

# RAD-80211...

## 802.11a/b/g Ethernet Radios with IEEE 802.11i Security



### INTERFACE Data Sheet 2181G

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#### Features

- IP54 wall-mount and IP20 DIN rail-mount packages for use on the factory floor or in a control cabinet.
- Functions as an access point, client or bridge allowing the devices to work in a variety of applications.
- Supports data rates up to 54 Mbps in both 5 GHz (802.11a) and 2.4 GHz (802.11b/g) bands creating more versatility for the wireless network.
- Security features WEP, WPA, 802.11i (WPA2) 128-bit AES encryption and MAC Address checking provide for a trusted connection.
- RS-232 and RS-422/485 ports allow integration of serial devices onto Ethernet network (built-in device server).
- Receive antenna diversity to improve radio performance and reliability.
- Programming and network diagnostics are accessed via integrated, plant floor-friendly web server, and IT-friendly SNMP; no additional software needed.
- Modbus RTU/TCP compatible for process and industrial applications.
- I/O bus (RAD-80211-XD-BUS version only) allows control of up to eight I/O expansion modules via Modbus RTU/TCP over a wireless 802.11 network.
- Flexible mix of I/O and serial devices can be connected to the same radio without extra hardware (RAD-80211-XD-BUS version only).

#### General Description

The RAD-80211... are industrial radio transceivers that conform to IEEE standards 802.11a/b/g. These models allow users to configure access point, bridge or client modes for use in a wireless Ethernet network. They feature the latest high-security IEEE standard 802.11i with AES encryption and optional 802.1x authentication.

The RAD-80211... products support TCP/IP, UDP and IP v4 protocols with all programming and radio diagnostics accessible via a simple integrated web server. The devices also feature user upgradeable firmware. The RAD-80211... transceivers can be used in license-free 2.4 GHz or 5 GHz bands.

Integrating 802.11 networks with new and existing PLC networks is now easier than ever through the use of integrated serial ports. RS-232 and RS-422/485 ports allow integration of legacy serial devices onto Ethernet network. With protocol conversion, legacy Modbus RTU devices can now be accessed using Modbus TCP with no additional hardware. The bus connection allows wirelessly accessible I/O through the 802.11 network. All together, this can make facility expansion and retrofitting easier than ever before.

#### Applications

- Video surveillance
- PC/PLC/RTU Ethernet connectivity interface
- Pipeline monitoring
- Factory floor network
- Perimeter security
- Quality control
- Homeland security
- RFID (Active)
- Mobile computing
- Factory networking

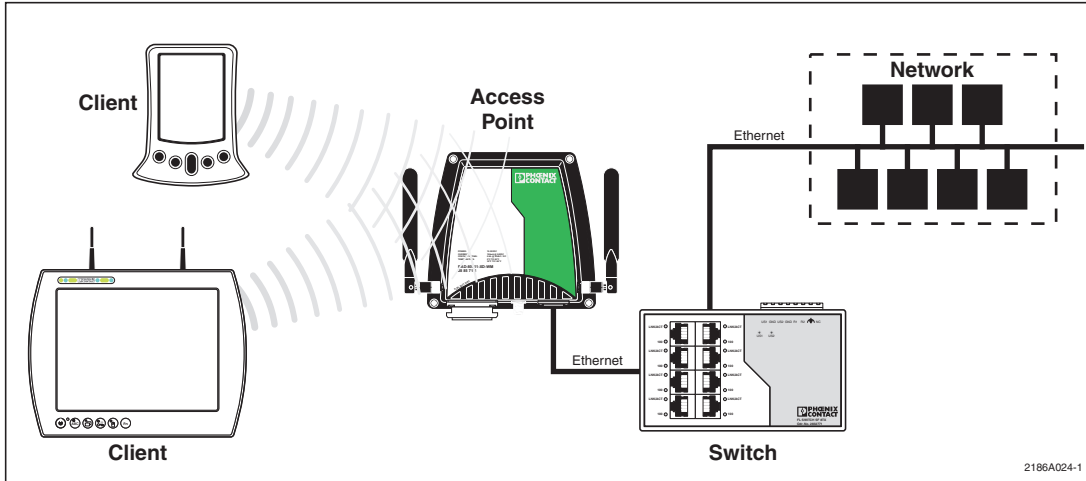


Figure 1. Access Point Mode

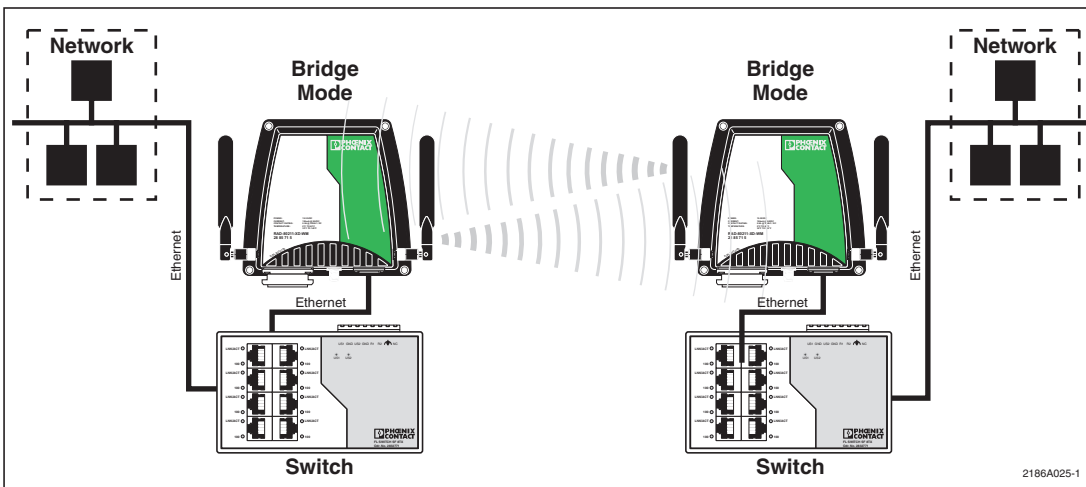


Figure 2. Bridge Mode

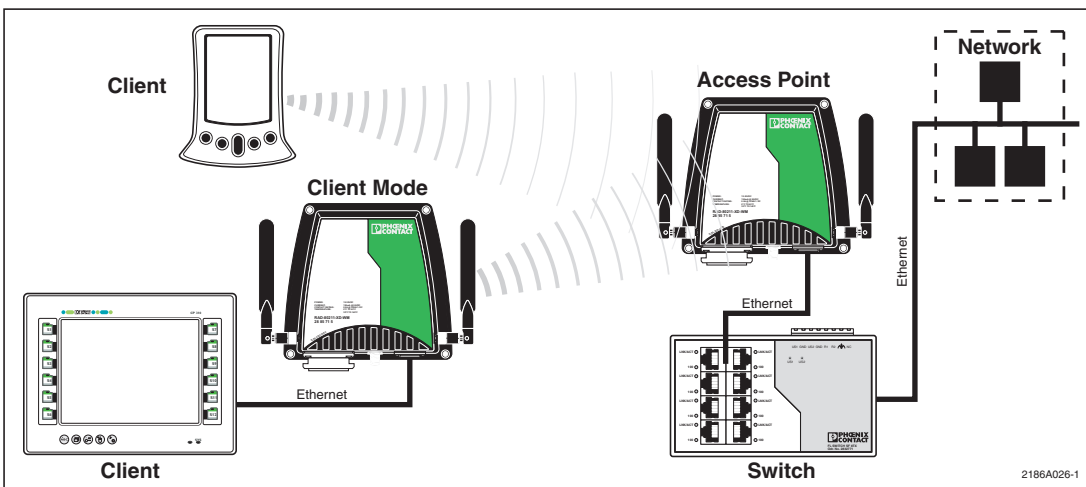


Figure 3. Client Mode

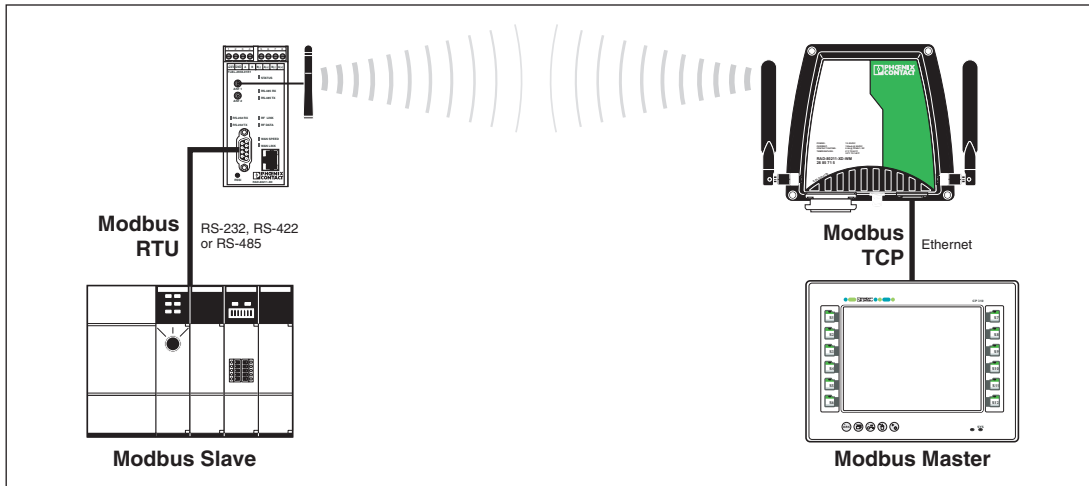


Figure 4. Modbus RTU to Modbus TCP Application

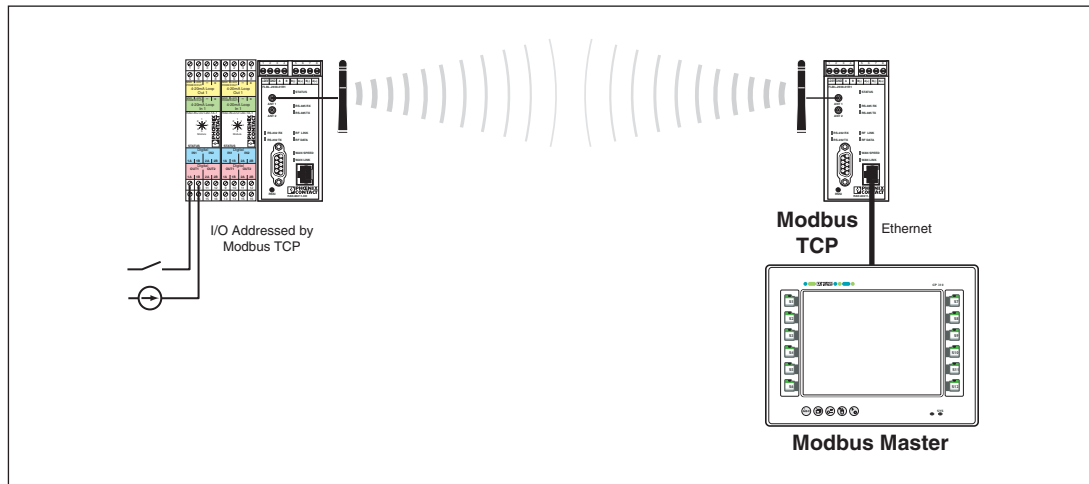


Figure 5. I/O to Modbus TCP via Bus

**Ordering Data**

Description	Type	Order No.	Pcs./Pck.
<b>Radio</b> , Industrial Wireless Ethernet, IP20 DIN rail mount, 802.11a/b/g with IEEE 802.11i Security	RAD-80211-XD	2885728	1
<b>Radio</b> , Industrial Wireless Ethernet, IP20 DIN rail mount with I/O bus connection, 802.11a/b/g with IEEE 802.11i Security	RAD-80211-XD-BUS	2885757	1
<b>Radio</b> , Industrial Wireless Ethernet, IP54 wall-mount, 802.11a/b/g with IEEE 802.11i Security	RAD-80211-XD-WM	2885715	1

**Accessories**

Description	Type	Order No.	Pcs./Pck.
<b>Module</b> , 8-channel digital input	RAD-IN-8D	2867144	1
<b>Module</b> , 8-channel digital output with relays	RAD-OUT-8D-REL	2867157	1
<b>Module</b> , 4-channel analog input	RAD-IN-4A-I	2867115	1
<b>Module</b> , 4-channel analog output	RAD-OUT-4A-I	2867128	1
<b>Module</b> , 8-channel digital inputs and 2-channel analog output	RAD-IN+OUT-2D-1A-I	2867322	1
<b>Module</b> , pulse input	RAD-IN-2D-CNT	2885223	1
<b>Module</b> , pulse output	RAD-OUT-2D-CNT	2885236	1

**Specifications**

	<b>RAD-80211-XD and RAD-80211-XD-BUS</b>	<b>RAD-80211-XD-WM</b>
Power	12-30 V DC	Power-over-Ethernet (PoE) or 12-30 V DC
Wiring Connections	Power: screw-type terminals, 12-24 AWG RS-232 port: DB-9 female RS-422/485 port: screw-type terminals, 12-24 AWG Ethernet port: RJ45	Power: M12 RF Link Contact: M12 RS-232 port: IP67 DB-9 female RS-422/485 port: M12 Ethernet port: IP67 RJ45 VARIOSUB
Mounting	DIN rail	Wall-mount
Dimensions (L x W x H)	99 x 45 x 115 mm (3.90 x 1.77 x 4.5 in.)	178 x 165 mm (7.00 x 6.49 in.)
Case Material	plastic	Xenoy 5220U plastic
Temperature Range	-0 to 65°C (32 to 149°F)	-0 to +65°C (32 to 149°F)
Environmental Rating	IP20	IP54
Approvals	UL Class I, Div. 2 Groups A, B, C, D; WiFi compliant	UL Class I, Div. 2 Groups A, B, C, D; WiFi compliant
LED Indicators	Power: solid when 12-30 V DC applied RS-485TX: flashes when RS-422/485 data is transmitted RS-485RX: flashes when RS-422/485 data is received RS-232TX: flashes when RS-232 data is transmitted RS-232RX: flashes when RS-232 data is received RF DATA: flashes when data is sent/received RF LINK: solid when RF link is established WAN LINK: flashes when data is detected on Ethernet port WAN SPEED: solid when 100Base-T connection exists WAN SPEED: off when no 100Base-T connected	TX: flashes when RS-232 data is transmitted RX: flashes when RS-232 data is received ST: on when WLAN is operating normally ST: flashes to indicate internal errors RF: solid when RF Link is established EN: solid when 100Base-T connection exists EN: off when no 100Base-T connection exists
Antenna Connector	MCX female (2x)	RPSMA female (2x)

**I/O Interface (RAD-80211-XD-BUS only)**

Description	Type
Protocol	Modbus RTU/TCP
Interface	Ethernet, RS-232/422/485

**Wireless Specifications**

Description	Type
Frequency 802.11b/g 802.11a	2.4-2.4835 GHz 5.25-5.815 GHz
Transmit Power	100 mW maximum (adjustable to 1 mW)
Channel Selection 802.11b/g 802.11a	1-11 52, 56, 60, 64, 149, 153, 157, 161
FCC ID (USA)	NKRCM9

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