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FEDERAL EXPRESS® DELIVERY SERVICE
JUST A FEW DOLLARS MORE THAN REGULAR SHIPPING!

RADIO

A
HARRIS
ALLIED
PUBLICATION

INSIDE:

THE HARRIS CONNECTION

- On the air with the GATES Series. Page 9.
- Getting your transmitter ready for summer. Page 11.
- Training Center summer courses. Page 11.

THE DIGITAL CART MACHINE DESIGNED FOR BROADCAST

NEW



360 Systems' new DigiCart™ is an advanced digital recorder designed from the ground up for use in broadcast. It works exactly like conventional cart machines, but with some notable improvements: DigiCart provides the premium quality sound of digital audio, with high reliability and rugged long-life magnetic disk cartridges.

DigiCart fits right into existing studios without making big changes. It's the same half-rack size of today's most popular cart machines. Audio, remote control and cue signals work the same way they always have. And station personnel don't have to be retrained—one look at DigiCart and it's clear how it works.

What's even clearer is the on-air sound provided by DigiCart. Now everything from station IDs to spots to music transfers can have the "CD quality" that provides the extra edge needed to sell airtime in competitive markets.

Premium Quality Digital Audio

The secret to DigiCart's sonic excellence is found in new digital audio designs developed by 360 Systems' Broadcast Products Group. DigiCart offers the same 16-bit performance used by compact discs and R-DAT recorders to revolutionize the music industry. It produces ruler-flat response with absolute stereo phase accuracy; no high end roll-off or peaks, and no adjustments, ever.

A unique advantage of DigiCart is its Digital Audio Disk, derived from field-proven computer technology used in high volume worldwide. Unlike CDs and R-DATs, Digital Audio Disks provide exceptionally long life in a rugged cartridge enclosure. They can be banged and dropped, but they never skip and don't need a protective case for rack storage.

Instant Access to Every Selection

DigiCart provides instant access to every cut on a disk. A large Cue Select knob makes it easy to dial up any selection, with name and running time displayed in a large easy-to-read window. It's even possible to cue up the next cut while playing the first! Cueing time to the next cut—*any cut*, is immediate.

DIGITAL AUDIO DISK PLAYING TIMES

BANDWIDTH	(approximate)		SAMPLE FREQUENCY
	STEREO	MONO	
15 kHz	10 Min.	20 Min.	32.0 k Samples
20 kHz	7 Min.	14 Min.	44.1 k Samples
10 kHz	20 Min.	40 Min.	22.05 k Samples

John R. Quinn, WJDM, Elizabeth, NJ, wins a free set of Allied screwdrivers. Simply call 800-622-0022 for details.

DIGICART PRICES START AT \$3995

for the record/play machine. Ask us for the 4-page spec sheet.

Call 800-622-0022.

Telemix 2000

**Telephone Talk Quality
Cleaner sound/more control**



- **Record calls on or off air.**
- **Conference calls together.**
- **Hands-free, one-button operation.**
- **Custom control panels to match most consoles.**
- **Get the most out of your phone system.**

The new Telemix 2000 white paper is out. Call 800-622-0022 for your copy.



Digital FM Limiter/Stereo Generator



- **A new generation of processing.**
- **Completely digital for total control.**
- **Multiple program memory.**
- **Maximum modulation control.**
- **Unmatched clarity and audio transparency.**

Add Gentner's new digital Prizm for the total Digital Signal Processing package.



Multi-line Telephone System



- **Meet all your telephone interface requirements in a single system.**
- **Total control at your fingertips.**
- **Compatible with any telephone system.**
- **Handles up to 40 lines.**
- **Configured to your needs.**
- **Contest calls, talk shows, request lines, audio conferencing.**

Russell Lamb, WKLJ, Oxford, MS, wins a free 17"x24" Broadcast Cockpit poster (our 1990 Catalog cover) suitable for framing. Simply call 800-622-0022 for details.



Judy Spell

THE CLASS OF 1990



L-R:
Ed Pryor
Jon Young
Bill Schofield
Pat Hurley



Mark Drummond
Jeff Baker
Fred Brown
Dave Gill



Tom Ransom
Jeff Nordstrom
Dave Buck
Art Silver



Rick Sietsema
Curt Lutz
Scott Beeler



L-R:
Tom Harle
Ron Frillman
Tom Lewis
Will Bone



Jerry Weddle
Don Taylor
Dan Sessler
John Timm



Jim Marwood
Chuck Maines
Rick Funk
Ed Hawkins



John Grayson
Bob Groome
Kent Pendleton
Tony Mezey



Bill Newbrough



**With these professionals on your team,
you'll be *"Most Likely to Succeed."***

James Truelove, American Broadcasting Co., Washington, DC, wins a free set of Allied screwdrivers. Simply call 800-622-0022 for details.



CHILD'S PLAY.

Finally, a hard disk digital audio recorder that's simple, fast, and affordable. ■ No computer monitor, keyboard or mouse, just an easy to use two-track digital recorder providing up to 60 minutes of CD quality stereo audio. ■ Control the DR-2™ directly with the optional remote which features familiar tape recorder controls. ■ Access sound instantly with the touch of a button. ■ Install the DR-2, and make digital your domain, today.

 **HARRIS
ALLIED**
800-622-0022



THE HARRIS CONNECTION

Dateline Quincy

Jeff Baker joins Radio RF Sales Force

Harris Allied Broadcast Equipment has announced the appointment of Jeff Baker as Radio RF Sales Representative for the Northeast United States.

Baker represents Harris's complete line of AM and FM transmission products and service and training programs to broadcasters in northern New York, Massachusetts, New Hampshire, Vermont and Maine.

With over 20 years' experience at radio stations, Baker most recently was self-employed as a technical consultant in Rochester, NY. He is a Senior Member and serves on the National Board of Directors of SBE, and is a member of the IEEE and the Audio Engineering Society.



Jeff Baker

Harris Allied Canada named RF distributor

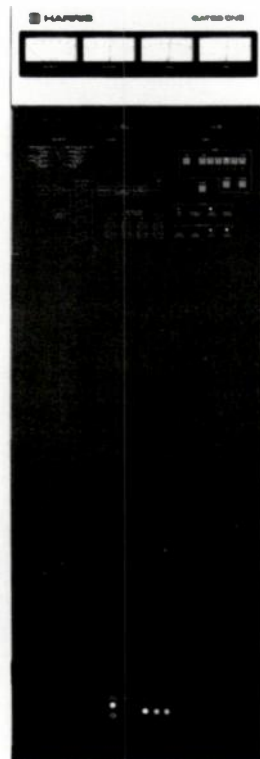
Harris Allied Canada has been designated as the single equipment source for Harris radio and television transmission equipment and Allied Broadcast Equipment products in Canada.

The appointment makes Harris Allied the only full-line radio distributor and U.S. broadcast RF equipment manufacturer with Canadian operations, staff, and in-country expertise.

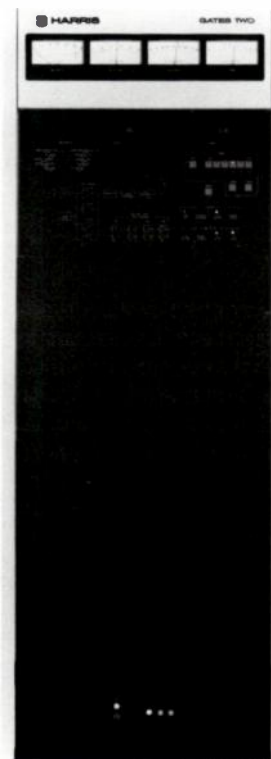
According to Jon Young, vice president and general manager of Harris Allied Canada, "The combined Harris Allied is unique as the only U.S. broadcast company with operations and staff on both sides of the border.

"Our Canadian customers will benefit by having immediate access to RF technical support, service and sales expertise through direct dial to our Canadian facilities or transmitter factory. Harris Allied Canada now offers leading AM, FM and TV RF technology as well as more than 4,000 radio studio products from over 230 manufacturers to broadcasters from every region throughout the country."

With sales, service and warehouse facilities in Richmond Hill, Ontario, Allied Broadcast Canada was established in 1985 as the first full-line distributor with complete operations in the United States and Canada.



GATES ONE



GATES TWO



GATES FIVE

On the Air with the GATES Series...

First users give new series high marks

When Harris Allied Broadcast Equipment's GATES Series™ 1, 2.5 and 5 kW solid state AM transmitters made its official debut at NAB 1990, the product line was selected by *Broadcast Engineering Magazine* as one of the new product pick-hits.

According to the first broadcasters to switch to the GATES Series, there's good reason why.

From ease of installation and use to performance and efficiency, users contacted by Radio Today give the GATES Series a high rating.

"Installation was easy," says Roger Lonnquist, general manager of KHKR in Helena, Montana. "All I did was read the manual. The actual installation only took six hours. After that, it was on-line and running at full power."

While "out-of-the-box" operation is a major plus of the GATES design, other users have found that the commitment to simplicity does not end at installation.

"The transmitter's flexibility and ease of maintenance really attracted me to GATES,"

says Mark Rollings, general manager of WRTL in Rantoul, IL.

He particularly likes the six adjustable power levels which are standard on GATES transmitters: "With the built-in timer capacity, we don't have to rely on the DJs to remember to change the setting. We can just program it once a month. The transmitter is clean and pretty cut and dried," Rollings says.

Another standard GATES feature—extensive front-panel monitoring information including a signal flow diagram with LEDs for at-a-glance status information, was especially important to Wally Christensen, owner of KLOH at Pipestone, MN:

"I really like that the logic on my GATES transmitter is the same as my DX10 (Harris' 10 kW digital solid state AM transmitter). The flow is nice, and it's easy for simple-minded operators like me to follow."

Christensen adds that his transmitter also sounds good. "I like that," he says.

Continued on page 10



Hilmer Swanson

**Hilmer I. Swanson
Scholarship announced**

Harris Allied Broadcast Equipment has announced the establishment of a permanent scholarship which will be awarded annually to a student in the Harris-John Wood Community College two-year broadcast technology program.

The scholarship has been named to recognize Hilmer I. Swanson, Harris senior staff scientist who was named recipient of the National Association of Broadcasters' 1990 Engineering Achievement Award.

Swanson, who joined Harris in 1965, has invented many AM technologies which have become world standards, including Pulse Duration Modulation which has reduced the world's AM power bill by over \$50 million while significantly improving performance, and digital amplitude modulation.

Based in Quincy, the Harris-John Wood Community College program represents a highly unique partnership between an equipment manufacturer and a community college. Students in the two-year degreed program receive technical training as broadcast engineers. Graduates also are certified by the SBE.

**GATES Series transmitters
Broadcast Engineering pick hit**

Harris's GATES Series all solid state AM transmitter line in 1, 2.5 and 5 kW models was selected as one of *Broadcast Engineering Magazine's* top new radio products at the 1990 National Association of Broadcasters Convention.

Products named to the pick hit list must be new; offer a positive impact on the user's everyday work; offer improvements in current technology; be priced within the reach of the user, and be available for purchase.

Want more information?

To learn more about any Harris RF product, service, training, or Harris Allied Systems, please complete the RF Action Card at the back of *Radio Today*.

On the air with the GATES Series . . . (continued from page 9)

"Tremendous" audio quality

Users have found that GATES transmitters don't compromise sound quality for simplicity.

KHKR's Lonnquist notes that the audio quality is "tremendous," and Terry Arnold, general manager for KCHB Detroit, MI, is also impressed.

"The loudness of the signal is the most impressive thing about the GATES," Arnold says. "The engineers who wanted to purchase this transmitter said it would provide maximum output and sound that we needed. It has fulfilled everything we expected."

Reduced power costs

With typical overall AC to RF operating efficiencies up to 72 percent, GATES Series transmitters can reduce power costs.

"A big draw for us was that the GATES uses so little electricity," Lonnquist says. "That will certainly help out."

Fulfilling a tradition

According to Ronald C. Frillman, manager of Radio RF Sales for Harris Allied, this Series transmitters was named for the founder of Harris Broadcast Division, the late Parker S. Gates.

"From its founding in 1922, Gates Radio established a tradition for responsive products which provide the best long-term value to broadcasters. GATES Series transmitters do this, and they're priced to

be equal to, or lower than, other solid state transmitters on the market," Frillman says.

It's this dedication to quality that keeps WAJR of Morgantown, WV returning to Harris:

"We went with the GATES transmitter because it is a legacy," says Dale Miller, general manager. "We have a Harris transmitter at our FM station, and the GATES is replacing a Harris BC5H. Another reason we chose Harris is that we wanted to go solid state and keep up with technology."

"The GATES FIVE is excellent."

GATES Series features and benefits

GATES ONE: 100 - 1100 Watts
GATES TWO: 250 - 2750 Watts
GATES FIVE: 500 - 5600 Watts

- 100% solid-state design—no tube replacement costs. All FET PA.
- Patented Polyphase Pulse Duration Modulation for positive peak modulation greater than 130% (at 1000, 2500 and 5000 watts) and superb audio performance.
- Simple and rugged discrete logic controller.
- Designed for 100% sine wave modulation for long life at high modulation levels.
- Extensive front status information.
- T network adjusts to accommodate 1:1 matching loads for 1.5:1 VSWR.

SOUNDING SUPERB



Ron Frillman with exciters

Can an exciter really make that much of a difference in an FM station's sound? Recently Harris-Allied invited FM broadcasters to participate in a sound-off to find out. FMers were invited to try Harris' THE-1 solid-state FM exciter for 30 days and compare it to their current exciter. If at the end of the 30 days participants agreed that THE-1 sounded better, they could return their old exciter and receive a trade-in allowance on THE-1.

Our thanks to the many broadcasters who took the challenge, joining the ranks of more than 500 THE-1 users worldwide. For information on THE-1 or any Harris FM transmitter from 250 watts through 35 kilowatts, please complete and return the RF Action Card at the back of *Radio Today* or phone me at 217/222-8200, Ext. 3401. Thank you.
—Ron Frillman, Manager of Radio RF Sales

Getting your transmitter site ready for top summer performance

By Terry Hollenberg, Manager of Radio Service

With the onset of summer weather, even the best kept transmitter site is probably due for some after-winter maintenance. Following is a categorized check list you may want to use as a general guide to avoid future site problems:

Facility Checks

- ✓ **Roof Leaks:** Inspect the ceiling and attic of your transmitter building for any sign of roof leaks. Water getting into any electronic equipment can produce disastrous results—especially if high voltage is involved.
- ✓ **Air Conditioning:** Check your air conditioning for adequate cooling capacity before mid-summer when it is needed the most.
- ✓ **Ventilation:** Clean or replace any air intake filters to the building. Also inspect all air ducts for any obstructions and ensure that any air assist fans and their thermostats operate freely.
- ✓ **Primary Power Protection:** Inspect all surge protection devices for damage and make sure all connections associated with them are secure. Protection against lightning surges depends greatly on how well the surge arresters are connected to earth ground, so the integrity of this connection is essential as well.

General Transmitter Checks

- ✓ **Cleaning:** Check for, and remove any nests which may have been built by pests seeking the warmth (but not the high voltage) of your transmitter during the cold weather. Use a vacuum cleaner and compressed air to remove the dirt which has accumulated.
- ✓ **Motor and Blower Bearings:** Listen to the motor and the blowers in your transmitter for any signs of wear on the bearings.
As bearings dry out, they start to produce a high pitched squeal. The motor and blower can also be checked for side play and ease of rotation while the motor is off.
- ✓ **Tube Rotation:** We recommend the following practice to ensure you have a good tube on the shelf: At six month intervals, rotate your spare tube into your transmitter. This will prevent the idle tube from becoming gassy, and is one of your best assurances that you have a working spare tube.
- ✓ **Filament Adjustment:** Check your filament voltage adjustment to be sure you are operating at the lowest filament voltage you can without losing power output of AM positive peak performance. Keeping the filament voltage only as high as it needs to be is a significant factor in tube life.

- ✓ **Transmitter Overload:** Check the operation of the transmitter's protective circuitry per the manufacturer's instruction manual. Ensuring adequate operation of the protection circuitry may help to guard against damage due to storm activity.
- ✓ **Spare Parts:** Check your stock of spare parts against what you might reasonably expect to replace in the summer months and supplement your supply accordingly.

AM system checks

- ✓ **Antenna Base and Tuning Units:** Check the spark gap at the base of any series fed towers for the proper setting. If set too wide, there will be a greater tendency for direct and lightning-induced voltages to damage your antenna tuning units, phasor, and transmitter. Also remove any vegetation which often

grows around tower bases, and make sure the tuning boxes are cleaned out.

- ✓ **AM Ground Systems:** Take note whether any parameters of your antenna operation are affected by ground moisture. If so, your ground radials may be in need of repair or replacement due to their age.
- ✓ **Static Drain Chokes:** Check the condition and continuity of the static drain and/or tower lightning chokes to ensure static electricity will not build up on the tower.

FM system checks

- ✓ **De-Icers:** If you are among those who experienced high VSWR caused by antenna icing during the winter, now would be a good time to schedule someone to install or repair your antenna de-icers.

Training Center slates seven radio courses from July through September

The Broadcast Technology Training Center will offer seven radio training courses between July and September. In addition to four programs on Harris transmitters, three general RF training classes will be offered. These programs are for any engineer—regardless of the manufacturer of equipment in use by the station.

Training programs combine theory with hands-on practice in operation, maintenance, trouble-shooting and repair.

To ensure participants have adequate time for practical experience, class size is limited.

Following is the schedule of spring training programs for radio engineers. For registration information, please phone the Harris Broadcast Technology Training Center at 217/222-8200, Extension 3508 from 8 a.m. to 5 p.m. (CDT) Monday through Friday or return the RF Action Card attached to the back of this publication. Thank You.

Date Course

July 9-13 R.F. Circuits I

Course content includes: review of basic AC principles, classes of power amplifier operation (A, B, C & D), power measurements, effect of tuning on D.C. tube parameters, tube theory, impedance matching networks, neutralization, use of vector impedance meter, pulse duration modulation information and solid-state amplifiers.

Double tuned over coupled RF amplifiers (Class "D" AM, Class "C" FM).

July 16-20 R.F. Circuits II

Course content includes: fundamentals of transmission lines, quarter wave and half wave resonant lines, time domain reflectometer measurements, VHF cavity amplifier tuning (FM), cavity disassembly, VSWR and reflection coefficient calculations, slotted

line, hybrids and notch diplexers, Smith chart, antenna basics and RF pulse testing techniques.

July 30 - Aug. 3 FM-5/10/20-K-G-H Series
An intensive five-day seminar which includes: MX-15, MS-15 and THE-1 exciters and an analysis of digitally synthesized modulation for stereo generation; high power PA amplifiers and PA cavities, proper PA tuning, PA efficiency, IPAs, control logic circuits, power supplies, troubleshooting and preventive maintenance.

August 21-24 FM Transmitter Workshop
Course topics include: proof of performance measurements, troubleshooting techniques, stereo generation, tuning for performance, crosstalk; AM noise measurements, three-phase power, surge protection, grounding, lightning protection & review of FM transmitter operation and associated test equipment with extensive hands-on practice.

August 27-31 HT-20/25FM & FM-25K/25K1
An intensive five-day seminar which includes: MX-15, MS-15 and THE-1 exciters and an analysis of digitally synthesized modulation for stereo generation; PA amplifiers and proper PA tuning; solid-state control logic with troubleshooting exercises.

September 5-7 HT-1/500/250FM Series
A comprehensive three-day seminar which includes: MX-15 and THE-1 exciters including digitally synthesized modulation for stereo; power amplifier operation, combiners, detailed description of the control logic and proper performance measurements.

Sept. 24-27 HT-3.5/5/10FM & FM-3.5/5K1
An intensive four-day seminar which includes: MX-15, MS-15 and THE-1 exciters and an analysis of digitally synthesized modulation for stereo generation; PA amplifiers and proper PA troubleshooting exercises.

How the newest AM transmitters earned one of the oldest names in radio.

Introducing the Gates Line of 1, 2.5 & 5 kW Solid State AM Transmitters.

Gates. It's more than a name—it's a tradition of quality and value. To earn that name, these affordable new transmitters had to meet the highest industry standards in five key areas:

Value

- Overall efficiency of up to 72% cuts power costs.
- Multimeter plus PA voltage, PA current, and forward/reflected power meters standard.
- Output tuning included as standard.
- Remote inputs compatible with both TTL and relay-type remote systems.

Durability

- No tube failures, time-consuming adjustments or replacement costs.
- Modular construction with easily accessible socketed MOSFETs.
- "Chimney design" air handling keeps transmitter clean and dust-free.
- 100% solid state "soft-failure" power amplifiers.

Simplicity

- Six independently adjustable power levels accommodate virtually all PSA/PSSA requirements.

GATES



- Color Stat™ front panel with signal flow block diagram and red Fault LEDs shows transmitter status at a glance.
- Rugged, dependable discrete logic controller.

Reliability

- Automatic overload power cut-back keeps the transmitter on the

air at the highest safe power level.

- Bandpass output network has proven its lightning survival capabilities in the field.
- Automatic instant AC restart.
- Battery backed-up controller memory.

Performance

- Patented Polyphase Pulse Duration Modulation technology.
- Unsurpassed reach with 130% positive peak capability.
- Minimal distortion, overshoot and ringing for crisp, "ear grabbing" sound.

Original circa-1946 Gates transmitters are still on the air to remind us that value, durability, simplicity, reliability and performance are as important right now as they ever were. So if you want an affordable solid state transmitter with all the "old fashioned" advantages, call Harris today

for more information on the newest AM transmitters— and how they earned the proudest name in radio.



Harris Broadcast Division
Marketing Department
P.O. Box 4290, Quincy, IL USA 62305-4290
Tel (217) 222-8200, Ext. 3408
Fax (217) 222-7041

DURO-TEST

It's time to relamp your towers...



and Allied's made it easy with our special relamp pricing.

CODE BEACON

Model	Bulb	Base	Watts	Pkg.* Price
D/T682	PS-40	Mogul	620	\$62.00
D/T683	PS-40	Mogul	620	90.00
D/T684	PS-40	Mogul	700	90.00

*Each package contains 2 bulbs.

OBSTRUCTION

Model	Bulb	Base	Watts	Pkg.* Price
D/T424	A-21	Med.	116	\$27.00

*Each package contains 6 bulbs.

(OR)

Buy 6 PS-40 code beacons and get 6 A-21 side lamps free. Call for complete details. Good thru close of business on Aug. 31, 1990.

SUPER STEREO!



- Improved stereo coverage
- Mega-separation
- Less multipath
- Clean SCAs
- Maximum dial impact

PILOT-LOK is the computer-designed phase-linear filter that restores stereo integrity to the most heavily clipped composite signal by protecting the 19kHz 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, and all for **only \$425.00.**

Also available for 57, 67, and 92kHz protection.

Top Performance. Lowest Price.



Comtech's 3.8 meter antenna is the perfect antenna for reception of any format audio network, whether the transmission is Digital, Subcarrier or SCPC. Careful, tight tolerance construction assures maximum gain and minimum beamwidth so necessary for today's crowded satellite arc.

Comtech's 3.8 meter antenna. You simply won't find a better price anywhere. What you will find from Harris Allied is top quality performance at realistic prices. It just wouldn't make sense to go somewhere else. At Harris Allied, we carry a complete line of audio downlink equipment, and we sell it for the best price. We back it with our unequalled reputation for quality, price and service. Call us today!

HARRIS ALLIED
SATELLITE EQUIPMENT

317-962-8596
Ext. 245

Glen Koppel, KAMB, Merced, CA, wins a free sat of Allied screwdrivers. Simply call 800-622-0022 for details.



AUDISK™

It Costs A Little, Stores A Lot.

Audisk is the digital solution that beats multi-cart automation in EVERY way... including price! Check out the facts. See the chart below, and then call your Harris Allied professional for the full story on Audisk.

Comparison: Multi-cart system vs. AUDISK

Feature	Multi-cart system	AUDISK
Initial cost (stereo)	\$19,000 (48 slots)	\$17,230 (360 minutes)
Audio switcher cost	\$2,000	(included)
Automation/controller cost	\$3,000	(included)
Production recorder	\$3,000	(included)
Logging encoder	\$1,000	(included)
Logging printer	\$ 375	\$ 375
On-line total playback time	120 mins. typ., 504 max.	360 mins. std., >121 hrs. max.
# of :60's randomly accessible	48 mins. max.	>7,260 mins. max.
Initial media cost	200 carts @ \$5 (avg.)	(none)
Media replacement	Every two years	Once in 12-15 years
Parts availability	Largely proprietary	Universal (IBM-PC)
Basic reliability	?	>150,000 hr. MTBF (>15 years)
Walk-away time	Hours	At least 7 days
Ease of operation	Complex to pgm	Simple, menu driven
Error-checking	(none)	Killdate checking, automatic scheduling error detection, mirroring (optional)



Milton Jones, WTVR, Knoxville, TN, wins a free 17" x 24" Broadcast Cockpit poster (our 1990 Catalog cover) suitable for framing. Simply call 800-622-0022 for details.

AUDISK™ . . .

The affordable digital solution.

For a working demo of the Audisk Digital Automation System, call our BBS at 317-935-0531 and ✓ our menu for the file to download.

For more and complete information

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BROADCAST EQUIPMENT

800-622-0022

**HARRIS
ALLIED**



MODULINK® FACTORY PREWIRED STUDIO SYSTEMS

FROM



The successful design, manufacture, and installation of a modern radio broadcast Air or Production studio is a complex task. It requires experience in a dozen different fields from carpentry and architecture, to grounding and AC power systems, to the wiring and control systems for the studio itself. The Modulink Systems Division at Arrakis is designed to be a resource to your station whether you have a full-time engineer or bring in outside engineering talent. They can provide any level of system support from a simple studio kit to be assembled on site to an entire studio that just plugs in.

FACTORY SUPPORT

Arrakis Systems is the #1 manufacturer in unit sales of audio consoles and studio furniture for radio in the U.S. When using Modulink for your systems needs, you therefore receive the full support and backing of a major electronics and furniture systems manufacturer. Design and technical drawings for your system are faster and more professional with Macintosh-based CAD computer systems and staff design engineers. All or part of the studio system can be assembled and tested in Arrakis' custom Systems Division facilities. This means that studio installation and setup time at the site are dramatically reduced which saves time, money and headaches. During setup if your engineers encounter a problem, they have access to the full resources of the systems and customer service departments. That is also a very important resource to your station as the years go by and the studio requires modification or expansion. Factory direct support for your system is one of the most important features of Modulink systems from Arrakis.

Modulink Prewire On Air System 12



Modulink® is a registered trademark of Arrakis Systems, Inc.

**CALL FOR
COMPLETE DETAILS
800-622-0022**

See pages 18, 19, & 20 and learn how easy it is to order your system.

THE ARRAKIS STUDIO IN

WHAT IS MODULINK?

Factory prewire systems must be capable of being assembled and tested at the factory and then torn down to be shipped and reassembled at the site. To make that reassembly fast and efficient, Modulink uses connectorized plug-in cables for studio assembly and disassembly. An advantage of this feature is the ease of expansion or reconfiguration of the system at the site. To reconfigure a studio, cables need only be re-routed and plugged in. In the case of expansion, new cables and sources need only be added. This flexibility is one of the major features of Modulink over traditional point-to-point punch block type studio systems.

Modulink Custom Wiring Bulkhead



MODULINK CUSTOM

To best serve studio systems needs, Arrakis has created two forms of Modulink. The first is Modulink Custom introduced in 1988. This system was engineered to be assembled and tested at the factory. It is fully prewired for up to 48 sources. Metal bulkheads within the studio furniture are cabled and connectorized for the basic wire harness. Short extender cables then connect these bulkheads to the specific source such as a cart machine or CD player. Once assembled at the factory, the studio is tested and then broken down into 3 to 5 pedestals. These pedestals are shipped to site where the metal bulkheads are plugged in, the pedestals bolted together, and the system is up and running usually within 2 hours.

MODULINK PREWIRE *The System is FREE!*

To help speed studio design and construction time where local engineering is available, Arrakis introduced Modulink Prewire in late 1989. This system was designed from the ground up. A new console, the 12,000 was engineered along with a new furniture line and a new approach to system cabling. This studio can be assembled and tested in factory or sent to site as a kit for rapid installation. The integration of the console, furniture, and system cabling was so successful, that we can literally sell the system cabling for *FREE* when a complete system is ordered. See the next page for further information.

A SYSTEM FOR ALL MARKETS

Modulink studios are ideal for small, medium, and large markets—On Air, Production, and Newsrooms. With three furniture lines and the largest console line in the industry, Modulink truly fits any size job or application.

THE HARRIS ALLIED CONNECTION

Arrakis Modulink systems are sold exclusively through Harris Allied. This means that the full resources of the Harris Allied systems people are available if you need a turnkey facility or simply a single engineer on site for support. This also means that your bid is as close as the telephone and your local or worldwide Allied office.

Modulink Custom Studio System



FEATURES

TWO TYPES OF MODULINK

(1) Modulink Custom:

- ▶ Assembled and tested at the factory for shipment to site.
- ▶ Up to 48 sources. Assembles in 2-4 hours.

(2) Modulink Prewire:

- ▶ Can be shipped in kit form or assembled and tested.
- ▶ Basic Systems are easily laid out by nontechnical people.
- ▶ 'Component Stereo' Cables—For every source or output there is a single specific cable that connects that source with audio and logic controls to the console. Just plug it in.
- ▶ The System is FREE!!!

BASIC FEATURES

Easy to Design a Studio—
let our engineers help you with the technical questions.

Factory Assembled & Tested or Prewired & Assembled on Site—

whether you receive a Modulink Custom studio to simply plug in or your engineer assembles a Modulink Prewire studio at your station... you have the confidence of factory systems support, construction time is dramatically reduced & money is saved.

Connectorized assembly—
just plug it in! This makes your system easy to change and to expand in the future.

MODULINK PREWIRE

■ A STUDIO IN A BOX!!!

Ordering Modulink Prewire is as simple as ordering a console or cart machine. The studio is shipped to site in pretested sections and assembled in minutes or hours.

■ THE SYSTEM CABLING IS FREE!!!

The integration of the console, furniture, and system cabling is so successful, that we can literally sell the system cabling for free with a complete system. Why purchase the equipment and assemble the system at your cost? Call now for quote!

■ FASTER AND EASIER WITH FACTORY SUPPORT!!!

First—studio design is much easier. Nontechnical people can define the studio while Arrakis converts your vision into a functioning reality.

Second—on-site assembly time of the studio with the associated construction mayhem is dramatically reduced. This saves both money and aggravation.

Third—you receive a factory tested and documented system with the full support of a major electronic manufacturer.

■ 'COMPONENT STEREO' STUDIO WIRING!!!

Modulink Prewire uses a 'Component Stereo' approach to studio wiring! For every source device (such as a cart machine for example) there is a factory prewired cable that plugs into the console at one end and the source device (cart machine) at the other end. This cable carries both audio and logic control signals so that the source may be remote started, stopped, feature ready status flashing lamps, etc. Cables are factory built to connect your monitor amps, distribution amps, speakers, telephone hybrids, etc. This approach makes it no more difficult to assemble or expand a studio than to plug in and assemble a sophisticated wall audio-video entertainment center.

■ IS IT A KIT OR CAN IT BE ASSEMBLED AND TESTED AT THE FACTORY?

The answer is EITHER. The furniture, source equipment, audio console, and Modulink prewire cables can be shipped to your site ready for your assembly. Or, the entire studio can be assembled at the factory, tested, and then shipped by furniture mover to your site in 3 to 5 large pieces that plug together in minutes.

■ DO I NEED AN ON SITE ENGINEER?

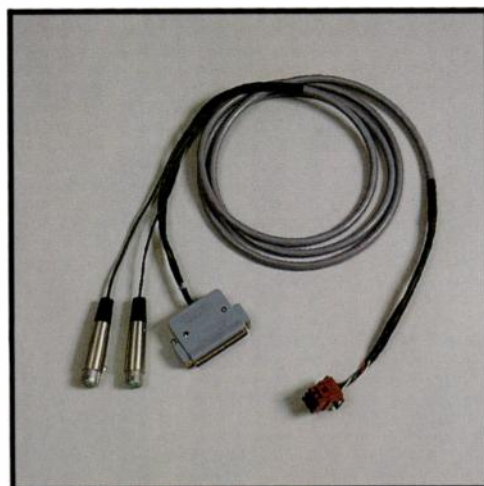
YES—A technical person is required for the studio assembly whether the studio is sent assembled or disassembled. The studio will require at the least a check of calibration and levels. The value of Modulink Prewire however is that technical support is reduced from weeks to hours.

■ HOW DO I FIND OUT MORE?

Call your local Harris Allied sales office at 800-622-0022 for more information and a Modulink Prewire Manual.

Arrakis Modulink® systems are sold exclusively through Harris Allied.

Modulink Prewire audio & logic cable



Modulink Prewire On Air System 12



Modulink Prewire On Air System 12



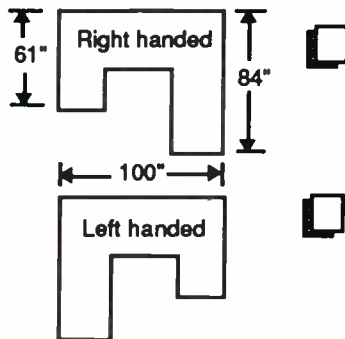
Modulink® is a registered trademark of Arrakis Systems, Inc.

HERE'S HOW EASY IT IS TO PLAN YOUR STUDIO.

MODULINK SYSTEM 12- ON AIR OR PRODUCTION STUDIO

(1) BASIC STUDIO INFORMATION

(a) Studio Orientation (check one box)



(b) Studio Audio Level (check one box)

+0 dBm ☐

+4 dBm ☐

+8 dBm ☐

(+4dBm is the most common)

(c) Interview Table (2 person)

(check appropriate boxes)

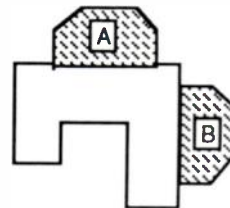
Yes ☐

No ☐

Location

'A' ☐

'B' ☐



(2) STUDIO SOURCE SELECTION AND LOCATION

Check Yes or NO for each source shown below to match your needs.

Mic 1 Yes ☐ No ☐

Cassette 1 Yes ☐ No ☐

Monitor Amp Yes ☐ No ☐

Cart Recorder Yes ☐ No ☐

Reel to Reel 1 Yes ☐ No ☐

Reel to Reel 2 (Roll around) Yes ☐ No ☐

Mic 2 Yes ☐ No ☐

Mic 3 Yes ☐ No ☐

CD1 Yes ☐ No ☐

CD2 Yes ☐ No ☐

Phone Hybrid Yes ☐ No ☐

Cart Playback 3 Yes ☐ No ☐

Cart Playback 2 Yes ☐ No ☐

Cart Playback 1 Yes ☐ No ☐

Turntable 1 Yes ☐ No ☐

Turntable 2 Yes ☐ No ☐

NOTE-

If audio processing equipment is desirable (such as a mic processor, reverb, compressor, etc), then the processors should be placed in 3RU taller versions of the left or right equipment pods where they are readily accessible to the operator.

Larry A. Trimmer, The Cromwell Group, Nashville, TN, writes a free set of Allied Screwdrivers. Simply call 800-622-0022 for details.

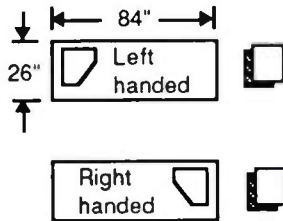
SIMPLY PICK AND CHOOSE AND LET US DO THE WORK!

MODULINK SYSTEM 6- NEWS ROOM, EDIT, or PRODUCTION STUDIO

(1) BASIC STUDIO INFORMATION

(a) Studio Configuration

Choose the side that the Tabletop equipment pod will go on the table.



(b) Studio Audio Level

(check one box)

+0 dBm ☐

+4 dBm ☐

+8 dBm ☐

(+4dBm is the most common)

(2) STUDIO SOURCE SELECTION AND LOCATION

Check Yes or NO for each source shown below to match your needs.

Mic 1
Yes ☐ , No ☐

Cassette 1
Yes ☐ , No ☐

CD1
Yes ☐ , No ☐

Monitor Amp
Yes ☐ , No ☐

Phone Hybrid
Yes ☐ , No ☐

Cart Playback 1
Yes ☐ , No ☐

Cart Recorder
Yes ☐ , No ☐

Turntable 1
Yes ☐ , No ☐
(if Yes, then choose one of two mounts below)

Reel to Reel 1
(Roll around)
Yes ☐ , No ☐

(1) Tablemount
Yes ☐ , No ☐
or
(2) Freestanding
Pedestal Mount
Yes ☐ , No ☐

Turntable 1
Yes ☐ , No ☐

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800-622-0022

ALLIED & ARRAKIS WILL HELP YOU FULFILL YOUR SPACE PROGRAM!

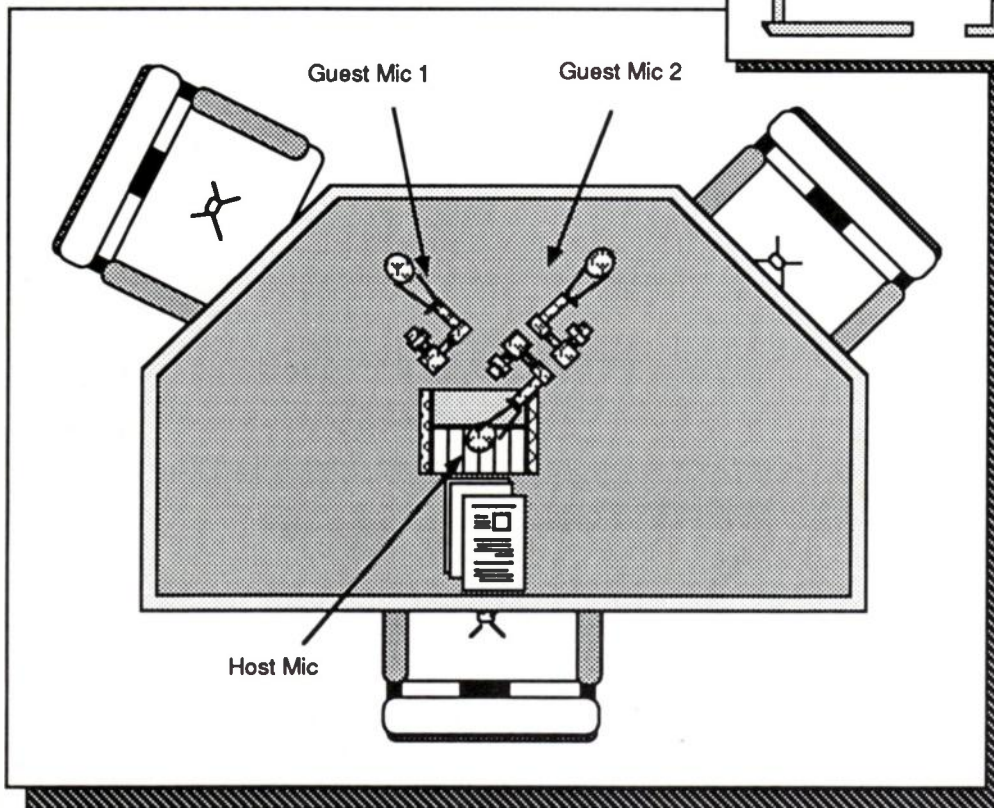
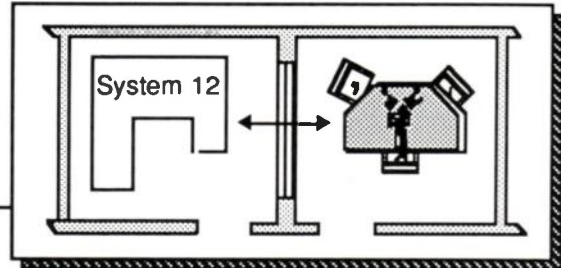
MODULINK SYSTEM 3- INTERVIEW STUDIO, TALKBOOTH

(1) BASIC STUDIO INFORMATION

This system is designed as an interview studio-talk booth for a host and a maximum of two guest speakers. The turret remote controls three mic channels in a Modulink System 12 which would usually be located in an adjacent studio.

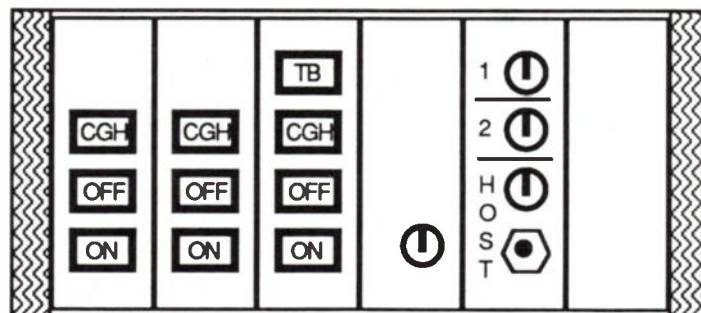
The interview system comes entirely prewired with a 50 foot cable to interconnect with the System 12 master studio. Headphone jacks and Cough pushbutton controls are located in the table surface in front of each speaker. The system provides independent talkback to the guests and the host headphones.

Typical Application



(2) TURRET CONFIGURATION

The talkbooth turret contains remote controls for the three microphones, headphone level controls, and a studio monitor level control for the studio monitor speakers. The turret is passive-with all power, tally lamp drivers, studio monitors, muting, etc. driven from the console in the remote controlled 12,000 series console.



Guest Mic #1	Guest Mic #2	Host Mic	Studio Monitor Volume Control	Head- phone Level Control
-----------------	-----------------	-------------	--	------------------------------------



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makes the
CL-2, UL listed
wire you need
at the price
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is becoming America's
best selling wire...
GEPCO from
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Welcome To The New Speed of Sound



The Digital Sound Editor from AKG: The first real breakthrough in digital production is now hitting the air waves.

Time and money. Sound quality and creativity. The demands on radio production haven't really changed since the first broadcast in 1920.

What *has* changed is the pressure to produce. Management wants more for less. Programming wants it better and faster. Sales want more spec spots. Everyone wants miracles on a budget. Technically, it's all now possible.



With the first digital audio solution designed for radio.

Analog no longer cuts it

The DSE is the first full digital production system that's as easy to use—and afford—as analog equipment.

In fact, the DSE starts with the same controls and functions you already know. Except now you're working with the legendary crispness of digital sound. And the incredible speed of RAM storage.

How incredible? Typically, you can finish a full 8-track production in one-third the time it now takes. With no tape. No razors. No mishaps. No generation loss.

Get up to speed almost immediately

Everything about the DSE is designed to be fast and familiar



to anyone in radio.

You don't need to know computers; even the color monitor is

just a simple, visual reference.

The console itself is a study in both production and human engineering.

The 8-track digital recorder lets you work the same way you always have; listening and cuing at high speeds; rocking back and forth for edit points.

When you're ready, electronic "grease pencils" let you edit, copy, and slide tracks instantly. The 10-input mixer lets you control level, pan, echo sends, track bounce and more.

There's even a digital mixdown deck integrated right into the



system. So from the very first day you'll be finishing spots, not studying manuals.

The system itself

The DSE incorporates three com-

ponents—the computer system unit, a controller, and a color monitor—into a workstation about the size of a professional tape recorder.

The computer system unit is an 80286-based AT compatible computer containing an ADC/DAC module, digital signal processor card, and DRAM memory cards.

The controller consists of dedicated buttons for track mode selection, tape motion control, and



editing; slide controls for mixdown and monitoring adjustments; and a rotary control

for editing and cuing.

An EGA color monitor displays information in two windows. Track displays and mixer settings are shown in the upper window, while signal level, remaining recording time, and menus are shown in the lower window.

AKG DSE 7000

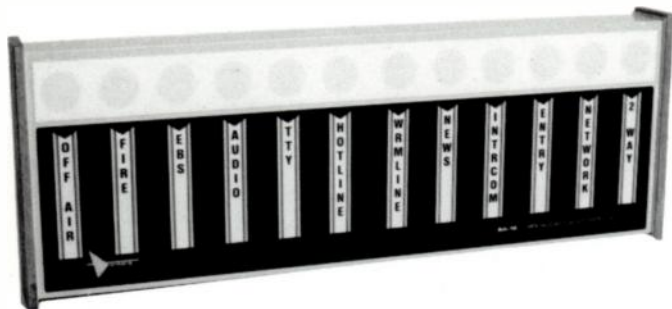
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800-622-0022



AKG

DSE 7000



EXPANDING to meet your needs!

Finally, it's no longer necessary to use two of the BA-6s side by side. The BA-12 provides full alerting and status information in one, convenient package. The BA-6 is still available.

\$699.00

Gary Minkler, WIRK/WPBG, West Palm Beach, FL, wins a free 17"x24" Broadcast Cockpit poster (our 1990 Catalog cover) suitable for framing. Simply call 800-622-0022 for details.

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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. You can eliminate these costly power line problems with the Energy Control EQUALIZER from Harris Allied.



LOOK NO FURTHER...

For Used Equipment

Allied Equipment Exchange is devoted to the BUY-SELL-TRADE aspect of used radio equipment. We selectively buy used equipment... we accept trade-ins when you purchase new equipment... and we sell used equipment.

So, look no further... call Jim or Chuck today!

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— SUMMER SPECIAL —
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Oldies Library for a very special price.**

After two years of research and thousands of hours in locating the very *best* sounding original hit versions of all tunes, this broadcast library has been compiled onto 50 CDs. The tunes are arranged in alphabetical order by artist, so that finding any tune is quick and easy. It's perfect for request shows and dedications!

Virtually all tunes have been sourced from CDs, studio tapes or R-DAT for excellent audio quality without pops, ticks, or noise. All material has been checked against original "Hit 45s" so you're assured of getting the songs *your listeners remember* and want to hear. No "sound-alikes" or strange remixes!

**SPECIAL COMBO PRICE WHEN DENON DN-950FA
AND OLDIES LIBRARY PURCHASED TOGETHER.**

Offer subject to change or
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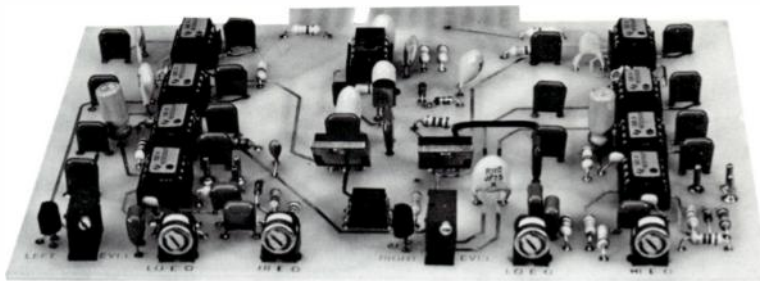
In a hurry? Ask about
Federal Express.

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PREMIUM RETROFIT CARD

The Premium Retrofit Card by Indy Audio is a direct retrofit to replace existing cards in the ITC® Premium Series cart play machines. Upgrade your faithful ITCs with technology of the 1990s. Direct plug-in—minimum modifications. Slew rate, rise time noise, distortion . . . all state-of-the-art.

0.06% THD, 0.01% IMD, 66dB S/N.



David W. Penn, Sr., University of Texas at Austin, Austin, TX, wins a free set of Allied screwdrivers. Simply call 800-622-0022 for details.

\$249.00

CD6020 DUAL TRANSPORT CD SYSTEM



Numark brings you the first CD playback system designed specifically for the DJ. Designed for live mixing with broadcast quality sound, the CD6020 uses 18-bit digital-to-analog converter technology and 8-times oversampling filters for the cleanest, hottest sound.

The CD6020 is divided into two rack-mountable pieces: a dual CD transport/CPU and a remote control panel. The transport/CPU contains two completely separate CD players in a 3U high rack package. The 2U remote control panel includes all transport control plus pushbuttons for special functions unavailable anywhere else.

The CD6020 can play one CD, the other CD, or both CDs at once. For hot mixes, the track-to-track access time is lightning fast.

But there's more: you have slider-controlled track speed, just as on your old familiar turntables. And when the Beat Sync* and Integrate* function is activated, the CD6020's circuitry handles fades and segues automatically. Memory programming allows pre-picking your tracks in advance.

*Patent Pending

FEATURES: • 8-times oversampling & 18-bit D/A technology • Set-and-forget Programmable Memory • Beat Sync operation • Integrate & Memory functions for advance track sequencing • Integrate Automatic mixing/Control lock-out • Separate speed control sliders $\pm 8\%$ • Extra large Start/Stop controls • Play both CDs simultaneously • Bright LED display for each transport

Microphone Mixer + Headset Amplifier = SIMPLICITY.



In the battle to reduce equipment needs and increase simplicity, Gentner's Combination Remote Mixer is the ideal weapon. The Combination Remote Mixer (CRM) is a four-channel audio 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.

Like all Gentner audio products, the CRM is built to the highest performance standards. You'll find that the CRM has outstanding aural specifications and mechanically, the CRM is designed to last. Its rugged construction will take many years of use. Call your favorite Harris Allied salesperson and order yours today!

JUST **\$1395.00**

Well, it took 9 months . . .

Here's my new baby!

NEW

The AIR corp Pro Announcer speech processor incorporates features reflecting many years of experience gained in the field using older "microphone processor" designs. The result is a speech processor designed by broadcasters for broadcasters.

The Pro Announcer 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 "pop-less" remotely insertable effects send, to the servo-balanced output stage, the Pro Announcer exemplifies the state of analog processing art.

Compare these features with those of older products:

- ★ Low noise balanced input accommodates all signal levels from microphones to program lines in four selectable stages.
- ★ Three sections of boost/cut equalization, optimized for the human voice, deliver the "big round sound" free of low frequency rumble and hiss.
- ★ Symmetry correction provides more talk power with less compression.
- ★ Compressor with integral noise reduction provides maximum "punch" without noise rush-up.
- ★ On-board noise gate.
- ★ Servo-balanced output feeds lines or microphone inputs.
- ★ Headphone output jack simplifies set-up or parameter changes without interrupting signal flow.



Jim Loupas of AIR corp



Pro Announcer 500

\$599.00



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Over 300 New Stations listed since the 1989 edition
700 Call Letter Changes, 100 Frequency Changes
20,000 Updates to station listings, Canadian listings
Satellite program services

632 Pages of RADIO Information

OH M Street RADIO MARKETS

STATION	CITY	(1)	(2)	FORMAT
Columbus, OH				
metro 1,106,200	TSA 1,892,100			
M St. rank 37	ARB rank 34/4			Birch rank 35
Fall Arbitron (1) Fall Birch (2)				
610 WTVN	Columbus	9.7	7.2	AC/TKe
790 WHTH	Heath	.6	.4	CW
820 WOSU	Columbus		1.3	NX/AS*
880 WRFD	Columbus	.9	1.7	RL
920 WMNI	Columbus	2.8	1.8	CW
1230 WCOL	Columbus	2.3	1.4	AS&
1320 WLOH	Lancaster	.3	.1	OL
1460 WBNS	Columbus	2.5	1.3	AS&
1580 WVKO	Columbus	3.6	6.4	RB
89.7 WOSU-FM	Columbus		1.6	FA*
90.5 WCBE	Columbus		.7	FA*
92.3 WXGT	Columbus	8.5	9.9	CH-AR
94.7 WSNY	Columbus	10.3	11.8	AC
95.5 WHOK	Lancaster	6.0	5.3	CW
96.3 WLWQ	Columbus	5.8	8.1	AR
97.1 WBNS-FM	Columbus	6.5	3.4	EZ
97.9 WNCI	Columbus	13.9	14.5	CH
98.9 WXXM	Upper Arlington	1.6	1.5	SA
99.7 WMGG	Columbus	4.7	5.8	AR-OL
100.3 WCLT-FM	Newark			CW
101.1 WWCD	Grove City			cp-new
103.1 WXLE	Johnstown	2.3	2.1	OL
103.5 WSWZ	Lancaster	.4		OL
103.9 WBBY-FM	Westerville	1.6	1.9	JZ
104.9 WCVO	Gahanna		1.2	RL
105.7 WOBH	Westerville			CH*
106.3 WCKX	London	1.1	2.3	RB-RG
107.1 WLRO	Circleville			OL
[28 stations 9 AM 19 FM]				

CANADA

Fort McMurray

CJOK	1000/1000w ND [CW]
1230	+OK Radio Group, Ltd. 403-743-2246 9912 Franklin Ave., T9H 2 [CKYX] app 5000/2000 ND
CKYX	2800w 157ft [AR] 5n
97.9	+OK Radio Group, Ltd. 403-743-2246 9912 Franklin Ave., T9H 2 [CJOK]

CALL LETTERS

KFAB	1110	Omaha, NE
KFAC	88.7	Santa Barbara, CA
KFAE	89.1	Richland, WA
KFAT	90.3	Minneapolis, MN
KPAL	900	Pulmon, MO
KPAM	700	North Salt Lake, UT
KPAN	101.1	Fredericksburg, TX
KPAR	660	Fairbanks, AK
KPAS	1260	Casa Grande, AZ
KPAS-FM	105.5	Casa Grande, AZ
KPAT	106.1	Corvallis, OR

FREQUENCY

99.3 MHz

WMFC-FM	Monroeville, AL	3000w 328ft
WLSY	York, AL	3000w 300ft
KMDX	Parker, AZ	3000w 1008ft
KLBB	El Dorado, AR	2950w 300ft
KZYP	Pine Bluff, AR	3000w 157ft
KWCK-FM	Searcy, AR	3000w 246ft
KNNN	Central Valley, CA	5280w 328ft
KWHZ	Ferndale, CA	3000w -265ft
KJFA	Grass Valley, CA	1020w 551ft

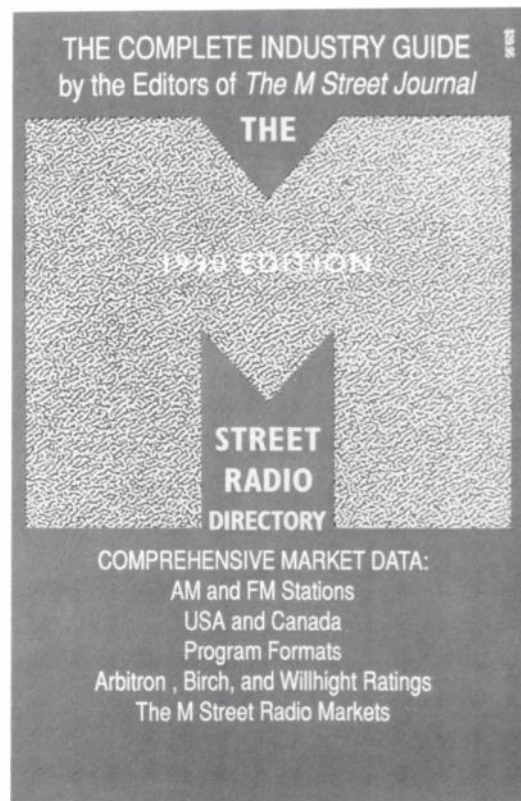
IDAHO

Ammon

KUPI	5000/5000w DA-2 [OL]
980	+Communications Investment Corp. 208-522-1101 854 Lindsay Blvd., Idaho Falls 83401 [KUFI-FM] Idaho Falls Birch 2.1 Willhight 4.8

Blackfoot

KBLI	1000/40w ND [AS&]
690	Western Communications, Inc. 208-785-1400 Box 1197, Idaho Falls 83401 [KLCE] Pocatello Willhight 1.0
KLCE	100000w 1513ft [AC] 4c
97.3	Western Communications, Inc. 208-785-1400 Box 1197, Idaho Falls 83401 [KBLI] Idaho Falls Birch 20.3 Willhight 22.9 2nd market Pocatello



R. Stuart Graham, Jr., Bromo Communications, St. Simons Island, GA, wins a free 17" x 24" Broadcast Cockpit poster (our 1990 Catalog cover) suitable for framing. Simply call 800-622-0022 for details.

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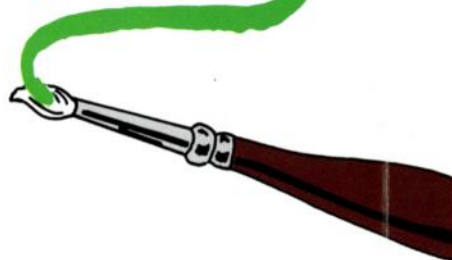
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\$29.95 + \$2.50 shipping

then . . .

COLOR US
SYSTEMS READY



MODULINK™ is built exclusively for Harris Allied. It's a custom-tailored studio system to meet your exact specifications. Just one of numerous ways Harris Allied Systems services you in our knowledgeable, flexible and sensitive approach to broadcast facility requirements.

Harris Allied Systems are innovators when it comes to upgrading or designing your facility. Your requirements are engineered with the human element in mind. What this means is we blend man and machines for today's and tomorrow's environment whether you are installing a single low cost studio, creating a major turnkey broadcasting complex complete with state-of-the-art studios, automation, RF, STL, transmitter or satellite downlink facilities. Harris Allied strives for attaining the proper ergonomics—human engineering—when we develop your requirements. We can do it all, or in concert with your designated tradesmen—but know that we'll do it to your satisfaction with the human interface foremost in our minds and plans.



A Commitment to Serve You



Harris Broadcast



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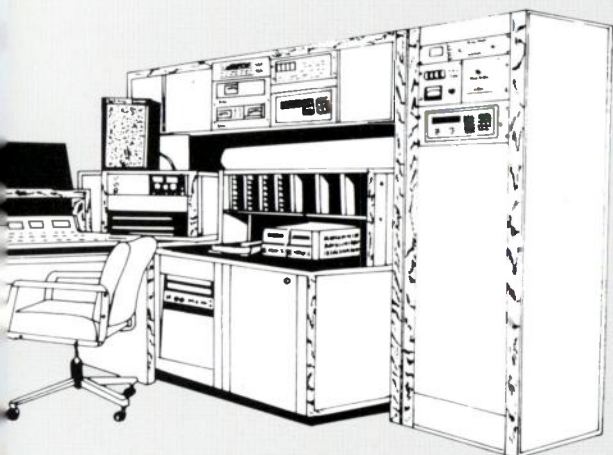
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few dollars more!

The basic H3000B Ultra-Harmonizer® gives you a powerful set of digital audio production tools: Two full function pitch shifters, a high-end digital reverb/effects box and a time compressor/expander. Plus over seventy ready-to-use presets and real-time MIDI control.

But Eventide engineers didn't stop there. The new SE ROM chip adds 200 presets based and six new types of effects—Instant Phaser,® Band Delay, String Modeler, Reverb II, Vocoder and

MultiShift. And the HS322 Sampling Board turns your H3000B into a sampler with up to 23.7 seconds of 16-bit 44.1 kHz audio storage.

Allied gives you the most options for your Ultra-Harmonizer. You can add either the SE ROM or the HS322 Sampling Board to your existing H3000B, or order a new unit with the features that match your needs. All it takes is a phone call to your Harris Allied representative... **800-622-0022**.

ALLIED EQUIPMENT CABINET



Dennis Thibodeaux, WHN, Nashville, TN, wins a free 17"x24" Broadcast Cockpit poster (our 1990 Catalog cover) suitable for framing. Simply call 800-622-0022 for details.

These beautiful, black equipment housings are the most popular we sell. If your order is for stand-alone units, you'll need two end panels for each. If two or more are to be ganged together, you need only 2 end panels for each ganged-together group. End panels are universal (L or R) and are sold separately so that you may order only the panels you actually need. Thirty-seven rack units of mounting space are provided.

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.

- ✓ 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 & adjustable, front & rear.
- ✓ Side panels: Exterior access for removing to install equipment.
- ✓ Rear door: Lockable with allen wrench key, which can be easily replaced if lost.
- ✓ Ventilation: Louvers in cabinet top & rear door.
- ✓ Wiring provisions: Punched holes in cabinet base & at lower edge of both sides for conduit & wiring.

WE DEDICATE THIS DUB TO YOU



The Dedicated, Single-channel, Stereo **FAST TRAC** Mixer

Tying up the money room to dub records, CDs, agency tapes and R-DAT to another format is wasteful of time and money. If you've tried to solve this problem by hanging components together, you've discovered that available mixers make this a difficult task. Packaging and assembly is no picnic, either. We know that dubs are made for convenience. For that reason, your dub must be as clean as possible.

These are reasons why we came up with the **FAST TRAC** single-channel, stereo dedicated mixer. The **FAST TRAC** mixer uses design techniques and circuit components which result in the highest quality method of transfer from one format to the other. For one great price, the **FAST TRAC** mixer gives even an intern all the facility necessary to make flawless dubs.

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TWO COMPANIES, ONE GOAL

Our 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

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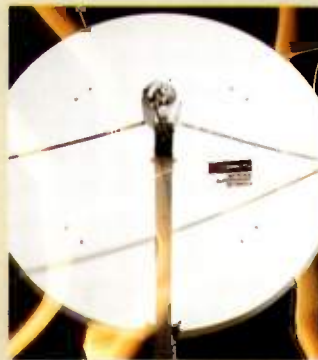
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