

# RAD-ISM-900-DATA-BD-BUS

Data Sheet 1928A

December 2003

## Features

- DIN-rail mountable
- All-in-one Master, Slave and Store-and-Forward Repeater/Slave.
- GUI or DIP switch configuration.
- Up to eight (8) expandable I/O modules per transceiver on common power and digital addressable MODBUS or DF1 registers per transceiver.
- Remote Diagnostics available via second port on radios and Terminal Window in the GUI.
- Dry Contact LINK output, as well as voltage output for quick and easy field RSSI testing.

## Description

The RAD-ISM-900 (DATA-BUS) is a radio transceiver that allows a master PLC to poll remote DATA-BUS transceivers and extract analog/digital values. The remote I/O is accessed using MODBUS RTU or Allen-Bradley's DF1 protocol by reading and writing to registers of each separately addressed remote transceiver. The locations can be accessed by one master transceiver connected to a PLC. The DATA-BUS transceivers use the license-free 902-928MHz band and proven Frequency Hopping Spread Spectrum technology designed for use in high-interference environments.

## Applications

- SCADA systems
- PLC/RTU extensions
- Pump controls
- Tank level/pressure/temperature monitoring
- Water/wastewater
- Petro-chem



Figure 1. RAD-ISM-900-BD-BUS transceiver



Figure 2. RAD-ISM-900-BD-BUS transceiver with I/O modules connected

# RAD-ISM-900-DATA-BD-BUS

## Engineering Specifications: RAD-ISM-900-DATA-BD-BUS (p/n 28 67 29 6)

I/O Interface	
Protocols	MODBUS RTU or AB DF1 half-duplex
Interface	RS-232 and RS-485/422 (2-wire or 4-wire half-duplex)
Baud Rates	300 to 38,400 baud
Data Format	Asynchronous - seven (7) data, even parity or eight (8) data, no parity; 1 stop bit
Flow Control	RTS/CTS or None

Radio Specifications	
Range	600 to 1,000 feet (180 to 305 m) in-plant (obstructed); 4 to 5 miles (6 to 8 km) LOS with Omni antenna; 20+ miles (32+ km) with Yagi antenna
Frequency	902-928MHz (license-free ISM band)
Transmit Power	1 Watt
Channel Hopping	FHSS - 256 channels
Bit Error Rates	10e-6 BER at -106dBm without error correction
Rx Sensitivity	< -110dBm
Unit ID	16 bit coding of each transceiver group
Antenna Connector	MCX (female)
FCC ID (USA)	IA9FHOEM900
ISC (Canada)	1338104550A

General	
Power	9 to 30 VDC regulated
Power Consumption	Average: 2.5 Watts Peak: 4.1 Watts
Reverse Wiring Protection	Yes
Wiring Connections	RS-232 port; DB9 female RS-485/422 port: screw-type terminals; 12-24 AWG
Mounting	35mm DIN-rail mount
Dimensions (l x w x h)	3.9" x 0.88" x 4.5" (99mm x 22.5mm x 114.5mm)
Case Material	Plastic
Weight	5.5 oz (175 grams)
Temperature Range	-40 to 70°C (-40 to 158°F)
Environmental Rating	NEMA 1 (equivalent to IP 30)
Approvals	Class I, Div. 2, Groups A,B,C,D; UL and CSA (pending)
LED Indicators	Three (3): RF: glows solid when RF link established TX: flashes when data being transmitted RX: flashes when data being received



Figure 3. Open the RAD-ISM-900-BD-BUS transceiver to expose the DIP-switches

Transceiver can be configured using either the on-board DIP-switches or the Windows-based RAD-LINK software. Full access to all features can only be obtained by use of the software.

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