RAD-ISM-900-EN-BD

900 MHz Trusted Wireless Ethernet Radio

INTERFACE

Data Sheet
2629_en_A

1 Description

The RAD-ISM-900-EN-BD incorporates the MOTR-9™ radio board, a 1 watt, frequency-hopping, spread spectrum (FHSS) transceiver. It operates in the license-free 902-928 MHz ISM band. The MOTR-9 provides user-configurable over-the-air data rates up to 500 kbps. Adjustable packet sizes maximize data speed and minimize latency. The radio provides selectable 128/192/256-bit AES encryption to prevent unwanted intrusion and keep data secure.

The module allows users to configure a master, slave or repeater for use in a wireless Ethernet network. It features 128/192/256-bit AES encryption for highly secure data transmission. The RAD-ISM-900-EN-BD supports TCP/IP, UDP and IP v4 protocols with all programming and radio diagnostics accessible via a simple integrated web server. The radio also features user-upgradeable firmware.

Integrated serial ports allow broadcasting RS-232/422/485 protocols to serial clients. It can also be used as a Modbus RTU/TCP gateway.

2 Applications

- SCADA systems
- PLC/RTU extensions
- Pump controls
- Tank level/pressure/temperature monitoring
- Water/wastewater treatment
- Petroleum and chemical processing

3 Features

- MOTR-9™ transceiver
- Selectable 125, 250, 500 kbps over-the-air speeds
- Functions as a master, repeater, or slave
- User selectable 128/192/256-bit AES encryption security features
- RS-232 and RS-422/485 ports allow integration of serial devices onto Ethernet network (built-in device server)
- Programming and network diagnostics are accessed via integrated, IT-friendly web server; no additional software needed
- Modbus RTU/TCP compatible for process and industrial applications

Make sure you always use the latest documentation.
It can be downloaded at www.download.phoenixcontact.com.

A conversion table is available on the Internet at
www.download.phoenixcontact.com/general/7000_en_00.pdf.

This data sheet is valid for all products listed on the following page:

4 Ordering Data

Products

Description	Type	Order No.	Pcs./Pkt
Radio, 900 MHz	RAD-ISM-900-EN-BD	**2900016**	1

Accessories

Description	Type	Order No.	Pcs./Pkt
Antenna, 0 dB gain, omni-directional, 1.8 m (6 ft.) cable, MCX connector (male)	RAD-ISM-900-ANT-OMNI-0-6	**2867160**	1
Antenna, 3 dB gain, omni-directional fiberglass, type N connector (female)	RAD-ISM-900-ANT-OMNI-FG-3-N	**2867791**	1
Antenna, 6 dB gain, omni-directional fiberglass, type N connector (female)	RAD-ISM-900-ANT-OMNI-FG-6-N	**2865579**	1
Antenna, 6.5 dB gain, yagi-directional, 7.6 m (25 ft.) RG213 cable, type N connector (male) CN-UB, and MCX-to-N adapter	RAD-ISM-900-ANT-YAGI-6.5-25-AS	**2867827**	1
Antenna, 6.5 dB gain, yagi-directional, 15.2 m (50 ft.) LMR400 cable, type N connector (male) CN-UB, and MCX-to-N adapter	RAD-ISM-900-ANT-YAGI-6.5-50-AS	**2867827**	1
Enclosure, NEMA 4X pre-wired, includes MINI-UPS, power distribution and surge protection for 900 MHz radio system	RAD-SYS-NEMA4X-900	**2917188**	1
Cable, 7.6 m (25 ft.) RG213 with type N connectors (male)	RAD-CAB-RG213-25	**2867597**	1
Surge protection, bulkhead mount for 900 MHz radio	CN-UB-280DC-BB-ASSY	**5603859**	1
Adapter cable, 1.2 m (4 ft.) RG316 wtih type N (male) and MCX (male) connectors	RAD-CON-MCX90-N-SS	**2885207**	1

5 Technical Data

General Data	
Mounting	35 mm mounting rail (IEC 60715)
Dimensions (W x H x D)	52 x 99 x 115 mm (2.1 x 3.90 x 4.5 in.)
Weight	296 g (0.65 lb.)
Case material	Polyamide PA non-reinforced with aluminum heatsink
Operating temperature	-40 to 65°C (-40 to 149°F)
Storage temperature	-40 to 75°C (-40 to 167°F)
Relative humidity	10 - 95% non-condensing
Degree of protection	IP20
LED indicators	Status: solid indicates normal operation; flashing indicates error RS-485TX: flashing indicates RS-422/485 data transmitting RS-485RX: flashing indicates RS-422/485 data receiving RS-232TX: flashing indicates RS-232 data transmitting RS-232RX: flashing indicates RS-232 data receiving RF LINK: solid when RF link is established; flashes with no radio connection RF DATA: flashes when data is sent/received WAN LINK: flashes when data is detected on Ethernet port WAN SPEED: solid when 100Base-T connection exists

Supply Voltage	
Power	12-30 V DC Class 2
Connection	Screw-type terminal, 12-24 AWG
Current consumption, maximum	250 mA @ 24 V DC
RF Link contact	0.5 A 30 V DC

Transmission Data	
Frequency	902-928 MHz
Transmit power	10 mW (10 dBm) … 1 W (30 dBm); adjustable in 1 dBm increments
Receive sensitivity	500 kbps: –92 dBm 250 kbps: –98 dBm 125 kbps: –102 dBm
RSSI test point	0-3.5 V DC
BER	
Packet size (bytes)	Latency mode: 55 Balanced: 110 Throughput: 242

Serial Ports	
Port connections	RS-232; 9-pin D-sub female RS-422/485; 4-pin pluggable screw terminal block
Baud rate (bps)	1200, 2400, 4800, 9600, 19200, 38400, 57600, 93750, 115200, 187500

Ethernet	
Port connection	RJ45
Ethernet transmission rate	10/100 Mbps

Approvals	
FCC/IC	Part 15, Section 247
UL	Class I, Div. 2 Groups A, B, C, D