

Wireless module - RAD-2400-IFS - 2901541

Please be informed that the data shown in this PDF Document is generated from our Online Catalog. Please find the complete data in the user's documentation. Our General Terms of Use for Downloads are valid (<http://phoenixcontact.com/download>)



2400 MHz wireless transceiver with RS-232, RS-485 2-wire interface, expandable with I/O extension modules, with screw connection, antenna connection:RSMA (female), including DIN rail connector, without antenna

Product Description

Radioline is the new wireless system for large systems. Special features include extremely easy assignment of inputs and outputs by simply turning the thumbwheel - without any programming. Radioline transmits I/O signals (I/O mode) or serial data (serial mode) and is therefore very versatile. Alternatively, I/O signals can now also be connected to controllers directly using the Modbus protocol (PLC/Modbus RTU mode). In addition, you can implement various network structures: from a simple point-to-point connection to complex mesh networks. Thanks to the latest Trusted Wireless technology, Radioline is the ideal choice for industrial use.

Product Features

- License-free 2.4 GHz frequency band
- Extended temperature range, -40°C ... +70°C
- Range of several kilometers thanks to adjustable data rates for the wireless interface (16 ... 500 kbps)
- Integrated RS-232/RS-485 interface
- Quick and easy startup without programming
- High degree of reliability due to Trusted Wireless 2.0 technology (AES encryption, frequency hopping method, and coexistence management)
- Suitable for ATEX zone 2
- Mesh networks of up to 250 devices



Key Commercial Data

| | |
|--------------------------------------|----------|
| Packing unit | 1 pc |
| Weight per Piece (excluding packing) | 220.0 g |
| Custom tariff number | 85176200 |
| Country of origin | Germany |

Wireless module - RAD-2400-IFS - 2901541

Technical data

Note

| | |
|-------------------------|---|
| Utilization restriction | EMC: class A product, see manufacturer's declaration in the download area |
|-------------------------|---|

Dimensions

| | |
|--------|----------|
| Width | 17.5 mm |
| Height | 99 mm |
| Depth | 114.5 mm |

Ambient conditions

| | |
|--|--|
| Degree of protection | IP20 |
| Ambient temperature (operation) | -40 °C ... 70 °C (>55°C derating) |
| | -40 °F ... 158 °F (>131°F derating) |
| Ambient temperature (storage/transport) | -40 °C ... 85 °C |
| | -40 °F ... 185 °F |
| Permissible humidity (operation) | 20 % ... 85 % |
| Permissible humidity (storage/transport) | 20 % ... 85 % |
| Altitude | 2000 m |
| Vibration (operation) | in accordance with IEC 60068-2-6: 5g, 10 Hz ... 150 Hz |
| Shock | 16g, 11 ms |

General

| | |
|--|--|
| Operating mode | I/O data (Default setting, configuration via thumbwheel) |
| | Serial data (Activation and configuration via PSI-CONF software) |
| | PLC/Modbus RTU mode (Activation and configuration via PSI-CONF software) |
| Overvoltage category | II |
| Assembly instructions | on standard DIN rail NS 35 in accordance with EN 60715 |
| Degree of pollution | 2 |
| Housing material | PA 6.6-FR |
| Flammability rating according to UL 94 | V0 |
| MTTF | 778 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day)) |
| | 358 Years (Telcordia standard, 40°C temperature, 34.25% operating cycle (5 days a week, 12 hours a day)) |
| | 142 Years (Telcordia standard, temperature 40 °C, operating cycle 100 % (7 days a week, 24 hours a day)) |
| Wireless licences | Australia |
| | Belgium |
| | Bulgaria |
| | Denmark |

Wireless module - RAD-2400-IFS - 2901541

Technical data

General

| | |
|--|---|
| | Germany |
| | Estonia |
| | France |
| | Finland |
| | Greece |
| | Great Britain |
| | Italy |
| | Ireland |
| | Iceland |
| | Canada |
| | Croatia |
| | Liechtenstein |
| | Luxembourg |
| | Latvia |
| | Lithuania |
| | Malta |
| | Morocco |
| | Netherlands |
| | Norway (The device may not be operated within 20 km of Ny Ålesund town center.) |
| | Austria |
| | Poland |
| | Portugal |
| | Romania |
| | Russia |
| | Sweden |
| | Switzerland |
| | Slovakia |
| | Slovenia |
| | Singapore |
| | Spain |
| | South Africa |
| | Thailand |
| | Czech Republic |
| | Turkey (The device may only be operated with Phoenix Contact antennas in accordance with the "Short Range Radio Devices (SRD) Regulations" Gazette No. 26464 dated March 16, 2007.) |
| | Hungary |

Wireless module - RAD-2400-IFS - 2901541

Technical data

General

| | |
|-------------|--|
| | USA |
| | Ukraine |
| | United Arab Emirates |
| | Cyprus (rep.) |
| Export note | *The range may be considerably above or below that stated. It is dependent on the environment, antenna technology, transmission power, and the product used. |

Supply

| | |
|----------------------------|--|
| Supply voltage range | 19.2 V DC ... 30.5 V DC |
| Max. current consumption | ≤ 65 mA (@ 24 V DC, @ 25°C, stand-alone) |
| Transient surge protection | Yes |

Wireless interface

| | |
|------------------------------|---|
| Antenna connection | RSMA (female) |
| Direction | Bi-directional |
| Frequency | 2400 MHz |
| Frequency range | 2.4002 GHz ... 2.4785 GHz |
| Number of channel groups | 8 |
| Number of channels per group | 55 |
| Channel distance | 1.3 MHz |
| Data rate | 16 kbps (adjustable) |
| | 125 kbps (Default setting, adjustable) |
| | 250 kbps (adjustable) |
| Receiver sensitivity | -106 dBm (16 kbps) |
| | -96 dBm (125 kbps) |
| | -93 dBm (250 kbps) |
| Transmit capacity, minimum | 0 dBm |
| Transmit capacity, maximum | ≤ 20 dBm (Outside of Europe, adjustable via software) |
| | ≤ 19 dBm (Europe, can be set via software, depends on the data rate) |
| | 18 dBm (Default setting, adjustable) |
| Range | ± 5 km (The range may be considerably above or below that stated, and depends on the environment, antenna technology, and the product used) |
| Security | 128-bit data encryption |

Serial interface

| | |
|---------------------|---------------------------------------|
| Interface 1 | RS-232 |
| Connection method | COMBICON plug-in screw terminal block |
| | 3-conductor |
| Transmission length | ≤ 15 m |

Wireless module - RAD-2400-IFS - 2901541

Technical data

Serial interface

| | |
|----------------------|---------------------------------------|
| Transmission speed | 0,3 ... 115,2 kbit/s |
| Interface 2 | RS-485 |
| Connection method | COMBICON plug-in screw terminal block |
| | 2-wire |
| Transmission length | ≤ 1200 m |
| Termination resistor | 390 Ω (switchable via DIP switches) |
| | 150 Ω (switchable via DIP switches) |
| | 390 Ω (switchable via DIP switches) |
| Transmission speed | 0,3 ... 187,5 kbit/s |
| Interface 3 | Configuration interface |
| Connection method | S-PORT (socket) |

System limits

| | |
|--------------------------------------|--|
| Designation | Wireless module |
| Number of supported devices | ≤ 250 (Addressing via PSI-CONF software) |
| | ≤ 99 (Addressing via thumbwheel) |
| Number of possible extension modules | ≤ 32 (per wireless module) |
| Designation | Wireless network |
| I/O data mode | ≤ 99 (I/O extension modules per wireless network, serial interfaces deactivated) |
| Serial data mode | 0 (no I/O extension modules can be used) |
| PLC/Modbus RTU mode | ≤ 99 (I/O extension modules per wireless network, access to extension modules via Modbus RTU protocol) |

RSSI output

| | |
|-----------------------|-------------|
| Number of outputs | 1 |
| Voltage output signal | 0 V ... 3 V |

RF link relay output

| | |
|---------------------------|---|
| Number of outputs | 1 |
| Contact type | PDT |
| Contact material | PdRu, gold-plated |
| Maximum switching voltage | 30 V AC/DC |
| | 60 V DC |
| Max. switching current | 500 mA (30 V AC/DC) |
| Electrical service life | 5 x 10 ⁵ cycles with 0.5 A @ 30 V DC |

Connection data

| | |
|------------------------------------|---------------------|
| Connection method | Screw connection |
| Conductor cross section solid min. | 0.2 mm ² |

Wireless module - RAD-2400-IFS - 2901541

Technical data

Connection data

| | |
|---------------------------------------|---------------------|
| Conductor cross section solid max. | 2.5 mm ² |
| Conductor cross section flexible min. | 0.2 mm ² |
| Conductor cross section flexible max. | 2.5 mm ² |
| Conductor cross section AWG min. | 24 |
| Conductor cross section AWG max. | 14 |
| Stripping length | 7 mm |
| Tightening torque | 0.6 Nm |
| Screw thread | M3 |

Status indicator

| | |
|----------------|---|
| Status display | Green LED (supply voltage, PWR) |
| | Green LED (bus communication, DAT) |
| | Red LED (periphery error, ERR) |
| | 3 x green, 1 x yellow LED (LED bar graph receive quality, RSSI) |
| | Green LED (receive data, RX) |
| | Green LED (transmit data, TX) |

Approvals and conformance

| | |
|-----------------------|---|
| Conformance | CE-compliant (R&TTE Directive 1999/5/EC [valid until June 12, 2016] or 2014/53/EU [valid from June 13, 2016]) |
| IECEX | Ex nA nC IIC T4 Gc |
| UL, USA / Canada | UL 508 Listed |
| Standard designation | Ex Directive (ATEX) |
| Standards/regulations | EN 60079-0 |
| Standard designation | Ex Directive (ATEX) |
| Standards/regulations | EN-60079-15 |
| Standard designation | R&TTE Directive 1999/5/EC |
| Standards/regulations | EN 300328 |
| | EN 61000-6-4 |
| | EN 61000-6-2 |
| | EN 50371 |
| | EN 60950-1 |

Standards and Regulations

| | |
|-------------------------------|--|
| Electromagnetic compatibility | Conformance with EMC Directive 2004/108/EC (valid until 19.04.2016) / 2014/30/EU (valid from 20.04.2016) |
| Standard designation | Ex Directive (ATEX) |
| Standards/regulations | EN 60079-0 |
| Standard designation | Ex Directive (ATEX) |
| Standards/regulations | EN-60079-15 |

Wireless module - RAD-2400-IFS - 2901541

Technical data

Standards and Regulations

| | |
|--|---|
| Standard designation | R&TTE Directive 1999/5/EC |
| Standards/regulations | EN 300328 |
| | EN 61000-6-4 |
| | EN 61000-6-2 |
| | EN 50371 |
| | EN 60950-1 |
| Shock | 16g, 11 ms |
| Flammability rating according to UL 94 | V0 |
| Interface description | Trusted Wireless |
| Channel distance | 1.3 MHz |
| Security | 128-bit data encryption |
| Vibration (operation) | in accordance with IEC 60068-2-6: 5g, 10 Hz ... 150 Hz |
| Conformance | CE-compliant (R&TTE Directive 1999/5/EC [valid until June 12, 2016] or 2014/53/EU [valid from June 13, 2016]) |
| | FCC Directive, Part 15.247 |
| | ISC Directive RSS 210 |
| ATEX | # II 3 G Ex nA nC IIC T4 Gc X |
| IECEX | Ex nA nC IIC T4 Gc |
| UL, USA / Canada | UL 508 Listed |
| | Class I, Div. 2, Groups A, B, C, D T4A |
| | Class I, Zone 2, IIC T4 |

Classifications

eCl@ss

| | |
|------------|----------|
| eCl@ss 4.0 | 27230207 |
| eCl@ss 4.1 | 27230207 |
| eCl@ss 5.0 | 27230207 |
| eCl@ss 5.1 | 27242208 |
| eCl@ss 6.0 | 27242208 |
| eCl@ss 7.0 | 27242208 |
| eCl@ss 8.0 | 19179290 |

ETIM

| | |
|----------|----------|
| ETIM 3.0 | EC001423 |
| ETIM 4.0 | EC000310 |
| ETIM 5.0 | EC000310 |

Wireless module - RAD-2400-IFS - 2901541

Classifications

UNSPSC

| | |
|---------------|----------|
| UNSPSC 6.01 | 30211506 |
| UNSPSC 7.0901 | 43223108 |
| UNSPSC 11 | 39121008 |
| UNSPSC 12.01 | 43223108 |
| UNSPSC 13.2 | 43223108 |

Approvals

Approvals

Approvals

UL Listed / cUL Listed / EAC / EAC / cULus Listed

Ex Approvals

ATEX / IECEx / UL Listed / cUL Listed

Approvals submitted

Approval details

UL Listed

cUL Listed

EAC

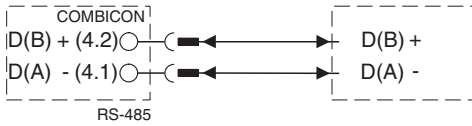
EAC

cULus Listed

Wireless module - RAD-2400-IFS - 2901541

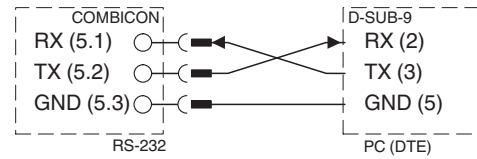
Drawings

Connection diagram



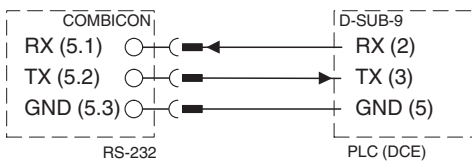
RS-485 connection

Connection diagram



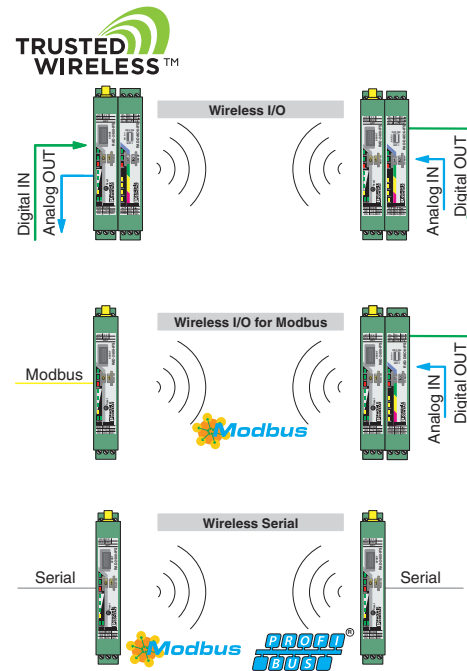
RS-232 connection

Connection diagram



RS-232 connection

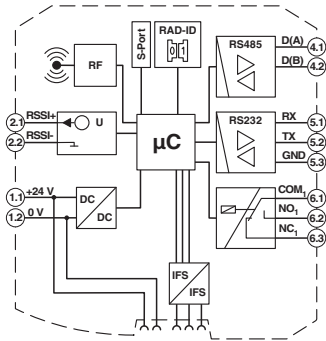
Application drawing



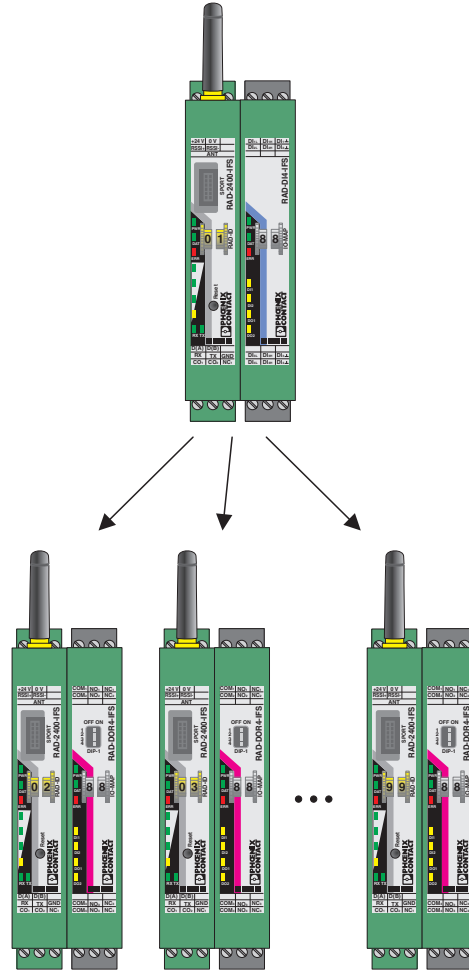
Trusted Wireless

Wireless module - RAD-2400-IFS - 2901541

Block diagram



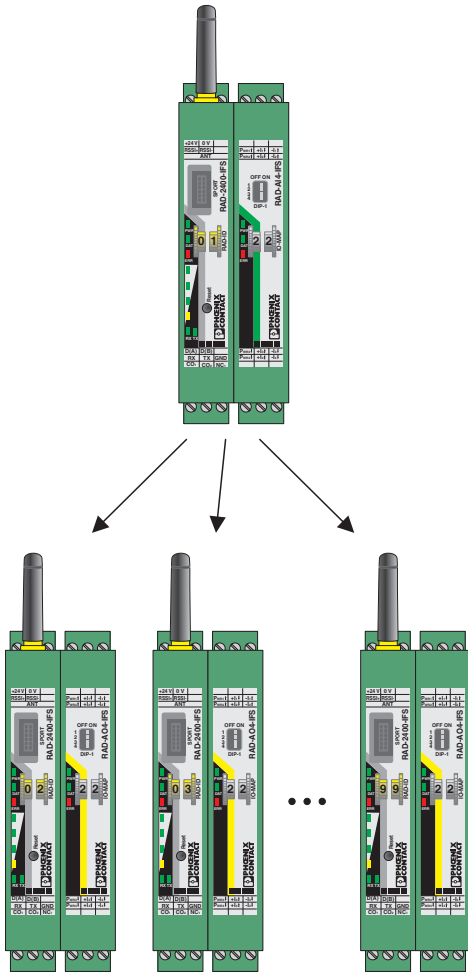
Functional drawing



Assignment of digital inputs and digital outputs

Wireless module - RAD-2400-IFS - 2901541

Functional drawing



Assignment of analog inputs and analog outputs

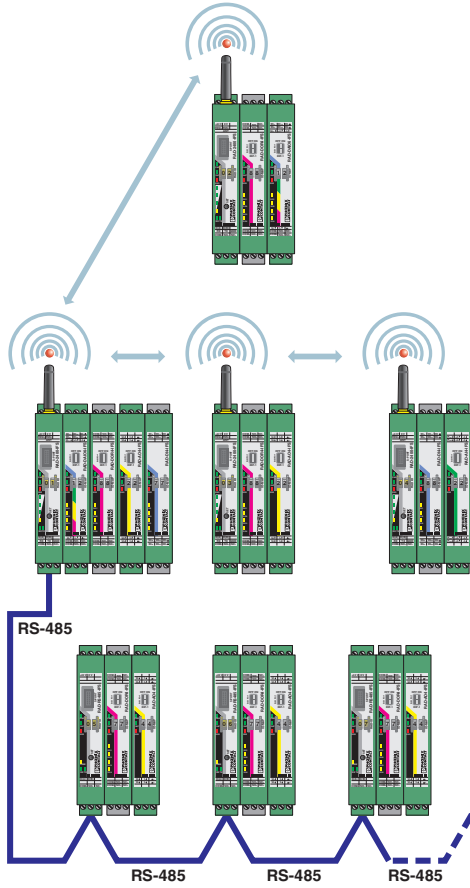
Functional drawing



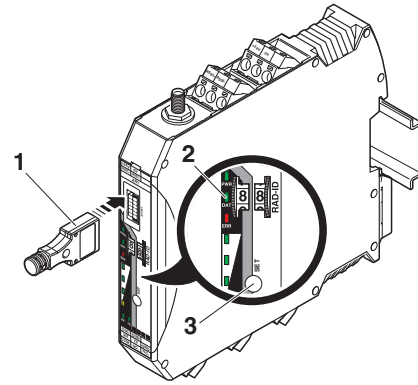
RAD-DAIO6-IFS assignment: analog/digital inputs and outputs

Wireless module - RAD-2400-IFS - 2901541

Functional drawing



Schematic diagram

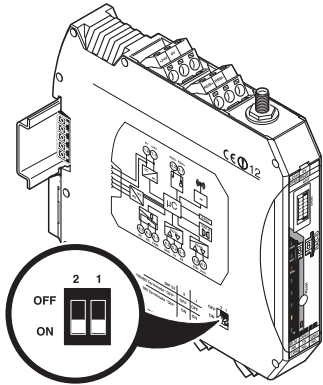


Configuration via CONFSTICK

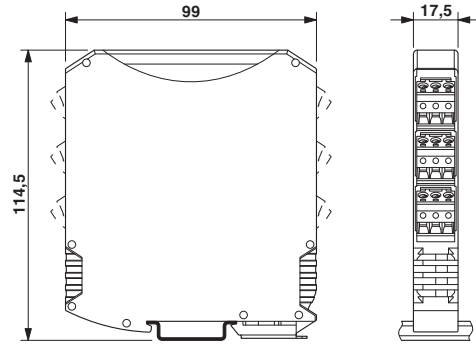
I/O-to-I/O, wireless, and RS-485

Wireless module - RAD-2400-IFS - 2901541

Schematic diagram



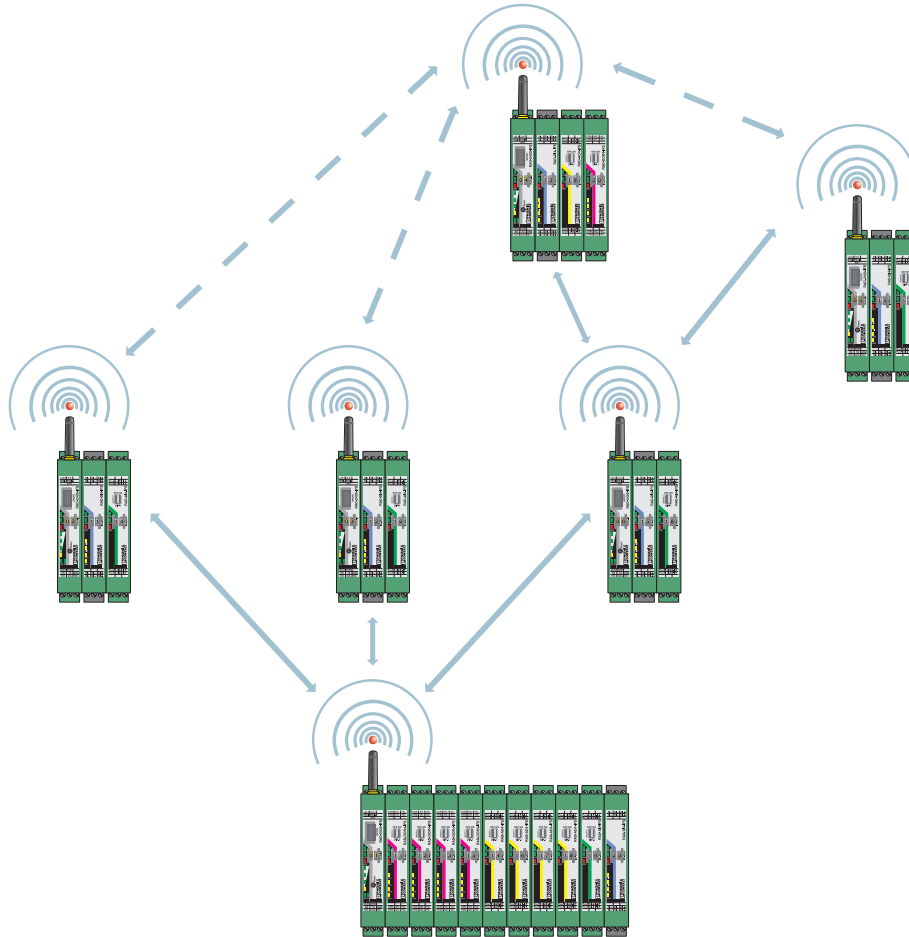
Dimensional drawing



DIP switches

Wireless module - RAD-2400-IFS - 2901541

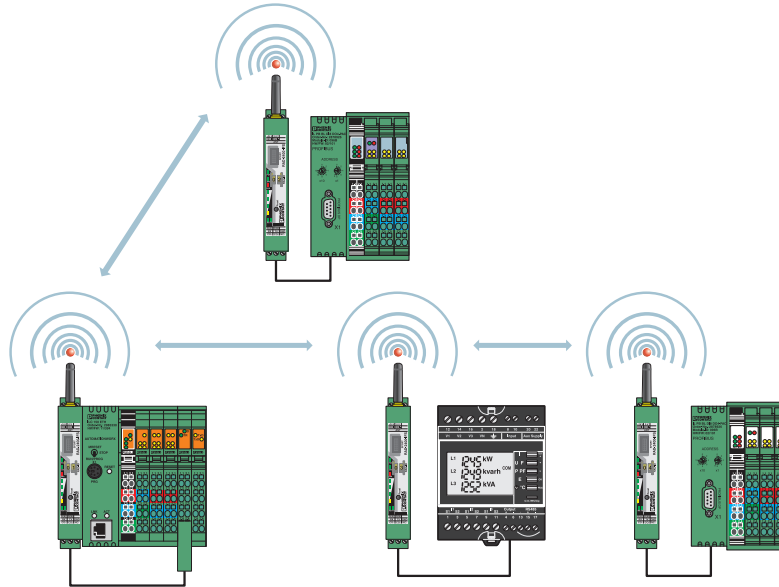
Application drawing



Wireless module in I/O data mode

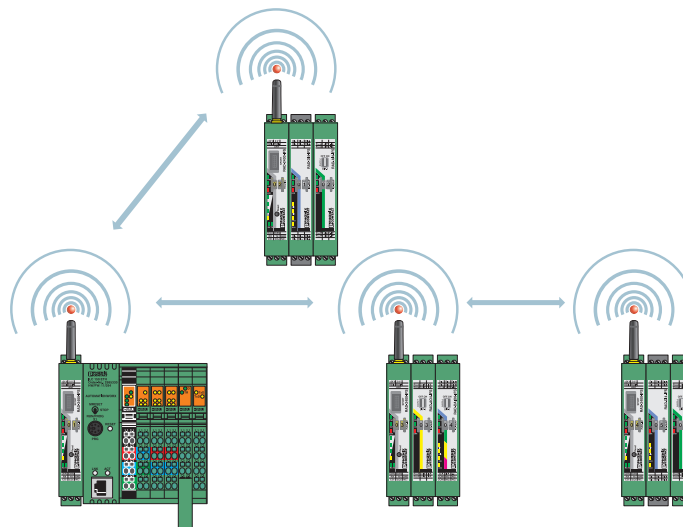
Wireless module - RAD-2400-IFS - 2901541

Application drawing



Serial data mode

Application drawing



Wireless module in PLC/Modbus RTU mode

