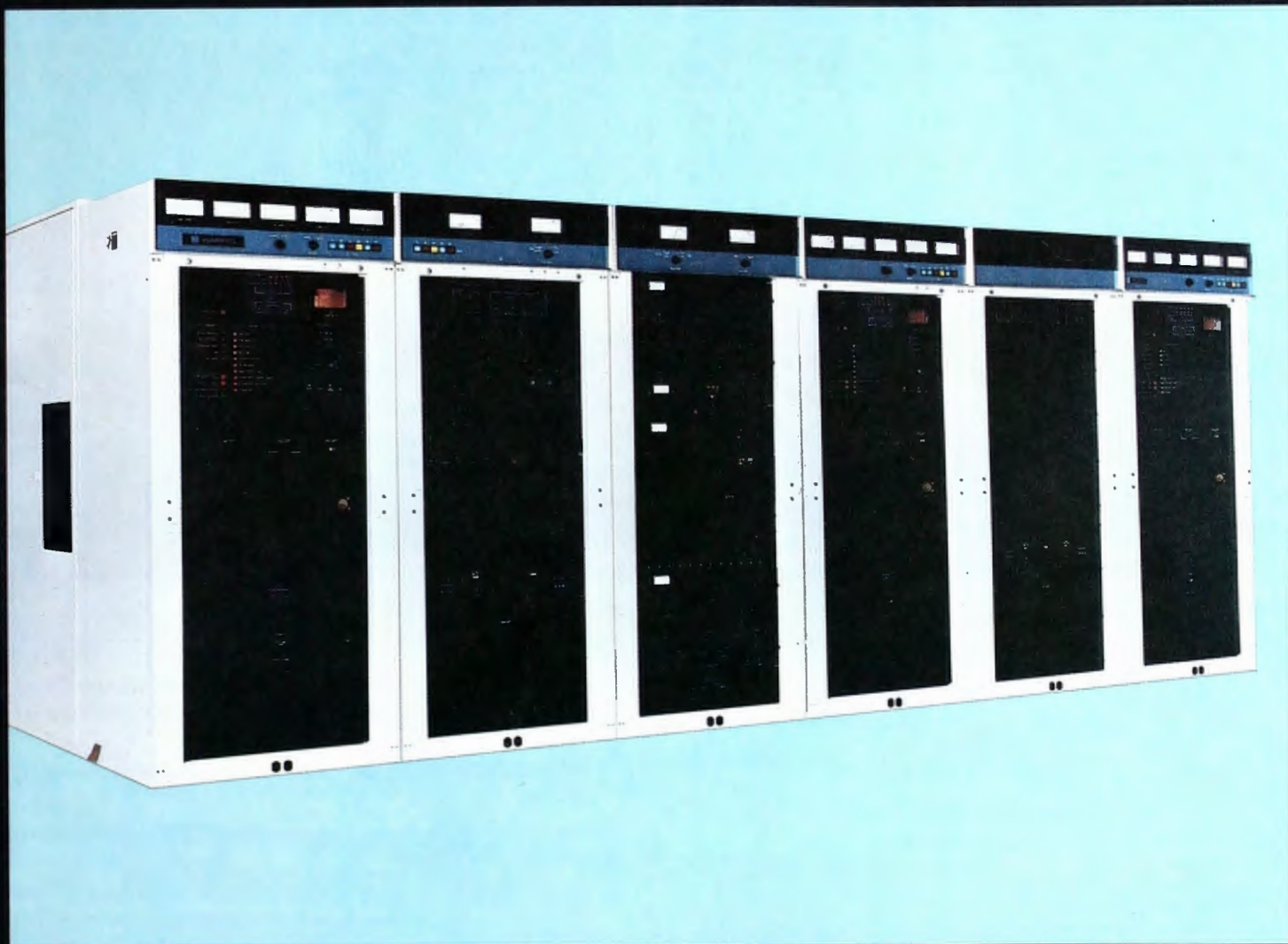
- Minimum temperature drift of cavity tuning to maintain optimum stereo performance with ambient temperature changes.
- Compact design.
- Notch diplexer equalizer uses all-pass networks for simple adjustment and stable operation.
- Single-cavity notch diplexers available for monaural operation, or for stereo operation when used in conjunction with the Harris Platinum Series™ transmitters and optional aural group delay corrector.
- Low insertion loss for significantly higher efficiencies.
- Low VSWR for top system optimization.
- Compact design fits easily into smaller areas.



TAV CPV ANTENNA

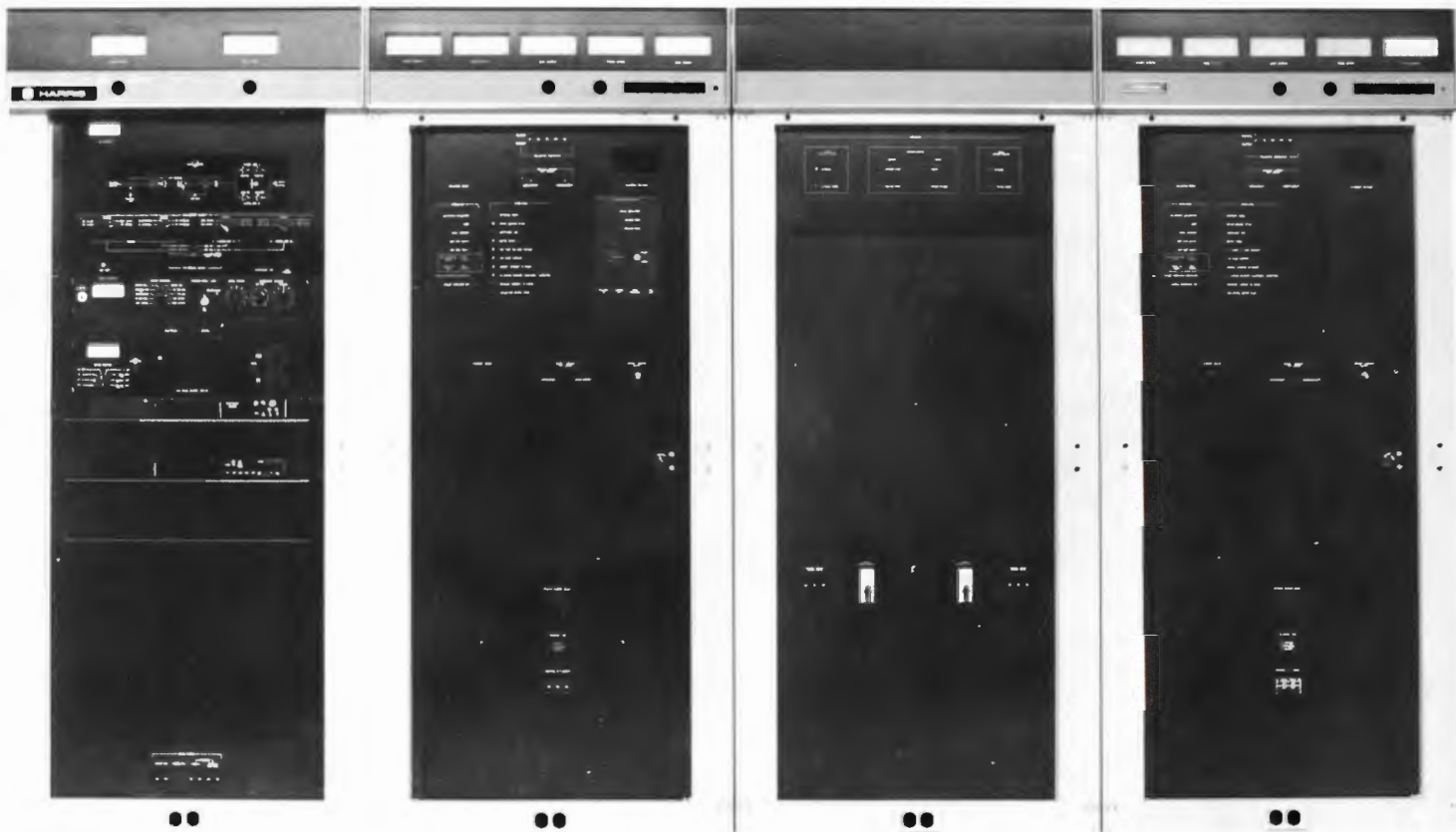


# RELIABLE UHF EFFICIENCY



New high efficiency external cavity depressed collector klystrons in Harris UM Series UHF transmitters can cut a station's transmitter power bill by up to 50%. In addition, because depressed collector klystrons use technology similar to familiar external cavity klystrons, staff re-training requirements are eliminated. To Harris Allied engineers, reducing AC power consumption is only one measure of true transmitter efficiency. Reliability, durability and serviceability are equally important for overall efficiency and reduced cost of ownership.

**HARRIS UM SERIES  
HIGH EFFICIENCY DEPRESSED COLLECTOR KLYSTRON UHF TV TRANSMITTERS**



**TV-60UM**

**Power Levels**

- TV-60UM 60 kW
- TV-120UM 120 kW
- TV-180UM 180 kW
- TV-240UM 240 kW



**KEY BENEFITS:**

- High efficiency 60 kW\* depressed collector klystron power amplifiers with figure of merit greater than 1.30 reduce power consumption by up to 50%.
- Wideband depressed collector klystrons available from multiple sources.
- Depressed collector klystrons feature proven and familiar external cavity klystron technology.
- Harris' exclusive\*\* two-stage liquid and air cooling system extends klystron life by maintaining lowest operating temperatures for tubes and cavities.
- Cooling system features include redundant pumps in liquid pump module; three-stage passive filtering, and transmitter front panel LEDs to indicate when filters need replacement. Designed for on-air filter replacement.
- Exceptional transmitter performance provided with MCP-UX exciter with SAW filter, solid-state IPAs, and independent pulsers for each klystron.
- Maximum serviceability with easy access to components; exclusive breakaway line section to facilitate tube replacement; independent amplifier shutdown which allows one PA to be serviced while other remains on air.
- Extensive front panel diagnostics provide at-a-glance status information.
- Independent cabinet interlock shutdown protections meets IEC-215 safety requirements.

\* 70 kW depressed collector klystrons also available.  
\*\* Patent pending.



# HARRIS TV-60UM/TV-120UM SPECIFICATIONS

## VISUAL PERFORMANCE

### VISUAL POWER OUTPUT

TV-60UM:  
TV-120UM:

### RF LOAD IMPEDANCE

TV-60UM:  
TV-120UM:

### FREQUENCY RANGE

### CARRIER FREQUENCY STABILITY<sup>1</sup>

### REGULATION OF OUTPUT POWER

### VARIATION OF OUTPUT<sup>2</sup>

### VISUAL SIDEBAND RESPONSE<sup>3</sup>

(At output of optional  
Harris-supplied diplexer)

### FREQUENCY RESPONSE V. BRIGHTNESS<sup>4</sup>

### MODULATION CAPABILITY

### DIFFERENTIAL GAIN<sup>5</sup>

### DIFFERENTIAL PHASE<sup>6</sup>

### INCIDENTAL CARRIER PHASE

### MODULATION<sup>4</sup>

### LUMINANCE NON-LINEARITY<sup>6</sup>

SIGNAL TO NOISE (Total random and periodic  
noise unweighted.)

### 2t K-FACTOR

### 20t GAIN AND DELAY RESPONSE

### SYNC OVERSHOOT

### EQUIVALENT ENVELOPE DELAY

(Referenced to FCC Standard Curve)

## SYSTEM M/NTSC

60 kW peak (at diplexer output).  
120 kW peak (at diplexer output).

50 ohms, cabinet connector 3 1/8" EIA;  
diplexer output connector, 6 1/8" EIA.  
50 ohms, cabinet connector 3 1/8" EIA (2 ea.);  
diplexer output connector: Waveguide.

470-806 MHz (Channels 14-69).

±500 Hz (maximum variation over 30 days).

3% or less relative to peak sync.

3% or less.

-3.58 MHz.....-42 dB or better.

-1.25 to -4.25 MHz.....-23 dB or better.

-0.75 to +3.58 MHz.....±0.5 dB.

+4.18 MHz.....+0 to -2.5 dB.

+4.50 to +7.75 MHz.....-40 dB or better.

±0.75 dB.

0%.

0.5 dB or better.

3° or better.

±2.0° or better relative to blanking.

1.0 dB or better.

-55 dB RMS or better relative to sync peak.

2.0% maximum.

3% or less total baseline distortion.

5% or less within ±300 nS of leading/trailing edge.

0.2 to 2.1 MHz.....±40 nS.

@ 3.58 MHz.....±30 nS.

@ 4.18 MHz.....±60 nS.

## SYSTEMS B/PAL, B/SECAM

60 kW peak (at diplexer output).  
120 kW peak (at diplexer output).

50 ohms, cabinet connector 3 1/8" EIA;  
diplexer output connector, 6 1/8" EIA.  
50 ohms, cabinet connector 3 1/8" EIA (2 ea.);  
diplexer output connector: Waveguide.

470-854 MHz (Channels E21-E68).

±500 Hz (maximum variation over 30 days).

3% or less relative to peak sync.

3% or less.

-4.43 MHz.....-30 dB or better.

-1.25 MHz and lower.....-20 dB or better.

-0.75 to +4.43 MHz.....±0.5 dB.

+5.0 MHz.....0 to -2.5 dB.

+5.5 MHz.....-30 dB or better.

±0.75 dB.

0%.

0.5 dB or better.

3° or better.

±2.0° or better relative to blanking.

1.0 dB or better.

-55 dB RMS or better relative to sync peak.

2.0% maximum.

3% or less total baseline distortion.

5% or less within ±300 nS of leading/trailing edge.

Transmitter supplied with receiver  
equalizer compliant with CCIR report  
624, Figure 3, Curve A or B.

<sup>1</sup> After initial aging of 60 days.

<sup>2</sup> Measured per EIA-508 standard.

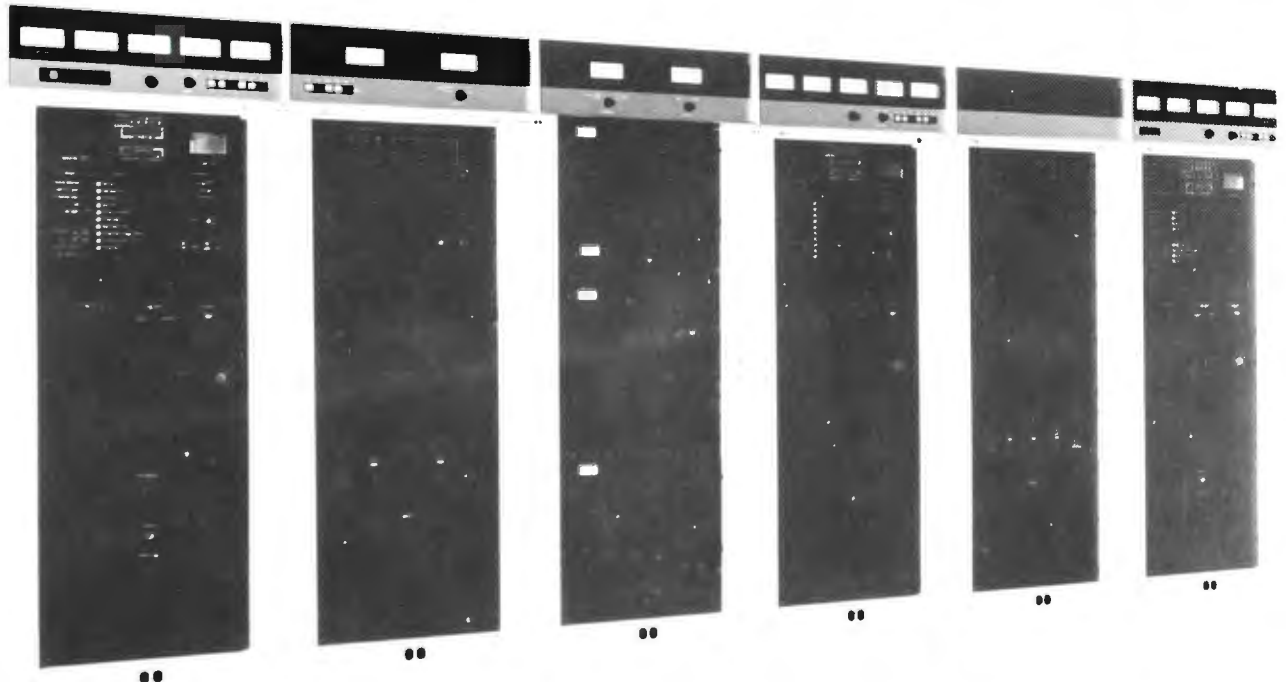
<sup>3</sup> Response specified for transmitter operating into a resistive load of 1.05:1 VSWR or better.

<sup>4</sup> Measured using a 20% p.p. amplitude swept video modulation with pedestal set at 10%, white 90% with reference gray level 50%.  
All percentages relative to a blanking to white excursion.

<sup>5</sup> Measured with a 5-step riser signal from 75% to 12.5% of peak sync level. Subcarrier modulation level at 12.5% p.p.

<sup>6</sup> Measured with 5-step riser signal. Test signal No. 3 CCIR REC 421-3.

(continued on next page)



TV-120UM

# HARRIS TV-60UM/TV-120UM SPECIFICATIONS (continued)

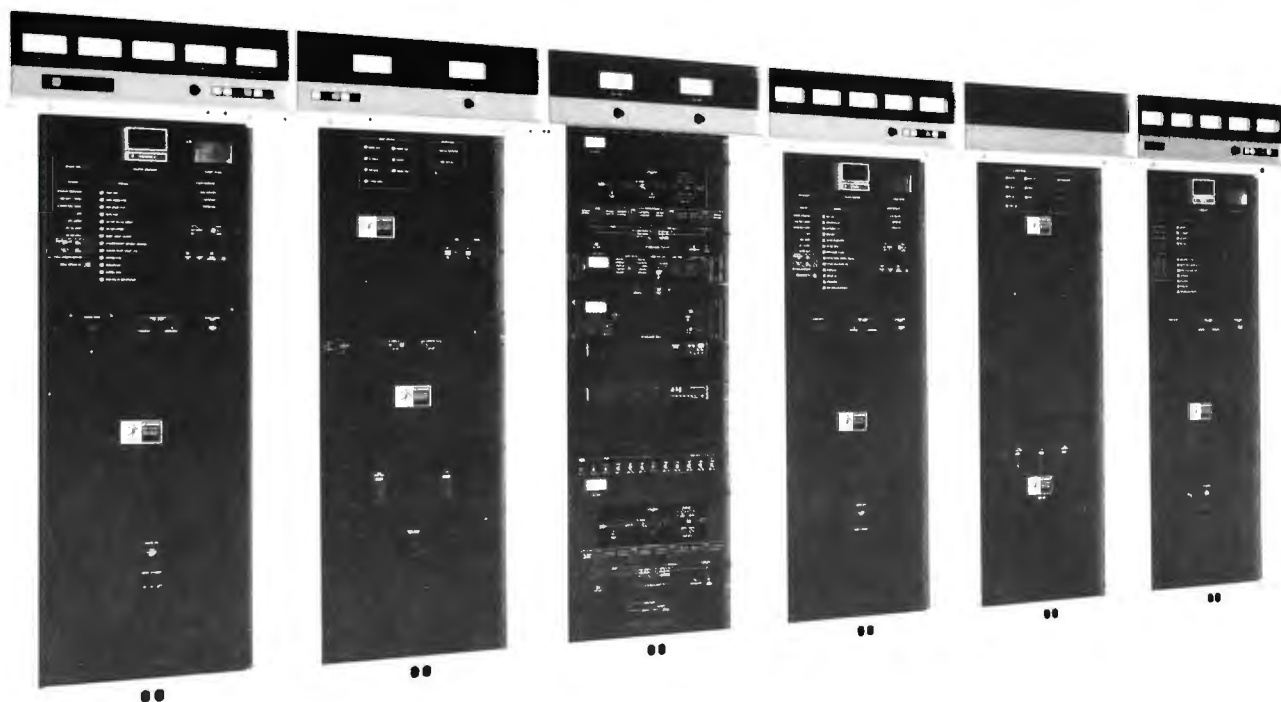
<b>VISUAL PERFORMANCE</b>	<b>SYSTEM M/NTSC</b>	<b>SYSTEMS B/PAL, B/SECAM</b>
<b>VIDEO INPUT LEVEL</b>	0.7 to 2.0 volts, 75 ohm, -36 dB return loss.	0.7 to 2.0 volts, 75 ohm, -36 dB return loss.
<b>HARMONIC RADIATION &amp; SPURIOUS EMISSION</b> (Beyond $\pm 3$ MHz of channel edge)	-60 dB RMS, relative to peak of sync.	-60 dB RMS, relative to peak of sync
<b>AURAL PERFORMANCE</b>		
<b>AURAL POWER OUTPUT</b> (At diplexer output)		
TV-60UM:	12 kW.	12 kW.
TV-120 UM:	24 kW.	24 kW.
<b>RF LOAD IMPEDANCE</b>	50 ohms, cabinet output connector 3/8" EIA.	50 ohms, cabinet output connector 3/8" EIA.
<b>FREQUENCY STABILITY</b>	$\pm 20$ Hz, relative to 4.5 MHz visual frequency offset.	$\pm 20$ Hz, relative to 5.5 MHz visual frequency offset.
<b>MODULATION CAPABILITY</b>	$\pm 120$ kHz peak deviation.	$\pm 120$ kHz peak deviation.
<b>STEREO PERFORMANCE</b>	(At $\pm 75$ kHz deviation)	(At $\pm 75$ kHz deviation)
<b>INPUT LEVEL</b>	1 volt RMS nominal.	1 volt RMS nominal.
<b>INPUT IMPEDANCE</b>	75 ohms unbalanced.	75 ohms unbalanced.
<b>FREQUENCY RESPONSE</b>	$\pm 0.15$ dB, 50 Hz to 50 kHz. $\pm 0.5$ dB, 50 kHz to 110 kHz.	$\pm 0.15$ dB, 50 Hz to 50 kHz. $\pm 0.5$ dB, 50 kHz to 110 kHz.
<b>FM NOISE</b>	-70 dB or better after de-emphasis.	-70 dB or better after de-emphasis.
<b>DISTORTION (THD)</b>	1.0% or less 50 Hz to 15 kHz. 2.0% or less 15 kHz to 50 kHz.	1.0% or less 50 Hz to 15 kHz. 2.0% or less 15 kHz to 50 kHz.
<b>DISTORTION (IMD)</b>	2.0 or less (SMPTE 4:1).	2.0% or less (SMPTE 4:1).
<b>STEREO SEPARATION</b> (Equivalent mode)	40 dB or better, 50 Hz to 15 kHz.	40 dB or better, 50 Hz to 15 kHz.
<b>CROSSTALK</b> (Stereo or Main to SAP)	45 dB or better, 50 Hz to 15 kHz. (At $\pm 25$ kHz deviation)	45 dB or better, 50 Hz to 15 kHz. (At 50 kHz deviation)
<b>MONAURAL PERFORMANCE</b>	+10 dBm nominal (adjustable).	+10 dBm nominal (adjustable).
<b>INPUT LEVEL</b>	600 ohms, balanced.	600 ohms, balanced.
<b>INPUT IMPEDANCE</b>	75 $\mu$ S or flat, selectable.	75 $\mu$ S or flat, selectable.
<b>PRE-EMPHASIS</b>	$\pm 0.5$ dB, 30 Hz to 15 kHz.	$\pm 0.5$ dB, 30 Hz to 15 kHz.
<b>FREQUENCY RESPONSE</b>	0.5% or less, 30 Hz to 15 kHz after de-emphasis.	0.5% or less 30 Hz to 15 kHz after de-emphasis.
<b>DISTORTION (THD)</b>	-60 dB or better after de-emphasis.	-60 dB or better after de-emphasis.
<b>FM NOISE</b>	-55 dB relative to 100% modulation.	-55 dB relative to 100% modulation.
<b>AM NOISE</b>	-40 dB or better, relative to 100% amplitude modulation.	-40 dB or better, relative to 100% amplitude modulation.
<b>AM SYNCHRONOUS NOISE</b>		
<b>SCA (2 inputs)</b>		
<b>INPUT LEVEL</b>	1 volt RMS nominal (adjustable)	1 volt RMS nominal (adjustable).
<b>IMPEDANCE</b>	75 ohms, unbalanced.	75 ohms, unbalanced.
<b>FREQUENCY RESPONSE</b>	$\pm 1.0$ dB, 20 kHz to 110 kHz.	$\pm 1.0$ dB, 20 kHz to 110 kHz.
<b>SERVICE CONDITIONS</b>		
<b>AMBIENT TEMPERATURE RANGE*</b>	+2° to +50°C (+32° to +122° F).	+2° to +50°C.
<b>AMBIENT HUMIDITY RANGE</b>	0% to 95% relative humidity, non-condensing	0% to 95% relative humidity, non-condensing.
<b>ALTITUDE</b>	Sea level to 7,500 ft.	Sea level to 2,286 m.
<b>ELECTRICAL REQUIREMENTS</b>	460/480/500 volts, $\pm 5\%$ , 3 phase, 60 Hz.	380/400/415 volts, $\pm 5\%$ , 3 phase, 50 Hz.
<b>PHYSICAL AND MECHANICAL DIMENSIONS</b>		
<b>SIZE &amp; WEIGHT</b>		
TV-60 UM:	TRANSMITTER: 126" W x 74" D x 73.5" H, 5000 lbs.; POWER SUPPLIES (2): 52" W x 68" D x 67.5" H, 1100 lbs.; PUMP MODULE: 36" W x 61" D x 64" H, 1040 lbs. without coolant; FAN/COIL MODULE: 44" W x 92" D x 43" H, 685 lbs. without coolant; LINE CONTROL (2): 24" W x 24" D x 48" H, 300 lbs.	TRANSMITTER: 320cm W x 188cm D x 187cm H, 2268 kg.; POWER SUPPLIES (2): 132cm W x 173cm D x 171cm H, 3200 kg.; PUMP MODULE: 91cm W x 155cm D x 163cm H, 473 kg. without coolant; FAN/COIL MODULE: 112cm W x 234cm D x 109cm H, 311 kg. without coolant; LINE CONTROL (2): 61cm W x 61cm D x 122cm H, 136 kg.
TV-120UM:	TRANSMITTER: 189" W x 74" D x 73.5" H, 7100 lbs.; POWER SUPPLIES (3): 52" W x 68" D x 67.5" H, 7100 lbs. ea.; PUMP MODULE: 36" W x 61" D x 64" H, 1040 lbs. without coolant; FAN/COIL MODULE: 86" W x 119" D x 50" H, 1150 lbs. without coolant; LINE CONTROL (3): 24" W x 24" D x 48" H, 300 lbs. ea.	TRANSMITTER: 480cm W x 188cm D x 187cm H, 3220 kg.; POWER SUPPLIES (3): 132cm W x 173cm D x 171cm H., 3200 kg. ea.; PUMP MODULE: 91cm W x 155cm D x 163cm H, 477 kg. without coolant; FAN/COIL MODULE: 218cm W x 302cm D x 127cm H, 523 kg. without coolant; LINE CONTROL (3): 61 cm W x 61cm D x 122cm H, 136 kg. ea.
<b>POWER CONSUMPTION (TYPICAL)</b>	<u>10% Aural</u> <u>(50% APL)</u>	<u>20% Aural</u> <u>(50% APL)</u>
TV-60UM:	92 kW.	110 kW.
TV-120UM:	152 kW.	180 kW.

Specifications subject to change without notice.

\* Derate 2°C per 1000 ft. (305 m.) altitude above sea level.



# HARRIS UX SERIES EXTERNAL CAVITY KLYSTRON UHF TV TRANSMITTERS



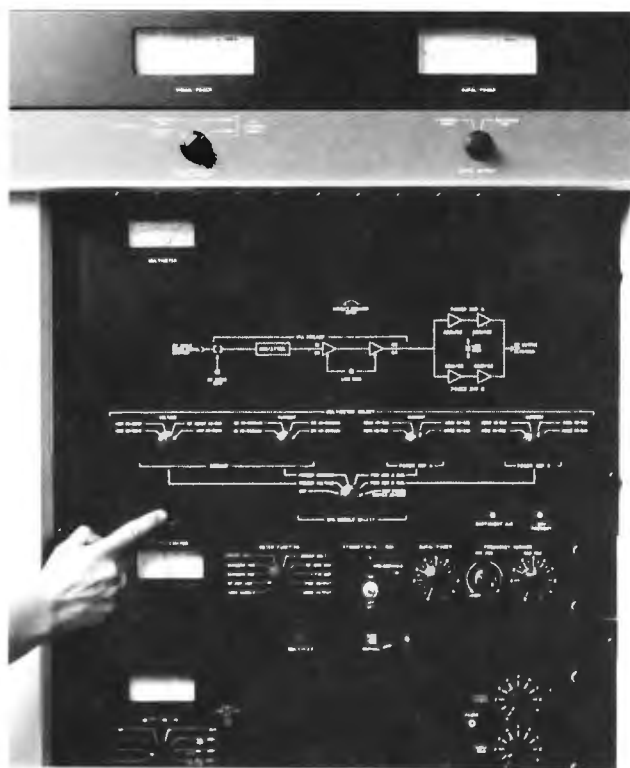
TV-120UX

### Power Levels

- TV-60UX 60 kW
- TV-120UX 120 kW
- TV-180UX 180 kW
- TV-240UX 240 kW

### KEY BENEFITS:

- Designed for continuous on-air operation with standard Multiplex feature in every transmitter and optional "Magic T" combining with 120 kW or higher power models.
- Klystrons available from multiple sources for lower initial and tube replacement costs.
- Exceptional performance with MCP-UX exciter; SAW filter design for top visual performance.
- Reduced AC power consumption with Harris' solid-state annular ring pulser.
- Extensive front-panel displays, meters and controls for easy status monitoring and troubleshooting.
- Unique break-away RF line section for fast klystron removal and replacement.
- Exclusive two-stage glycol and vapor phase "shell and tube" heat exchanger cools klystron collectors with maximum efficiency.



LED STATUS DISPLAY AND METERING

# HARRIS TV-60UX/TV-120UX SPECIFICATIONS

## VISUAL PERFORMANCE

### VISUAL POWER OUTPUT

TV-60UX:  
TV-120UX:

### RF LOAD IMPEDANCE

TV-60UX:  
TV-120UX:

### FREQUENCY RANGE

### CARRIER FREQUENCY STABILITY<sup>1</sup>

### REGULATION OF OUTPUT POWER

### VARIATION OF OUTPUT

### VISUAL SIDEBAND RESPONSE<sup>2</sup>

(At output of optional  
Harris-supplied diplexer)

### FREQUENCY RESPONSE V. BRIGHTNESS

### MODULATION CAPABILITY

### DIFFERENTIAL GAIN<sup>3</sup>

### DIFFERENTIAL PHASE<sup>4</sup>

### INCIDENTAL CARRIER PHASE

### MODULATION<sup>4</sup>

### LUMINANCE NON-LINEARITY<sup>4</sup>

SIGNAL TO NOISE (Total random and periodic  
noise unweighted.)

### 2t K-FACTOR

### 20t GAIN AND DELAY RESPONSE

### SYNC OVERSHOOT

### EQUIVALENT ENVELOPE DELAY

(Referenced to FCC Standard Curve)

### VIDEO INPUT LEVEL

### HARMONIC RADIATION & SPURIOUS

EMISSION (Beyond  $\pm 3$  MHz of  
channel edge)

## AURAL PERFORMANCE

### AURAL POWER OUTPUT (At diplexer output)

TV-60UX:  
TV-120 UX:

### RF LOAD IMPEDANCE

### FREQUENCY STABILITY

### MODULATION CAPABILITY

### STEREO PERFORMANCE

#### INPUT LEVEL

#### INPUT IMPEDANCE

#### FREQUENCY RESPONSE

#### FM NOISE

#### DISTORTION (THD)

#### DISTORTION (IMD)

#### STEREO SEPARATION

(Equivalent mode)

#### CROSSTALK (Stereo or Main to SAP)

## MONAURAL PERFORMANCE

#### INPUT LEVEL

#### INPUT IMPEDANCE

#### PRE-EMPHASIS

#### FREQUENCY RESPONSE

#### DISTORTION (THD)

## SYSTEM M/NTSC

60 kW peak (at diplexer output).  
120 kW peak (at diplexer output).

50 ohms, cabinet connector 3  $\frac{1}{8}$ " EIA;  
diplexer output connector, 6  $\frac{1}{8}$ " EIA.  
50 ohms, cabinet connector 3  $\frac{1}{8}$ " EIA (2 ea.);  
diplexer output connector: Waveguide.

470-806 MHz (Channels 14-69).

$\pm 500$  Hz (maximum variation over 30 days).

3% or less relative to peak sync.

3% or less.

-3.58 MHz.....-42 dB or better.

-1.25 to -4.25 MHz.....-20 dB or better.

-0.75 to +3.58 MHz..... $\pm 0.5$  dB.

+4.18 MHz.....+0 to -2.5 dB.

+4.50 to +7.75 MHz.....-40 dB or better.

$\pm 0.75$  dB.

0%.

0.5 dB or better.

3° or better.

$\pm 2.0^\circ$  or better relative to blanking.

1.0 dB or better.

-55 dB RMS or better relative to sync peak.

2.0% maximum.

3% or less total baseline distortion.

5% or less within  $\pm 300$  nS of leading/trailing edge.

0.2 to 2.1 MHz..... $\pm 40$  nS.

@ 3.58 MHz..... $\pm 30$  nS.

@ 4.18 MHz..... $\pm 60$  nS.

0.7 to 2.0 volts, 75 ohm, -36 dB return loss.

-60 dB RMS, relative to peak of sync.

## SYSTEMS B/PAL, B/SECAM

60 kW peak (at diplexer output).  
120 kW peak (at diplexer output).

50 ohms, cabinet connector 3  $\frac{1}{8}$ " EIA;  
diplexer output connector, 6  $\frac{1}{8}$ " EIA.  
50 ohms, cabinet connector 3  $\frac{1}{8}$ " EIA (2 ea.);  
diplexer output connector: Waveguide.

470-854 MHz (Channels E21-E68).

$\pm 500$  Hz (maximum variation over 30 days).

3% or less relative to peak sync.

3% or less.

-4.43 MHz.....-30 dB or better.

-1.25 MHz and lower.....-20 dB or better.

-0.75 to +4.43 MHz..... $\pm 0.5$  dB.

+5.0 MHz.....0 to -2.5 dB.

+5.5 MHz.....-30 dB or better.

$\pm 0.75$  dB.

0%.

0.5 dB or better.

3° or better.

$\pm 2.0^\circ$  or better relative to blanking.

1.0 dB or better.

-55 dB RMS or better relative to sync peak.

2.0% maximum.

3% or less total baseline distortion.

5% or less within  $\pm 300$  nS of leading/trailing edge.

Transmitter supplied with receiver

equalizer compliant with CCIR report

624, Figure 3, Curve A or B.

0.7 to 2.0 volts, 75 ohm, -36 dB return loss.

-60 dB RMS, relative to peak of sync.

<sup>1</sup> After initial aging of 60 days.

<sup>2</sup> Response specified for transmitter operating into a resistive load of 1.05:1 VSWR or better.

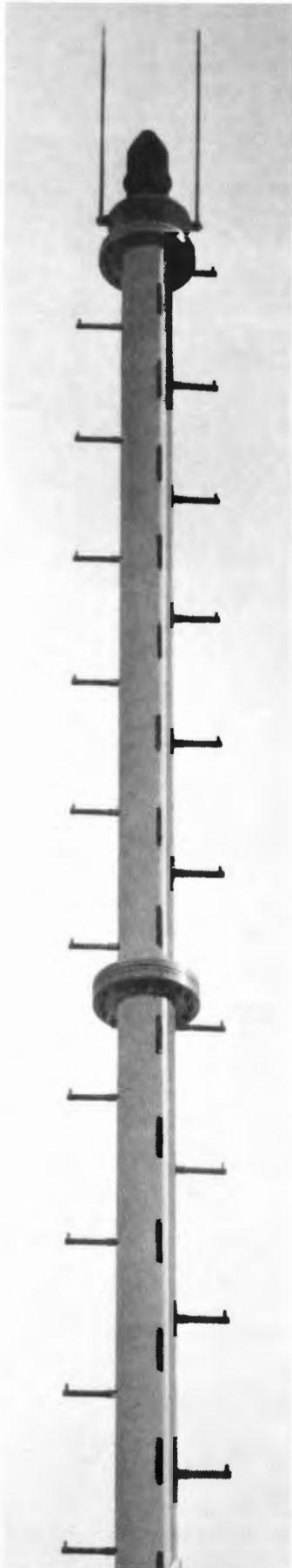
<sup>3</sup> Measured with a 5-step riser signal from 75% to 12.5% of peak sync level. Subcarrier modulation level at 12.5% p.p.

<sup>4</sup> Measured with 5-step riser signal. Test signal No. 3 CCIR REC 421-3.

(continued on next page)







TWS WAVESTAR

## TWS WAVESTAR® ANTENNA HORIZONTAL ELLIPTICAL TO FULL CIRCULAR POLARIZATION

- Capability for partial to full circularly polarized applications with customized horizontal and vertical polarization.
- Available in waveguide or coaxial designs to accommodate specific power handling requirements and pattern characteristics.
- Co-location of horizontal and vertical polarization elements for good axial ratio in elevation and azimuth planes.
- High power handling capability with a standard rating of up to 240 kW; modified ratings to 360 kW and more.
- High reliability and mechanical simplicity with no added probe coupling devices.
- All elements at DC ground for lightning protection.
- Available with coaxial or optional rectangular waveguide inputs.
- Available with full pressurized radomes or low windslot covers to withstand specific environments.
- Top or side-mount configurations available.
- Standard near- and optional far-field testing of fully-assembled array verifies performance.

## TAZ QUADRAPOWER ANTENNA

- Capable of handling powers of 110 kW or greater.
- Designed for pattern applications where a slotted antenna is unsuitable.
- Provides unlimited horizontal pattern control.
- Standard radome covers offer no-cost ice protection.
- Features rugged construction with corrosion-resistant materials.
- Fully assembled and tested at unique near- and far-field antenna range before shipment.

## TAD DELTAWING UHF ANTENNA

- Unlimited pattern control and high gain for directional applications for all power requirements.
- Models available for mounting on triangular or square towers; can be side-mounted on existing towers.
- Wide impedance and pattern bandwidth for multiplexed operation.
- Ideal for stacked configurations.
- Standard lightweight corrosion-resistant aluminum construction provides long-term mechanical integrity. Stainless steel construction available for severe environments.
- Built to operate in environments subject to high winds and heavy ice-loading. Full radome cover standard.
- Fully pressurized to feedpoint for enhanced reliability.
- Features low wind-loading design.
- Computer modeling, design and data measurement for accurate prediction of antenna patterns.
- Optional tower structure available.
- Optional measurement of fully-assembled antenna available on Harris' antenna test range.



TAZ QUADRAPOWER





## **Complete RF Training— Only from Harris Allied**

How your RF equipment is operated and maintained is every bit as important for long-term reliability as how it was designed and manufactured. That's why Harris Allied Broadcast Equipment sponsors the world's only Broadcast Technology Training Center.

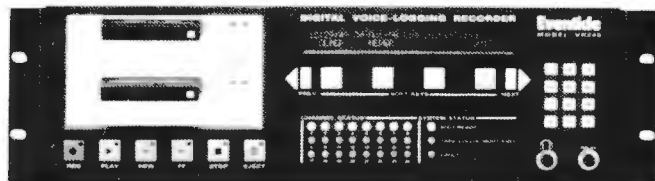
Every year we offer approximately 50 scheduled training programs at our Quincy, Illinois Center. Our goal is to give engineers with around-the-clock responsibility the skills and knowledge needed to ensure long life and top performance from broadcast transmission equipment.

In addition to comprehensive training on major Harris products, we offer general RF training programs for any engineer with responsibility for testing, maintaining and servicing transmission equipment—even if your station does not use a Harris transmitter. General programs include an AM Transmitter Workshop, FM Transmitter Workshop, TV Transmitter Workshop, RF Circuits I, RF Circuits II, and Digital Control Logic.

For a complete schedule of Broadcast Technology Training Center programs, please write: Harris Allied Training Programs, P.O. Box 4290, Quincy, IL 62305-4290.



## EVENTIDE



### VR240



Eventide reinvents the logging recorder. Digital technology drastically reduces the tape cost and storage requirements of conventional reel-to-reel loggers. The VR240 records over 7 days of audio on a single, low cost R-DAT cassette. Record time can be split among up to 8, 16 or 24 simultaneous channels—record your station in stereo, and all the competition as well. Frequency response of 200-3000 Hz with zero wow and flutter and 50 dB S/N are ideal for logging applications.

PRELIMINARY

## MODULATION SCIENCES

### MODMINDER™

ModMinder™ is the first digital device for measuring and displaying peak FM deviation. ModMinder's advanced, highly accurate circuitry ensures that FM stations get all the modulation they're entitled to. Fully remoteable, ModMinder includes a software package that adds remote control, display and analysis capabilities from any modem-equipped PC. Optional Analysis software generates graphic displays of any FM signal—your own or the competition's. The internal Demodulator Board option makes ModMinder a standalone peak modulation monitor of unprecedented stability and accuracy.



## HENRY



### FAST TRAC™

The Fast Trac™ mixer by Henry Engineering frees the production room for the important task of making money. Fast Trac has all the facility necessary to allow even a new hire to make flawless dubs. The Fast Trac is essentially a four input, one pot console. There are inputs for four stereo sources, each push button selectable. Gain trimmers for each source allow you to mix a +4 dBm balanced phono preamp with a -10 dBV unbalanced CD player. Dub CD to cartridge to cassette to DAT to . . . you name it! An optional mic preamp can be installed in place of one of the line level input positions. Also includes a test oscillator with 400 Hz and 10 kHz frequencies selectable.

Fast Trac. . . the dedicated dub mixer. It's quiet, clean and convenient.

Henry Price. . . \$1195.00 U.S.

YOUR PRICE \$ \_\_\_\_\_

## LIGHTNING PREVENTION SYSTEMS

### ALS-3000

The ALS-3000 is a new device designed to prevent lightning from striking any structure it's mounted on. The device removes the attractive charge from a structure, rendering it "invisible" to lightning. Copper radials buried in the ground collect positive charges. These charges travel to an array of over 40,000 points and are dissipated into the atmosphere. The ALS-3000 can neutralize over 30,000 feet of surrounding ground. The system is very economical per tower. Call Harris Allied for complete information.



## DURO-TEST



You need rugged, dependable, long-lasting, quick-to-see bulbs where there are tall traffic hazards. The best bulbs that money can buy are built by Duro-Test. Models 682, 683 and 684 sold in two piece increments. Model 424 sold only in packages of six.

Prices on Application



# — INDEX —

## — A —

**ABCO**..... 29, 47  
**ACOUSTICAL TREATMENT**..... 58, 75  
**ACU**..... 163  
**ADC**..... 64  
**AIR CORP**..... 95  
**AIRHEAD**..... 000  
**AKG**  
 Digital Sound Editor..... 351  
 Headsets w w o Mic..... 53  
 Microphones..... 48  
**ALC**..... 56  
**ALIGNMENT TAPES**..... 130  
**A-LINE**  
 Cart Storage..... 28  
 CD Storage..... 44  
 Dub Center Furniture..... 79  
 Equipment Racks..... 77  
 Record Storage..... 77  
 Reel Storage..... 37  
 Side Panels..... 53  
**ALLEN & HEATH**..... 14  
**ALLIED**  
 Bulletin Board Service..... 29  
 Cart Labels..... 25  
 Cart Storage..... 29  
 Chair..... 78  
 Clock..... 74  
 Copper Products..... 59  
 Cotton Swabs..... 68  
 Dub Center..... 79  
 Drawer Rackmount..... 78  
 Equipment Rack Cabinet..... 78  
 Equipment Exchange..... 127  
 Equipment Rack Mounts..... 78  
 Leasing..... 17  
 ON-AIR, Warning Lights..... 74  
 Razor Blades..... 68  
 Record Racks..... 67  
 Reel Storage..... 37  
 Satellite Equipment..... 116-122  
 Screwdriver Set..... 71  
 Shipping Cases..... 68  
 Standby Power..... 131  
 Telemix™..... 109  
 Termination Systems..... 61  
 Turntable Base..... 68  
 Used Equipment..... 127  
**ALS 3000**..... 196  
**AM DUMMY LOAD**..... 164  
**AM NOISE MONITOR (for FM use)**..... 138  
**AM STEREO EXCITERS**..... 148  
**AM TRANSMITTERS**..... 1551 161  
**AMPEX TAPE**..... 331 37  
**AMT JFIFES**  
 Audio..... 83 84  
 Buffer..... 90 100  
 Distribution..... 101 102  
 Headphone..... 84 85  
 RF AM..... 140 141  
 RF FM..... 141  
**ANALYZERS, HISTORIC/N NOISE**..... 129 130  
**ANDREW**..... 121 145  
**ANGULAR RING PULSER RETROFIT**..... 193  
**ANTENNA COUPLING UNIT, AM**..... 163  
**ANTENNA MONITOR**..... 141 147  
**ANTENNAS**  
 FM..... 132 134  
 Mounting Mast, Harry Up..... 127  
 Satellite Dish..... 119  
 STL, STL..... 134  
 UHF TV..... 104  
 VHF TV..... 185 196  
**APHIX**..... 871 89  
**ARRAKIS**  
 CD Storage..... 41  
 Console..... 80 81  
 Modulator\* Modula™ FM Furniture..... 80 81  
 Record Storage..... 39  
 Remote Switcher..... 104  
**ASTROLITE**..... 53  
**ATI**  
 Audio Mixer..... 338  
 Console..... 23  
 Distribution Amplifiers..... 101  
 Interfaces..... 30  
 Mix Preamp..... 70 90  
 Mixers, Turntable..... 65  
**ATLAS**..... 71  
**ATTENUATOR (ATT)**..... 61  
**ATI**..... 61  
**AUDIO (CD)**..... 21  
**AUDIO AMPLIFIER**..... 81 89  
**AUDIO LINK (LAI)**..... 27  
**AUDIO LAB**..... 27  
**AUDIO METER**..... 338  
**AUDIONETICS**  
 CD Storage..... 41  
 Distribution Amp..... 101  
 Electrical Protection & Quality..... 65  
 Handy Bundler..... 30  
 ITC Remote Card..... 37  
 Mix Arms, Boom..... 37  
 Preamp..... 46  
 Square Play..... 30  
 Telephone Later Line..... 112  
 Times..... 112  
 Turnam..... 74  
**AUDIPAK**..... 24 25  
**AUDIO PROCESSING**..... 86 97  
**AUDIO SIGNATURE**..... 96  
**AUDIO TELEPHONY**  
 Microphone..... 51  
 Tone Arm..... 87  
**AUDISAR**..... 81

**AUDISK**..... 125  
**AUDITRONICS**  
 Consoles..... 4 121  
 Distribution Amp..... 102  
**AURAL EXCITERS**..... 89  
**AURATONE**..... 56  
**AUTOGRAM**..... 5, 191  
**AUTOMATION**..... 124 125

## — B —

**B & B SYSTEMS**..... 138  
**BATWING ANTENNA**..... 185  
**BCS**..... 60  
**BELAR**..... 139, 140  
**BELDEN**..... 491, 59  
**BENCHMARK**  
 Headphone Amp..... 85  
 Interface..... 90  
**BEXT**..... 148  
**BEYER DYNAMIC**  
 Headsets..... 53  
 Microphones..... 451 51  
**BGW**  
 Amplifiers..... 83  
 Distribution Amp..... 101  
**BIG LIFT**..... 47  
**BIRD**..... 1491, 150  
**BROADCAST AUDIO**..... 6  
**BROADCAST CIRCUIT SYSTEMS**..... 60  
**BROADCAST DISC STORAGE**..... 44, 47  
**BROADCAST ELECTRONICS**  
 Cartridge Machines..... 22  
 Cart Eraser Splice Finder..... 26  
 Consoles..... 14  
**BRYSTON**..... 83  
**BUFFER AMPLIFIER**..... 99 100  
**BULBS**..... 196  
**BULLETIN BOARD SERVICE**..... 29  
**BURK TECHNOLOGY**..... 115, 137

## — C —

**CABLE COAXIAL**..... 571 145 146  
**CABLE DRUM**..... 59  
**CABLE MIC**..... 59 60  
**CABLEWAVE**..... 571, 121, 145, 151  
**CALIFORNIA AMPLIFIER**..... 121  
**CARTRIDGE (TAPE)**  
 Accessories..... 25-27  
 Erasers & Splice Finders..... 26 27  
 Labels..... 25  
 Machines..... 18, 21-23  
 Multiple Playbacks..... 125  
 Storage..... 28 29  
 Tapes..... 25  
 Winder..... 27  
**CARTRIDGES PHONO**..... 67  
**CARVER**..... 114  
**CASES SHIPPING**..... 68  
**CASSETTE DUPLICATOR**..... 30  
**CASSETTE RECORDER**..... 38 39  
**CD ACCESSORIES**..... 44 47  
**CD CLEANER**..... 44  
**CD FLAYERS**..... 42 43  
**CD TO CASSETTE**..... 44 47  
**CHAIR, STUDIO**..... 78  
**CHOKER, TOWER LIGHT ISOLATION**..... 164  
**CLEANERS**  
 CD..... 44  
 Record..... 68  
**CLEANING STICKS**..... 68  
**CLEAR-COM**..... 105  
**CLOCK & TIMER**..... 74  
**COAXIAL CABLE**..... 145 146  
**COAXIAL SWITCH**..... 140 147  
**COLORADO MAGNETICS**..... 121  
**COMARK**..... 146 151  
**COMPOSITE PROCESSOR**..... 95  
**COMPRESSION**..... 128  
**COMPLTEMP**..... 103 106 107  
**COMTECH**..... 119  
**CONEX**  
 Automation Accessories..... 124  
 Routing Switcher..... 104  
**CONNECTION, MIC**..... 81  
**CONSOLES**..... 4 12  
**CONSTANT VOLTAGE FILAMENT REGULATOR**..... 14  
**CONTACT, AMBI**..... 114  
**CONTROL CONCEPTS**..... 64  
**CORNER PROTECTORS**..... 99  
**COTTON SWABS**..... 68  
**COURTESY, DISTRIBUTION**..... 150  
**COURTESY UNIT, AM ANTENNA**..... 163  
**CRI**  
 Displays..... 86  
 Transmitters..... 86 89  
**CWA**..... 82 83  
**CROWN**..... 82 83  
**CUTTER, COAXIAL CABLE**..... 44

## — D —

**DART FAIRCHILD RECEIVER**..... 130  
**DAT RECORDER**..... 80 81  
**DAVTRONICS**..... 43  
**DBA**..... 89  
**DECIBEL**..... 119  
**DEHYDRATOR**..... 94  
**DELAY LINES**..... 98  
**DELTA**..... 141 146 148  
**DELAWARE, THE ANTENNA**..... 144  
**DELAWARE, THE ANTENNA**..... 189  
**DEMODULATOR, MUSIC ARRIVAL**..... 155  
**DENON**  
 A.D. Player..... 43  
 Test Disc..... 84  
 Turners..... 114

**DICTAPHONE**..... 37  
**DIELECTRIC**..... 146  
**DIGIMAX**..... 130  
**DIGITAL**  
 Automation Storage..... 125  
 Audio Processing..... 92  
 CD..... 42 43  
 DAT..... 40, 41  
 Delay Lines..... 98  
 Logging System..... 196  
 ModMinder..... 196  
 Sound Editor..... 35  
 Transmitters..... 160 161  
 Telephone Equipment..... 108  
**DIPLEXERS**..... 186  
**DIRECTIONAL COUPLERS**..... 150  
**DISCWASHER**..... 44, 68  
**DISTORTION ANALYZER**..... 129 130  
**DISTRIBUTION AMPS**..... 101 102  
**DORROUGH**..... 138  
**DUB CENTER FURNITURE**..... 79  
**DUB CENTER MIXER**..... 196  
**DUMMY LOAD**..... 127 132  
**DUMMY LOAD, AM**..... 164  
**DUMMY LOAD, FM**..... 150  
**DUPLICATOR, CASSETTE**..... 39  
**DURO-TEST**..... 196  
**DX SERIES TRANSMITTERS**..... 160, 161  
**DYNAFLEX**..... 86

## — E —

**EASIA X**..... 145  
**EASYTERM**..... 62  
**EBS MONITORS**..... 143  
**EDCOR**..... 85  
**EPI**..... 65  
**ELECTRICAL PROTECTION**..... 64 65 196  
**ELECTRO IMPULSE**..... 150  
**ELECTRONIC RESEARCH**..... 150  
**ELECTRO VOICE**  
 Microphones..... 48 501  
 Portable Mixer..... 16  
 Speakers..... 55  
**ELGIN**..... 112  
**ENBERG**..... 73  
**ENERGY CONTROL**..... 64, 113, 131  
**ENVIRONMENTAL TECHNOLOGY**..... 122, 147  
**EQUALIZATION**  
 Audio Chain..... 91, 97  
 Telephone..... 113  
**EQUIPMENT EXCHANGE**..... 127  
**EQUIPMENT RACKS**..... 77-79  
**EQUITEK**..... 51  
**ERASERS**..... 26 27  
**ESE**..... 74  
**EVENTIDE**..... 92 941 98 196  
**EXCITER UHF RETROFIT PKGS**..... 193  
**EXCITERS**  
 FM..... 148 166  
 UHF-TV..... 193  
 VHF-TV..... 176, 177  
**EXPRESS GROUP**..... 761, 79

## — F —

**FAIRCHILD**..... 116  
**FIDELIPAC**  
 Cart Erasers & Splice Finder..... 26  
 Cart Storage..... 29  
 Cartridge Machines..... 201 21  
 On Air Lights..... 73  
 Tape Cartridges..... 25  
**FIELD STRENGTH METER**..... 142  
**FILAMENT VOLTAGE REGULATOR**..... 174  
**FISHPOLES**..... 72  
**FLEXIBLOCK**..... 62  
**FM ACCESSORIES**..... 174  
**FM ANTENNA**..... 151 174  
**FM EXCITERS**..... 148 166  
**FM TRANSMITTERS**..... 1651 173  
**FM TUNERS**..... 114  
**FMH SERIES ANTENNAS**..... 174  
**FMX**..... 96  
**FOSTEX**  
 Headset..... 54  
 Speaker..... 56  
 Test Tone Oscillator..... 130  
**FREQUENCY COUNTER**..... 129 130  
**FREQUENCY EXTENDERS**..... 103, 108, 108  
**FREQUENCY MONITOR**..... 41  
**FURMAN**..... 84 85  
**FURUSHINGS**..... 74 81  
**FURNITURE, STUDIO**..... 79 81  
**FX RACK**..... 77

## — G —

**GARNER**..... 77  
**GATES TRANSMITTERS**..... 148, 157  
**GENERATOR, VIDEO**..... 131  
**GENERATOR, HIGH FREQUENCY**..... 131  
**GENERATOR, MUSIC ARRIVAL**..... 135  
**GENERATOR, TONE**..... 129 130  
**GENYNER**  
 Audio Preamp..... 92  
 I.R.M..... 37  
 Distribution Amp (DDA)..... 102  
 Equalizer..... 87  
 Frequency Extenders..... 108 117  
 Headphone Amp..... 108 109  
 Lamp..... 92  
 Manual..... 37  
 Patch Panels..... 82 83  
 Equalizer..... 108  
 Preamp..... 92 117  
 Portable Mixers..... 37  
 Professional Patch Panels..... 83

**Program Switcher**..... 122  
**RDA**..... 102  
**Routing Switch**..... 104  
**Silence Sensor**..... 124  
**Superpatch**..... 63  
**Telephone Couplers**..... 108 109  
**TeleSwitch**..... 109  
**Versapatch**..... 62  
**VRC Remote Control**..... 137  
**GEPCO**..... 361, 60  
**GOLDLINE**..... 130  
**GORMAN REDLICH**..... 128  
**GROUND WIRE, GROUND SYSTEM**..... 59

## — H —

**HAFLER**..... 84  
**HANDY BUNDLER**..... 71  
**HARMONIC FILTER**..... 147  
**HARMONIZER**..... 92  
**HARRIS**  
 Antenna Coupling Unit..... 163  
**Antennas**..... 174  
 FM..... 194  
 UHF-TV..... 185 186  
**Automatic Changeover Panel, FM**..... 174  
**Consoles**..... 13  
**Constant Voltage Filament Regulator**..... 174  
**Contact RF**..... 164  
**Diplexers**..... 186  
**Dummy Load, AM**..... 164  
**DX Series**..... 160 161  
**Exciter**  
 FM..... 166  
 TV..... 176  
**Filament Regulator, Constant Voltage**..... 174  
**FM Accessories**..... 174  
**FM Antennas**..... 174  
**GATES**..... 156 157  
**HT Series**..... 166-173  
**HXIV VHF Exciter**..... 176 177  
 Isolation Coils..... 164  
 Medium Wave Antenna Accessories..... 164  
 Medium Wave Modulation Monitor..... 139 164  
 Medium Wave Phasing System..... 163  
**MSDC UHF Transmitters**..... 188-190  
**Phase Fixer**..... 95  
**Phono Preamp**..... 66  
**Platinum Series™**..... 178-181  
**Radio Equipment**..... 155-177  
**Remote Control**..... 137  
**Remote Meter Sampler**..... 164  
**Sample Loop**..... 164  
**Systems**..... 1521 1541  
**SX-A Series**..... 158 159  
**TAD Delawing**..... 194  
**TAZ Quadrapower**..... 194  
**Television Equipment**..... 1751-194  
**THE-1**..... 148 166  
**Tower Lighting Choke**..... 164  
**Training Center**..... 195  
**Transfer Switch, AM**..... 164  
**Transmitters**  
 AM..... 1551 161  
 FM..... 1651-173  
 Shortwave..... 162  
 UHF-TV..... 1871-193  
 VHF TV..... 1751-184  
**TV Series**..... 182 184  
**TWS Wavestar**..... 194  
**UHF Retrofit Packages**..... 193  
**ULTIMATE 91**..... 95  
**UM Series**..... 188 190  
**UX Series**..... 191 193  
**HEADPHONE AMPS**..... 84 85  
**HEADSETS, HEADPHONES**..... 53 54  
**HELIX™**..... 121, 145  
**HEMISPHERE**..... 56  
**HENRY**  
 Console Module..... 5  
 Distribution Amp..... 102  
 Fast Tra™™..... 196  
 Interface..... 100  
 Input/Output..... 69  
 Modules..... 100  
 Monitor..... 17  
 Mixers, I/O..... 69  
 Not Command™..... 122  
 Superlat..... 69  
 Telecart II..... 69  
 Turntable Controller, UIC..... 66  
 Turntable..... 100  
 U.S.D.A..... 102  
**HOWE**..... 89  
**HT SERIES TRANSMITTERS**..... 167 173  
**HXIV VISUAL AURAL TV EXCITER**..... 176 177  
**HUBBARD FILTER**..... 186  
**HUBBARD TELEPHONE**..... 108 109

## — I —

**IGM COMMUNICATIONS**..... 125  
**IMAGE VIDEO LTD**..... 104 124  
**IMMEDIATE BRIEFING**..... 141  
**INDY AUDIO**..... 112  
**INOVONICS**..... 96  
**INTERRALIA**..... 110  
**INTILLORA**..... 10  
**INTHEALIA™ AUDIO**..... 99 100  
**ISLATION**..... 64  
**ISOLATION, TRANSFORMER**..... 164  
**ISOLATION COILS**..... 164  
**ITC**  
 Cart Eraser Splice Finder..... 26  
 Cartridge Machines..... 18, 21  
 Demoson Retrofit Cart..... 27  
 Tape Cartridges..... 25

REAMPS	
Mic	70 99
Turntable	65 66
PROCESSORS	86-97
PROGRAM SWITCHERS	122
PROTON	114
PUNCH BLOCKS TOOL	61 62
— Q —	
QEJ	
Modulation Monitor	142
Exciter	148
Q-Tips*	68
QUADRAPOWER ANTENNA	194
— R —	
R-DAT	40, 41
R&K TOOLS	71
RACKS EQUIPMENT	77-79
RACOM	110
RADIO DESIGN LABS	
AM Noise Monitor	138
Amplifier	84
Distribution Amplifier	101
Mic Preamp	70
Rack Mount Assembly	100
Splitter Combiner	100
RAMSA	
Amplifier	84
Mixer	15
RANE	85
RAZOR BLADES	68
RECORD CLEANER	68
RECORD CLEANING MACHINE	68
RECORDERS	
Cassette	38 39
DAT	40 41
Reel-to-Reel	30-34
RECORDING LIGHTS	37
RECORDING TAPES	37
REEL STORAGE	37
REEL-TO-REEL RECORDERS	30-34
REGULATOR FILAMENT VOLTAGE	174
RELAY RACKS	77-79
REMOTE CONTROL	135 137
REMOTE METER SAMPLER	164
REMOTE PICKUP	126, 127
REPEAT COIL	61
RETROFIT PKG UHF EXCITER	193
REVERB	91
REVOX	34
RF AMPLIFIER AM FM	140 143
RF CONTACTOR AM	164
RF SIGNAL GENERATOR RECEIVER	141
ROTARY PHASE CONVERTER	131
ROUTING SWITCHERS	104
RPU	126 127
R SVP	112
RTS	105
RUSSCO	
Console	14
Interface	100
Preamps	66
— S —	
SAMPLE LOOP	164
SATELLITE EQUIPMENT	116-122
SCA	115
SCALA	134
SCOTCH 3M	37
SCREWDRIVERS	71
SENNHEISER	
Headsets	54
Microphones	461 51
SENSOR, TONE	124
SENTRY SYSTEMS	124
SHIPPING CASES	68
SHIVELY	151
SHORTWAVE TRANSMITTERS	162
SHURE	
Microphones	52
Phono Cartridges	67
Portable Mixers	16
SIBILANCE PROCESSORS	90
SIDE PANELS (For Otari)	37
SILENCE SENSOR	124
SIMPAC	28
SINCLAIR	151
SKIMMER	39
SOLID STATE AM TRANSMITTERS	156-161
SOLID STATE FM TRANSMITTERS	166, 167
SOLID STATE VHF TV	
TRANSMITTERS	1751-181

STEREO SYNTHESIZER	130
STL (Standard Tape Labs)	132-134
STUDER	43
STUDIO ACCESSORIES	59-75
STUDIO FURNITURE	79-81
STYLI	67
SUBCARRIER DEMODULATOR	115
SUBCARRIER GENERATOR	115
SUPERLAY	69
SUPERPATCH	63
SURGE PROTECTION	64, 65
SURGE PROTECTION TELEPHONE	113
SW SERIES TRANSMITTERS	162
SWABS COTTON	68
SWITCHCRAFT	61
SWITCHERS PROGRAM	122
SWITCHERS ROUTING	104
SX-"A" SERIES HARRIS	
TRANSMITTERS	158, 159
SYMETRIX	
Amplifier	84
Audio Meter	138
Headphone Amp	84
Mic Preamp	70
Processors	97
Telephone Interface	110
SYNTHESIZERS STEREO	90
SYSTEMS	152-154
— T —	
TAB BATWING ANTENNA	185
TAC Consoles	15
TAD DELTAWING UHF ANTENNA	194
TAD DELTAWING VHF ANTENNA	185
TAPE	
Cartridge	25
Reel-to-Reel	37
Test, Alignment	130
TAPE CARTRIDGES	25
TAPE RECORDERS	30-34 38-41
TAPECASTER	
Cart Winder	27
TASCAM	
Cassette Recorders	38
CD Player	42
Consoles	15
DAT	41
Reel-to-Reel	34
TAV CBR ANTENNA	186
TAV CPV VHF ANTENNA	186
TAZ QUADRAPOWER UHF ANTENNA	194
TECHNICS	
CD Player	42
DAT Recorder	40
Turntable	42
TECTAN	120
TEKTRONIX	129
TELECART II	69
TELEMIX	109
TELEPHONE	
Automatic Dialing System	113
Call Counter	69 112
Couplers	17 107 109 112
Equalization	113
Frequency Extenders	103 106 107
Hybrids	108
Interfaces	107 108 110 112
Listen Line	69 112
Message Announcers	110
Remote Mixers	16, 17
Reporting	112
Surge and Transient Protector	MDF 113
Talk Show Systems	108 110
Voting	110
TELESWITCH	109
TELETAP	112
TELEVISION ANTENNAS	
UHF	194
VHF	185 186
TELEVISION TRANSMITTERS	
UHF	1871-193
VHF	1751-186
TELE-VOTE	110
TELEX	
Headset	54
Intercom	105
Wireless Mic Systems	52
TELFAX	16
TELLABS	113
TERMINATIONS	61
TERMS & CONDITIONS	199 200

TOWERS	150
TRADE-INS	127
TRAINING SCHOOL, HARRIS	195
TRANSFORMERS, ISOLATION	131
TRANSMISSION LINES	145, 146
TRANSMITTERS	
AM	1551-161
FM	1651-173
Shortwave	162
UHF-TV	1871-193
VHF-TV	1751-184
TRANSMITTING ACCESSORIES	132-151
Also See Harris Listing	
TRISTECH AUDIO	99
TSL STL	132-134
TUNERS	114, 143
TURNTABLES	
Base	68
Cartridges	67
Controller	66
Preamps	65, 66
Styli	67
Tonearms	67
TV ANTENNAS	
UHF-TV	194
VHF-TV	185 186
TV Series Transmitters	182-184
TV TRANSMITTERS	1751-184 1871-193
TWS WAVESTAR UHF ANTENNA	194
— U —	
UHF ANTENNAS	194
UHF EXCITER RETROFIT	193
UHF RETROFIT PACKAGES	193
UHF SHELL TUBE RETROFIT	193
UHF TRANSMITTERS	1871-193
UM SERIES TRANSMITTERS	188-190
UPS (Uninterruptible Power Supply)	131 133
UREI	97
USDA	102
USED EQUIPMENT EXCHANGE	127
UTAH SCIENTIFIC	104
UX SERIES TRANSMITTERS	191-193
— V —	
VALLEY INTERNATIONAL	
Interface	99
Processors	97
VEGA	52
VERSAPATCH	62
VHF ANTENNAS	185, 186
VHF NOTCH DIPLEXER	186
VHF TRANSMITTERS	1751-184
VOICE-ACT	112
VOLTAGE REGULATOR FILAMENT	174
— W —	
WARNING LIGHTS	73, 74
WATTMETERS	150
WAVESTAR ANTENNA, UHF	194
WEATHER EQUIPMENT	12E
WEATHER RECEIVER	12E
WEGENER	116, 117
WEST PENN	6C
WILL-BURT	127
WIRELESS MICS	5Z
WOHLER TECHNOLOGIES	8Z
— XYZ —	
XLR CONNECTORS	61
YAMAHA	3E
ZERCOM	
Interface	10C
Portable Mixer	1Z

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(Continued on next page)



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**REPAIRS & WARRANTY SERVICE:** Contact our Customer Service Department at 317-962-8596, Ext. 246 for instructions on repair. **DO NOT** return goods

without a **Return Authorization Number** and make sure proper documentation is enclosed stating the problem encountered. If you feel your problem can be solved by conversation with a technician, please ask for our Technical Service Department, Ext. 234.

**INSPECTION & CLAIMS:** Inspect all shipments immediately upon receipt for conformity with your order for shipping damage. Missing cartons or obvious damage to cartons shipped by common carrier should be noted on the delivery receipt. Concealed damage or loss should be reported at once to the carrier and an inspection requested. All losses or damage and other nonconformity or defect to goods or to shipments should be reported to our Customer Service Department. All claims for shortage or damage must be made within two business days after receipt of shipment. Claims for lost shipments must be made within 10 days of receipt of invoice or other notification of shipment. Save damaged or pilfered cartons until claim is settled. **BEFORE USING PRODUCT** — verify that products received are of the type ordered. Do not return any goods to Harris Allied without obtaining a **Return Authorization Number** and instructions from Harris Allied. **IMPORTANT** - Under present rules and regulations by most carriers it is the end user's responsibility to inspect and report losses and damage. It is essential that you follow correct procedure in applying for claims and most of all, do it promptly to protect your interests.

**DELIVERY:** Any delivery dates indicated are approximate and subject to availability of inventory and refer to the date on which the goods will be ready for dispatch from our warehouse and/or the manufacturer. The delivery time/date indicated is without obligation insofar as it may be delayed due to labor difficulties, fires, casualties, accidents, acts of the elements, acts of the public enemy, transportation difficulties, acts of the Government in its sovereign capacity; in the event of non-compliance with our terms of payment, or other causes beyond our control. **NO PENALTY CLAUSES ACCEPTED.**

**NO INSTALLATION:** Installation is not included. Certain items do not come factory-assembled and we make no representation to the contrary. Installation is available at extra charge on most items and packages.

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**PERSONAL SERVICE:** Large or small, it is our company policy to treat each order and inquiry as a person-to-person encounter. Your questions, comments and criticisms are welcome. Our staff is made up entirely of professionals willing to give you helpful assistance and work out possible problems to your full satisfaction. It is our sincere desire to give the broadcast and recording industry the best possible service anywhere.

**MISCELLANEOUS:** Each provision of these Terms and Conditions is severable, and in the event that any one or more provisions hereof may be declared invalid by Law, or may be waived by Harris Allied, then the remainder of this agreement shall nevertheless remain in full force and effect.

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