P25IP
Conventional

MASTR® III P25 Station UHF

The MASTR III P25 digital Base Station, built on the tradition of the popular MASTR series of repeaters, is an industry leader in interoperability, performance, and reliability. The MASTR III P25 provides secure digital communications for mission critical applications. The station is capable of both conventional Project 25 digital communications and conventional analog communications for maximum flexibility. The addition of a SitePro Controller provides the capability of delivering Internet Protocol (IP) data and voice to a M/A-COM P25IP network.

Product Overview

The MASTR III P25 provides the flexibility to commission a base station that will meet critical communication needs today and into the future. Whether users are designing a conventional Project 25 system, a conventional UHF system, or an IP-based P25 network, the MASTR III P25 keeps pace with their needs.

Flexible, Efficient P25 Design

The MASTR III P25 incorporates P25 digital voice and data using a digital signal processor modem for maximum design flexibility. The station can be configured for P25 mode, and can communicate with the user's current analog dispatch network through a 4-wire audio port. The P25 digital voice is translated through an on-board voice encoder/decoder in the station to allow immediate access to P25 communications through the user's existing network.

The MASTR III P25 can also be configured for normal conventional analog operation at sites where P25 currently is not in use.

P25IP Network

As network needs expand, the MASTR III P25 is ready to grow to meet the communication requirements of the 21st century. The MASTR III P25 and a SitePro Controller enable IP voice and data packets to be sent over a M/A-COM P25IP network and be received at the base station. This setup enables all of the advantages of IP:

- Seamless integration of off-the-shelf IP data applications.
- Easy interconnection of peripherals and ancillary equipment such as mobile data terminals, printers, scanners, and video devices for user organizations.
- Economical routing and backhaul of network data.
- Redundancy benefit of distributed IP architecture, one of the key requirements for most public safety users.

Programmable Flexibility

PC programmable options provide flexibility, simplified setup, and easy field upgrades. The fully synthesized design of the MASTR III P25 base station allows the user to make frequency changes quickly, easily, and affordably.

The modular design of the base station makes maintenance and servicing simple and fast.

For More Information

For more information about this or any other M/A-COM Wireless Systems product, call 1-800-431-2345 in the U.S. From outside the U.S. call +1-434-455-9489.

tyco Electronics

M/A-COM

Conventional
Options and Accessories

Programmable Options

- Transmit Frequencies
- Receive Frequencies
- Channel Guard Digital and Tone
- Channel Guard Disable
- Repeater Disable
- Intercom Function
- Type 99
- DTMF Decode
- Morse Code ID
- Squelch Tail Elimination (STE)
- Carrier Control Timer
- Station Control
- DC Control
- Tone Control
- Repeater
- DC/Repeat
- Tone/Repeat
- 4-Wire Audio
- Scan

Additional Options

- Service Microphone
- Antenna Multicoupler
- 50 Hz Power Supply
- Duplexer
- Antenna Relay
- Combiner
- Isolator
- Squelch-Operated Relay
- Remote Controllers
- Battery Standby
- Battery Charger
- Gel Cell Battery
- Switchable Channel Spacing

Conventional
Tone and DC Remote Controlled Stations

Audio (Line to Transmitter)	
Line Terminating Impedance:	600 Ω
Line Level (Adjustable):	-20 to +7 dBm
Frequency Response:	±3 dB @ 300-3000 Hz
Tone Control	
Function Tones:	1050,1150,1250,1350,1450, 1550,1650, 1750,1850,1950 and 2050 Hz
Secur-it Tone and Transmit Tone:	2175 Hz
Transmitted 2175 Hz Tone Level:	20 dB Below Voice
Permissible Control Line Loss @2175 Hz:	30 dB
Audio (Receiver to Line)	
Audio Amplifier Input Impedance:	10 KΩ
Input Level:	1 V RMS (for 5 kHz Deviation)
Output Impedance to Line:	600 Ω
Output Level to Line Voice (1 kHz ref):	+7 dBm (Adjustable)
Tone (1 kHz ref):	+7 dBm (Reference 7 dBm)
Frequency Response:	+1 and -3 dB @ 300-3000 Hz
Hum and Noise, Noise Squelch:	-55 dB (Reference 7 dBm)
Tone Squelch:	-30 dB (Reference 7 dBm)
DC Control Control Currents:	-2.5, ±6, and ±11 mA
Line Loop Resistance (maximum):	11 KΩ (Includes 3K Termination)

One Conventional Channel

Regulatory Data for Conventional Analog

Frequency Range (MHz)	Power Output (Adjustable) (W)	FCC Type Acceptance Number	Applicable FCC Rules	Industry Canada Certification Number	Applicable Industry Canada Rules	CE Marking
403-430	45-90	OWDTR-307-A	90	3636-193-1032C	RSS-119	Equipment available in all
425-450	45-90	OWDTR-307-A2	90	3636-193-1032C	RSS-119	bandsplits that meet
450-470	50-100	OWDTR-307-B2	22, 90, 80, 74	3636-193-1032C	RSS-119	ETS 300 086
470-494	45-90	OWDTR-307-C2	90	3636-193-1032C	RSS-119	ETS 300 219
492-512	45-90	OWDTR-307-D2	90	3636-193-1032C	RSS-119	ETS 300 113
470-512	45-90	OWDTR-307-X2	90	3636-193-1032C	RSS-119	

Regulatory Data for P25 Digital

Frequency Range (MHz)	Power Output (Adjustable) (W)	FCC Type Acceptance Number	Applicable FCC Rules	Industry Canada Certification Number	Applicable Industry Canada Rules	NTIA Certification Number	CE Marking
403-425	45-90	OWDTR-0024-E	90	3636B-0024	RSS-119	JF-1208074	Pending
410-430	45-90	OWDTR-0025-E	90	3636B-0025	RSS-119	JF-1208074	
425-450	45-90	OWDTR-0026-E	90	3636B-0026	RSS-119	JF-1208074	
450-470	50-100	OWDTR-0027-E	22, 74, 80, 90	3636B-0027	RSS-119	JF-1208074	
470-494	45-90	OWDTR-0028-E	90	3636B-0028	RSS-119	JF-1208074	
492-512	45-90	OWDTR-0029-E	90	3636B-0029	RSS-119	JF-1208074	

General Specifications

Cabinet	INDOOR CABINET (Floor Mount) 37 inches (CNV)	69 inches
Size [in. (mm)]		
Height	37.0 (940)	69.1 (1750)
Width	21.5 (550)	23.1 (590)
Depth	18.25 (460)	21.0 (533)
Weight (min) [(lb (kg)]		
Continuous Duty	150 (68)	520 (236)
Packed, Domestic Shipping	165 (75)	550 (250)
Number of Rack Units	17	33
Max. Units w/Power Supply	1	3
w/o Power Supply	1	4

NOTE: One rack unit equals 1.75 inches. Stations occupy 8 rack units of cabinet space.

Service Speaker:	**1W @ 8Ω**
Service Microphone:	**Transistorized Dynamic**
Duty Cycle (EIA) Continuous:	**Transmit/Receive - 100%**
Ambient Temperature (or full spec performance per EIA):	**-22 to +140ºF (-30 to +60ºC)**
Humidity (EIA):	**90% @ 122ºF (50ºC)**
Input Power Source:	**120 VAC (±20%)**
Optional Input Power Source:	**230 VAC (±15%), 50 Hz**
Standby Battery Source:	**13.8 VDC, 100 AH (min.)**
Antenna Connections:	**Type N**
Length of AC Power Cable:	**10 ft (3048 mm)**
Metering:	**Provided through Handset or TQ0619 Utility Software**
Altitude:	
Operable:	**Up to 15,000 ft (4,570 m)**
Shippable:	**Up to 50,000 ft (15,250 m)**

Source Power Drain		UHF Analog	UHF P25 Digital
Frequency Range (MHz)		403-512	403-512
AC Input Power		5A @ 120 VAC or 3A @ 230 VAC	5A @ 120 VAC or 3A @ 230 VAC
DC Input Power (A)	**VDC**		
Tx (full/half power)	**13.8**	33/25	33/25
Rx only	**13.8**	2	2

Transmitter (As applicable, analog specifications measured per TIA/EIA-603 Procedure and P25 digital per TIA-102.CAAA-A)

	UHF Analog	UHF P25 Digital
Frequency Range (MHz)	403-512	403-512
Rated Power Output (W)	90 (100 @450-470MHz)	90 (100 @ 450-470MHz)
RF Output Impedance (Ω)	50	50
Conducted Spurious and Harmonic Emission	-36 dBm	-70 dBc (spurious emission)
Frequency Stability (ppm)	±1.5	±0.5 (CAAB 3.2.2)
Modulation Deviation (kHz)		
Wideband	0 to ±5	N/A
Narrowband	0 to ±2.5	2.83 kHz nominal per TIA 102 CAAB
FM Noise (dB)	-55	N/A
Channel Spacing (kHz)	12.5/25	12.5
Frequency Spread Full Spec (MHz)	27/25/20/24/20	27/25/20/24/20
Audio Distortion (@ 1 kHz)	Less than 3%	Tx mask 47CFR90.210d
Number of Channels (Conventional)	Up to 16	Up to 16
Audio Response (pre-emphasis)	Within +1/-3 dB of 6 dB/octave, 300 to 3000 Hz per EIA	Mod fidelity better than 5%

NOTE: Rated power output is measured at the transmitter power amplifier output connector per FCC Type Acceptance filing information. Any customer-required optional items such as power measuring devices and/or duplexers will introduce loss between the transmitter output connector and the station cabinet output connector. This loss will reduce the available power at the station connector.

Receiver (As applicable, analog specifications measured per TIA/EIA-603 Procedure and P25 digital per TIA-102.CAAA-A)

	UHF Analog	UHF P25 Digital
Frequency Range (MHz)	403-512	403-512
RF Input Impedance (Ω)	50	50
Channel Spacing (kHz)	12.5/25	12.5
Sensitivity (dBm) EIA	-116 (12 dB SINAD)	-116 (5% BER) static, -108 faded
Threshold Squelch (dBm)	-119	N/A
Selectivity		
12.5 kHz	80 dB	60 dB Dig ACR, 70 dB Analog ACR
25 kHz	90 dB	N/A
Frequency Stability (ppm)	±1.0	±0.5
Signal Displacement Bandwidth (kHz)	±2	±1
Intermodulation Rejection (dB)		
12.5 kHz	75	80
25 kHz	80	N/A
Spurious and Image Rejection (dB)	90	90 (spurious rejection)
Frequency Spread		
Full Specs. (MHz)	2.0	2.0
3 dB Degradation in Sensitivity (MHz)	3.0	3.0
Audio Response (de-emphasis):	Within +2/-8 dB of 6 dB/octave (@Local Speaker), 300 to 3000 Hz per EIA Within +1/-3 dB of 6 dB/octave (@Line Output), 300 to 3000 Hz per EIA	N/A
Audio Output:	1 Watt at less than 3% distortion @ 1000 Hz, 25/30 kHz Channel	N/A

M/A-COM Wireless Systems
P.O. Box 2000
Lynchburg, Virginia 24501
Phone: 1-800-431-2345
1-434-455-9489
www.macom-wireless.com

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