

**Features**

- Long range, industrial, 900MHz stand-alone radio modem.
- Fleet management and asset tracking locally or through TCP/IP network: LAN, LAN-VPN, Internet.
- Heavy duty industrial application.
- FCC and IC certified.

**Description**

The 900 MHz radio modems are used to create wireless network link between a PC and the Recorder(s) in the vehicles.

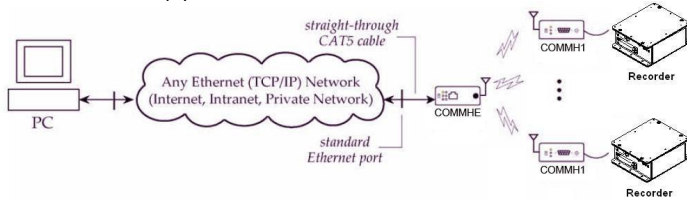


Figure 1 – Network with base station using Ethernet connectivity

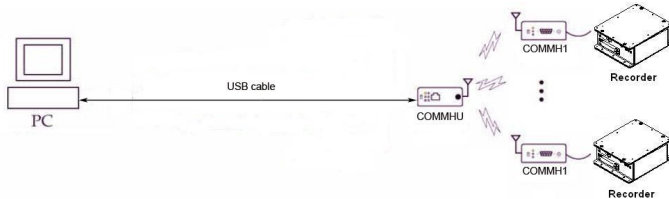


Figure 2 – Network with base station using USB connectivity

The PC is linked to the base station COMMHE via an Ethernet cable (TCP/IP or UDP/IP) or COMMHU via a USB cable. The base station manages the wireless link with the different mobile radio module COMMH1, connected to the Recorder.

**Installation**

Base station (COMMHE or COMMHU)

- Install the base station, in a dry and well ventilated area. Avoid installing the module near any heat source.
- Install the antenna in a location where there will be minimal obstruction with the monitored vehicles. For optimal communication range, install the antenna 7.5 meters (25 foot) above the ground. Connect the antenna to the base station RPSMA connector. If needed, use the high gain antenna to extend communication range. Refer to page 2 for optimal performance installation note.



- Apply power to the base station using the supplied DC-power supply adapter. (although the COMMHU module is powered from the USB, use the supplied power supply for better signal transmission efficiency)
- Refer to the *Remote Recorder Management – Getting Started* guide to configure the base station as well as determining the type of Ethernet cable (for COMMHE), used to link the radio to the PC
- Keep the wires at least 30cm (12”) away from high electrical interference devices.

Mobile radio module (COMMH1)

- Using Dual-Lock™ Velcro, install the COMMH1, at a dry and well ventilated area, within 30 cm (12”) of the Recorder. Avoid installing the module near any heat source.
- Connect the COMMH1 to any of the Recorder communication port (COM1, COM2 or COM3).
- To get the optimal wireless connectivity, install the antenna outside of the vehicle chassis. If needed, use the optional antenna extension cable (WRLEXT-0xx), then plug the antenna to the RPSMA connector of the COMMH1.
- Keep the wires at least 30cm (12”) away from high interference electrical devices, such as: ignition coils, plug leads, high-current leads, high emission electronic modules or other antennas.
- Refer to the *Remote Recorder Management – Getting Started* guide to configure the COMMH1

**Specifications**

Description	Symbol	COMMH1	COMMHE	COMMHU	Unit
Power Requirements					
Power Supply Voltage	V	7-28	7-28	7-28	V
Receive Current	IR	110	270	75	mA
Transmit Current	IT	110-900	270-830	88-480	mA
Idle Current	II	19-39	210-224	21-34	mA
Performance					
Transmit Power output	TP <sub>out-W</sub> TP <sub>out-dbm</sub>		1 30		W dBm
Urban/Indoor range w/ 2.1dB dipole antenna	Rg <sub>IN2.1</sub>		450		m
Outdoor range RF line-of-sight w/ 2.1dB dipole antenna	Rg <sub>OUT2.1</sub>		11 000		m
w/ High gain antenna	Rg <sub>OUTHG</sub>		32 000		m
Throughput Data rate	Th <sub>RATE</sub>		115 200		bps
RF Data rate	RF <sub>RATE</sub>		125 000		bps
Networking & security					
Frequency	Freq		ISM 902-928		MHz
Spread Spectrum	SS		FHSS		
Modulation	MOD		FSK		
Encryption	Enc		256 bit AES Encryption		
Channel Capacity	Ch		10		
Antenna					
Connector	Con		RPSMA		
Impedance	Imp		50		Ohm
Certification					
FCC Part 15.247	FCC		OUR-9XTEND		
Industry Canada	IC		4214A-9XTEND		
Physical Properties					
Height	H		28.6		mm
Width	W		69.9		mm
Depth	D		139.7		mm
Weight	w		200		g
Operating Temperature	OperTemp		-40 to 85		C

**Antenna Installation for protection against lightning:**

- Establish a low impedance path to earth ground from the COMMHE/U aluminum enclosure. Using the metal screws on the bracket's ends should help. The COMMHE/U serial data reference ground and power supply ground are internally connected to the RF connector ground, and the RF connector is grounded to the aluminum case by the washer and nut on the exterior of the case.
- Ground the voltage supply to a path to earth.
- Use an RF lightning arrestor, such as the DSXL-MA from [www.polyphaser.com](http://www.polyphaser.com), in line with the antenna coaxial cable to protect the modem against energy surges on the antenna and coax. The arrestor should be installed on the end of the coax nearest the modem (not the antenna). Ground this lightning arrestor to a path to earth.
- Ground the antenna frame to a path to earth.
- Ground all of the above together to a common node (such as the antenna mast) if each is a short distance away. This will reduce the possibility of ground loops through different earth grounds. However if distance from grounding point to common node is far (~20feet+) it may be better to use separate earth grounds. Test voltage at each earth ground node to ensure ground potentials are equal.
- Remember that lightning strikes supply an impressive amount of current--18,000 Amps on average--so ground very well.