



MASTR® II Mobile Radios
Quality that speaks for itself

Every mobile radio is measured against this one

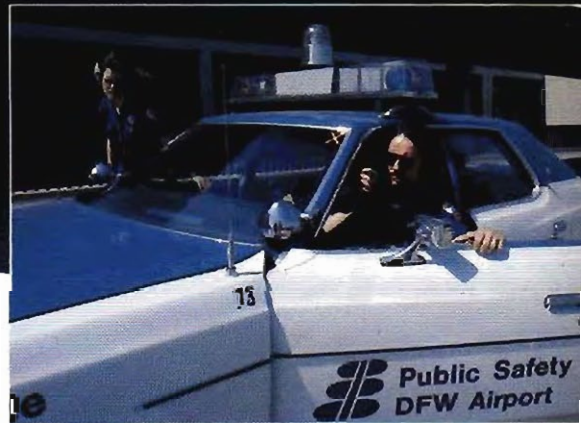


There's little question that MASTR II mobile radios have long been the acknowledged standard of excellence.

Every detail—from their completely solid-state design and extensive integrated circuitry to their modular construction, adjustable power output and powerful 12-watt audio system—indicates a level of sophistication no comparable radio can match. Under every conceivable operating condition, the MASTR II has shown that its technology, its design standards and its performance are unrivaled.

In short, there's simply no better mobile radio for any type of communications system.

Combine its exceptional built-in capabilities with a virtually unlimited array of options, and you also have a radio that meets today's needs while it anticipates tomorrow's. Up to 12-channel capability, for example.





Built-in positive/negative ground with no converters. Unique Priority Search Lock Monitoring. Dual front end with broadband transmitters. Choice of 5 control heads. Built-in duplexer operation. Low-band and high-band noise blankers. And much, much more.

Clearly, the MASTR II mobile is the one to choose when only the best will do. Whatever the size or type communications system.

Note: Some models are shown with optional equipment

Performance Characteristics

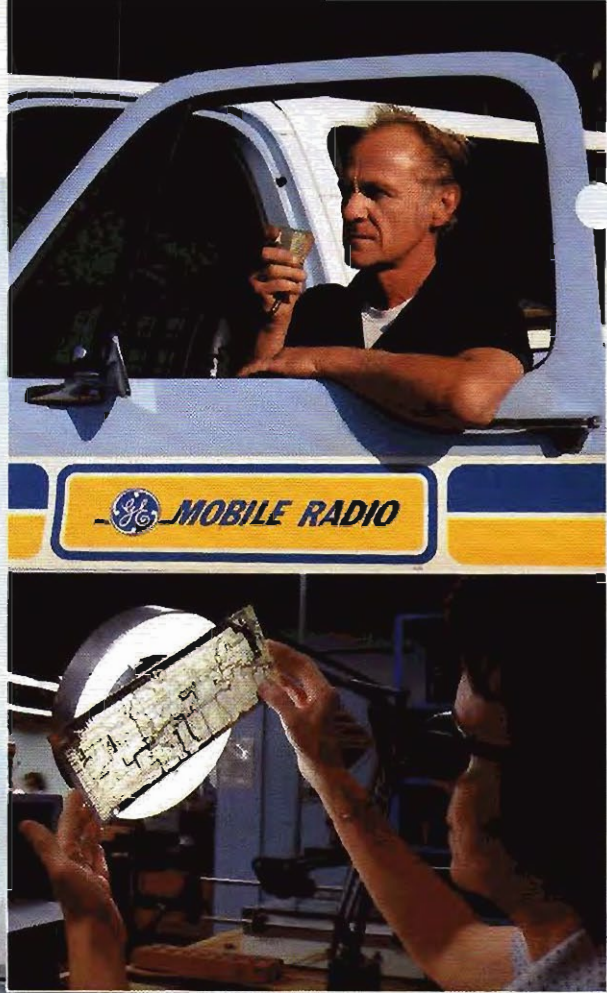
Output Powers—Up to 110w

Frequency Bands—LB, MB, VHF, UHF

Number of Channels—Up to 12

Mounting—Trunk

Quality begins with people



People like our product design, inspection, test and manufacturing personnel, who help maintain the industry's most stringent quality-control standards.

People like our sales and service representatives. Permanent residents of the area they serve, they're uniquely prepared to provide responsive, professional, on-the-spot service and support. When you need it.

People, in short, who will stay with you and work for you. That's what makes the General Electric team part of your team.

General Electric Company • Mobile Communications Division
World Headquarters • Lynchburg, Virginia 24502 USA

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MOBILE RADIO

MASTR[®] II "M" Series

SOLID STATE, MODULAR DESIGN
40, 65 OR 110 WATTS
138 TO 174 MHz



THE MASTR II MOBILE RADIO is a top performance, widely applicable quality radio for today's two-way communication systems. It is the radio with the "built-in future", able to handle system requirement changes expected to occur in the years ahead. Most of its circuitry is composed of plug-in modules which enable field modification or servicing to be quickly and inexpensively performed without unsoldering.

THE HIGH RELIABILITY OF MASTR II radios is accomplished by virtual elimination of point-to-point wiring, maximum use of integrated circuitry and conservatively rated silicon transistors and integrated circuits. The radio is well protected against the entry of dirt, dust and water by its totally enclosed, rugged case. In addition, the antenna switch is hermetically sealed for trouble-free operation.

EXTENDED PERFORMANCE OPERATION - MASTR II. at temperature extremes of -40°C to $+70^{\circ}\text{C}$, is rated to do what ordinary radios are expected to do per EIA Standards at -30°C to $+60^{\circ}\text{C}$. Also, operation is guaranteed in MASTR II radios with supply voltage levels varying from $\pm 20\%$ of rated (EIA). Under normal conditions of temperature and supply voltage, the MASTR II is ultra conservatively rated.

± 12 VDC OPERATION WITHOUT CONVERTERS - MASTR II radios may be used interchangeably in negative or positive ground vehicular electrical systems. No power consuming internal or external converters or special cable adapter kits are required. The standard interconnecting cable is simply connected according to the polarity of the vehicle involved.

SAFETY DESIGNED ACCESSORIES - the control unit, microphone and speaker have durable mar-resistant, plastic housing with rounded corners and are devoid of sharp projections. Also, the controls are recessed and brackets are designed to release on impact.

THE THIN - 2.5 INCH - PROFILE of the MASTR II mobile radio permits new freedom for installation in narrow spaces such as beneath or behind front seats of vehicles. Its unique construction allows horizontal, vertical or inverted mounting without affecting performance or mechanical durability. The radio maintains its 2.5" dimension even when it is securely locked into its separate mounting frame.

THE DRIP-PROOF TOP AND BOTTOM COVERS remain in place whenever the radio is out of its mounting frame, giving complete protection to the internal components at all times. However, the top cover may be readily removed for servicing without taking the radio out of its mounting frame.

GENERAL  ELECTRIC



MASTR II MOBILE RADIOS

"M" Series

138-174 MHz

GENERAL

MODEL SERIES	RF POWER OUTPUT RANGE (Watts)	PA POWER INPUT MAX. (Watts)	FCC FILING DATA (150 to 174 MHz)			APPLICABLE TO FCC RULES (Part Numbers)	RECEIVER MODEL NUMBER	BATTERY DRAIN (Amps)		
			TYPE ACCEPTANCE NUMBER					Receiver @13.8 VDC		Transmitter @ 13.6 VDC
			Standard Exciter		Phase Lock Loop (PLL) Exciter			Standby	Rated Audio	
			5 ppm Stability	2 ppm Stability						
MC/MX56	10 to 40	85	KT-32-B		KT-32-K	21, 89, 91, 93	ER-64-A	0.25	2.4	10 @ 13.6 VDC
MC/MX66	10 to 65	130*	KT-33-A	KT-33-C	KT-33-J					15 @ 13.6 VDC
MC/MX76	20 to 110	255**	KT-34-A	KT-34-C	KT-34-J					26 @ 13.4 VDC
MC/MX56†	1 or 25	55	KT-103-A		N/A					21,81,83,89,91,93

†With Option 9066 (Limited to 156-162 MHz with 16F3 Emission under Parts 81 & 83.)

*Power input is adjustable to 120 W (35 W output) to meet Part 93 FCC Rules. **Power input is adjustable to 180 W (70 W output) to meet Part 91 FCC Rules.

OPERATING VOLTAGE:
DIMENSIONS (H X W X D)

11 to 16 VDC (positive or negative ground)
Mobile Unit 2.5" x 11.75" x 18.75" (6.4 cm x 29.9 cm x 47.6 cm)
Control Unit, less bracket 2.2" x 6.7" x 5.0" (5.6 cm x 17.0 cm x 12.7 cm)
Speaker, less bracket 5.1" x 5.1" x 2.8" (13.0 cm x 13.0 cm x 7.1 cm)

WEIGHT (Approximate):

Unit (less accessories) 20 lbs. (9.06 kg)
Shipping (domestic pack) 44 lbs. (19.9 kg)

CABLE LENGTHS:

Control - 20' (6.1 m); Power - 26' (7.9 m); Ground - 6.5' (2 m)

ANTENNA:

Stainless steel, 1/4 wave whip with 15' (4.57 m) RG58/U cable

DUTY CYCLE (EIA)

Intermittent Ratings: Receiver, 100% - Transmitter, 20%
Continuous Ratings: Transmitter 100%

AMBIENT TEMPERATURE:

-40°C to +70°C (-40°F to +158°F) with full specified performance per EIA.

HUMIDITY:

95% @ 50°C (122°F)

SHOCK AND VIBRATION:

Meets EIA and U. S. Forest Service Specifications

SPEAKER:

8 ohms

MICROPHONE (Transistorized):

0.09 Vrm Output @ 600 ohms.

METERING:

Centralized metering sockets (transmitter and receiver) accommodate the General Electric 4EX3A11 or 4EX8K12 sets, or a single 0-3 VDC, 20,000 ohms/volt meter may be used.

RECEIVER

TRANSMITTER

RECEIVER TYPE	Standard	UHS	Noise Blanker
Channel Spacing:	25/30 kHz		
Sensitivity			
EIA 12 dB SINAD:	0.35 uv	0.175 uv	0.175 uv
20 dB Quieting:	0.50 uv	0.25 uv	0.25 uv
Noise Squelch:	0.20 uv	0.10 uv	0.10 uv
Channel Guard Squelch:	6 dB SINAD		
Selectivity EIA SINAD			
@ 30 kHz:	-100 dB		
@ 25 kHz:	-95 dB		
Modulation Acceptance:	±7 kHz		
Intermodulation:	-85 dB	-80 dB	-75 dB
Spurious and Image Rejection:	-100 dB	-95 dB	-85 dB
Audio Response:	Within +1 and -8 dB of 6 dB/octave de-emphasis 300 to 3000 Hz per EIA.		
Audio Distortion:	Less than 3%		
Audio Output:	12 watts		
Frequency Stability:			
Suffix A or C Models			
-40°C to +70°C:	±0.0005%		
0°C to +55°C:	±0.0002%		
Suffix B or D Models			
-40°C to +70°C:	±0.0002%		
RF Input Impedance:	50 ohms		
Maximum Frequency Spread (2 to 8 channels)			
	138-155 MHz	150.8-174 MHz	
Full Specs.:	0.9 MHz	1.0 MHz	
3 dB Sensitivity Degradation:	1.6 MHz	1.8 MHz	

MODEL SERIES	MC/MX56	MC/MX66	MC/MX76
Rated RF Output			
Intermittent Duty:	40 Watts	65 Watts	110 Watts
Continuous Duty:	40 Watts	55 Watts	75 Watts
Adjustable to (for full performance per EIA):	10 Watts	30 Watts	35 Watts
Conducted Spurious and Harmonic Emission:	-85 dB		
Modulation Deviation:	0 to ±5 kHz (16F3, 15F2, 16F9)		
Frequency Stability			
Suffix A or C Models			
-40°C to +70°C:	±0.0006%		
0°C to +55°C:	±0.0002%		
Suffix B or D Models			
-40°C to +70°C:	±0.0002%		
Audio Response:	Within +1 and -3 dB of 6 dB/octave pre-emphasis 300 to 3000 Hz per EIA		
Audio Distortion:	Less than 2% @ 1000 Hz		
FM Noise:	-70 dB		
RF Output Impedance:	50 ohms		
Maximum Frequency Spread (2 to 8 channels)	138-155 MHz	150.8-174 MHz	
Standard Exciter			
Full Specs.:	1.8 MHz	2.0 MHz	
1 dB Power Output Degradation:	2.75 MHz	3.0 MHz	
PLL Exciter			
Full Specs.:	Up to 17 MHz	Up to 24 MHz	

MOBILE RADIO DEPARTMENT
WORLD HEADQUARTERS • LYNCHBURG, VIRGINIA 24502



Options

■ **Phase Lock Loop Exciter** — An alternate exciter which enables the frequencies of a multi-channel transmitter to be widely separated.

■ **All Solid State Channel Guard (CG)** — with plug-in tone element and Squelch Tail Elimination (STE).

■ **Choice of Built-In Tone Options** —
Up to 8 individual CG tones, Two-way or encode only.
Different encode/decode CG tones.
Type 90 Tone, encode and/or decode.
Type 99 Tone, Selective Call.

■ **Fixed Squelch** — is a pre-set circuit that replaces the variable squelch control, eliminating the chance of operator mis-adjustment. An "ON-OFF" switch on the control unit permits monitoring the receiver in the un-squelched condition.

■ **Busy Light** — An LED indicator which tells the operator at a glance when his selected channel is busy or idle.

■ **Priority Search Lock Monitor (PSLM)** — available for multi-frequency radios (up to 8 channels) for sequentially monitoring any pair of selected channels. A message on the priority channel will lock out the other channel until the transmission is completed.

■ **Noise Blanker** — improves signal clarity and effective range of the receiver in the presence of impulse noise interference.

■ **Carrier Control Timer** — turns off the transmitter after approximately one minute of operation and sounds an alert tone. It is reset on releasing the push-to-talk switch. The time interval is internally adjustable.

■ **Public Address "Hailer"** — provides a maximum of 12 watts of audio to an external speaker with a switch on the control unit. This enables incoming messages to be heard outside of the vehicle or it may be used as a public address system.

■ **Control Cables** (18, 30 or 38 conductors) are available in lengths of 9, 20 and 27 feet. The length of the power cable is 15', 26' and 33' long, respectively. The power cable's ground lead is 6.5' long. A 33' ground lead is available as another option.

■ **Ultra High Sensitivity Receiver** — A plug-in pre-amplifier is available whenever a need exists for increased sensitivity.

■ **Alternate Control Units, C-800 & C-900** — Multi-deck mobile consoles which provide more functions than available in standard control units, such as:

- 8 frequency PSLM
- 8 tone CG encoder
- 5 auxiliary functions
- and many others

■ **Other Options** — Handset, Noise Cancelling Microphone, External Speaker, Dual Control, Weatherproof Control Unit (C-700), C-400 Control Unit, Weatherproof Box, selected circuit modifications and miscellaneous accessory items.

Other Features

- Interchangeable plug-in transmitter and receiver oscillator modules for $\pm 0.0002\%$ or $\pm 0.0005\%$ frequency stability.
- Up to 8 frequency transmit and/or receive capability as a standard function. Unused channel capacity may be employed at any time by adding the required number of oscillator modules.
- The broad band power amplifier requires no tuning. RF power output is adjustable.
- Microstrip technology used extensively in the power amplifier provides low loss and improved reliability.
- Light Emitting Diodes (LEDs) used for indicators instead of filament type lamps. An LED has the same long life expectancy and dependability as provided by quality transistors.
- Twelve watts audio output with less than 3% distortion means loud and clear messages all the time.
- Single conversion receiver with monolithic crystal filters and quadrature detector assures stable, interference free reception in today's congested radio environment.
- Voltage to critical circuits is electronically regulated for stability of operation.
- Single layer construction and plug-in circuit boards provide "from the top" accessibility of all components, enabling the radio to be promptly and economically serviced.
- Plug-in modules have individual test values and can be checked independent of other circuits or they can be quickly and easily replaced.
- A tone filter for attenuating tone squelch frequencies is supplied as standard on all receivers whether equipped with Channel Guard (Tone Squelch) or not.
- Squelch Tail Elimination is included on all radios equipped with Channel Guard.
- Fast squelch action — on standard receivers, squelch burst disappears in less than 10 milliseconds after the end of a message.
- Structural grade, cold rolled steel used for top and bottom covers and separate mounting plate.
- The low profile package permits new freedom for installation in confined spaces.

MASTR® II-'E' Series

25/40, 65 or 110 watts
138-174 MHz



- ★ -40°C to + 70°C Operation
- ★ For 12, 24, 36 or 48 VDC Systems
- ★ Positive or Negative Ground
- ★ 2 or 5 PPM Frequency Stability
- ★ 12 Watt Audio Output
- ★ Safety Designed Accessories
(with C-500 Control Unit)
- ★ Full Duplex Operation
- ★ Dual Front End
- ★ Wide-Spaced Transmitter
- ★ Up to 12 Tx & Rx Channels
- ★ Solid-State Channel Guard
- ★ "Pre-Amp" Receiver
- ★ Noise Blanker
- ★ Alternate Control Units

MASTR II FM two-way radio is the top line of communications equipment designed, manufactured and distributed by the General Electric Company. It not only provides the high performance and wide application flexibility needed for today's diverse market, but it has the capability of meeting tomorrow's needs, as well. Its "built-in future" is an anti-obsolescence feature which permits a user to keep pace with his planned system expansion and/or meet his ever-changing requirements.

MASTR II mobile radios are fully solid-state utilizing a large quantity of integrated circuits, conservatively rated silicon components and micro-strip technology. Troublesome point-to-point wiring is virtually eliminated through the extensive use of plug-in modules for all significant subsystems.

All combinations of MASTR II mobile units are furnished complete with safety-designed accessories, power and control cable, universal type mounting hardware and detailed instructions to facilitate the installation in a standard motor vehicle. Although the brackets for the speaker and control units are supplied with hardware which will readily breakaway on sufficient impact, the brackets may be installed without the breakaway feature.

The "E" Series radio is an extension of the basic MASTR II line which provides for added functions and channel capacity. The mobile unit in the "E" Series is a two-tier package with a complete radio assembly in the top deck and space in the lower deck for its many performance-expanding modules. The "E" Series is particularly applicable to large or complex radio systems.

MASTR II-'E' Series

FEATURES

Extended Performance Operation

Because of the broad temperature characteristics and the conservative manner in which components are selected and applied in a MASTR II radio, full EIA performance is guaranteed all the way from forty degrees below zero up to one hundred and fifty-eight degrees (Fahrenheit). In addition, performance will be within EIA limits even when the supply voltage varies as much as $\pm 20\%$ from nominal. MASTR II not only dependably exceeds industry standards at these extremes, but it is so lightly stressed when operating under normal conditions that the user can be assured of high reliability and long life expectancy.

± 12 VDC Operation Without Converters

A MASTR II radio unit is designed to be independent of the polarity of system supply voltage. The orientation used for the original installation of the interconnecting cable compensates for the difference in system grounds. This is accomplished without converters or other power consuming devices. Once the system is installed, a radio unit can be placed in any vehicle and moved later to a vehicle of opposite polarity without reversing plugs or making other changes in the radio.

Interchangeable ICOMs

The Integrated Circuit Oscillator Modules (ICOMs) used to maintain transmitter and receiver frequency stability are interchangeable, plug-in devices. MASTR II may be ordered with ICOMs for 2 or 5 ppm stability. Later, if desired, frequency stability can be readily changed in the field by a simple substitution of ICOMs.

Broad Band PA

The broad band power amplifier requires no tuning. Power output is adjustable.

LED Indicators

Long-life Light Emitting Diodes (LEDs) are used for indicators instead of less reliable filament lamps.

Single Conversion Receiver

Single conversion receiver with monolithic crystal filters and crystal discriminator assures stable, interference-free reception, particularly in congested areas.

Fast Squelch

Fast squelch action on carrier squelch receivers removes the squelch burst in less than 10 milliseconds after the end of a message.

Squelch Tail Elimination

Supplied as standard on units equipped with Channel Guard.

Tone Filter

A tone filter is supplied on all receivers (with or without Channel Guard) to attenuate tone squelch frequencies which might otherwise be present and audible.

Safety-Designed Accessories

Speaker and Control Head have rounded corners and have no projecting knobs, switches or sharp surfaces capable of inflicting injury.

Radio Without Accessories

Combinations with 2nd digit "X" and "Y" provide a package without the standard control unit, control/power cable, microphone and speaker. This enables the user to add whatever alternate accessory groups he may require.

OPTIONS

Many options or added functions are available for use with MASTR II combinations and only a few are mutually exclusive (these are marked with an *). As listed below, certain options may be added at any time while others can only be applied in the factory:

Factory or Field Installable Options

- **Solid-State Channel Guard (tone squelch)** — a plug-in circuit board which provides tone encoding and decoding using an easily interchangeable Versatone (a tone determining IC network) module.
- **Carrier Control Timer** — Used to turn off the transmitter and sound an audible tone after one minute of transmitter operation. Resets on release of the P-T-T switch.
- **Alternate Control and Power Cables** — Control cables of 9', 20', or 27' long with 18, 30 or 38 conductors and companion power cables of 15', 26' and 33' long, respectively, may be exchanged in the factory or substituted in the field as may be required.
- **C-800 & C-900 Control Units** — Provide multi-function control capability including:
 - 8 frequency PSLM
 - 8 tone Channel Guard Encoder
 - 5 auxiliary functions
- **And Miscellaneous Items** — such as, Dual Control*, C-400 & C-700 Control Units, Weatherproof Box, Accessory Mounting Kit, Noise Cancelling Microphones, 33' ground cable, External Tone Encoders and Decoders and others.

Factory Installable Options

- **Dual Front End (DFE)** — Provides a second RF circuit for the radio's main receiver to enable the radio to be operated cross-band or in-band with wide-spaced frequencies. Up to 8 channels may be combined on the main receiver and the DFE.
- **Phase Lock Loop (PLL) Exciter** — An alternate exciter which permits the frequencies of a multi-frequency (2 to 8 channels) transmitter to be widely separated.
- **12 Frequency Capability** — Adds modules to provide up to 4 more channels on a basic 8 channel combination. A separate ICOM is used in each of the 12 transmitter and receiver oscillator positions so that frequency assignments may be established without the need of a constant frequency spacing between all transmit and receive channels. (Not compatible with PLL transmitters.)
- **Duplex Operation** — Permits simultaneous operation of the transmitter and receiver. Available only on 12 frequency (13.8 VDC) models with or without Channel Guard.
- **24 to 48 VDC Converter** — A built-in DC to DC Converter which enables a simplex model to be operated from any DC source whose voltage does not exceed 16 to 60 volts positive or negative ground. Transmitter output power is limited to 65 watts.
- **Priority Search Lock Monitor (PSLM)*** — sequentially monitors a pair of selected channels for the presence of a message. If a non-priority signal is being received, PSLM continues to search for a carrier on the "priority" channel while still listening to the non-priority message. The moment a "priority" channel signal is detected, the "priority" channel is seized and search stops until the priority message ends.
- **Ultra High Sensitivity (UHS) Receiver** — adds a pre-amplifier stage to a regular or Channel Guard receiver for improved sensitivity.
- **Public Address/"Hailer"** — Provides an external speaker horn and controls for enabling incoming messages to be heard outside of the vehicle. It may also be used as a PA system.
- **Noise Blanker** — Improves signal clarity and effective range of the receiver in the presence of impulse noise interference.
- **Other Items** including Busy Light (LED), Fixed Squelch, Type 90 Tone, Type 99 Selective Calling and high stability oscillators.



GENERAL DATA and TRANSMITTER SPECIFICATIONS

MASTR II-'E' Series

GENERAL DATA

SIZE	height	width	depth
Radio unit only:	5.0	12.06	18.75 (in.)
	12.9	33.0	47.6 (cm.)
C-500 Control unit, less bracket:	2.2	6.7	5.0 (in.)
	5.6	17.0	12.7 (cm.)
Speaker, less bracket:	5.1	5.1	2.8 (in.)
	13.0	13.0	7.1 (cm.)

CABLE LENGTHS:

Control - 20' (6.1 m); Power - 26' (7.9m); Ground - 6.5' (2 m)

WEIGHT (min., no options)	"EC" Models		"EJ" Models	
Radio unit only:	29.0 lb.	13.13 kg.	36 lb.	16.3 kg.
Accessories & cable:	20.0 lb.	9.08 kg.	20 lb.	9.08 kg.
Shipping (Domestic Pack)				
Total combination:	53.0 lb.	24.2 kg.	60 lb.	27.2 kg.

ANTENNA SYSTEM

Type	Roof mount, 1/4 wave, unity gain whip
Length	20 (in.) 50.8 (cm.)
Cable	RG58/U 15 (ft.) 4.57 (m.)

Typical bandwidth at 2:1 VSWR is ±3 MHz.

MICROPHONE (transistorized): 0.09 V(rms) output @ 600 ohms

SPEAKER IMPEDANCE: 8 ohms

SHOCK & VIBRATION: Meets EIA & USFS specifications

METERING: Centralized metering sockets

OPERATING (INPUT) VOLTAGE

Standard:	±13.6 VDC (nominal)
	±11 to 18 VDC (permissible range)
With Converter:	±24 to 48 VDC (nominal)
	±16 to 60 VDC (permissible range)

DUTY CYCLE (EIA)

Intermittent rating:	Receiver - 100%, Transmitter 20%
Continuous rating:	Transmitter - 100% @ 25°C

AMBIENT TEMPERATURE

Simplex operation:	-40 to +158°F (-40 to +70°C)
Duplex operation:	-40 to +140°F (-40 to +60°C)

HUMIDITY:

95% @ 50°C (122°F)

BATTERY DRAIN (Amps)

Nominal System Voltage:	12 VDC	24 VDC	48 VDC
Receiver			
Standby:	0.25	0.5	0.3
Full Audio:	2.4	2.0	1.2
Transmitter			
1W (Marine)	1.5	1.3	0.8
22W (Duplex)	10.0	-	-
25W (Marine)	6.5	4.8	2.5
40W	10.0	7.3	4.5
65W	15.0	10.6	6.2
110W	26.0	-	-

MODEL SERIES	MODEL TYPE	CHANNEL CAPACITY	RF POWER OUTPUT RANGE	PA POWER INPUT RANGE	FCC FILING DATA (150 to 174 MHz)			RECEIVER MODEL NUMBERS	
					TYPE ACCEPTANCE NUMBER		APPLICABLE TO FCC RULES (Part Numbers)		
					Standard Exciter	Phase Lock Loop Exciter			
					5 ppm Stability	2 ppm Stability			
EC/EX 56	Basic	1-8	10/40W	85W	KT-72-B		21,	ER-64-A	
EC/EX 66	Basic	1-8	10/65W	130W*	KT-73-A	KT-73-C			89,
EC/EX 76	Basic	1-8	20/110W	255W**	KT-74-A	KT-74-C			
					KT-72-F		91,		
EJ/EY 56	Converter	1-8	10/40W	85W	KT-82-F				
EJ/EY 56	Conv./12 Freq.	1-12	10/40W	85W			and		
EJ/EY 66	Converter	1-8	10/65W	130W*	KT-73-E	KT-73-G			
EJ/EY 66	Conv./12 Freq.	1-12	10/65W	130W*	KT-83-E	KT-83-G	93		
EC/EX 56	Duplex/12 Freq.	1-12	10/22W	85W	KT-100-B				
EC/EX 56	12 Frequency	1-12	10/40W	85W	KT-82-B		21, 81, 83,		
EC/EX 66	12 Frequency	1-12	10/65W	130W*	KT-83-A	KT-83-C		89, 91 and	
EC/EX 76	12 Frequency	1-12	20/110W	255W**	KT-84-A	KT-84-C	93†		
EC/EX 56K/9211	Basic	1-8	1 or 25W	25/55W	KT-108-A			-	
EJ/EY 56K/9213	Converter	1-8	1 or 25W	25/55W	KT-108-E				
EC/EX 56P/9212	12 Frequency	1-12	1 or 25W	25/55W	KT-109-A		-		
EJ/EY 56P/9214	Conv./12 Freq.	1-12	1 or 25W	25/55W	KT-109-E				

* Adjustable to 120W (35W output) for Part 21 and 93 of FCC rules.

** Adjustable to 180W (70W output) for Part 91 of FCC rules.

† Operation under Parts 81 & 83 limited to 156 to 162 MHz range.

TRANSMITTER 138 to 174 MHz***

RATED RF OUTPUT	Intermittent Duty	Continuous Duty	Adjustable to:
			(for full performance per EIA)
EC/EX 56 Basic	40	40	8W
EC/EX 56 W/Dupl.	N/A	22W	8W
EJ/EY 56 w/Conv.	40	N/A	8W
EC/EX 66 Basic	65W	55W	13W
EJ/EY 66 w/Conv.	65W	N/A	13W
EC/EX 76 Basic	110W	75W	22W

CONDUCTED SPURIOUS & HARMONIC EMISSION:

-85 dB

MODULATION DEVIATION:

0 to ±5 kHz (16F3)

FM NOISE:

-70 dB

RF OUTPUT IMPEDANCE:

50 ohms

AUDIO DISTORTION:

Less than 2% @ 1000 Hz

FREQUENCY STABILITY

Suffix A or C Models: ±0.0005% (-40°C to +70°C)

±0.0002% (0°C to 55°C)

Suffix B or D Models: ±0.0002% (-40°C to +70°C)

AUDIO RESPONSE:

Within +1 and -3 dB of 6 dB/octave pre-emphasis, 300 to 3000 Hz

MAXIMUM FREQUENCY SPREAD (MHz)

Standard Exciter (2 to 12 channels)	Full Spect	1 dB Degrad. (power output)
Exciter range 138-155 MHz:	1.8	2.75
Exciter range 150.8-174 MHz:	2.0	3.0

Phase Lock Loop Exciter (2 to 8 channels)

Exciter range 138-155 MHz:	Up to 17 MHz
Exciter range 150.8-174 MHz:	Up to 24 MHz

With Duplexer (Standard Exciter)

Between multiple Tx frequencies:	0.5
Between a Tx & Rx channel:	4.5 (min.) 8.0 (max.)

*** Models with duplexer limited to 150.8 to 174 MHz range.



OPERATING SPECIFICATIONS

MASTR II 'E' Series

138-174 MHz

RECEIVER WITH SINGLE FRONT END

Receiver Type:	Basic	UHS	Duplex	Noise Blanker
SENSITIVITY				
EIA 12 dB SINAD:	0.35 μ v	0.175 μ v	0.4 μ v	0.175 μ v
20 dB Quieting:	0.50 μ v	0.25 μ v	0.56 μ v	0.25 μ v
Noise Squelch:	0.20 μ v	0.10 μ v	0.23 μ v	0.10 μ v
Channel Guard:	6 dB SINAD			
SELECTIVITY, EIA SINAD				
@ \pm 30 kHz:	-100 dB			
@ \pm 25 kHz:	-95 dB			
INTERMODULATION:	-85 dB	-80 dB	-85 dB	-75 dB
SPURIOUS & IMAGE REJECTION:	-100 dB	-95 dB	-85 dB	-95 dB
AUDIO OUTPUT:	12 watts			
AUDIO DISTORTION:	Less than 3%			
AUDIO RESPONSE:	Within +1 and -8 dB of 6 dB/octave de-emphasis, 300 to 3000 Hz.			
FCC RECEIVER MODEL NO.:	ER-64-A			

RF INPUT IMPEDANCE:	50 ohms
CHANNEL SPACING:	25/30 kHz
MODULATION ACCEPTANCE:	\pm 7.0 kHz
FREQUENCY STABILITY	
Suffix A or C Models	
-40°C to +70°C:	\pm 0.0005%
0°C to +55°C:	\pm 0.0002%
Suffix B or D Models	\pm 0.0002%

MAXIMUM FREQUENCY SPREAD (MHz)	Full Specs	3 dB Sensitivity Degradation
	Receiver range 138-155 MHz:	0.9
Receiver range 150.8-174 MHz:	1.0	1.8
With duplexer		
Between multiple Rx frequencies:	0.5	
Between an Rx and Tx channel:	4.5 (min.); 8.0 (max.)	
Receiver frequencies must always be lower than transmitter frequencies.		

RECEIVER WITH DUAL FRONT END (DFE)

"MAIN" RECEIVER

Receiver Type:	Basic	UHS	Noise Blanker
Frequency Range:	138-174 MHz		
Channel Spacing:	30 kHz/25 kHz		
SENSITIVITY			
EIA 12 dB SINAD:	0.385 μ v	0.22 μ v	0.22 μ v
20 dB Quieting:	0.55 μ v	0.275 μ v	0.275 μ v
Noise Squelch:	0.22 μ v	0.11 μ v	0.11 μ v
SELECTIVITY, EIA SINAD:			
@ 30 kHz	-100 dB		
@ 25 kHz	-95 dB		
MODULATION ACCEPTANCE:	\pm 7.0 kHz		
INTERMODULATION:	-85 dB	-80 dB	-75 dB
SPURIOUS & IMAGE REJECTION:	-100 dB	-95 dB	-95 dB

"DFE" RECEIVER (as may be supplied)

30-50 MHz		138-174 MHz		406-420 MHz		450-512 MHz	
Basic or Noise Blanker	Basic	UHS	Noise Blanker	Basic	UHS	Basic	UHS
20 kHz		30/25 kHz		25 kHz			
0.275 μ v	0.385 μ v	0.22 μ v	0.22 μ v	0.385 μ v	0.22 μ v	0.55 μ v	0.275 μ v
0.385 μ v	0.55 μ v	0.275 μ v	0.275 μ v	0.55 μ v	0.275 μ v	0.22 μ v	0.11 μ v
0.185 μ v	0.22 μ v	0.22 μ v	0.11 μ v	0.22 μ v	0.11 μ v		
-100 dB				-90 dB			
@ \pm 20 kHz		@ 300 kHz -100 dB		@ \pm 25 kHz			
		@ 25 kHz -95 dB					
\pm 6.5 kHz		\pm 7.0 kHz		\pm 7.0 kHz			
-80 dB	-85 dB	-80 dB	-75 dB	-80 dB	-75 dB		
-100 dB	-100 dB	-95 dB	-95 dB	-100 dB	-90 dB		

AUDIO RESPONSE:	Within +1 and -8 dB of 6 dB/octave de-emphasis, 300 to 3000 Hz.
AUDIO DISTORTION:	Less than 3%
AUDIO OUTPUT:	12 watts to 8 ohm speaker
RF INPUT IMPEDANCE:	50 ohms

FREQUENCY STABILITY	
Suffix A or C Models	
-40°C to +70°C:	\pm 0.0005%
0°C to +55°C:	\pm 0.0002%
Suffix B or D Models	
-40°C to +70°C:	\pm 0.0002%
FCC RECEIVER MODEL NO.:	ER-64-A

MAXIMUM FREQUENCY SPREAD
(2 to 8 Channels)

Frequency Spread on Multi-Channel "Main" or "DFE" Receiver (MHz)	Freq Range	Full Specs	3 dB Sensitivity Degradation	Freq Range	Full Specs	3 dB Sensitivity Degradation	Freq. Range	Full Specs	3 dB Sensitivity Degradation
	30-36	0.120	0.340	138-155	0.900	1.6	406-420	1.6	2.0
	36-42	0.160	0.400	150.8-174	1.0	1.8	450-470	1.6	2.0
	42-50	0.360	0.640				470-494	1.8	2.3
							494-512	1.5	2.0