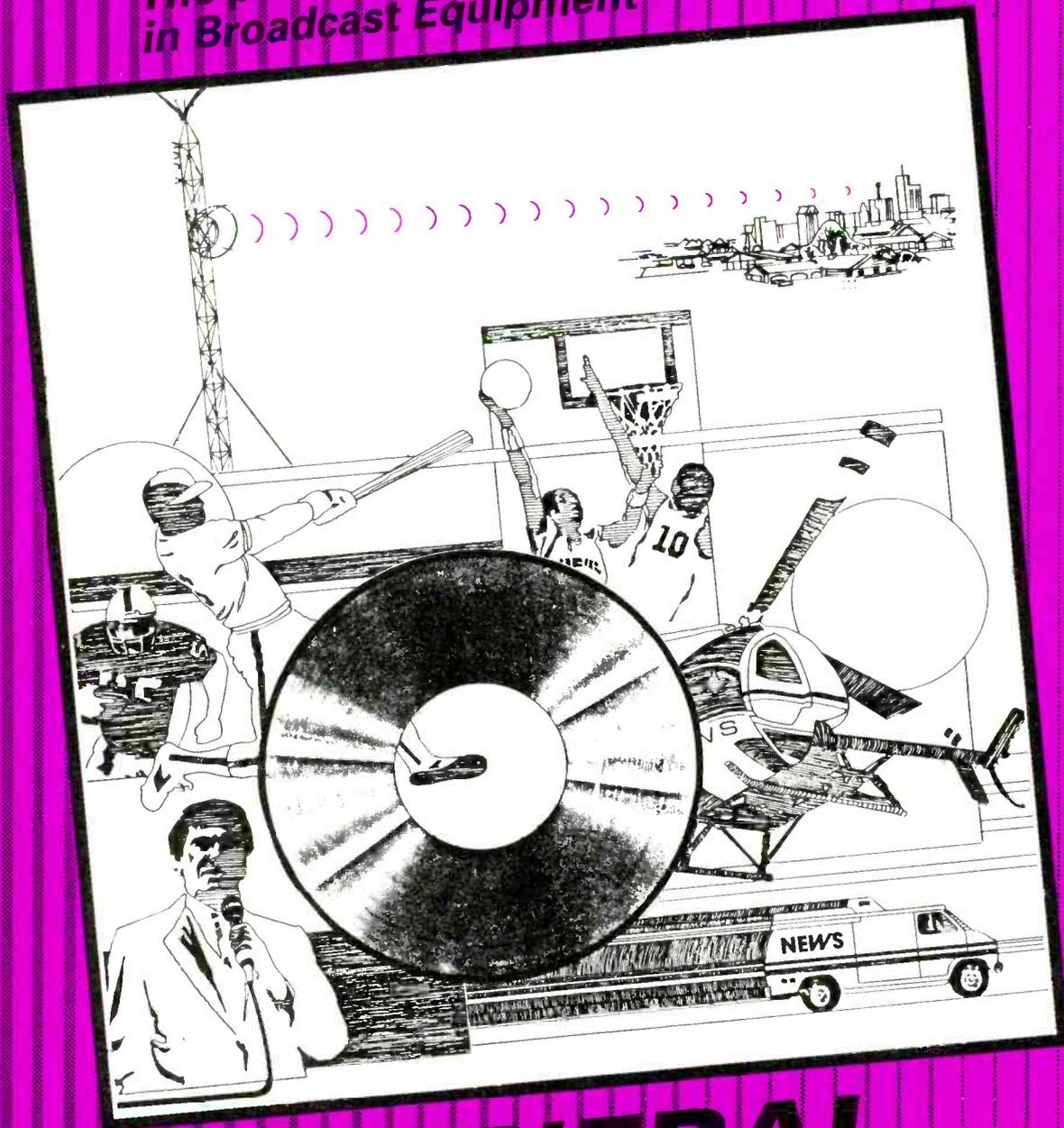


# MARTI

The performance-value leader  
in Broadcast Equipment



# GENERAL CATALOG 1990

### **ACCEPTANCE OF ORDERS**

All orders are subject to acceptance in writing by Seller. All orders must be confirmed by purchase order signed by Buyer. Signed orders via FAX will be accepted if they meet our terms and conditions of sale.

### **PRICES**

All prices are shown F.O.B. Seller's plant and are subject to change without notice. Prices do not include export packing, insurance, duties, Federal, State or local sales or excise taxes.

### **TERMS OF PAYMENT**

All orders are subject to approval of Seller's Credit Department. Payment is due net 30 days from date of invoice. Buyer is responsible for all reasonable attorney and/or collection agency fees should action become necessary by reason of Buyer's default.

### **SHIPPING TERMS**

Shipments F.O.B. Seller's plant will be sent transportation charges collect unless prior arrangements are agreed upon in writing. In the absence of specific instructions, Seller will ship by method deemed appropriate by Seller.

### **TITLE TO GOODS AND RISK OF LOSS**

Title to goods shall pass to the Buyer upon delivery to carrier and risk of loss or damage shall thereafter rest with the Buyer. Claims for damage or loss while material is in transit must be made against the carrier by the Buyer. All claims for shortage must be made within thirty days after the date of shipment of material. Claims for damage or loss in transit must be made immediately against the carrier by the Buyer.

### **DELAYS**

All scheduled delivery dates are subject to delays caused by contingencies beyond Seller's reasonable control. Seller is not liable for failure to perform due to any such contingency.

### **SPECIFICATION CHANGES**

All designs and specifications of Seller's products are subject to change without notice.

### **CANCELLATION**

Cancellation of, or changes to acknowledged order by the Buyer are accepted only upon the terms that protect the Seller against loss.

### **LIMITED WARRANTY**

The seller warrants that, at the time of shipment, the products manufactured by the seller are free from defects in material and workmanship. The Seller's obligation under this warranty is limited to replacement or repair of such products within one year from the date of shipment (two years on STL'S).

The Seller is in no event liable for consequential damages, installation cost or other costs of any nature as a result of the use of the products manufactured or supplied by the Seller whether used in accordance with instructions or not.

This warranty is in lieu of all others, either expressed or implied. No representative is authorized to assume for the Seller any other liability in connection with Seller's products.

### **RETURNED MATERIAL**

Material cannot be returned for credit without written authorization. Such material is subject to a handling charge of not less 15% upon return and inspection of material at factory. Credit for returned material is issued by the Seller only to the original purchaser. Freight charges for returned material are the responsibility of the Buyer.

# MARTI STL-10 STUDIO-TRANSMITTER LINKS INTERCITY RELAY PACKAGES

# MARTI

FREQUENCY BAND	STL TRANSMITTERS AND RECEIVERS - NO ANTENNAS	STL MONAURAL SYSTEMS WITH ANTENNAS	STL STEREO SYSTEMS WITH ANTENNAS
<b>950 MHZ</b>	<b>Package 50M Mono \$3,250.00</b> 1 STL - 10/950 transmitter 1 R-10/950 receiver  <b>Package 51S Stereo \$6,925.00</b> 2 STL - 10/950 transmitter 2 R - 10/950 receiver 1 HRC - 10 transmitter combiner 1 MTS - 1 receiver combiner	<b>Package 50MA \$4,327.00</b> 1 STL - 10/950 transmitter 1 R - 10/950 receiver 2 PA48 4' parabolic antennas 2 K-1 weatherproofing kits 2 PG - 1.7B jumper cables * Two "N" female and two "N" male connectors and 1/2" transmission line required.	<b>Package 51SA \$8,002.00</b> 2 STL - 10/950 transmitter 2 R-10/950 receiver 1 HRC-10 transmitter combiner 1 MTS-1 receiver combiner 2 PA48 4' parabolic antennas 2 PG - 1.7B jumper cables 2 K-1 weatherproofing kits * Two "N" female and two "N" male connectors and 1/2" transmission line required.
<b>150 MHZ</b> Export Only	<b>Package 52M Mono \$3,250.00</b> 1 STL - 10/150 transmitter 1 R-10/150 receiver	<b>Package 52MA \$3,654.00</b> 1 STL - 10/150 transmitter 1 R-10/150 receiver 2 YC-150 Yagi antennas 2 PG - 2B jumper cables 2 K-1 grounding kits * Two "N" female and two "N" male connectors and 1/2" transmission line required.	<b>Package 52SA \$7,171.00</b> 2 STL - 10/150 transmitter 2 R-10/150 receiver 3 YC-150 Yagi antennas 3 PG - 2B jumper cables 1 MTS-1 receiver combiner 3 K-1 grounding kits * Three "N" female and two "N" male connectors and 1/2" transmission line required.
<b>215 MHZ</b> Export Only	<b>Package 53M Mono \$3,250.00</b> 1 STL - 10/215 transmitter 1 R-10/215 receiver	<b>Package 53MA \$3,654.00</b> 1 STL - 10/215 transmitter 1 R-10/215 receiver 2 YC-215 Yagi antennas 2 PG - 2B jumper cables 2 K-1 grounding kits * Two "N" female and two "N" male connectors and 1/2" transmission line required.	<b>Package 53SA \$7,171.00</b> 2 STL - 10/215 transmitter 2 R-10/215 receiver 3 YC-215 Yagi antennas 3 PG - 2B jumper cables 1 MTS-1 receiver combiner 3 K-1 grounding kits * Three "N" female and two "N" male connectors and 1/2" transmission line required.
<b>300 MHZ</b> Export Only	<b>Package 54M Mono \$3,250.00</b> 1 STL - 10/300 transmitter 1 R-10/300 receiver	<b>Package 54MA \$3,654.00</b> 1 STL - 10/300 transmitter 1 R-10/300 receiver 2 YC-300 Yagi antennas 2 PG - 2B jumper cables 2 K-1 grounding kits * Two "N" female and two "N" male connectors and 1/2" transmission line required.	<b>Package 54SA \$7,171.00</b> 2 STL - 10/300 transmitter 2 R-10/300 receiver 3 YC-300 Yagi antennas 3 PG - 2B jumper cables 1 MTS-1 receiver combiner 3 K-1 grounding kits * Three "N" female and two "N" male connectors and 1/2" transmission line required.
<b>450 MHZ</b> Export Only	<b>Package 55M Mono \$3,250.00</b> 1 STL - 10/450 transmitter 1 R-10/450 receiver	<b>Package 55MA \$3,654.00</b> 1 STL - 10/450 transmitter 1 R-10/450 receiver 2 YC-450 Yagi antennas 2 PG - 2B jumper cables 2 K-1 grounding kits * Two "N" female and two "N" male connectors and 1/2" transmission line required.	<b>Package 55SA \$7,171.00</b> 2 STL - 10/450 transmitter 2 R-10/450 receiver 3 YC-450 Yagi antennas 3 PG - 2B jumper cables 1 MTS-1 receiving combiner 3 K-1 grounding kits * Three "N" female and two "N" male connectors and 1/2" transmission line required.

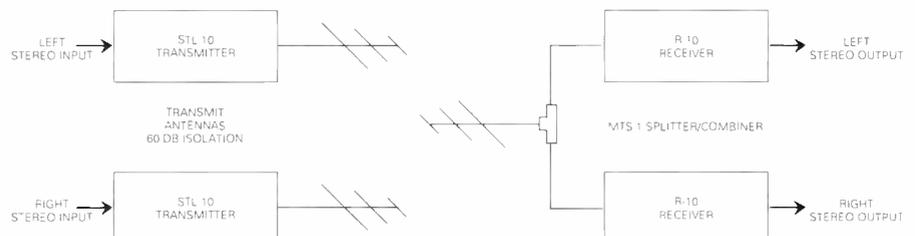
Specifications for above systems are on page 3.

Orders for radio links must include operating frequencies and bandwidth.  
Export orders must also include line voltage and frequency.

### MARTI STEREO STL (DUAL SYSTEM 200-480 MHz) International Export

#### STEREO SYSTEM SPECIFICATIONS 200-480 MHz.

Stereo channel crosstalk separation -72DB  
 Noise (left or right channel) -72DB  
 Frequency Response 20-15000 Hz +0.25 DB  
 Distortion (THD) 0.3%



## THE NEW BATTLE GROUND OF THE 90's IS CD QUALITY

*BUT THE QUALITY BATTLE WON'T BE  
WON WITH A LOUDNESS BOX AHEAD OF  
A NOISY "COMPOSITE" STL.*

Now that you are as loud as you want, you can have better stereo separation and lower noise from Marti.

To get serious about CD quality you need an STL with a noise floor near -80 db and stereo separation down to the noise floor.

You need the **MARTI STL-10 SCPC System.**

It's the weapon of choice to attract listeners searching for an FM station that sounds more like their own CD player!

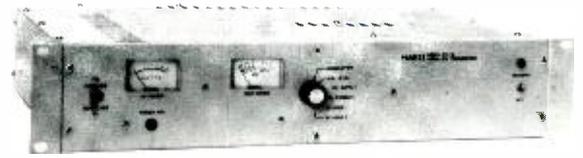
#### STEREO STL SYSTEM **\$6,925.00**

Package 51S:  
2 STL - 10/950 transmitter  
2 R-10/950 receiver  
1 HRC-10 transmitter combiner  
1 MTS-10 receiver combiner

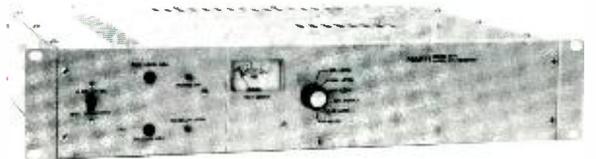
#### MONO SYSTEM **\$3,250.00**

Package 50M:  
1 STL - 10/950 transmitter  
1 R-10/950 receiver

Prices do not include antennas and transmission line.



STL-10 TRANSMITTER



R-10 RECEIVER

### SCPC STEREO SYSTEM FEATURES

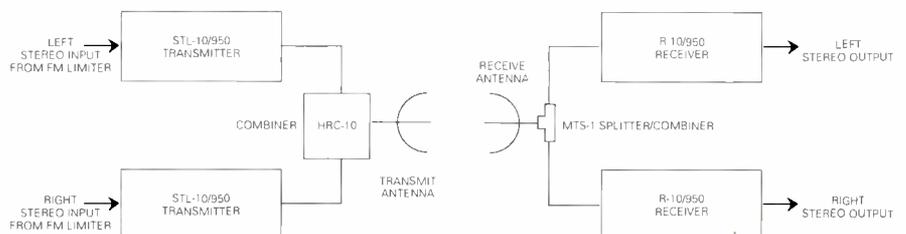
- ★ Unexcelled stereo separation, noise and distortion specs.
- ★ High interference rejection receivers.
- ★ Backup reliability of SCPC stereo.
- ★ Full 10 watts power.
- ★ Ga As FET low noise amplifier.
- ★ Available for new narrow channels.
- ★ Matched phase and amplitude.
- ★ Provision for automatic switching.
- ★ Two year limited warranty.
- ★ 12 volt battery operation.
- ★ Selectable 0, 25, 50 or 75 us. emphasis.
- ★ FCC approved under parts 74 and 94  
FCC ID: BEN9EZSTL-10/950
- ★ Up to 4 subcarriers per stereo system.
- ★ Accurate watt meters for forward and reflected power.

#### STEREO SYSTEM SPECS.

**600-960 MHz  
500 KHz channel**

L-R differential phase 20-15000 Hz	0.5 degrees
L-R differential amplitude 20-15000 Hz	0.1 DB
Stereo channel crosstalk/separation	-80 DB
Ultimate noise (left or right channel)	-80 DB
Frequency response 20-15000 Hz	±0.25 DB
Distortion (THD)	0.25%
Type emission 180 KF8E EACH	
Channel spacing 250 KHz (±125 KHz offset)	

#### MARTI STEREO STL (SCPC SYSTEM 800-960 MHZ.)



# SPECIFICATIONS

## STL-10 TRANSMITTER R-10 RECEIVER



### STL-10 TRANSMITTER SPECIFICATIONS

Frequency Range ..... 600-960, 400-480, 280-340, 200-260, 140-180 MHz.

RF Power Output ..... 15 watts 200-480, 10 watts 600-960 MHz. 50 ohms.

Carrier Frequency Stability ..... 00025%, 0° C to 50° C.

Type of Modulation ..... Direct FM

Audio Input ..... Balanced 600 ohms +8dbm, Barrier strip. BNC connector for unbalanced input.

Subcarrier Inputs ..... Two BNC connectors for Remote Control and Subcarrier Inputs, 50 to 600 ohms unbalanced.

Power Requirements ..... 120/220\* VAC, 50/60 Hz. 80 Watts. 13.5 V. D.C. 2.6 Amps, 24-28 V. D.C. 2.6 Amps\*\*

AC Power Supply ..... Precision, electronically regulated with current limiting.

Spurious Emission ..... More than 60 db. below carrier.

Automatic Changeover ... Provision for Automatic Changeover.

Accessory Connector ..... 15 pin connector on rear panel provides filtered outputs for Remote Control, Automatic Changeover, Remote Power Metering and External D.C. power.

Metering ..... Calibrated RF wattmeter reads forward and reflected power. Test meter reads main channel peak modulation, subcarrier level, supply voltage, P.A. current, RF Drive 1 and RF Drive 2.

Dimensions ..... 3 1/2" high x 19" wide x 14" deep.

Weight ..... Net 11 lbs. Domestic packed 18 lbs.

RF Connector ..... UG-58

### R-10 RECEIVER SPECIFICATIONS

Frequency Range ..... 600-960, 400-480, 280-340, 200-260, 140-180 MHz.

Sensitivity ..... See systems specs.

Input Impedance ..... 50 ohms.

Frequency Stability ..... 00025%, 0° C to 50° C.

Selectivity ..... See systems specs.

Spurious Response ..... -90 db. 200-480 MHz, -70 db. 600-960 MHz.

Audio Input ..... Balanced 600 ohms +10dbm, Barrier strip. BNC connector for unbalanced output.

Subcarrier Outputs ..... Two BNC connectors for Remote Control and/or Subcarrier outputs.

Front Panel Controls ..... 10 db. attenuation switch, program level adjust, meter switch and squelch adjust.

Power Requirements ..... 120/220\* VAC, 50/60 Hz. 10 Watts.

AC Power Supply ..... Precision, electronically regulated with current limiting.

Metering ..... RF signal level, studio output level, subcarrier output level, +13 V. D.C. supply, L.O. level, mixer level, LED indicators for power and open squelch.

Dimensions ..... 3 1/2" high x 19" wide x 12" deep.

Weight ..... Net 10 lbs. Domestic packed 17 lbs.

RF Connector ..... UG-58

FCC approved under parts 74 and 94. FCC ID: BEN9EZSTL-10/950

\* 220 V. AC 50 Hz. available on request with original order

\*\* 24-28 V. DC operation with APS-28/18. See page 8 accessories.

**STL-10 TRANSMITTER.....\$1625.00**

**STL-30 TRANSMITTER.....\$1995.00**

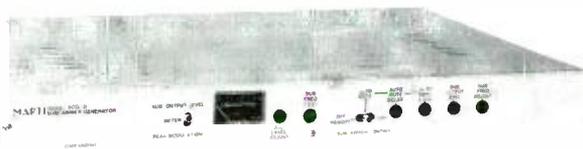
Export mono STL transmitter 45W @ 150 MHz, 40W @ 215 MHz, 35W @ 300 MHz, 30W @ 450 MHz. Specifications on page 11.

**R-10.....\$1625.00**

#	APPLICATION	FREQ RANGE MHz	CHAN BW KHz	SCPC STEREO OFFSET FROM C.F. ± KHz	FCC EMISSION DESIGNATOR	FCC PART	OPTIONAL SUBCARRIERS (NUMBER) KHz	TX PWR WATT	TX FM DEV ± KHz	REQUIRED RECEIVER SIGNAL (UV) FOR QUIETING			MAIN CHANNEL RESPONSE	T.H.D < %	ULT. NOISE - DB	CHANNEL SEPARATION DB	EQUIPMENT PACKAGE
										50 DB	60 DB	ULT					
1	FM Stereo STL	945-952	500	125	180KF8E (2) each	74	(2) 39, 67, 92	10	50	3.0	10	80	±0.25 DB 20 Hz - 15 KHz	0.25	-80	-80	51
2	FM Stereo STL	945-952	300	62.5	80KF8E (2) each	74	(1) 39	10	20	8.0	25	130	±0.25 DB 20 Hz - 15 KHz	0.3	-72	-72	51
3	AM Stereo STL	945-952	200	50.0	80KF8E (2) each	74	(1) 26	10	15	8.0	25	130	±0.3 DB 20 Hz - 15 KHz	0.3	-72	-72	51
9	Audio/Data 1-4 Channels **	200-480	100	each each	export	--	(1) 39 (2) 39, 67	15	15	8.0	25	120	±0.3 DB 20 Hz - 15 KHz H2	0.3	-72	-72	53
			200		export	--		15	15	10	30	130		0.3	-72	-72	55

\*\* For 2 or more channels on export frequencies use separate TX Yagi antennas spaced 60 DB. Also see Marti Mux page 11

## SCG-10 SUBCARRIER GENERATOR SCD-10 SUBCARRIER DEMODULATOR



**\$695.00**

### MODEL SCG-10 SUBCARRIER GENERATOR

The Marti model SCG-10 Subcarrier Generator is designed to operate in SCA service with an FM transmitter or, with a model SCD-10 Subcarrier Demodulator to form a subcarrier link on a microwave (STL) system. The SCG-10 has several options available which allow it to perform a wide range of functions in broadcasting and communications.

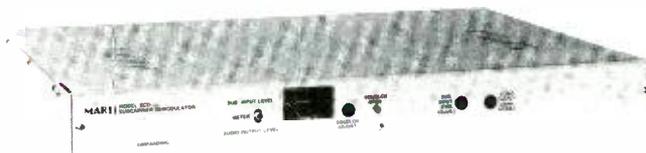
Audio processing options include selectable pre-emphasis of zero, 75, 150 or 225 microseconds. Low pass audio filters of 3 KHz, 5 KHz or 7.5 KHz are available.

For subcarrier link systems using the SCD-10 demodulator, a compander encode board plugs into the generator and a decode board into the demodulator to adapt the system to audio companding. The companding system will reduce noise and can mask certain types of main to sub channel crosstalk.

The SCG-10 has an illuminated panel meter to aid in adjusting modulation and subcarrier output level.

### MODEL SCG-10 SUBCARRIER GENERATOR SPECIFICATIONS

Subcarrier Frequency	Specify 26 KHz, 39 KHz, 41 KHz, 67 KHz or 92 KHz Frequency test jack on front panel
Frequency Stability	±0.18% - 10° C to 50° C
Subcarrier Purity	Less than 0.5% THD
Modulation	Direct FM
FM Deviation	Factory set for ±7.5% of subcarrier frequency
Modulator Distortion	Less than 1% THD
Frequency Response	±1.5 DB 25 Hz to 95% of low pass filter cut-off frequency
FM Noise	More than 65 DB below 5 KHz deviation (measured through SCD-10 demodulator directly connected to SCG-10 output, 225 us, without companding) With companding -72 DB
Audio Input Impedance	600 ohms balanced (screws terminals or "D" connector pins)
Audio Input Level	Front panel adjustment -10 DBM to +8 DBM for 100% modulation
Muting Level	Adjustable from 0 DB to 40 DB below 100 modulation (soft mute)
Muted Carrier Level	60 DB below rated Maximum output level
Subcarrier Output	Front panel adjustment 0.3 V to 7 V P-P into 600 ohm load BNC connector
Remote Control	Subcarrier can be remotely controlled by grounding a pin of accessory "D" connector
Metering	Illuminated panel meter indicates peak modulation or subcarrier output
Controls	Meter switch, subcarrier control switch, modulation level, automatic mute delay, mute level, subcarrier output level, and subcarrier frequency Subcarrier frequency test jack also located on front panel
Connectors	BNC jack for subcarrier output, 9 pin "D" connector for balanced input, remote control, FSK/subaudible input, ground, +18-20 V input, +13.5 V input and AC receptacle No 6-32 screw terminals for balanced 600 ohm audio input
RF protection	All input/output circuits filtered for RF Totally shielded and bonded aluminum enclosure.
Operating Temp Range	-10° C to 50° C
Power Requirements	120/220* VAC, 50/60 Hz 10 Watts or 12-14 V DC at 50 MA, or 24-28 V at 70 MA **
Dimensions	19" wide x 12" deep x 13/4" high
Weight	4.5 lbs net, domestic packed 9 lbs



**\$695.00**

### MODEL SCD-10 SUBCARRIER DEMODULATOR

The model SCD-10 Subcarrier Demodulator is designed for use with model SCG-10 Subcarrier Generator to provide a high quality subcarrier channel on microwave link (STL) or FM station. The SCD-10 may be specified for operation on a standard subcarrier frequency used in FM broadcasting. The subcarrier input to this demodulator should be from a high quality FM receiver having adequate IF bandwidth with group delay characteristics sufficient for subcarrier work. The Marti R-10 receiver with 200 KHz phase linear IF filter is excellent in this respect.

The SCD-10 has several options available, allowing it to perform a wide range of functions in broadcasting and communications.

Audio processing options include selectable de-emphasis of zero, 75, 150 or 225 microseconds. Low pass audio filters of 3 KHz, 5 KHz or 7.5 KHz are available.

For subcarrier link systems using the SCG-10 generator, a compander decode board plugs into the demodulator and an encode board into the generator to adapt the system to audio companding.

The SCD-10 employs an illuminated panel meter to aid in adjusting subcarrier input level and audio output.

### MODEL SCD-10 SUBCARRIER DEMODULATOR SPECIFICATIONS

Subcarrier Frequency	Specify 26 KHz, 39 KHz, 41 KHz, 67 KHz or 92 KHz Frequency test jack on front panel of transmitter
Subcarrier Input	0.1 to 1 V RMS, 10K ohms impedance, BNC connector (panel adjustment)
Demodulator Distortion	Phase locked FM detector has less than 0.6% THD
Frequency Response	±1.5 DB 25 Hz to 95% of low pass filter cut-off frequency
Signal/Noise Ratio	More than 65 DB below 5 KHz deviation (using SCG-10 as signal source directly connected to SCD-10 input, 225 us)
Audio Output Level	+10 DBM maximum output level balanced and isolated into 600 ohms Front panel adjustment range -60DBM to +10 DBM
Subcarrier Squelch	Front panel adjustable squelch relay will squelch audio output over subcarrier level range of 0.1 to 2.0 volt input Normally open relay contacts available at accessory "D" connector for external functions LED on front panel indicates "squelch open" condition
Metering	Illuminated panel meter indicates subcarrier input level or audio output level
Controls	Meter switch, squelch adjust/squelch open (LED panel indicator) subcarrier input level adjust, audio output level adjust
Connectors	BNC jack for subcarrier input, 9 pin "D" connector for audio output, squelch relay contacts, FSK output, ground, +18-20 V input, +13.5 V input and AC receptacle No 6-32 screw terminals for balanced 600 ohm output
RF protection	All input/output circuits filtered for RF Totally shielded and bonded aluminum enclosure.
Operating Temp Range	-10° C to 50° C
Power Requirements	120/220* VAC, 50/60 Hz 10 Watts or 12-14 V DC at 50 MA, or 24-28 V at 70 MA **
Dimensions	19" wide x 12" deep x 13/4" high
Weight	4.5 lbs net, domestic packed 9 lbs

### SYSTEM SPECIFICATIONS

10% injection 225 us. Pre-Emphasis (NO COMPANDING)	Back to Back KHz Bandwidth			STL-10 Link KHz Bandwidth		
	3	5	7.5	3	5	7.5
NOISE DB	66	65	64	64	60	57
DISTORTION %	1.2	1.2	1.35	1.4	1.5	1.6
CROSSTALK MAIN-SUB DB	--	--	--	55	52	49

10% injection 0 us. Pre-Emphasis WITH COMPANDING	Back to Back KHz Bandwidth			STL-10 Link KHz Bandwidth		
	3	5	7.5	3	5	7.5
NOISE DB	73	73	73	70	70	70
DISTORTION %	1.2	1.2	1.35	1.4	1.5	1.6
CROSSTALK MAIN-SUB DB	--	--	--	58	55	52

Optional 800-278 companding  
\$400.00 per system

# TELEMETRY LINKS

**MODEL TSL-10  
MODEL TSL-15  
MODEL TSL-30**

# MARTI

## MARTI TSL-10 SYSTEMS FOR PART 94, 928-960 MHz

If you are serious about data/voice transmission (TSL, ICR, TRL, etc.) you should look at part 94 "Private Operational-Fixed Microwave Service" in the 928-960 MHz band. Bandwidths of 25, 50, 100 and 200 KHz are available to broadcasters for many uses except the final link of an STL. These frequencies are professionally data base coordinated interference free channels for reliable communications. Marti has provided FCC authorized equipment for this service over the past few years. Bandwidths are licensed based on demonstrated need; the wider channels reserved for wide band FM, high data rate, or multi-channel uses. Marti multi-channel systems are not time shared, which means that data flows continuously on each channel. License application is on Form 402. Frequency coordination is by approved firms like Moffet, Larson and Johnson (703) 841-0500, Comm Search (703) 620-6300. If you have requirements not met by the following part 94 packages, contact Marti for assistance.

- Package 94-1 Single Channel \$3,250.00**  
1 STL-10 transmitter  
1 R-10 receiver
- Package 94-2 Two Channels \$4,640.00**  
1 STL-10 transmitter  
1 R-10 receiver  
1 Subchannel
- Package 94-3 Three Channels \$6030.00**  
1 STL-10 transmitter  
1 R-10 receiver  
2 Subchannels
- Package 94-2 Four Channels \$7,420.00**  
1 STL-10 transmitter  
1 R-10 receiver  
3 Subchannels
- Additional receiver sites **\$2,320.00**

Antenna systems for above packages depend upon path length, number of receive sites, etc. Contact factory for assistance.

\* Available with Marti Mux. See page 11.

#	APPLICATION	FREQ RANGE MHz	CHAN BW KHz	SCPC STEREO OFFSET FROM C.F. ± KHz	FCC EMISSION DESIGNATOR	FCC PART	OPTIONAL SUBCARRIERS (NUMBER) KHz	TX PWR WATT	TX FM DEV. ± KHz	REQUIRED RECEIVER SIGNAL (UV) FOR QUIETING	MAIN CHANNEL RESPONSE	T.H.D. < %	ULT. NOISE -DB	CHANNEL SEPARATION DB	EQUIPMENT PACKAGE
4	Audio/Data 1-4 Channels •	928-960	200	--	180KF8E each	74 94	(2) 39, 67, 92	10	50	50 DB 60 DB ULT	±0.25 DB 20 Hz · 15 KHz	0.25	-78	-78	50
5	Audio/Data 1-4 Channels •	928-960	100	--	80KOF8E each	74 94	(1) 39	10	15	8.0 25 130	±0.25 DB 20 Hz · 15 KHz	0.3	-72	-72	50
6	Audio/Data 1-4 Channels •	928-960	50	--	36KOF3E each	74 94	--	10	7	16 90 130	±2 DB 20 Hz · 10 KHz	2.0	-65	--	50
7	Audio/Data 1-4 Channels •	928-960	25	--	16KF3E each	74 94	--	10	4	27 130 130	±2 DB 20 Hz · 15 KHz	2.0	-60	--	50
8	2-4 MUX Channels 1-4 Channels	928-960	200	--	180KF3E each	94	(3) 39, 67, 92	10	12	12 35 130	±1.5 DB 20 Hz · 15 KHz	0.3	-62	60	95-4

\* For 2 channels use TX combiner TAD-900-2. For 3 or 4 channels use TX combiner TAD-900-4.

## MARTI TSL-15 AND TSL-30 SYSTEMS FOR PART 74, 450-456 MHz

The Marti TSL-15 and TSL-30 Telemetry Links provide reliable circuits for AM, FM and television stations. Expensive and unreliable Telco lines can now be replaced with cost effective Marti TSL systems. These links are simple to install, easy to operate and maintain. Marti has assembled complete equipment packages consisting of transmitter, receiver, Yagi antennas, identifier and optional items.

- TSL-30 Package (30 Watts)**  
1 RPT-30/450 transmitter  
1 CR-10/450 receiver  
1 model 1300 station identifier  
1 700-253 rack mounting kit

**Package price \$3,129.50**

- TSL-15 Package (15 Watts)**  
1 RPT-30/450 transmitter  
1 CR-10/450 receiver  
1 model 1300 station identifier  
1 RMH-3B rack shelf

**Package price \$2,544.50**

- Part 74 Antenna Packages**  
2 YC 450 Yagi gain antenna  
1 PG-2A jumper cable  
1 PG-2B jumper cable  
1 K-1 weatherproofing kit

**Package price \$404.00**

### Systems Specifications

Frequency ..... (Group P) 450.01, 450.02, 450.98, 450.99, 455.01, 455.02, 455.98, 455.99 MHz.  
Modulation ..... 10F3 (+ 1.5 KHz Deviation)  
Frequency Response ..... 50 Hz - 2800 Hz + 2.0 DB  
Distortion ..... 2% THD  
Signal to Noise Ratio ..... 45 DB

### Transmitter

See specification for RPT 15/450 or RPT-30

### Receiver

See specification for CR 10/450 receiver

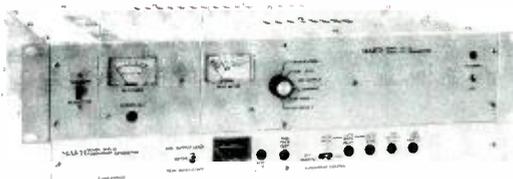
### Station Identifier

A model 1300 station identifier is required by FCC rules for all domestic TSL systems to identify the TSL transmitter. Call signs for the identifier are assigned by the FCC when TSL frequencies are approved.

RPT-30 FCC ID: BEN9EZRPT30-450

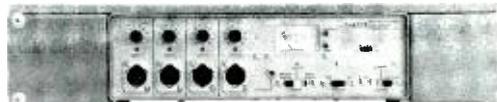
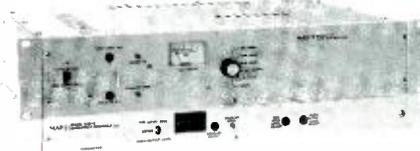
RPT-15 FCC ID: BEN9EZRPT15-450

\*Package prices do not include cost of two "N" female and two "N" male connectors and 1/2" transmission line.



**TSL-10 FEATURES (PART 94, 928-960 MHz)**

- ★ Four continuous data/voice channels on single carrier.
- ★ Multiple receive sites possible.
- ★ 25 KHz, 50 KHz, 100 KHz, 200 KHz bandwidths available
- ★ Transmitter FCC approved for part 94 service. FCC ID: BEN9EZSTL-10/950
- ★ Battery backup available with Marti UPS-12



**TSL-15 AND TSL-30 FEATURES (PART 74, 450-456 MHz)**

- ★ Choice of transmitter power 15 or 30 watts continuous duty.
- ★ Transmitters are FCC type accepted.
- ★ Super-selective receiver with 90 db spurious rejection.
- ★ Test meter: built into both transmitter and receiver.
- ★ Receiver has adjustable squelch and carrier operated relay.
- ★ Built-in modulation control.
- ★ Internal AC supply in transmitter and receiver with provision for external DC operation.
- ★ Optional automatic station identifier.
- ★ Analog or digital telemetry or voice modulation in 50 Hz 2800 Hz band.
- ★ Mic and line level inputs with mixing controls.
- ★ Built-in 27 Hz status channel with relay contacts.

### ATS-15D TRANSMITTER SWITCHER



**\$750.00**

### ATS-15D TRANSMITTER SWITCHER SPECIFICATIONS

The ATS-15D provides switching between two Marti transmitters at power levels up to 50 watts with .5 db loss or less with type "N" female connectors. DC samples of relative power output are provided from each transmitter to the switcher through adjustable pots to a voltage comparator. Switching can be set to occur at any RF power level. Unit can be operated from front panel and terminals provided on the back for remote operation. The ATS-15D can be operated with the Marti UPS-12 Uninterruptible Power Supply, so when AC power is lost, DC power is supplied through the ATS-15D to both transmitters. The ATS-15D operates off 12 V. DC furnished by both transmitters. Dimensions are 1 3/4" high x 19" wide x 13" deep. Weight is 3 lbs 9 oz.

### ASO-200D RECEIVER SWITCHER



**\$650.00**

### ASO-200D RECEIVER SWITCHER SPECIFICATIONS

Marti's ASO-200D provides audio and SCA switching between two receivers on the same frequency. The ASO-200D switches all functions to the backup receiver upon loss of the signal to the main receiver. The standby receiver may be selected by using a latching relay tied to the station's remote control. A positive voltage output indicates which receiver is in use and the remote signal level sample is also available to be metered by the station's remote control. Two LEDs are provided on the front panel to indicate which receiver is in use. The standby receiver can be selected by pushing the test switch. The ASO-200D provides two separate fail-safe outputs both normally closed, and open contacts are available. Power requirements are 12 volts DC - supplied by each receiver. Dimensions are 1 3/4" high x 19" wide x 13" deep. Weight is 3 lbs.

### MW-500 AURAL BROADCAST MICROWAVE BOOSTER



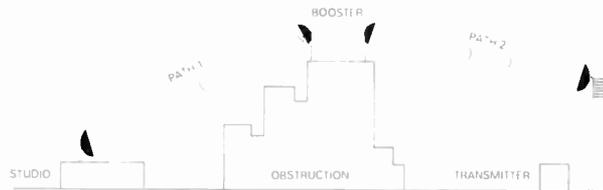
**\$2495.00**

### MW-500 AURAL BROADCAST MICROWAVE BOOSTER

The Model MW-500 Microwave Booster is designed to receive, amplify and redirect an aural STL signal over or around an obstructing object in the direct path between 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. Where applicable, the MW-500 can provide considerable cost savings over other types of repeaters. The MW-500 is available with internal battery backup and charger capable of operating the unit for 36 hours without commercial power.

### MW-500 SPECIFICATIONS

Frequency Range	944-952 MHz
Gain (power)	60 DB Max (adjustable 35-60 DB)
Output (power)	+27 DBM (500 MW) maximum operating power
Selectivity	3 DB bandwidth $\pm$ 3 MHz NOTE One or more external bandpass cavity resonators may be required for additional selectivity
Emission and Bandwidth	Meet requirements of Part 74 535 (g)
Stability	Input-output antenna and coaxial line attenuation must exceed amplifier gain for stability
Metering	RF output power (0-2 watts)
Connectors	UG-58 (type "N" female) Accessory connector is subminiature D 15 pin male
Power Supply	Internal AC Supply - Precision regulated 13.6 V supply with current limiting and thermal shut-down 115 V 60 Hz standard 220 V 50 Hz available on request Internal Battery Supply - 12 volt 6.5 amp-hour sealed battery is included
Temp Range	-20°C to +50°C operating
Dimensions	3 1/2" high x 19" wide x 12" deep
Weight	Net 12 lbs with battery Domestic packed 17 lbs



FFC ID BEN9EZMW-500

### UPS-12 UNINTERRUPTIBLE POWER SYSTEM



**\$425 LESS BATTERY**

### UPS-12 UNINTERRUPTIBLE POWER SYSTEM

The Marti model UPS-12 battery back-up power system is for use with equipment capable of both AC and 12 volt DC operation. The system instantly and automatically switches to a battery source when the primary AC fails. The UPS-12 is the perfect companion for Marti STL-10/R-10 Radio Link Systems as well as Marti automatic relay stations and TSL data links. The DC power is a sealed 12 volt GEL Electrolyte battery. Batteries of 24, 38 and 60 amp-hours are available. Refer to price list for battery options and prices.

### UPS-12 SPECIFICATIONS

Type of System	DC-DC (Loss of primary AC power causes relay to select 12 volt battery power)
Panel Indicators	LED indication of AC or DC operation
DC Power Supply	Sealed GEL Electrolyte Lead-Acid battery rated at 12 volts 24 amp-hours The battery is external and priced separately
Battery Charger	Precision constant voltage charging with current limiting and trickle charge 3 amp current limit
DC Polarity Protection	Circuit breaker, fuse and diode reduce reverse polarity damage
Connectors	Screw terminals for DC, 3-pin, receptacle for AC
Panel Size	Standard 19" x 3"
UPS-12 Weight	3 1/2 lbs
Battery Weight	19.5 lbs shipped separately Approved for shipments as "Dry Cell" by DOT and IATA

The Marti STL-23 digital studio-transmitter link delivers all the remarkable performance of today's compact disc digital audio to the transmitter. With a dynamic range of more than 90DB and stereo separation of more than 80DB, the STL-23 makes old style composite STL's obsolete. Exceptional frequency response of .5 db from 10 Hz to 20 KHz and distortion of less than .005% make the STL-23 the logical choice for your new digital link. The STL-23 transmitter, receiver and subcarrier boards are located inside the weatherproof antenna assembly for cost saving and ease of installation. When comparing the cost of the STL-23 to 950 MHz "composite" STL's the cost of all antennas, coaxial cable and connectors, subcarriers and telemetry return link must be charged to the real costs of 950 MHz STL's. Such comparison will show the STL-23 to be cost effective. Microwave path length at 23 GHz is limited by atmospheric absorption, with rainfall having the greatest effect. Contact Marti for data for use in calculation of 23 GHz links in your area.



**PACKAGE A (5003E)  
BASIC VIDEO**

- 1 Transmitter with 24" antenna .....\$6600.00
- 1 Receiver with 24" antenna

**PACKAGE B (5006E)  
BASIC VIDEO**

- 1 Transmitter with 24" antenna .....\$7300.00
- 1 Receiver with 24" antenna
- 1 Subcarrier channel (studio to transmitter, 12 KHz BW)

**PACKAGE C  
STEREO STL WITH BIDIRECTIONAL SUBCARRIER**

- 2 Transmitter/receiver with 24" antenna .....\$8200.00
- 1 Subcarrier channel (studio to transmitter, 12 KHz BW)
- 1 Subcarrier channel (transmitter to studio, 12 KHz BW)

PCM-601ES 16 Bit Digital Processor ..... \$1,400.00

**OPTIONS:**

**COLOR VIDEO** - For high quality video applications, order option RS-250B .....\$1,000.00

**TO ADD SUBCARRIERS ABOVE VIDEO BAND (6.2-8 MHz)**

Order option "WB" .....\$1050.00  
and option "SCI" .....\$1500.00

FCC LICENSING License application is on Form 402 Part 94 Private operational fixed microwave service Part 94 frequencies are not coordinated by SBE For frequency search and filing application, contact FCC Approved Data Base Service such as Moffet, Larson and Johnson (703) 841-0500, Comm Search (703) 620-6300 MFG, in USA by Racon, FCC ID B2N9CL 10050

**SPECIFICATIONS**

**General**

- Frequency ..... 21.2 to 23.6 GHz.
- FM Deviation ..... + 7 MHz, designator 33800F9
- Channel Capacity ..... 1 video plus 2 full duplex audio/data/control subcarriers
- Antenna ..... Shrouded 24 inch, 38 DBI, V or H polarization, 2 beamwidth, +57 DBM ERP, with Radome
- Alarms ..... Loss of carrier alarm 10-15 VDC/1K ohms

**Transmitter**

- Power Output ..... 65 mw typical (+18 DBM)
- Frequency Stability ..... + .02% - 30 C to +50 C
- Spurious Output ..... Meets FCC Part 94 requirements
- Video Input ..... 1 Vp-p 75 ohms
- Subcarrier Input ..... 0 DBM 600 ohm bal. screw terminals

**Receiver**

- Noise Figure ..... 22 DB nominal
- Threshold ..... -77 DB
- Video Output ..... 1 Vp-p 75 ohms
- Subcarrier Input ..... 0 DBM 600 ohm bal. screw terminals
- Power Requirement ..... 30 watts, 120 VAC into class 2 UL 24 V transformer. 240 VAC and Dc options available - contact factory.
- Weight ..... 25 lbs.

**Options**

- (contact factory) ..... Hot standby switching, optical alignment tool, horizontal pipe mounting kit, 4.5 inch O.D. pipe mtg. hardware kit, 48: antenna.

*Price and specifications subject to change.*

**ARC-16 AND TC-8 REMOTE CONTROL SYSTEMS FROM BURK TECHNOLOGIES**



The Burk model ARC-16 (16 channel) remote control systems are simple to operate, reliable, and cost effective. They are available for operation with Telco, STL, SCA or TSL with interface options for antenna monitor, computer or DTMF telephone. Status alarms may be programmed to display at the transmitter and studio and, optionally, call a programmed series of numbers with a voice message. Dial-up with speech may be added to either the transmitter or studio end, as well as the computer interface.

**FEATURES**

	TC-8	ARC-16
★ Metering channels	8	16
★ Status inputs	8	16
★ Raise and lower outputs	8	16
★ Delayed failsafe output	Yes	Yes
★ One person calibration	Yes	Yes
★ Non-volatile memory	Yes	Yes
★ Large dot-matrix display	Yes	Yes
★ Optional computer interface	Yes	Yes
★ Radio or wire link	Yes	Yes
★ Space saving 1 3/4" rack units	Yes	Yes

TC-8	Burk, Inc. 8 channel remote control (2 units) .....	\$2,495.00
ARC-16	Burk, Inc. 16 channel remote control (2 units) .....	\$3,895.00
ARC-16SA	16 channel single unit configuration with telco/speech unit for control from any telephone .....	\$2,995.00
IP-8	Relay interface panel (10 amp) 8 arch status, raise, lower + failsafe. Two units required for ACR-16 .....	\$495.00
CI-8	Computer interface for IBM-PC .....	\$495.00
DSU	Telephone/speech unit performs control from telephone using DTMF. Also call-out alarms .....	\$795.00
SSI-1	Studio status indicator .....	\$250.00
SSI-2	Studio I/O unit .....	\$250.00
AMI	Antenna monitor interface (6 towers on 2 channels) .....	\$350.00
SCA-1	Subcarrier receiver - specify FM frequency and 67 or 92 KHz .....	\$168.00

## STL RADIOS

Prices Effective 4/1/90

Model	Description of Item	Price
STL-10 Transmitter	STL-10 transmitter for all mono and stereo STL systems in 150, 215, 300, 450 or 950 bands. ....	\$1,625.00
STL-30 Transmitter	Export Mono STL transmitter 45 watts-150 MHz, 40 watts-215 MHz, 35 watts-300 MHz, 30 watts-450 MHz band. ....	\$1,995.00
R-10 Receiver	STL receiver in 150, 215, 300, 450 or 950 bands, low pass filter, two IF bandwidths, low power consumption, test meter. ....	\$1,625.00
MW-500 Booster	On-frequency microwave booster for re-transmitting STL signal around obstructions- 500 mw output power. Comes with internal battery. ....	\$2,495.00

## STL ACCESSORIES & REMOTE CONTROL

Prices Effective 4/1/90

Model	Description of Item	Price
TC-8	Burk Remote Control, 8 each metering, raise, lower, status. ....	\$2,495.00
ARC-16	Burk Remote Control, 16 each metering, raise, lower, status. ....	\$3,845.00
IP-8	Transmitter relay interface panel (two required for ARC-16) ....	\$495.00
CI-8	Optional computer interface ....	\$495.00
TSU	Digital Speech Unit ....	\$795.00
SCA-1	SCA receiver for metering ....	\$168.00
580-016	AC power cord for STL-10 transmitters and R-10 receivers ....	\$5.50
APS-28/18	Power supply for operation of STL-10 transmitters and R-10 receivers from 24 V DC. ....	\$65.00
ASO-200D	Unit for switching between two STL receivers. User needs to specify frequency. ....	\$650.00
ATS-15D	Automatic transmitter switcher: (2) PG-1.5 cables with UG-58 "N" female connectors. ....	\$750.00
BPF-39/67	39/67 KHz subcarrier band pass filter/amplifier for R-10 receiver. Filters and amplifier sub signal at STL relay station. ....	\$249.00
WP-498-1	Wacom single section, selective cavity resonator, 950 MHz ....	\$245.00
WP-430-1	Selective cavity resonator, single-section for operation in the 148-174 MHz. band ....	\$210.50
WP-470-1	Selective cavity resonator, single-section for operation in the 406-512 MHz. ....	\$180.00
Crystal	Hi-accuracy STL-10 and R-10 crystals ....	\$17.95
540-075	Duplexer, 6-cavity, combines transmitter and receiver to common antenna & line; 3.6 MHz separation. Ferrite isolator and PG-2B included. ....	\$1,236.00
TAD-900-2	Transmitter combiner with cables to combine output of (2) STL-10/950 transmitters to one antenna. Nominal isolation 70 DB, 3.45 DB loss. ....	*
TAD-900-4	Transmitter combiner with cables to combine output of (4) STL-10/950 transmitters to one antenna. Nominal isolation 70 DB loss. ....	*
K-1	Grounding and weatherproofing kit ....	\$12.00
RMC-10	Remote control for STL-10 Transmitters. ....	\$315.00
SCG-10	Subcarrier Generator tuned to 26, 39, 41, 67 or 92 KHz, rack mount, 120 VAC (220 VAC on request). ....	\$695.00
SCD-10	Subcarrier Demodulator tuned to 26, 39, 41, 67 or 92 KHz, rack mount, 120 VAC (220 VAC on request). ....	\$695.00
800-263	Optional compander board for factory or field installation in SCG-10 and SCD-10. Two (2) plug-in boards. ....	\$400.00
UPS-12	Uninterruptible power system for Marti STL-10, R-10 ARS-15 relay and TSL-15 data link. (LESS LCR-12V-24P battery) ....	\$425.00
LCR-12V-24P	Battery, sealed gel lead-acid, 12 volt. 24 amp.-hours for use with Marti uninterruptible power supply UPS-12 ....	*
040-007	Spare battery for MW-500 ....	*

\*Call Factory For Current Price

**MARTI** *The Performance-value leader in Broadcast Equipment*  
Marti Electronics, Inc., P.O. Box 661, Cleburne, Texas 76033-0661  
(817) 645-9163 Telex #794835 "Marti CLBN" Fax (817) 641-3869

## STL ANTENNAS TYPE N FEMALE CONNECTORS

Prices Effective 4/1/90

Model	Description of Item	Price
DB-438	Yagi antenna, 6 element, 10.0 db gain, 450-470 MHz.....	*
PA-48	Marti 4' full parabolic antenna, 19 db gain, non-pressurized feed, 940-960 MHz. ....	\$600.00
PA-48	<i>When purchased with a complete Marti system. ....</i>	\$500.00
P-9A48GN-1	Mark Product parabolic antenna, 4' multi-element dish, 18.9 db gain, non-pressurized feed, 890-960 MHz.....	*
P-9A72GN-1	Mark Product parabolic antenna, 6' multi-element dish, 22 db gain, non-pressurized feed, 890-960 MHz.....	*
P-9A96GN-1	Mark Product parabolic antenna, 8' multi-element dish, 25 db gain, non-pressurized feed, 890-960 MHz. ....	*
P-9A120GN-1	Mark Product parabolic antenna, 10' multi-element dish, 27 db gain, non-pressurized feed, 890-960 MHz.....	*
SH-872GN	Mark Product "Shorthaul" cylindrical antenna, 19 db gain, 890-960 MHz. ....	*
SSH-9A72GN	Mark product super "Shorthaul" parabolic section, 20 db gain.....	*
YC-150	Yagi antenna, 5 element, 9 db gain, 140-180 MHz.....	\$165.00
YC-215	Yagi antenna, 5 element, 9 db gain, 200-260 MHz.....	\$165.00
YC-300	Yagi antenna, 5 element, 9 db gain, 280-340 MHz.....	\$165.00

Prices Effective 4/1/90

## STL TRANSMISSION LINE, CABLES, CONNECTORS

Model	Description of Item	Price
L44N	Andrew type "N" female connector for 1/2" foam transmission line.....	*
L44W	Andrew type "N" male connector for 1/2" foam transmission line.....	*
L45N	Andrew type "N" female connector for 7/8" foam transmission line.....	*
L45W	Andrew type "N" male connector for 7/8" foam transmission line.....	*
LDF4-50	Andrew foam transmission line, 1/2", 50 ohm, jacketed.....	*
LDF5-50	Andrew foam transmission line, 7/8", 50 ohm, jacketed.....	*
FLC 12-50J	Cablewave 1/2" foam transmission line, 50 ohm, jacketed.....	*
738802	Cablewave type "N" male 1/2" connector.....	*
738801	Cablewave type "N" female 1/2" connector.....	*
FLC78-50J	Cablewave 7/8" foam transmission line, 50 ohm, jacketed.....	*
738841	Cablewave type "N" male 7/8" connector.....	*
738842	Cablewave type "N" female 7/8" connector.....	*
PG-1.7B	Jumper cable, 20' of RG-214 w/UG-21 connectors.....	\$26.50
PG-2A	Jumper cable, 2' of RG-8U w/PL-259 & UG-21 connectors.....	\$25.00
PG-2B	Jumper cable, 2' of RG-8U with UG-21 connectors.....	\$25.00

## STL MANUALS

Model	Description of Item	Price
Manual	Manuals for all Marti equipment except for remote control.....	\$18.00

\*Call Factory for Current Price

# MARTI

The Performance-value leader in Broadcast Equipment

Marti Electronics, Inc., P.O. Box 661, Cleburne, Texas 76033-0661  
(817) 645-9163 Telex #794835 "Marti CLBN" Fax (817) 641-3869

**THE MARTI PA-48 4' FULL PARABOLIC ANTENNA IS THE ANSWER TO HIGH ANTENNA COSTS. THE PA-48 GIVES YOU A BETTER VALUE FOR YOUR ANTENNA DOLLAR.**

The most exciting development in STL antennas in over a decade is ready to ship now.

The PA-48 is broadband for the 940 to 960 MHz aural STL band and has the specifications you need for getting the most from your Marti STL system.

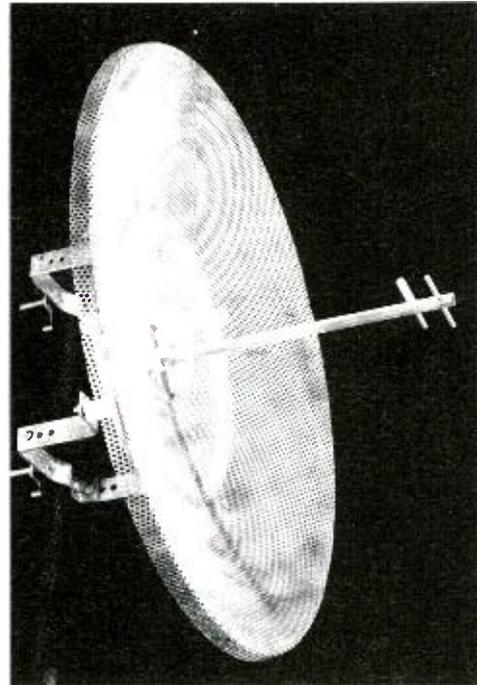
The PA-48 is category B rated in vertical and horizontal planes.

#### ELECTRICAL SPECIFICATIONS

Frequency .....	940-960 MHz.
Bandwidth .....	20 MHz.
Gain at 950 MHz .....	19.0 dbi
Impedance .....	50 ohm
VSWR .....	1.3:1
1/2 power beam width .....	16 degrees
F/B ratio .....	23 db
Maximum Power .....	100 watts
Termination .....	"N" female
FCC Category .....	B

#### MECHANICAL SPECIFICATIONS

Weight	
Net .....	52 pounds
Shipping .....	69 pounds
Dimensions	
Diameter .....	4' diameter
Depth (including feed and mount) .....	38 inches
Wind Load (100 MPH with ice) .....	565 pounds



**PA-48 with Marti System 500.00**  
**Sold individually 600.00**

## YC SERIES FOR RPU & TSL

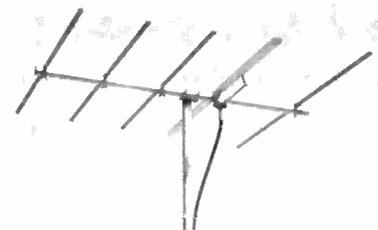
Marti YC series Yagi antennas are designed for use in a variety of situations, from permanent tower mount to portable applications.

All functional components except the connector are handfitted and each antenna is tuned across a wide band of frequencies to assure proper performance in the field. The 9 db gain of the YC antennas assures you of full performance from your system. The standard "N" female connector on the antenna assures quick and easy installation.

All Marti YC antennas are designed for either horizontal or vertical polarization.

YC-153	152.08-153.40 MHz (Specify freq.)	\$135.00
YC-160	160.89-161.40 MHz (Specify freq.)	\$135.00
YC-161	161-40-162.00 MHz (Specify freq.)	\$135.00
YC-166	165.95-166.55 MHz (Specify freq.)	\$135.00
YC-170	169.85-170.45 MHz (Specify freq.)	\$135.00
YC-450	450.01-455.99 MHz (Specify freq.)	\$135.00
2 YC-150	Stacking harness, for stacking 2 YC-153, YC-160, YC-161, YC-166, YC-170 and YC-170 Yagi antennas	\$65.00
2 YC-450	Stacking Harness for stacking two YC-450 Yagi antennas. Includes "T" bar assembly	\$85.00

Prices Effective 4/1/90



**YC-160**  
**Typical of YC-153, YC-161, YC-166 and YC-170**

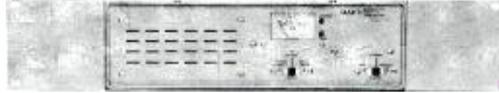


**YC-450**

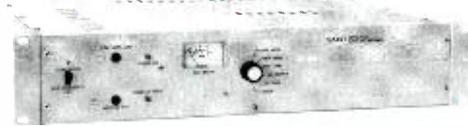
# INTERNATIONAL STUDIO-TRANSMITTER LINKS INTERCITY RELAY



The Marti STL-30/R-10 is a broadcast quality point-to-point line of sight radio communications link. This system meets worldwide need for higher transmission power for longer transmission distances over rugged terrain. The STL-30 transmitter delivers continuous duty power in several transmission bandwidths to meet international standards. For stereo transmission, Marti offers the time proven SPCP (dual) stereo link, which provides superior noise quieting, much higher stereo channel separation, greater redundancy, less bandwidth and lower cost than "Composite" STL's.



**STL-30 Transmitter \$,1995.00**



**R-10 Transmitter \$1,625.00**

**Mono System \$3,620.00**

Applications for the STL-30 include:

- ★ Intercity relay for linking two or more broadcast facilities
- ★ Multi-relay system for radio network distribution.
- ★ Communications link between satellite earth station and broadcast facilities.
- ★ STL for FM stereo broadcast (dual system).
- ★ STL for AM stereo broadcast (dual system).
- ★ STL for FM mono or AM broadcast.
- ★ Telecommunications with Marti Mux system.

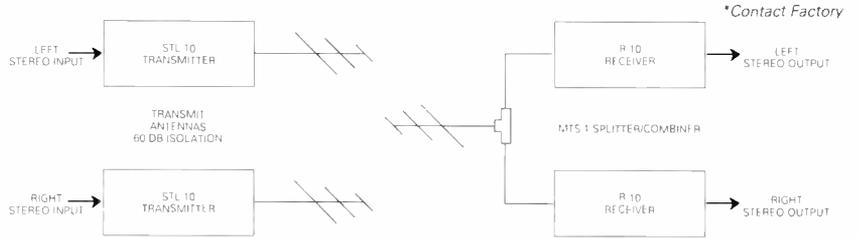
## SYSTEM SPECIFICATIONS

Freq. Range (Mhz.)	Transmitter	Maximum Power	Maximum Deviation	Receiver	Receiver IF Bandwidth	System Specifications*			Subcarrier Capability
						Frequency Response	Distortion*	Noise	
400-480	STL-30/450	30 Watts	± 25 KHz	R-10/450	200 KHz	± 0.25 db. 20-15000 Hz.	0.25% or less	-75 db. or better	39 or 67 KHz
400-480	STL-30/450	30 Watts	± 15 KHz	R-10/450	75 KHz	± 0.3 db. 20-15000 Hz.	0.5% or less	-70 db. or better	
280-340	STL-30/300	35 Watts	± 15 KHz	R-10/300	75 KHz	± 0.3 db. 20-15000 Hz.	0.5% or less	-70 db. or better	
200-260	STL-30/215	40 Watts	± 15 KHz	R-10/214	75 KHz	± 0.3 db. 20-15000 Hz.	0.5% or less	-70 db. or better	
140-180	STL-30/150	40 Watts	± 9 KHz	R-10/150	75 KHz	± 0.3 db. 20-15000 Hz.	0.5% or less	-65 db. or better	

### STL-30 Transmitter Specifications

Frequency Range and Maximum Power Output ...  
 140-180 MHz - 45 watts  
 200-260 MHz - 40 watts  
 280-340 MHz - 35 watts  
 400-480 MHz - 30 watts

RF Connector ..... SO-239  
 Audio Input ..... Balanced 600 ohms +8 dbm, 9 pin "D" connector  
 Subcarrier Input ..... One RCA connector for remote control or subcarrier input 50 to 600 ohms unbalanced.  
 Accessory Connector ..... 9 pin "D" connector for DC power, 600 ohm balanced line level input.  
 Weight ..... 12.4 lbs net, 16 lbs shipping weight.  
 Dimensions ..... 19" wide x 3.5" high x 13.3" deep.



Other specifications same as the STL-10. See page 3.

R-10 Receiver Specifications see page 3.

## MARTI MUX

### CUT THE PHONE LINES TO YOUR REMOTE STUDIOS

With the Marti Mux system you can eliminate expensive tie lines to your remote studios. The Marti Mux system can send high quality audio program material, several telephone circuits, intercom, computer data and remote control data all on one simple microwave system.

Marti Mux connects from the microwave link at each end to the local phone company in each city to provide telephone service between your remote studios. You can cut the on-going expense of tie lines and long distance service. This allows you to communicate from your home office to clients in the remote city and visa versa without long distance charges where applicable. With one flick of a switch you can call forward your remote studio to the home office when the remote studio is unmanned. This provides your listeners and customers with constant communication to you from your remote office.

There is even the provision for an intercom circuit to give you an open audio link between the sites. This is vital for quick communication when clients need a spot produced ASAP. The production director can be in constant communication with the sales force in the remote studio to produce exactly the spot your client wants.

Even your computers can be linked through Marti Mux. Traffic, billing, music selection programs can be "on line" between the sites. Speed up traffic and billing to keep the cash flow flowing.

The Marti Mux even handles your Fax machine. Now you can have on line communication between two sites with your Fax machine. Move copy from one site to another quickly and efficiently. Fax contracts back and forth to minimize time lost when your correspondence is in storage at the post office.

Does your remote site generate original programming... Have you been paying for high quality tie lines for just a few hours of programming a week? With Marti Mux you can even have program quality audio, mono or stereo! You can backhaul local program material on your Marti Mux without the fear of the phone lines being cut or a phone company computer problem cutting your phone service.

How about remote control. If you've been paying through the nose for lines to your transmitter for control the Marti Mux is the answer. We can add the remote control to the Marti Mux to give you freedom from the phone company.

Even your RPU equipment can be fed through the main channel of your Marti Mux. If your remote site is beyond the range of your RPU gear you can have a receiver at the remote site and feed that back to your main studio for transmitting. Maximize the revenue potential of remote broadcasts without the cost of telephone lines. With the proper

interface you can even use the remote equipment to break into an automated station for on the spot, up to the minute news breaks.

What is the Marti Mux besides a way to cut expensive phone lines, maximize revenue and speed up communications? It's a versatile, dependable unit that offers a range of user-selectable operating features. Each plug-in module is self-contained which includes the field selectable carrier frequency generator, synchronization function, frequency translation, E and M type signaling circuitry and VF transmit and receive circuitries for bi-directional operation.

The Marti Mux system can be designed for your present requirements without it being out of date when your needs grow.

Call Marti for more information on this exciting way to cut your communication costs.

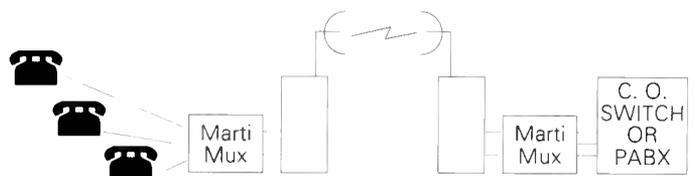
## MARTI MUX

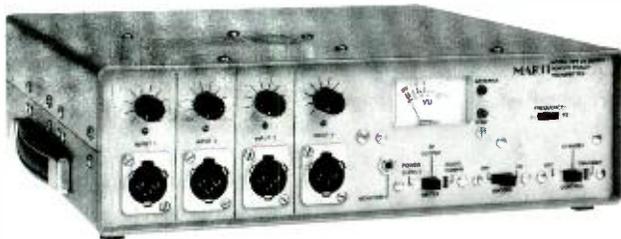
### PROVIDE TELEPHONE SERVICE TO WHERE REGULAR WIRED SERVICE IS UNAVAILABLE

The Marti Mux system can provide low density phone service for remote villages or towns where wired service is unavailable or too cost prohibitive to install.

Many geographic areas are cut off from the rest of the world by phone because it is difficult or impossible to install the land lines required for the service. Marti Mux systems just need a tower at each end of the link and power for the system to bring the world closer.

The low cost of a Marti Mux system when compared to conventional telephone line construction makes it the logical choice.





Single Freq.     \$1695.00  
Dual Freq.        \$1725.00

#### RPT-30 FEATURES

- ★ Frequency switch selects **both frequency and deviation - preventing operator error and interference.**
- ★ Subaudible encoder activates repeaters or other equipment simply by a single switch (standard equipment on all Marti RPU).
- ★ Illuminated meter displays compressor gain reduction, relative power output or power supply voltage.
- ★ Flashing LED's indicate antenna VSWR problems and over-temperature condition.
- ★ Automatic modulation control by built-in FM compressor limiter.
- ★ Four balanced microphone mixing inputs, one switchable to balanced line level.
- ★ Continuous duty-broadcast quality.
- ★ FCC type accepted.
- ★ Compatible with Marti mobile repeater, fixed automatic repeater and base station.

### A REMOTE PICKUP TRANSMITTER IS A "MARTI"

Most everyone knows what a "Marti" is. It is a trusted friend that is used on remote pickup broadcasts. The model RPT-30 transmitter incorporates the best, most practical mix of features requested by our customers and implemented in the very latest electronic and manufacturing technology. We never forget the most important feature of all - **SIMPLICITY - THE FEATURE THAT ENABLES NON TECHNICAL PERSONNEL TO PRODUCE PROFESSIONAL SOUNDING LIVE REMOTES.**

#### MCS-800 AUDIO COMPANDING

After 33 years of leadership, Marti is still innovating. Our new **optional** noise reduction system, under development for several years, utilizes a combination of adaptive filtering and audio companding to achieve remarkable improvements in receiver threshold performance in the presence of noise, interference and multi-path signal propagation. This advanced noise reduction system produces results equivalent to increasing transmitter power to 250 watts. For more details on the MCS-800 system see page 15.

#### RPT-30 SPECIFICATIONS

Frequency Range and Maximum Power Output ..... 140-180 MHz - 45 watts  
200-260 MHz - 40 watts  
280-340 MHz - 35 watts  
400-480 MHz - 30 watts

RF Connector ..... S0-239

Operating Temp. Range ..... -10°C to +45°C

Modulation (specify) ..... See system specs.

Channels (frequencies) ..... Two frequencies selected by switch. Freq. separation 1.1% max. Also selects FM deviation.

Frequency Stability ..... Mobile .0005% Base .00025% (above 400 MHz)

Spurious Emission ..... Meets FCC requirements

Audio Inputs ..... Four balanced microphone (150 ohm) inputs (XLR3) with mixing controls. One input switchable to balanced line level at mic. No. 4 input and "D" connector on rear.

Modulation Control ..... Broadcast quality compressor/limiter built in.

Encoding ..... Subaudible tone (27 Hz) encoder built in.

Metering/Indicators ..... Illuminated meter indicates audio compression, relative RF output, relative supply voltage. Flashing LED's indicate "Antenna " (VSWR) and high "Temp".

Controls ..... (4) input level, meter sw., encode sw., frequency sw., monitor jack.

Power Requirements ..... 110-125 V V. 50-60 Hz (220 V. 50 Hz available on special order) DC operation on 11-13.5 V. negative ground.

Accessory Connector ..... 9 pin "D" connector for DC power, remote control, encode, line level input.

Weight ..... 12.4 lbs. net, 16 lbs shipping weight.

Dimensions ..... 11.5" wide x 3.5" high x 13.3" deep.

FCC ID: BEN9EZRPT30-150, BEN9EZRPT30-450

#### SYSTEM SPECIFICATIONS

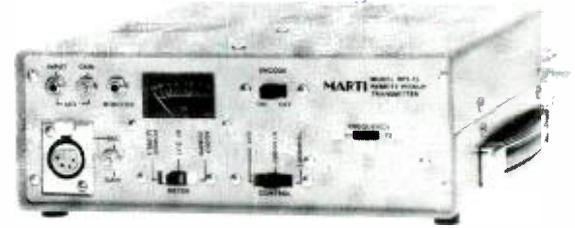
KHz CHANNEL BANDWIDTH	FCC EMISSION DESIGNATOR	TRANSMITTER DEVIATION ±KHz	RECEIVER MODEL	SYSTEM FREQ. RESPONSE Hz ± 1.5 DB	THD >%	S/N WITHOUT MCS-800 REDUCTION DB	S/N WITH MCS-800 REDUCTION DB
50	50KOF3E	8	AR-10 CR-10	50-10,500	2	54	65
25	25KOF3E	5	AR-10 DR-10 CR-10	50-7,500	2	50	57
10	10KOF3E	1.4	CR-10	50-3,000	2	45	--

**MODEL RPT-15**  
**PORTABLE/MOBILE TRANSMITTER**

**RPT-15 SPECIFICATIONS**

Frequency Range .....	400-480, 280-340, 200-260 and 140-180 MHz.
RF Output .....	15 watts max. into 50 ohms.
RF Connector .....	SC-239
Operating Temp. ....	-10°C to 45°C
Modulation .....	See system specifications page 12.
Dual Frequency .....	Selectable dual-frequency operation. Freq. separation 1.1% max.
Spurious Emission .....	Meets FCC requirements.
Audio Inputs .....	One microphone and one high level unbalanced input. Individual mixing gain controls.
Audio Input Level .....	Microphone input level can be from -68 DB to -35 DB. High level can be from 0.2 volts rms. 8-600 ohms.
Audio Input Impedance .....	Will accept microphone from 150 to 500 ohms.
Audio Connectors .....	Input No. 1 (XLR-3). Input No. 2 miniature phone jack.
Power Requirements .....	110-125 V. 50-60 Hz. 12.6 V DC (neg. gnd.) 2.25 amps.*
Modulation Control .....	Broadcast quality. Compressor limiter built-in.
Metering .....	Panel meter indicates audio compression, RF output, power supply DC.
Weight .....	9 1/4 lbs. net: 14 lbs gross.
Dimensions .....	8 3/4" wide x 3 3/4" high x 12 1/2" deep.

\*28 V. DC operation requires APS-28 18 power supply.



MODEL RPT-15 is a compact 15 watt transmitter designed for portable and mobile remote broadcast service. The RPT-15 has a built-in power supply for operation on 115 V. AC. It will also operate on external 12-14 volt DC supply. Standard features include dual frequency and subaudible encoder for use with Marti automatic fixed repeaters. All this plus famous Marti broadcast quality and continuous duty operation.

**Single Frequency \$1,075.00**  
**Dual Frequency \$ 1,105.00**

FCC ID: BEN9EZRPT15-150, BEN9EZRPT15-450

See system specifications page 12.

**RPT-15 FEATURES**

- ★ Type accepted on all VHF-UHF RPU channels.
- ★ 15 watts continuous output.
- ★ Dual frequency capability. Automatic FM deviation selection
- ★ Subaudible encoder.
- ★ Built-in metering.
- ★ Built-in AC supply
- ★ FM compressor-limiter
- ★ Mixing mic and line inputs.
- ★ MCS-800 Companding option available (see page 15)

**RPT-2 FEATURES**

- ★ Type accepted on all VHF-UHF RPU channels.
- ★ 2.5 watts continuous output.
- ★ Dual frequency provision.
- ★ Subaudible encoder.
- ★ Built-in metering.
- ★ 3-way power option.
- ★ Internal ni-cad battery.
- ★ Internal charger and AC supply.
- ★ FM compressor-limiter.
- ★ Mixing mic and line inputs.

**RPT-2 without internal battery:**

**Single Frequency - \$995.00**  
**Dual Frequency - \$1,025.00**

**RPT-2 with internal battery:**

**Single Frequency - \$1,045.00**  
**Dual Frequency - \$1,075.00**

FCC ID: BEN9EZRPT2-150, BEN9EZRPT2-450



**RPT-2**  
**HAND-CARRIED TRANSMITTER**

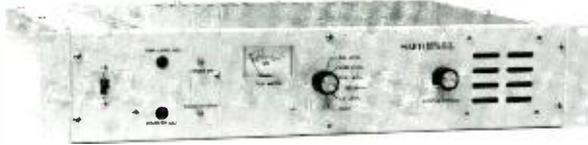
The RPT-2 is a hand-carried broadcast quality continuous duty transmitter. It will operate from it's internal ni-cad battery, from 115 V. AC power, or from external 12 V. DC power. A special subaudible encoder enables the RPT-2 to access Marti mobile repeaters for coverage of indoor events. 2.5 watts is the maximum power allowed by FCC Rule 74.431 (C) (1).

MCS-800 Companding option available (see page 15)

See system specifications page 12.

**RPT-2 SPECIFICATIONS**

RF Output .....	Maximum 2.5 watts into 50 ohms.
RF Connector .....	SO-239
Operating Temp. ....	-10°C to 45°C
Modulation .....	See system specifications page 12.
Dual Frequency .....	Selectable dual-frequency operation.
Spurious Emission .....	Meets FCC requirements.
Frequency Stability .....	-30°C to +50°C +.0005%
Audio Inputs .....	One microphone input (push to talk) and one high level unbalanced input. Individual mixing gain controls.
Audio Input Level .....	Microphone input level can be from -68 DB to -35 DB. High level can be from 0.2 volts rms. 8-600 ohms.
Audio Input Impedance .....	Will accept microphone from 150 to 500 ohms.
Audio Connectors .....	Input No. 1 (XLR-3). Input No. 2 miniature phone jack.
Power Requirements .....	110-125 V. 50-60 Hz. 12.6 V DC (neg. gnd.) 750 MA internal ni-cad battery and charger.
Modulation Control .....	Broadcast quality. Compressor limiter built-in.
Metering .....	Panel meter indicates audio compression, RF output, power supply DC.
Weight .....	5 1/4 lbs. net: 7 1/2 lbs gross.
Dimensions .....	8 3/4" wide x 3 3/4" high x 11" deep.



### CR-10 SPECIFICATIONS

Frequency Range .....	400-480, 280-340, 200-260 and 140-180 MHz.		
Dual Frequency .....	Provision for dual frequency. Separation 0.2% max.		
Sensitivity .....	0.5 microvolts for 20 db S/N.		
Input Impedance .....	50 ohms.		
Selectivity .....	<b>Filter</b>	<b>3 DB</b>	<b>60 DB</b>
	F 50	50 KHz	100 KHz
	F 36	36 KHz	60 KHz
	F 25	25 KHz	42 KHz
	F 10	8 KHz	15 KHz
Spurious Response .....	-90 db.		
Audio Output (Line Level) .....	Balanced 600 ohms. -10 DBM., Barrier strip.		
Monitor Output .....	0.5 watts monitor amp, speaker and level control.		
Subaudible Tone Decoder .....	800-229 decode board provides relay closure upon receipt of 27 Hz. tone.		
Front Panel Controls .....	Frequency select switch, program level adjust, meter switch, squelch adjust.		
Power Requirements .....	120/220* VAC, 50/60 Hz. 10 watts. 13.5 V DC 300 MA.		
AC Power Supply .....	Precision, electronically regulated with current limiting.		
Metering .....	RF signal level, audio output level, sub. level, +13 V. DC supply, L.O. level, mixer level, LED indicators for power and open squelch.		
Squelch Indicator .....	A panel LED indicates when the squelch relay is open to aid squelch adjustment.		
Accessory Connector .....	A 15 pin "D" connector on rear panel provides access to +13 V. and +18 V. supplies, squelch relay contacts, signal level sample, subaudible tone level, decode relay contact, balanced audio output, receiver mute, and ground.		
RF protection .....	All input/output circuits filtered for RF. An all aluminum enclosure insures total shielding and bonding for RF protection.		
Operating Temp. Range .....	-10° C to 50° C.		
Dimensions .....	3 1/2" high x 19" wide x 12" deep.		
Weight .....	Net 10 lbs. Domestic packed 17 lbs.		
RF Connector .....	UG-58		

See system specifications page 12.

FCC Approved under Part 15 FCC ID: BEN9EZCR-10/150, BEN9EZCR-10/450.

\*Available on 220 VAC, 50 Hz. upon request.

### CR-10 FEATURES

- ★ GaAs Fet low noise RF amplifier 200-480 MHz.
- ★ Double balanced mixer.
- ★ Four I.F. bandwidths.
- ★ Companding option available.
- ★ Six function illuminated test meter.
- ★ Built-in tone decoder and relay.
- ★ Monitor speaker and control.
- ★ All modular construction.

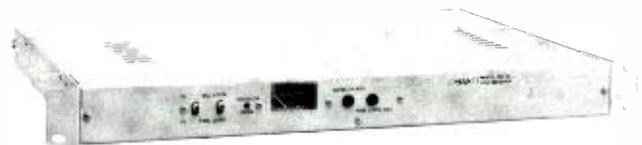
Model CR-10 is a rack-mounted VHF or UHF base station receiver designed for remote pickup service. This receiver has dual frequency capability built in. Marti technology has provided the highest frequency response with the lowest noise and distortion possible for the assigned channel band width. Special attention has been given to solving today's high interference problems. The CR-10 features a built-in test meter, squelch relay, monitor speaker, subaudible tone decoder, special noise reduction circuit, 90 DB spurious rejection.

**CR-10 Single Frequency \$1,195.00**  
**CR-10 Dual Frequency \$1,225.00**

## MODEL DR-10 BASE RECEIVER

### DR-10 SPECIFICATIONS

Frequency Range .....	400-480, 280-340, 200-260 and 140-180 MHz
Dual Frequency .....	Provision for dual frequency. Separation 0.2% max.
Sensitivity .....	0.5 microvolts for 20 db S/N.
Input Impedance .....	50 ohms.
Frequency Stability .....	± .00025% 0°C to +50°C
Selectivity .....	± 13 KHz -3 db ± 30 KHz -80 db.
Spurious Response .....	-70 db.
Audio Output (Line Level) .....	Balanced 600 ohms, floating, +10 DBM.
Subaudible Tone Decoder .....	Provision for 800-229 at extra cost.
Metering .....	Illuminated panel meter indicates relative signal strength and audio output level.
Panel Light .....	LED indicates when squelch is open.
Controls .....	Frequency select switch, meter function switch, squelch pot.
Accessory Connector .....	A 15 pin "D" connector on rear panel provides access to +13 V. and +18 V. supplies, squelch relay contacts, signal level sample, subaudible tone level, decode relay contact (optional), balanced audio output, mute, ground.
RF Connector .....	UG-58
AC Power Supply .....	Precision, electronically regulated with current limiting
Power Requirements .....	120 V. AC, 50/60 Hz., 10 watts, 13.5 V. DC, 300 MA (220 V. AC 50/60 Hz available if specified with order), 24-28 V. DC operation with optional APS-28/18 supply.
Operating Temp. Range .....	-10° C to 50° C.
Dimensions .....	19" wide x 12" deep x 1 3/4" high.
Weight .....	4.5 lbs net, domestic packed 9 lbs.



### DR-10 RECEIVER

The model DR-10 is a rack mounted base station receiver designed for VHF or UHF broadcast remote pickup service. The receiver only requires 1 3/4" of rack space and is recommended as a cost effective replacement for older tube-type and solid state receivers in areas of moderate signal density and interference. Dual frequency capability is standard, with tone decoding and audio companding available as options. The DR-10 is designed for 25 KHz bandwidth channels only and has 7.5 KHz audio low pass filtering.

**DR-10 Single Frequency \$895.00**  
**DR-10 Dual Frequency \$925.00**

\*Available on 220 VAC, 50 Hz. upon request.

**AR-10 SPECIFICATIONS**

Frequency Range .....	400-800, 280-340, 200-260 and 140-180 MHz		
Dual Frequency .....	Provision for Dual Frequency. Separation 0.2% Max.		
Sensitivity .....	0.5 microvolts for 20 db S/N.		
Input Impedance .....	50 ohms.		
Frequency Stability .....	.00025% - 10°C to 50°C		
Selectivity .....	<b>Filter</b>	<b>3 DB</b>	<b>60 DB</b>
	F 50	50 KHz	100 KHz
	F 36	36 KHz	60 KHz
	F 25	25 KHz	42 KHz
	F 10	8 KHz	15 KHz
Spurious Response .....	-90 db.		
Audio Output (Line Level) .....	Balanced 600 ohms. -9 DBM., Barrier strip Unbalanced 600 ohms + 4 DBM at 15 pin connector.		
Monitor Output .....	Built-in monitor amp. (0.5 watts) monitor speaker and level control. Headset monitor jack mutes speaker.		
Subaudible Tone Decoder .....	800-229 decode board provides relay closure upon receipt of 27 Hz. ± 0.1 Hz. tone.		
Front Panel Controls .....	Frequency select switch, line level adjust, meter switch, squelch adjust, monitor speaker level, power switch, headset jack.		
Power Requirements .....	120/220* VAC, 50/60 Hz. 10 watts. 13 V DC 300 MA.		
AC Power Supply .....	Precision, electronically regulated with current limiting.		
Metering .....	RF signal level, audio output level, decode level.		
Dimensions .....	3 1/2" high x 9" wide x 13 1/2" deep.		
Weight .....	Net 5 1/2 lbs. Domestic packed 10 lbs.		
RF Connector .....	UG-58		

FCC Approved under Part 15.  
 FCC ID: BEN9EZAR-10/150, BEN9EZAR-10/450  
 \*Available on 220 VAC, 50 Hz. upon request.



The Marti AR-10 series receiver is a portable or mobile repeater 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 pick-up frequencies and bandwidths. Other built-in features include dual frequency capabilities, monitor speaker, and terminals for feeding telephone lines in portable operations. A special noise reduction circuit provides an improvement of 6 db in S/N ratio for weak signals. The unit weighs only 5 1/2 lbs.

**AR-10 Single Frequency \$1,195.00**  
**AR-10 Dual Frequency \$1,225.00** See system specifications page 12

Available with MCS-800 Companding (below)

**MCS-800 AUDIO COMPANDING SYSTEM**  
**EXTEND YOUR REMOTE HORIZONS (AND DO IT QUIETLY)**

Marti's exclusive MCS-800 audio companding system gives you the power to do remotes from even greater distances with better sound.

MCS-800 is a Marti exclusive system that installs in your RPT-30, RPT-15 and RPT-2 transmitters and the CR-10, AR-10 and DR-10 receivers. MCS-800 is a 2:1 companding system that dramatically lowers noise and raises effective transmitting power. The effect of adding MCS-800 to an RPT-30 is equivalent to raising the power from 30 watts to a powerful 250 watts. This results in audio quality that rivals being in the studio and the ability to do remotes from distances that were previously thought out of range.

Since we first introduced the MCS-800 system we have installed hundreds in existing systems and in new equipment.

Customers have reported increased coverage from areas where previous remotes were weak and noisy. In many cases remotes have been done from areas that were previously out of range. You might say that companding literally expands the horizon for the broadcaster by letting him go farther than ever with his RPU signal. The companding option results in better signal to noise, and you still get the great studio sound!

*"In addition to improving sound quality, the MCS-800 has enabled us to perform other remotes that, previously, were not possible. This week WMIL conducted remote broadcasts 45 and 60 miles from the station."*  
 Phil Klingler, Technical Director, WMIL/WOKY

*"The best part about this system over "single ended" methods is that the MCS-800 lets you reduce the noise and still have full broadcast quality audio."*  
 Greg Hahn, Chief Engineer, WRKA

Although objective testing indicates noise suppression with the MCS-800 is about 20 db, subjective evaluation (listening comparisons), indicates a much higher figure, in the order of 30 db.

Regular companding works nicely with signal to noise ratio greater than 40 db. Below that level noise holds the expander open and performance becomes quite poor. However the MCS-800 system employs adaptive filtering to reduce the noise band width to allow the compander to continue working without bringing up unwanted noise. Probably 90% of all remote pick-up transmissions occur over a signal path where the received signal is less than 10 microvolts. The graph shows that even at extremely low signals the SNR remains high. At lower levels the audio bandwidth is reduced somewhat but that is preferable to the alternative of increased noise.

The nice thing about the MCS-800 is that it can be installed in your existing RPT-30, RPT-15 and RPT-2 transmitters as well as the CR-10, AR-10 and DR-10 receivers. The cost to modify an existing system is \$250.00 for each transmitter or receiver (\$500.00 for the set). The best part is that to get MCS-800 in a new system just adds \$400.00 to the total price of an entire system.

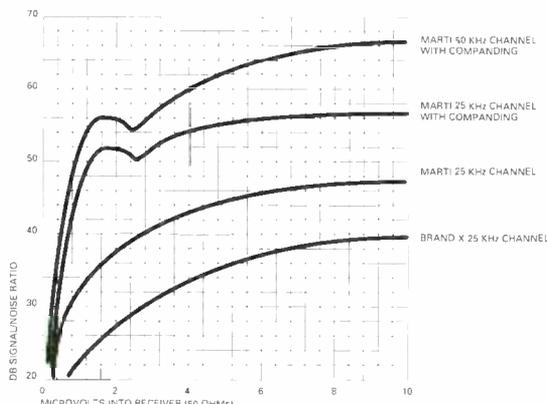
Two important things to note: 1. The system MUST be installed by the technicians here at the plant. We have had customers insist they could properly align the system but found it's tougher than it sounds. 2. The system is not switchable. Due to the complex nature of the way the compander works and the precise alignment required once the MCS-800 is installed, it MUST work together as a complete system.

**MCS-800 PRICES**

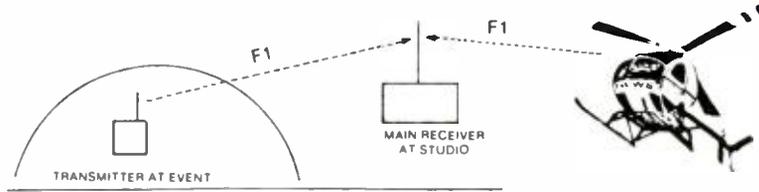
Factory installed with new equipment order on RPT-30, RPT-15 and RPT-2 transmitters and CR-10, AR-10 and DR-10 receivers. **\$400.00**

Factory installed in USED RPT-30, RPT-15 and RPT-2 transmitters and CR-10, AR-10 and DR-10 receivers. **\$500.00**

**SYSTEM WILL NOT OPERATE IN OLDER EQUIPMENT**



# MARTI REMOTE PICKUP (RPU) ONE-WAY SYSTEMS



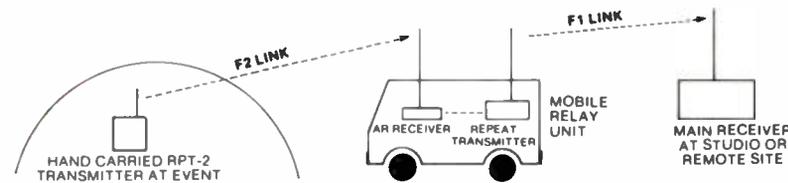
PACKAGE 1	\$3,483.30	PACKAGE 2	\$2,839.90	PACKAGE 3	\$3,615.35	PACKAGE 4	\$2,971.95
<b>Mono RPU 140-180 MHz</b>		<b>Mono RPU 140-180 MHz</b>		<b>Mono RPU 400-480 MHz</b>		<b>Mono RPU 400-480 MHz</b>	
<b>Mobile or Portable:</b>		<b>Mobile or Portable:</b>		<b>Mobile or Portable:</b>		<b>Mobile or Portable:</b>	
1 RPT-30/150 Transmitter 1 MCD-70C Microphone 1 700-251 Mobile Mounting Kit for RPT-30 1 ASPS-177 Mobile Antenna 1 PAV/150 Portable Antenna		1 RPT-15/150 Transmitter 1 MCD-70C Microphone 1 700-252 Mobile Mounting Kit for RPT-15 1 ASPS-177 Mobile Antenna 1 PAV/150 Portable Antenna		1 RPT-30/450 Transmitter 1 MCD-70C Microphone 1 700-251 Mobile Mounting Kit for RPT-30 1 ASP-1650 Mobile Antenna 1 YC-450 Portable Yagi Antenna 1 PG-20A Jumper Cable		1 RPT-15/450 Transmitter 1 MCD-70C Microphone 1 700-252 Mobile Mounting Kit for RPT-15 1 ASP-1650 Mobile Antenna 1 YC-450 Portable Yagi Antenna 1 PG-20A Jumper Cable	
<b>Studio:</b>		<b>Studio:</b>		<b>Studio:</b>		<b>Studio:</b>	
1 CR-10/150 Receiver 1 SC-155AC Base Antenna 1 PG-2B Jumper Cable 1 K-1 Weatherproofing Kit * TWO "N" FEMALE CONNECTORS AND 1/2" TRANSMISSION LINE REQUIRED		1 CR-10/150 Receiver 1 SC-155AC Base Antenna 1 PG-2B Jumper Cable 1 K-1 Weatherproofing Kit * TWO "N" FEMALE CONNECTORS AND 1/2" TRANSMISSION LINE REQUIRED		1 CR-10/450 Receiver 1 ASPD-700 Base Antenna 1 PG-2B Jumper Cable 1 K-1 Weatherproofing Kit * TWO "N" FEMALE CONNECTORS AND 1/2" TRANSMISSION LINE REQUIRED		1 CR-10/450 Receiver 1 ASPD-700 Base Antenna 1 PG-2B Jumper Cable 1 K-1 Weatherproofing Kit * TWO "N" FEMALE CONNECTORS AND 1/2" TRANSMISSION LINE REQUIRED	
<b>PACKAGE 5</b>		<b>PACKAGE 6</b>		<b>PACKAGE 7</b>			
\$6,713.00		\$5,473.00		\$2,842.50			
<b>Stereo RPU 400-480 MHz</b>		<b>Stereo RPU 400-480 MHz</b>		<b>Mono Aircraft RPU 400-480 MHz</b>			
<b>Mobile or Portable:</b>		<b>Mobile or Portable:</b>		<b>Mobile:</b>			
2 RPT-30/450 Transmitters 2 MCD-70C Microphones 2 YC-450 Portable Yagi Antennas 2 PG-20A Jumper Cables		2 RPT-15/450 Transmitters 2 MCD-70C Microphones 2 YC-450 Portable Yagi Antennas 2 PG-20A Jumper Cables		1 RPT-15/450 Transmitter 1 MCD-70D Microphone 1 AV-15 Aircraft Antenna 1 APS-28/18 Airborne Power Supply			
<b>Studio:</b>		<b>Studio:</b>		<b>Studio:</b>			
2 CR-10/450 Receivers 1 ASPD-700 Base Antenna 1 2-YC Receiver Combiner 1 PG-2B Jumper Cable 1 K-1 Weatherproofing Kit * TWO "N" FEMALE CONNECTORS AND 1/2" TRANSMISSION LINE REQUIRED		2 CR-10/450 Receivers 1 ASPD-700 Base Antenna 1 2-YC Receiver Combiner 1 PG-2B Jumper Cable 1 K-1 Weatherproofing Kit * TWO "N" FEMALE CONNECTORS AND 1/2" TRANSMISSION LINE REQUIRED		1 CR-10/450 Receiver 1 ASPD-700 Base Antenna 1 PG-2B Jumper Cable 1 K-1 Weatherproofing Kit * TWO "N" FEMALE CONNECTORS AND 1/2" TRANSMISSION LINE REQUIRED			

A Marti one-way Remote Pickup System is used by a broadcaster to send a program from an event to the studio. Voice or sound travels one direction, from the event to the studio. Programming from an aircraft requires special equipment which is included in Package 7.

\*Where connectors and transmission line are required use Female connectors and 1/2" transmission line and contact factory for pricing.

## MARTI UNATTENDED AUTOMATIC MOBILE RELAY

In applications where the Marti One-Way RPU system will not communicate from the event to the studio, an AUTOMATIC MOBILE RELAY station may be required. Additional components can be added to the Marti One-Way system to make it a Mobile Relay System. Components from the Marti One-Way system would still be used in the F1 link in the mobile relay system. Components listed below would make-up the F2 part of the Mobile Relay link.

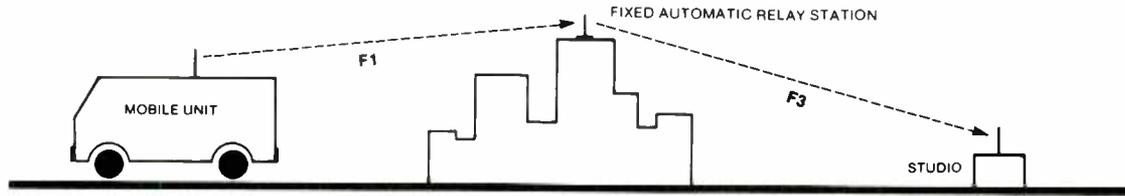


PACKAGE 11	\$2,517.40	PACKAGE 12	\$2,697.00	PACKAGE 13	\$2,522.90
<b>Automatic Mobile Relay For Use With Packages 1 &amp; 2</b>		<b>Automatic Mobile Relay For Use With Packages 3 &amp; 4</b>		<b>Automatic Mobile Relay For Use With Packages 3 &amp; 4</b>	
1 RPT-2/450 Transmitter 1 MCD-70D Microphone 1 AR-10/450 Receiver 1 700-252 Mobile Mounting Kit for AR-10 1 585-037-2 Control Cable 1 ASP-1650 Mobile Antenna 1 PAV/450 Portable Antenna		1 RPT-2/450 Transmitter 1 MCD-70D Microphone 1 AR-10/450 Receiver 1 700-252 Mobile Mounting Kit for AR-10 1 585-037-2 Control Cable 1 ASP-1650 Mobile Antenna 1 PAV/450 Portable Antenna 1 WP-470-1 Cavity		1 RPT-2/150 Transmitter 1 MCD-70D Microphone 1 AR-10/150 Receiver 1 700-252 Mobile Mounting Kit for AR-10 1 585-037-2 Control Cable 1 ASPS-177 Mobile Antenna 1 PAV/150 Portable Antenna	

For additional information on Mobile Repeaters, see AR-10 Specification Sheet.

ON ALL MOBILE REPEATERS F-2 MUST BE AT LEAST 4.0 MHz FROM F-1.

# MARTI UNATTENDED AUTOMATIC FIXED RELAY STATION



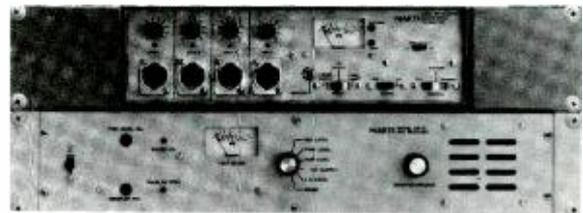
Automatic Relay Stations greatly increase the operating range and coverage areas of broadcast news and remote coverage of events. When used with MARTI portable, mobile and base station units, full broadcast quality audio is provided. Unlimited transmitting time is available since this equipment is designed for continuous 24 hour per day operation. Automatic Relay Stations (ARS) are available in two models. An ARS-15 transmits with a RPT 15 transmitter and an ARS-30 transmits with a RPT 30 transmitter. Both systems transmit the F3 frequency above in the 450 to 455 MHz band. F-3 must be at least 4.0 MHz from F-1.

## EQUIPMENT TO BE LOCATED AT AUTOMATIC RELAY SITE

PACKAGE 40	\$3,441.50	PACKAGE 41	\$2,876.50	PACKAGE 42	\$4045.50	PACKAGE 43	\$3,480.50
<b>160 MHz In/450-455 MHz Out:</b>		<b>160 MHz In/450-455 MHz Out:</b>		<b>450 MHz In/455 MHz Out:</b>		<b>450 MHz In/455 MHz Out:</b>	
1 CR-10/150 Receiver 1 585-037-1 Repeater Cable 1 SC-155AC Receiving Antenna 1 PG-2B Jumper Cable 1 K-1 Weatherproofing Kit *TWO "N" FEMALE CONNECTORS AND 1/2" TRANSMISSION LINE REQUIRED		1 CR-10/150 Receiver 1 585-037-1 Repeater Cable 1 SC-155AC Receiving Antenna 1 PG-2B Jumper Cable 1 K-1 Weatherproofing Kit *TWO "N" FEMALE CONNECTORS AND 1/2" TRANSMISSION LINE REQUIRED		1 CR-10/450 Receiver 1 585-037-1 Repeater Cable 1 ASPD-700 Base Antenna 1 PG-2B Jumper Cable 1 K-1 Weatherproofing Kit *TWO "N" FEMALE CONNECTORS AND 1/2" TRANSMISSION LINE REQUIRED		1 CR-10/450 Receiver 1 585-037-1 Repeater Cable 1 ASPD-700 Base Antenna 1 PG-2B Jumper Cable 1 K-1 Weatherproofing Kit *TWO "N" FEMALE CONNECTORS AND 1/2" TRANSMISSION LINE REQUIRED	
1 RPT-30/450 Transmitter 1 700-253 Rack Mounting Kit for RPT-30 1 PG-2A Jumper Cable 1 K-1 Weatherproofing Kit *TWO "N" FEMALE CONNECTORS AND 1/2" TRANSMISSION LINE REQUIRED 1 YC-450 Yagi Antenna**		1 RPT-15/450 Transmitter 1 RMH-3B Rack Shelf 1 PG-2A Jumper Cable 1 K-1 Weatherproofing Kit *TWO "N" FEMALE CONNECTORS AND 1/2" TRANSMISSION LINE REQUIRED 1 YC-450 Yagi Antenna**		1 RPT-30/450 Transmitter 1 700-253 Rack Mounting Kit for RPT-30 1 WP-678 Duplexer & Cables		1 RPT-15/450 Transmitter 1 RMH-3B Rack Shelf 1 WP-678 Duplexer Cables	
**If TWO-WAY communication is required, replace YC-450 with ASPD-700 Base Antenna		**If TWO-WAY communication is required, replace YC-450 with ASPD-700 Base Antenna		*Where connectors and transmission line are required use Female connectors and 1/2" transmission line and contact factory for pricing.			

## EQUIPMENT TO BE LOCATED AT STUDIO

PACKAGE 46	\$1,568.00
<b>One Way w/Fixed Repeater:</b>	
1 CR-10/450 Receiver 1 ASPD-700 Base Antenna 1 PG-2B Jumper Cable 1 K-1 Weatherproofing Kit *TWO "N" FEMALE CONNECTORS AND 1/2" TRANSMISSION LINE REQUIRED	



**MODEL ARS-30**

160 MHz Mobile Frequency to Fixed Repeater with a 450 or 455 MHz output frequency use Mobile part of Package 1, Package 40 or 41 and Package 46.

160 MHz Mobile Frequency to Fixed Repeater with a 450 or 455 MHz output frequency use Mobile part of Package 2, Package 40 or 41 and Package 46.

450 MHz Mobile Frequency to Fixed Repeater with a 455 MHz output frequency use Mobile part of Package 3, Package 42 or 43 and Package 46.

450 MHz Mobile Frequency to Fixed Repeater with a 455 MHz output frequency use Mobile part of Package 4, Package 42 or 43 and Package 46.

For Two-Way Communication on either Fixed Automatic Repeater or Two-Way Communication between event and direct to Studio, contact factory for equipment and quote.

## RPU GENERAL PRICE LIST

Prices Effective 4/1/90

Transmitters	Description of Item	Price
RPT-2	Hand-carried, portable 2.5 watt transmitter <b>without</b> battery, single frequency, tone encoder, UHF or VHF .....	\$995.00
RPT-2	Hand-carried, portable 2.5 watt transmitter <b>with</b> battery, single frequency, tone encoder, UHF or VHF .....	\$1,045.00
RPT-2-2	Hand-carried, portable 2.5 watt transmitter <b>without</b> battery, dual frequency, tone encoder, UHF or VHF .....	\$1,025.00
RPT-2-2	Hand-carried, portable 2.5 watt transmitter <b>with</b> battery, dual frequency, tone encoder, UHF or VHF .....	\$1,075.00
RPT-15	15 watt transmitter, single frequency, compact portable or airborne, with tone encoder, UHF or VHF .....	\$1,075.00
RPT-15-2	15 watt transmitter, dual frequency, compact portable or airborne, with tone encoder, UHF or VHF .....	\$1,105.00
RPT-30	30 watt transmitter at 450 MHz and 45 watts at 140-180 MHz, continuous duty, single frequency, 4 audio inputs, tone decoder, UHF or VHF .....	\$1,695.00
RPT-30-2	30 watt transmitter at 450 MHz and 45 watts at 140-180 MHz, continuous duty, dual frequency, 4 audio inputs, tone decoder, UHF or VHF. ....	\$1,725.00

Receivers	Description of Item	Price
AR-10	RPU mobile repeat receiver, single frequency, UHF or VHF, built in AC supply or operates on 12-15 V DC. ....	\$1,195.00
AR-10-2	RPU mobile repeat receiver, dual frequency, UHF or VHF, built in AC supply or operates on 12-15 V DC. ....	\$1,225.00
CR-10	RPU rack mount receiver, single frequency, UHF or VHF, with monitor speaker in front panel. ....	\$1,195.00
CR-10-2	RPU rack mount receiver, dual frequency, UHF or VHF, with monitor speaker in front panel. ....	\$1,225.00
DR-10	RPU rack mount receiver, single frequency, UHF or VHF, does not include monitor speaker, tone decode. ....	\$895.00
DR-10	RPU rack mount receiver, dual frequency, UHF or VHF, does not include monitor speaker, tone decode. ....	\$925.00

## RPU ACCESSORIES

Prices Effective 4/1/90

Model	Description of Item	Price
Crystal	Hi-accuracy for RPU transmitters and receivers, .....	\$17.95
APS-28/18	Airborne power supply 28-18 V. DC for RPT-15. ....	\$65.00
K-1	Grounding and weatherproofing kit. ....	\$12.00
040-001-1	Internal battery for RPT-2 transmitter. ....	\$72.00
040-009	Portable battery for RPT-15 transmitter with belt strap, case and charger. ....	\$100.00
2-YC	RPU receiver combiner 152-456 MHz. ....	\$65.00
2YC-150	Stacking harness, for stacking two YC-153, YC-161, YC-160, YC-166 or YC-170 Yagi antennas. ....	\$65.00
2YC-450	Stacking harness, for stacking two YC-450 Yagi antennas and "T" assembly. ....	\$85.00
580-116	AC power cord for RPT-2, RPT-15, RPT-30, AR-10 and CR-10. ....	\$5.50
585-069	DC power cord for RPT-2 transmitter with connectors. ....	\$21.00
585-070	DC power cord for RPT-15 transmitter with connectors. ....	\$21.00
585-074	DC power cord for RPT-30 transmitter with fuse and cable. ....	\$19.50
700-251	Mobile mounting kit for RPT-30, 4 mtg. fasteners with DC power plug, fuse and cable. ....	\$48.60
700-252	Mobile mounting kit for RPT-15 or AR-10. ....	\$25.20
700-253	Rack mounting kit for RPT-30 transmitter. ....	\$19.50
800-226	Coaxial relay board, 50 ohm, N female connectors .....	\$54.60
800-278 System	Audio companding boards for RPT-2, RPT-15 or RPT-30 transmitters ONLY (2 boards) and AR-10, BR-10, CR-10 or DR-10 receivers ONLY (1 board) NOT FOR OTHER MODELS. ....	\$400.00

## RPV ACCESSORIES

Prices Effective 4/1/90

Model	Description of Item	Price
633-6	Duplexer with cables to connect AR-10/450 receiver & RPT 30- transmitter to common antenna. MOBILE USE ONLY. ....	\$350.00
WP-430-1	Selective cavity resonator, single section for operation in the 148-174 MHz band. ....	\$210.00
WP-440-1	Selective cavity resonator with female connectors 200-300 MHz ....	\$200.00
WP-470-1	Selective cavity resonator, single section for operation in the 406-512 MHz band. ....	\$180.00
WP-678	Duplexer with cables to join CR-10 & RPT-15 or RPT-30 to common line & antenna. USED WITH FIXED AUTO RELAY. UHF ONLY. ....	\$730.00
MCD-70	Microphone with push to talk switch & 14' standard cord 4 pin XLR-4. ....	\$80.00
MCD-70B	Microphone with push to talk switch & 9' coil cord 4 pin XLR-4. ....	\$80.00
MCD-70C	Microphone with 3 pin XLR-3 plug & 14' cord. ....	\$80.00
MCD-70D	Microphone with 3 pin XLR-3 plug & 9' coil cord. ....	\$80.00
Racom 1300	Station identified for use in TSL system. ....	\$200.00
RMH-3	Rack shelf for mounting RPT-2 transmitter. ....	\$55.00
RMH-3B	Rack shelf with fan for mounting RPT-15 ....	\$74.50
TR-2	Coaxial switching unit required in RPT-15 if used for base station or mobile two-way communications. ....	\$35.00
TR-3	Antenna relay for RPT-30 for two-way operation. ....	\$35.00

## RPV ANTENNAS

Prices Effective 4/1/90

Model	Description of Item	Price
<b>Omnidirection RPU Base Antennas (SPECIFY FREQUENCY)</b>		
SC-155AC	Base Antenna vertically polarized, 6 db gain, top mounting, includes PG-15A cable, for 152-171 MHz band with "N" male connector. Requires a 12' x 1 1/4" mounting pipe with standard threads (NOT INCLUDED) ....	\$290.00
ASPD-700	Base Antenna, vertically polarized, 7 db gain, top mounting with ASPR-616 mounting clamps, for 450-470 MHz band, with "N" male connector. ....	\$336.00
DB-5007	Side mount kit for ASPD-700 & SC-155AC antennas ....	\$145.00

### Omnidirectional RPU Mobile Whip Antennas (SPECIFY FREQUENCY)

ASPS-177	Whip Antenna, vertically polarized mobile roof top, 3 db gain, for 130-174 MHz band, with 15' RG58 & PL259 connector ....	\$61.75
ASP-1650	Whip antenna, vertically polarized mobile roof top, 4 db gain, for 450-470 MHz band, with 15' RG58U & PL259 connector. ....	\$56.25
MM-150	Magnetic Mount Antenna, vertically polarized, 3 db gain, for 150-174 MHz band, with 12' RG58U & PL259 connector. ....	\$69.95
MM-450	Magnetic Mount Antenna, vertically polarized, 4 db gain, for 450-470 MHz band, with 12' RG58U & PL259 connector ....	\$69.95
AV-15	Aircraft Antenna, vertically polarized, for 450-470 MHz band, with "N" female connector. ....	\$54.50
MA-1	Ring Antenna, horizontally polarized with 4' mast, for 150-170 MHz band with 10' RG58 & PL259 connector. ....	\$80.00

### Omnidirectional RPU Portable Antennas (SPECIFY FREQUENCY)

PO-150	A 5/8 wave base loaded antenna, vertically polarized, 3 db gain for RPT-2 for 150-174 MHz band with PL259 connector. ....	\$39.95
PO-450	Colinear Antenna with Phasing coils, vertically polarized, 4 db gain for RPT-2, for 450-470 MHz band with PL259 connector. ....	\$39.95
PA-1	Ring antenna with standard mic threads, horizontally polarized with 2' mast, for 150-170 MHz band with 10' RG58 & PL259 connector. ....	\$80.00
PAV/150	Mic Stand Mount Antenna, vertically polarized, 3 db gain, for 150-170 MHz band with 12' RG58 & PL259 connector. (MIC STAND NOT INCLUDED).....	\$75.95
PAV/450	Mic Stand Mount Antenna, vertically polarized, 4 db gain, for 450-470 MHz band with 12' RG58 & PL259 connector. (MIC STAND NOT INCLUDED).....	\$75.95

\*Call Factory For Current Price

**RPU ANTENNAS CONTINUED**

Model	Description of Item	Price
<b>Omnidirectional RPU Base Antennas (SPECIFY FREQUENCY)</b>		
DB-438	Yagi Antenna, horizontally or vertically polarized depending on mounting, 6 elements, 10 db gain, for 450-470 MHz band, recommended for TSL use, "N" female connector .....	*
YC-153	Yagi Antenna, horizontally or vertically polarized depending on mounting, 5 elements, 9 db gain, for 152.08-153.40 MHz band with "N" female connector. ....	\$135.00
YC-161	Yagi Antenna, horizontally or vertically polarized depending on mounting, 5 elements, 9 db gain, for 161.4-162.0 MHz band with "N" female connector. ....	\$135.00
YC-160	Yagi Antenna, horizontally or vertically polarized depending on mounting, 5 elements, 9 db gain, for 160.89-161.40 MHz band with "N" female connector. ....	\$135.00
YC-166	Yagi Antenna, horizontally or vertically polarized depending on mounting, 5 elements, 9 db gain, for 165.95-166.55 MHz band with "N" female connector. ....	\$135.00
YC-170	Yagi Antenna, horizontally or vertically polarized depending on mounting, 5 elements, 9 db gain, for 169.85-170.45 MHz band with "N" female connector. ....	\$135.00
YC-450	Yagi Antenna, horizontally or vertically polarized depending on mounting, 6 elements, 9 db gain, for 450.01-455.99 MHz band with "N" female connector. ....	\$135.00

**RPU TRANSMISSION LINE, CABLES, CONNECTORS**

Model	Description of Item	Price
585-037-1	Automatic fixed relay station control cable to connect RPT-15 or RPT-30 transmitters to CR-10 receiver .....	\$33.00
585-037-2	Mobile relay station control cable used to connect RPT-15 or RPT-30 transmitters to AR-10 receiver. ....	\$40.00
585-038-2	Base station mute cable to connect mute relay in RPT-15 or RPT-30 to mute connector in CR-10 receiver .....	\$20.00
586-026	Base station RF cable to connect coaxial relay in RPT-15 or RPT-30 to RF input of CR-10. RPT-15 MUST have TR-2, RPT-30 MUST have TR-3 .....	\$15.00
PG-2A	Jumper cable with 2' of RG-8 with PL-259 & UG-21 connectors .....	\$25.00
PG-2B	Jumper cable with 2' of RG-8 with UG-21 connectors .....	\$25.00
PG-12B	Jumper cable with 12' of RG-8 with UG-21 connectors for 360° rotation of Yagi antennas ....	\$29.00
PG-20A	Jumper cable with 20' of RG-8 with UG-21 & PL-259 connectors .....	\$32.50
PG-20B	Jumper cable with 20' of RG-8 with UG-21 connectors .....	\$32.50
L44N	Andrew type "N" female connector for 1/2" foam line .....	*
L44W	Andrew type "N" male connector for 1/2" foam line .....	*
L45N	Andrew type "N" female connector for 7/8" foam line .....	*
L45W	Andrew type "N" male connector for 7/8" foam line .....	*
LDF4-50	Andrew foam transmission line, 1/2", 50 ohm, jacketed .....	*
LDF5-50	Andrew foam transmission line, 7/8", 50 ohm, jacketed .....	*
FLC 12-50J	Cablewave 1/2" foam transmission line, 50 ohm, jacketed .....	*
738802	Cablewave type "N" male 1/2" connector .....	*
738801	Cablewave type "N" female 1/2" connector .....	*
FLC 78-50J	Cablewave 7/8" foam transmission line, 50 ohm, jacketed .....	*
738841	Cablewave type "N" male 7/8" connector .....	*
738842	Cablewave type "N" female 7/8" connector .....	*
PL-259	Type "UHF" male connector for RG-8 cable .....	\$4.00
UG-21B/U	Type "N" male connector for RG-8 cable .....	\$6.00
UG-23B/U	Type "N" female connector for RG-8 cable .....	\$6.00
RG-8U	Foam transmission line, 50 ohm, jacketed per foot .....	\$0.40

**RPU MANUALS**

Model	Description of Item	Price
Manual	Instructions for all Marti equipment .....	\$18.00

\*Call Factory for Current Price

# INSTRUCTIONS FOR STL PATH CALCULATIONS

# MARTI

## System losses:

1. Enter free space on line 1. (See chart 1 - or use  $(DB = 36.6 + 20 \log 950 + 20 \log (\text{Distance in miles}))$ ).
2. Enter transmitter coax loss on line 2. (See chart 2).
3. Enter receiver coax loss on line 3. (See chart 2).
4. For mono systems enter -1.0 DB loss for connectors and pigtailed on line 4. For stereo systems using the HRC-10 transmitter combiner (-3 DB) and MTS-1 receiver combiner (-3 DB) enter -7.0 DB on line 4. (Total combiner loss and connector loss).
5. Add line 1, 2, 3 and 4 and enter result on line 5. This will be the total system loss.
6. Enter +40.0 DBM on line 6. This is the transmitter power gain for STL-10 transmitter.
7. Enter transmitter antenna gain on line 7. (See chart 3).
8. Enter receiver antenna gain on line 8. (See chart 3).
9. Add line 6, 7 and 8 and enter on line 9. This will give total system gain.
10. Enter figure from line 5 on line 10.
11. Enter figure from line 9 on line 11.
12. Add line 10 and 11 together to obtain the net received signal in DBM.
13. Signal required for:

DB of Quieting	dBm	uV
50	-95	4
60	-84	14
75	-75	45

14. Enter figure on line 12 under each of the quieting figures listed on line 13.
15. Subtract line 14 from each of the figures on line 13. This will give you the fade factor in DB that your signal can fade and still maintain indicated quieting.

The object when engineering any Radio Path is to get as much signal to the receiver as possible. The first step is to see if the path has .6 Fresnel zone clearance. If your path has the proper clearance, then you can proceed with the path calculations to determine how much signal will arrive at the receiver.

## .6 Fresnel Clearance

To determine .6 Fresnel zone clearance, obtain 7 1/2 minute topographical maps of your area. Draw a straight line between your STL transmitter site and STL receiver site. Next determine the elevation of your path each .1 of a mile\*. The elevation should be plotted on 4/3 earth's radius paper, along with the transmitter and receiver antennas heights. Draw a straight line from the transmitting antenna to the receiving antenna. You can now determine the clearance at any point on the path. The necessary midpoint clearance can be obtained from chart #5, other points can be checked by using the formula listed under chart #5.

## Fading

A word about Reliability Factor - when a system is engineered by Marti Electronics, particular attention is paid to path distance, clearance, transmission line loss, antenna gain, transmitter gain, combiner losses, and most important, RELIABILITY. We do not believe that the same size of antenna and the same type of transmission line will be adequate for all path distances. Experience has proven otherwise.

When designing a STL system, we program a Reliability Factor of 99.9%. This means that out of a 24-hour program day (86,400 sec.), the signal could deteriorate to something just less than the normal program quality for a period of nine seconds, and this 9 seconds period would not necessarily have to occur all at one time but could be accumaltive over the 24-hour period.

Line 15 on the STL path calculations sheet gives you the fade margin for each signal to noise ratio. To increase that figure try increasing the size of the antenna or coax.

\* These elevations should include the height of any structures, trees or other obstacle on the path.

### CHART #1

#### Path Loss in DB (950 MHz)

$$DB \text{ Loss} = 36.6 + 20 \text{ LOGF} + 20 \text{ LOGD}$$

Distance in Miles	Loss in DB
1	-96.2
2	-102.2
3	-105.7
4	-108.2
5	-110.1
6	-111.7
7	-113.1
8	-114.2
9	-115.3
10	-116.2
11	-116.9
12	-117.7
13	-118.4
14	-119.1
15	-119.7
16	-120.2
17	-120.7
18	-121.3
19	-121.7
20	-122.2
21	-122.6
22	-123.0
23	-123.4
24	-123.8
25	-124.1
26	-124.5
27	-124.8
28	-125.1
29	-125.4
30	-125.7

F is in MHz.

D is in miles

### CHART #3

#### Antenna Gain in DBI (950 MHz)

Full Parabolas		
Diameter	Gain	
4'	18.9 DBI	
5'	21.0 DBI	
6'	22.0 DBI	
8'	25.0 DBI	
10'	27.0 DBI	
Partial Parabolas		
Scala MF-960	3.8'	16.5 DBI
Scala PR-450	5.6'	20.5 DBI

### CHART #4

#### Fade margin in DB for % of Reliability

Distance in miles	99.9% reliability
5	5.5 DB
10	10.0 DB
15	20.0 DB
20	31.0 DB
25	37.5 DB
30	40.2 DB

### CHART #5

#### .6 Fresnel Zone Clearance at Path Mid Point in Ft. (950 MHz)

Distances in Miles	Height Feet
1	21.3
2	30.2
3	37.0
4	42.7
5	47.7
6	52.9
7	56.5
8	60.4
9	64.1
10	67.5
11	70.8
12	74.0
13	77.0
14	79.9
15	82.7
16	85.4
17	88.0
18	90.6
19	93.1
20	95.5
21	97.8
22	100.1
23	102.4
24	104.6
25	106.7
26	108.9
27	110.9
28	113.0
29	115.0
30	117.0

### CHART #2

#### Coax Loss per 100' in DB

##### Andrew

LDF4-50	-2.4 DB/100'	1/2" Dia.
LDF5-50	-1.4 DB/100'	7/8" Dia.

H = 1316

$$H = 1316 \sqrt{\frac{D_1 \times (D_2 - D_1)}{D_2 \times F}}$$

H = .6 Fresnel Zone Clearance in Feet.

D<sub>1</sub> = Distance to Obstruction in Miles.

D<sub>2</sub> = To Path Distance in Miles.

F = Frequency in MHz.

# INSTRUCTIONS FOR STL PATH CALCULATIONS

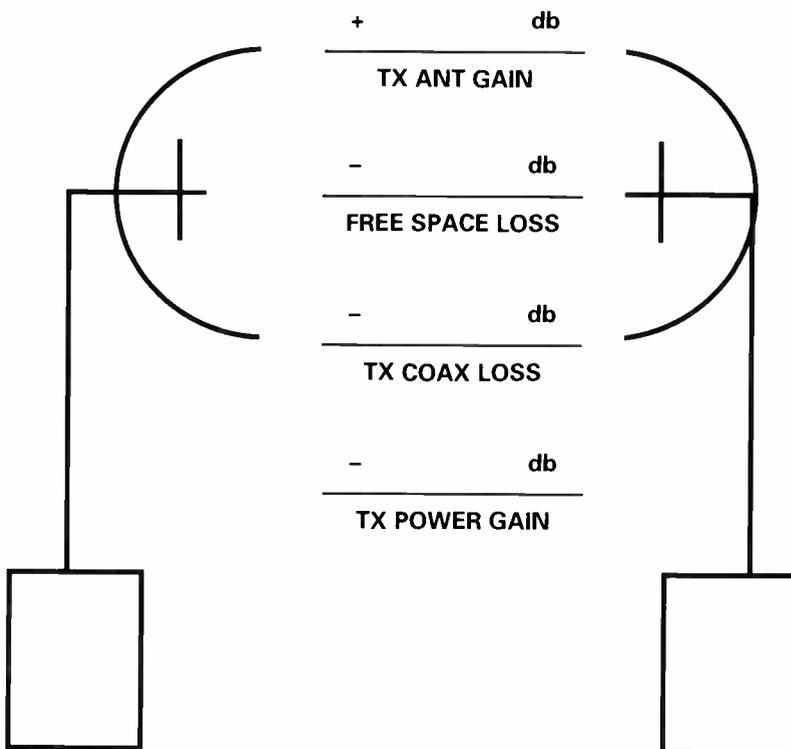
# MARTI

- |                     |            |                   |             |
|---------------------|------------|-------------------|-------------|
| 1. FREE SPACE LOSS: | - _____ db | 6. TX POWER GAIN: | + _____ dbm |
| 2. TX COAX LOSS :   | - _____ db | 7. TX ANT GAIN:   | + _____ dbi |
| 3. RX COAX LOSS :   | - _____ db | 8. RX ANT GAIN:   | + _____ dbi |
| 4. MISC COAX LOSS : | - _____ db |                   | _____       |
|                     | _____      | 9. TOTAL GAIN:    | + _____ db  |
| 5. TOTAL LOSS :     | - _____ db |                   |             |

## EFFECTIVE RECEIVED SIGNAL

10. Total Loss: - \_\_\_\_\_ db
11. Total Gain: + \_\_\_\_\_ db
- \_\_\_\_\_
12. Net Signal: - \_\_\_\_\_ dbm

- |                            | 50 DB SNR   | 60 DB SNR   | 75 DB SNR   |
|----------------------------|-------------|-------------|-------------|
| 13. Receiver Sensitivity:- | _____ dbm   | _____ dbm   | _____ dbm   |
| 14. Net Signal:            | - _____ dbm | - _____ dbm | - _____ dbm |
| 15. Fade Margin:           | _____ db    | _____ db    | _____ db    |



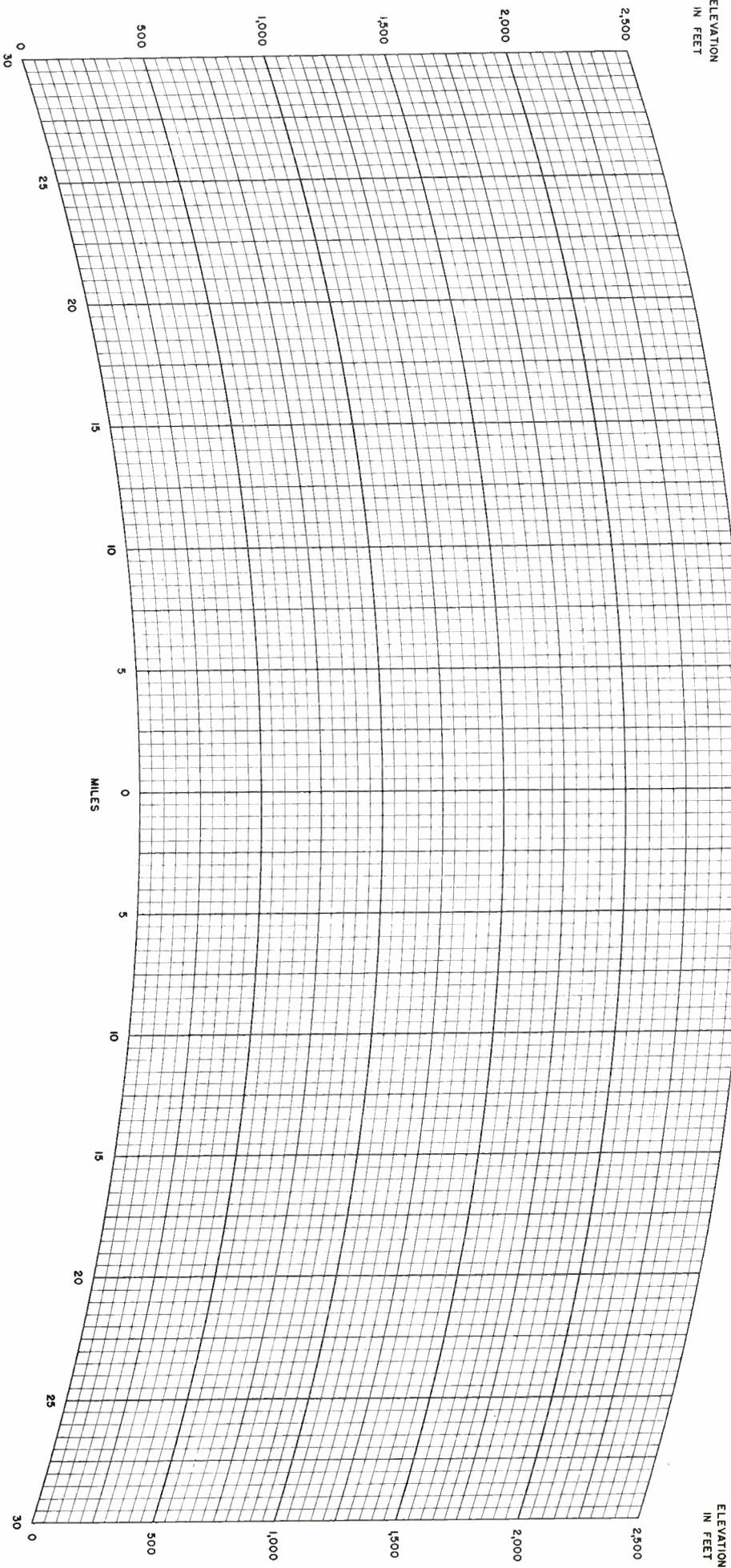
## MARTI STL PATH CALCULATIONS

\_\_\_\_\_ Station

\_\_\_\_\_ Path Length

\_\_\_\_\_ Date

**PROFILE**  
BASED ON 1.39X EARTH'S RADIUS



# MARTI

*The Performance-value leader in Broadcast Equipment*

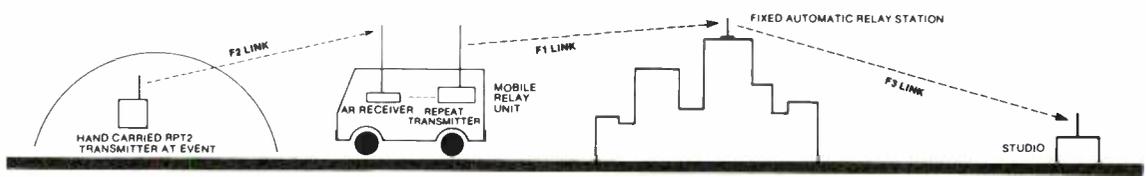
Marti Electronics, Inc., P.O. Box 661, Cleburne, Texas 76033-0661  
(817) 645-9163 Telex #794835 "Marti CLBN" Fax (817) 641-3869

**TYPICAL AUTOMATIC MOBILE RELAY TO A FIXED RELAY TO STUDIO  
ALL FREQUENCIES IN 450 AND 455 MHZ BANDS**

- PACKAGE 12 - From An Event With A Portable Transmitter To A Repeat Receiver In A Mobile Van **\$2,697.40**
- 1 RPT-2/450 Transmitter
  - 1 MCD-70C Microphone
  - 1 AR-10/450 Receiver
  - 1 700-252 Mobile Mounting Kit for AR-10
  - 1 585-037-2 Control Cable
  - 1 ASP-1650 Mobile Antenna
  - 1 PAV-450 Portable Antenna
  - 1 WP-470-1 Cavity
- PACKAGE 3 - Retransmit From Automatic Mobile Relay To A Fixed Relay Station (Mobile Part) **\$2,047.35**
- 1 RPT-30 Transmitter
  - 1 MCD-70C Microphone
  - 1 700-251 Mobile Mounting Kit for RPT-30
  - 1 ASP-1650 Mobile Antenna
  - 1 YC-450 Portable Antenna
  - 1 PG-20A Cable
- PACKAGE 42 - Automatic Fixed Relay Station Equipment **\$4,045.50**
- 1 CR-10/450 Receiver
  - 1 585-037-1 Repeater Cable
  - 1 ASPD-700 Base Antenna
  - 1 PG-2B Jumper Cable
  - 1 K-1 Weatherproofing Kit
  - \*TWO "N" FEMALE CONNECTIONS AND 1/2" TRANSMISSION LINE REQUIRED
- .....
- 1 RPT-30/450 Transmitter
  - 1 700-253 Rack Mounting Kit
  - 1 WP-678 Duplexer & Cables
- PACKAGE 46 - Equipment At The Studio **\$1,568.00**
- 1 CR-10/450 Receiver
  - 1 ASPD-700 Base Antenna
  - 1 PG-2B Jumper Cable
  - 1 K-1 Weatherproofing Kit
  - \*TWO "N" FEMALE CONNECTIONS AND 1/2" TRANSMISSION LINE REQUIRED

Complete Package Price for Automatic Mobile Relay Used With An Automatic Fixed Relay System With Antennas LESS Connectors ..... **\$10,358.25**

ON ALL MOBILE REPEATERS F-2 MUST BE AT LEAST 4.0 MHz FROM F-1  
ON ALL FIXED REPEATERS F-3 MUST BE AT LEAST 4.0 MHz FROM F-1



# MARTI PERFORMANCE - VALUE PRODUCTS RADIO'S - BROADCAST EQUIPMENT

## **THE NEW BATTLE GROUND OF THE 90's IS CD QUALITY**

*BUT THE QUALITY BATTLE WON'T BE  
WON WITH A LOUDNESS BOX AHEAD OF  
A NOISY "COMPOSITE" STL.*

Now that you are as loud as you want, you can have better stereo separation and lower noise from Marti.

To get serious about CD quality you need an STL with a noise floor near -80 db and stereo separation down to the noise floor.

You need the **MARTI STL-10 SCPC System.**

It's the weapon of choice to attract listeners searching for an FM station that sounds more like their own CD player!

### **STEREO STL SYSTEM     \$6,925.00**

Package 51S:  
2 STL - 10/950 transmitter  
2 R-10/950 receiver  
1 HRC-10 transmitter combiner  
1 MTS-10 receiver combiner

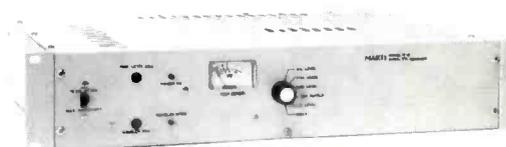
### **MONO SYSTEM             \$3,250.00**

Package 50M:  
1 STL - 10/950 transmitter  
1 R-10/950 receiver

Prices do not include antennas and transmission line.



**STL-10 TRANSMITTER**



**R-10 RECEIVER**

### **SCPC STEREO SYSTEM FEATURES**

- ★ Unexcelled stereo separation, noise and distortion specs.
- ★ High interference rejection receivers.
- ★ Backup reliability of SCPC stereo.
- ★ Full 10 watts power.
- ★ Ga As FET low noise amplifier.
- ★ Available for new narrow channels.
- ★ Matched phase and amplitude.
- ★ Provision for automatic switching.
- ★ Two year limited warranty.
- ★ 12 volt battery operation.
- ★ Selectable 0, 25, 50 or 75 us. emphasis.
- ★ FCC approved under parts 74 and 94  
FCC ID: BEN9EZSTL-10/950
- ★ Up to 4 subcarriers per stereo system.
- ★ Accurate watt meters for forward and reflected power.

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