

P25^{IP}
Conventional

MASTR[®] III P25 Station 800 MHz

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 P25^{IP} 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.

P25^{IP} 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 P25^{IP} 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.

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 K Ω
 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 K Ω (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 |
|-----------------------|-------------------------------|----------------------------|----------------------|--------------------------------------|----------------------------------|
| 806-870 | 10-100 | OWDTR-329-A2 | 90 | 3636-194-215 | TR-329 |

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 |
|-----------------------|-------------------------------|----------------------------|----------------------|--------------------------------------|----------------------------------|
| 806-870 | 10-100 | OWDTR-0030-E | 90 | 3636B-0030 | TR-197 |

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 +140°F (-30 to +60°C) |
| Humidity (EIA): | 90% @ 122°F (50°C) |
| 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 | 800 MHz Analog | 800 MHz P25 Digital |
|------------------------------|------------------------------|------------------------------|
| Frequency Range (MHz) | 851-870 TX, 806-825 RX | 851-870 TX, 806-825 RX |
| AC Input Power | 5A @ 120 VAC or 3A @ 230 VAC | 5A @ 120 VAC or 3A @ 230 VAC |
| DC Input Power (A) | | |
| Tx (full/half power) | 2/2 | 2/2 |
| Rx only | 2 | 2 |
| Tx (full/half power) | 12/8 | 12/8 |
| Rx only | 0.5 | 0.5 |
| EDACS Apps | 2 | 2 |

Transmitter

| | 800 MHz Analog | 800 MHz P25 Digital |
|---|--|-------------------------------------|
| Frequency Range (MHz) | 851-870 | 851-870 |
| Rated Power Output (W) | 100 | 100 |
| RF Output Impedance (Ω) | 50 | 50 |
| Conducted Spurious and Harmonic Emission | -36 dBm | -70 dBc (spurious emission) |
| Frequency Stability (ppm) | ±1.5 | ±0.15 (external frequency standard) |
| Modulation Deviation (kHz) | | |
| Wideband | 0 to ±5 | 2.83 kHz nominal per TIA 102 CAAB |
| 15K0F1D, 15K0F1E | | |
| 16K0F1D, 16K0F1E, 16K0F3E | | |
| NPSPAC – 14K0F3E | 0 to ±5 | 2.83 kHz nominal per TIA 102 CAAB |
| FM Noise (dB) | -55 | N/A |
| Channel Spacing (kHz) | 25, 12.5 NPSPAC | 25 |
| Frequency Spread Full Spec (MHz) | 1.0 | 1.0 |
| 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

| | 800 MHz Analog | 800 MHz P25 Digital |
|--|--|-------------------------------------|
| Frequency Range (MHz) | 806-825 | 806-825 |
| RF Input Impedance (Ω) | 50 | 50 |
| Channel Spacing (kHz) | 25, 12.5 NPSPAC | 25, 12.5 NPSPAC |
| Sensitivity (dBm) EIA | -116 (12 dB SINAD) | -116 (5% BER) static, -108 faded |
| Threshold Squelch (dBm) | -119 | N/A |
| Selectivity 2-Signal | | |
| 12.5 kHz (NPSPAC) | 20 dB | 60 dB Dig ACR, 70 dB Ana ACR |
| 25 kHz | 90 dB | 60 dB Dig ACR, 70 dB Ana ACR |
| Frequency Stability (ppm) | ±1.0 | ±0.15 (external frequency standard) |
| Signal Displacement Bandwidth (kHz) | ±2 | ±1 |
| Intermodulation @25 kHz (dB) | 85 | 80 |
| Spurious and Image Rejection (dB) | 90 | 90 spurious rejection |
| Frequency Spread | | |
| Full Specs. (MHz) | 1.5 | 1.5 |
| 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

ECR-7176
MASTR is a registered trademark of M/A-COM, Inc.
Copyright © 2003 M/A-COM, Inc. All rights reserved.

09/03 Printed in U.S.A.