

# MOBEXCOM

VEHICULAR REPEATER SYSTEM AND TRUNKING GATEWAY

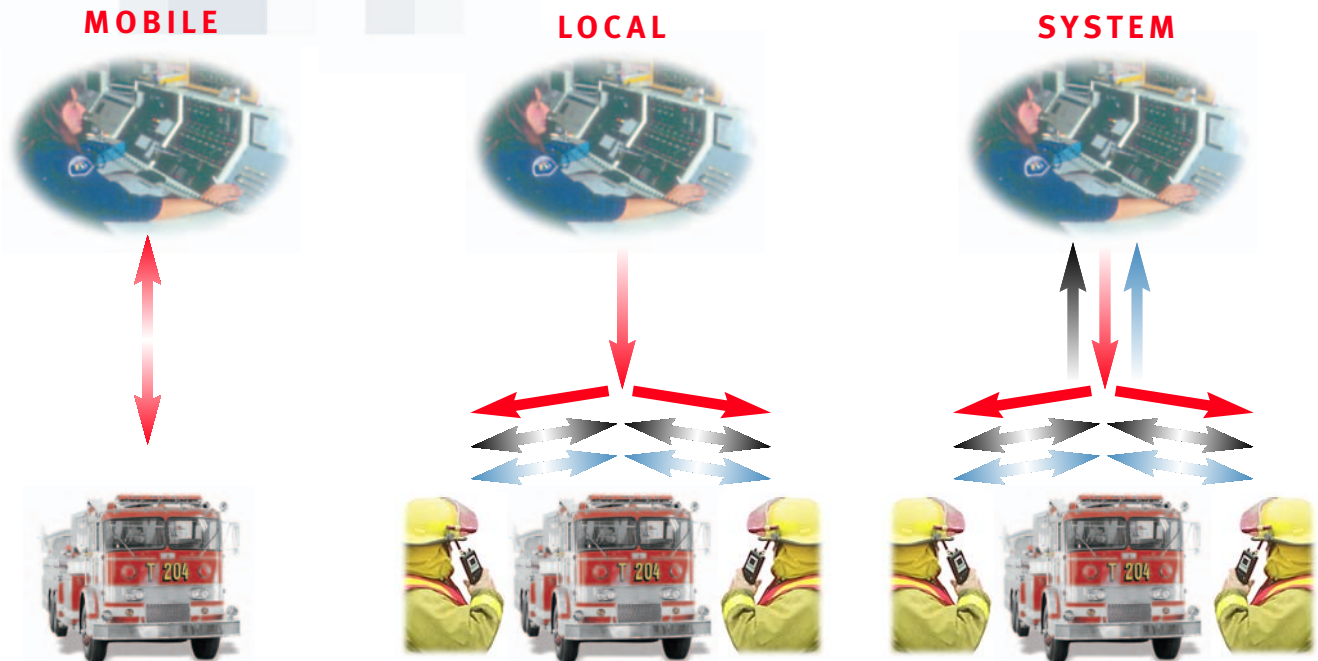


## MOBEXCOM Special Features



- Seamless interface to a mobile radio without any hardware modifications.
- Rugged, self contained package.
- Trunk mount (transportable package available)
- All filters and electronics included.
- All connectors fully protected with quick, no tools access.
- Water jet proof.
- Optional mounting bracket with a mobile radio compartment.
- Quick-lock, slide in mounting arrangement.
- Ideal for police cruisers, ambulances or fire trucks.

## Modes of Operation



In the **MOBILE** mode of operation the 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 of operation full communication among nearby portable users and the mobile radio operator is achieved. The mobile radio does not retransmit the repeater signals, thus not disturbing any communications that may be on the mobile channel. Signals passing through the vehicular repeater receiver are heard in the mobile speaker and will also be retransmitted by the vehicular repeater. Incoming signals to the mobile receiver are also heard in the mobile speaker and may be retransmitted by the vehicular repeater, if this option is selected in the setup program. When the mobile user keys the microphone Push-to-Talk, only the vehicular repeater transmitter is enabled.

In the **SYSTEM REPEAT** mode full communication exchange among all radio parties is achieved. In this mode both the mobile radio and the vehicular repeater are enabled, permitting communications between portable radio users, the mobile operator and the dispatcher, as well as any other users on the mobile radio channel. The mobile user simultaneously keys both the mobile radio and vehicular repeater transmitters when using the microphone Push-to-Talk.

## MOBEXCOM Applications

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

**ROOF MOUNT FIXED REPEATER** - Installed on the roof of a building Mobexcom 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 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 as a trunking gateway simplifies a distributed antenna system reducing the cost drastically. Typical applications: shopping malls, large factories.

## MOBEXCOM Technical Highlights

- Available in VHF/UHF/700/800 bands (25 or 12.5 kHz).
- In-band operation – one portable! (cross-band also available).
- Supports major trunking and conventional systems (SmartNet® / SmartZone®).
- Full duplex, half duplex or simplex operation.
- Fully synthesized and field programmable.
- Field (flash) upgradeable.
- Programmable output power, 1-10W
- System, extender, mobile and local modes of operation.
- Locally controlled from the mobile radio control head.
- Remotely controlled from a portable radio (optional).

## Key Trunking Features

- Group call
- Emergency call from the portable
- Talk permit tone
- System busy tone
- Mode switching tone
- Simulcast prevention

## 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	113 mm (4.45") / 190 mm (7.49") / 315 mm (12.41")
(Radio not incl)	-Weight	5.9 kg (13 lb)
	Channel Spacing	12.5 or 25 kHz
	Number of Channels	64 Channels synthesized
	CTCSS/CDCSS (PL/DPL) Operation	Programmable per channel
	Power Supply	13.8 VDC +/- 20%, negative ground only
DC Current Drain	-RPTR off	0.01 A Max.
	- RPTR Standby	0.8 A Max.
	- Receive	1.7A Max. @ 7.5W Audio @ 13.8 VDC
	-Transmit	4.5 A Max. @ 10 W RF max output at TX Port
	Operating Temperature	-30° to +60° C
	Protection Against Liquids	IP6 (water jet proof)
	Antenna Impedance	50 Ohms
	Duty Cycle	Continuous
External Connectors	-Antenna	TNC Female
	-Control Head Interface	DB-25 Female
	-Mobile Interface	DB-25 Male
	-RS232 Computer Interface	DB-9 Male

## Transmitter Specifications

	VHF	UHF	700/800 MHz
Power Output @ Repeater TX Port	10W (programmable per channel from 0.1W to 10W)		
Carrier Control Timer Option	15 sec. to 15 min. or disabled		
Max Spurious outputs	-60 dBc ref 10W		
Frequency Stability	+/-1.5 ppm, from -30° to +60° C		
Frequency Band	136 – 174 MHz	403 – 430 MHz 450 – 470 MHz 470 – 512 MHz	764 – 767 MHz 773 – 776 MHz 851 – 870 MHz
FM Hum and Noise	12.5 • 25 kHz	37 dB • 43 dB	
Audio Sensitivity (Mic Input)	80 mV RMS typ.		
Audio Sensitivity (Mob. Det. Audio)	600 mV RMS typ.		
Audio Response	+1, -3 dB of 6 dB/octave pre-emphasis characteristic over 300 Hz – 3 kHz		
Audio Distortion	<2%		

## Receiver Specifications

	VHF	UHF	700/800 MHz
Receiver Sensitivity, Max.	-118 dBm (.32 µV) @12 dB SINAD		
Frequency Stability	+/-1.5 ppm, from -30° to +60° C		
Frequency Band	136 – 174 MHz	403 – 430 MHz 450 – 470 MHz 470 – 512 MHz	794 – 797 MHz 803 – 806 MHz 806 – 825 MHz
Selectivity	12.5 • 25 kHz	70 dB • 80 dB	65 dB • 77 dB
Spurious Response	70 dB		
Intermodulation	70 dB		
Rated 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 de-emphasis characteristic over 300 Hz – 3 kHz		
Audio Distortion	<3%		

Specifications subject to change without notice.



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