MOBEXCOM P25

P25 COVERAGE TO GO

MOBEXCOM P25 Special Features

- Seamless interface to the Motorola XTL 5000 and XTL 2500 mobile radios.
- Rugged, self contained package designed for public safety.
- Trunk mount, wall mount or transportable package available.
- All filters and electronics included.
- All connectors fully protected.
- Water jet proof.
- Quick-lock, slide in mounting arrangement.
- Ideal for police cruisers, ambulances or fire trucks.

MOBEXCOM P25 Modes of Operation

MOBILE   **LOCAL**   **SYSTEM**

In the OFF mode the MOBEXCOM P25 vehicular repeater is completely disabled and the mobile radio system operates as if the repeater was not present. All normal mobile radio operational features remain.

In the LOCAL repeat mode the MOBEXCOM P25 vehicular repeater provides local coverage for companion portables working in analog or digital mode. Communication between local portable radio users and the mobile radio user is possible. The dispatcher and other system users are disconnected. This mode is meant for local radio use when the system-wide communication is not possible or not desired. Typical applications include fire ground communication, security detail operations or any remote out of network coverage application.

In the SYSTEM repeat mode the MOBEXCOM P25 vehicular repeater provides local coverage for companion portables allowing portable users to communicate with each other as well as with the dispatcher and other system users. Both analog and P25 digital modes are supported. End-to-end encryption and portable radio ID pass through between the companion portables and system users are also supported.

Vehicular repeater modes can be selected from the mobile radio control head or from a companion portable when the mode is programmed as a talk group attribute. When the P25 vehicular repeater works with a compatible P25 companion portable such as Motorola XTS 5000, most of the P25 trunking features are available to the portable radio user. In particular, a companion portable radio ID is passed across the system for group, private and emergency calls. End-to-end encryption is supported in all formats supported by the mobile radio. If programmed in a mixed mode, the P25 vehicular repeater supports both digital P25 and analog conventional portables operating on the same channel, providing great interoperability with legacy systems.

MOBEXCOM P25 vehicular repeater uses a sophisticated simulcast prevention algorithm that prevents multiple repeaters at the scene to transmit on the top of each other. The algorithm can be fully transparent for the user or can be user controlled if deterministic selection of the master repeater is required.

MOBEXCOM P25 Applications

VEHICULAR REPEATER – Configured as an extender MOBEXCOM P25 allows portable radio use in areas with mobile coverage only. Installed in the trunk of a car, fire truck, armored vehicle or ambulance, MOBEXCOM P25 provides radio coverage when the user is outside the vehicle or in a nearby building. Configured as a true full duplex repeater, MOBEXCOM P25 allows users at an incident to communicate amongst themselves and also to dispatch. Local Mode is available for times where communication with the dispatch is not required such as special operations or when operating outside the network coverage.

TACTICAL REPEATER – Configured as a tactical repeater, usually in a transportable package, MOBEXCOM P25 works as a portable P25 base station repeater. No mobile radio is required and the control head controls are not available. This configuration is ideal for ad hoc coverage solutions where a single channel repeater is sufficient.

ROOF MOUNT FIXED REPEATER - Installed on the roof of a building MOBEXCOM P25 provides in-building and local area coverage for portable radio users with marginal or no system coverage. Typical applications: schools, hospitals, court houses.

HEAD-END EQUIPMENT FOR IN-BUILDING RF DISTRIBUTION SYSTEMS - When installed as a head-end of an in-building distributed antenna system, MOBEXCOM P25 provides both a high power downlink signal and highly sensitive uplink. Extending coverage of multi-channel trunking systems into buildings frequently proves to be very expensive and impractical. Using MOBEXCOM P25 as a trunking gateway simplifies a distributed antenna system reducing the cost drastically. Typical applications: shopping malls, large factories.

P25 Technical Highlights

- Available in VHF/UHF/700/800 MHz bands (25 or 12.5 kHz)
- In-band or cross-band operation
- Supports P25 trunking and conventional systems
- Full duplex operation
- Fully synthesized and field programmable
- 64 channels capable
- Field (flash) upgradeable
- Programmable output power, 1-10W
- System, extender, and local modes of operation
- Locally controlled from the mobile radio control head
- Remotely controlled from a portable radio

P25 Key Trunking Features

- Group Call (clear and coded)
- Private Call (clear and coded)
- Emergency Call (clear and coded)
- Portable PTT ID pass-trough
- Call Alert Paging
- Call Back
- Failsoft
- Out-of-Range
- Site Trunking
- Talk permit/prohibit tone

Backup Modes

The MOBEXCOM Vehicular Repeater is a highly reliable device designed for public safety applications. As a mobile device, it is under a user's supervision. This is unlike fixed coverage extension systems that may or may not be fully monitored and properly maintained causing a risk of undetected failure. A MOBEXCOM installation provides a number of levels of protection which are necessary for public safety. The following table presents a summary.

SYSTEM FAILURE	MOBILE FAILURE	VR FAILURE	COMMUNICATION AVAILABLE UNDER THE FAULT CONDITION
✔			Portable to portable; portable to mobile
	✔		Portable to portable; portable to mobile
		✔	Mobile to dispatcher; mobile to mobile; portable to portable simplex
✔	✔		Portable to portable; portable to mobile
✔		✔	Portable to portable simplex
	✔	✔	Portable to portable simplex
✔	✔	✔	Portable to portable simplex

General Specifications

Dimensions	-Height/Width/Depth	185 mm (7.28") / 186 mm (7.32") / 315 mm (12.41")
	-Weight	10.3 kg (22.7 lb)
Channel Spacing		12.5 or 25 kHz
Number of Channels		64
CTCSS/DCS Operation		Programmable per channel
Power Supply		13.8 VDC +/- 20%
DC Current Drain	-RPTR off	0.01 A Max.
	-Standby/Receive	0.8 A Max.
	-Transmit	4.5 A Max.
Operating Temperature		-30ºC to +60ºC
Protection Against Liquids		IP6 (water jet proof)
Antenna Impedance		50 ohms
Duty Cycle		Continuous
External Connectors	-Antenna	mini UHF
	-Computer Interface	USB

Transmitter Specifications

	VHF	UHF	800/700 MHZ
Power Output Before Filters	10W (programmable per channel from 0.1W to 10W)		
TCT Option	15 sec. To 15 min. or disabled		
Max Spurious outputs	-60 dBc		
Frequency Stability	+/1.5 ppm		+/-1.5 ppm
Frequency Band	136 – 174 MHz	403 – 430 MHz 450 – 470 MHz 470 – 512 MHz	851 - 870 MHz 764 - 776 MHz
FM Hum and Noise 12.5 • 25 kHz	37 dB • 43 dB		
Audio Response	+1, -3dB of 6 dB/octave pre emphasis characteristic over 300 Hz – 3 kHz		
Audio Distortion	<2%		

Receiver Specifications

	VHF	UHF	800/700 MHZ
Receiver Sensitivity	-115 dBm (.32 uV)	-115 dBm (.32 uV)	-115 dBm (.32 uV)
Frequency Stability	+/1.5 ppm		+/-1.5 ppm
Frequency Band	136 – 174 MHz	403 – 430 MHz 450 – 470 MHz 470 – 512 MHz	806 – 825 MHz 794 – 806 MHz
Selectivity 12.5 • 25 kHz	60 dB • 75 dB		
Spurious Response	>70 dB		
Intermodulation	75 dB		
Deviation 12.5 • 25 kHz	+/-2.5 kHz • +/-5 kHz		
FM Hum and Noise 12.5 • 25 kHz	37 dB • 43 dB		
Audio Output (Repeater Detect Audio)	600 mV RMS nominal, flat response		
Audio Response	+1, -3dB of 6 dB/octave pre emphasis characteristic over 300 Hz – 3 kHz		
Audio Distortion	<2%		

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