

Wireless module - RAD-900-IFS - 2901540

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Bidirectional, Radioline 900 MHz transceiver for wireless transmission of serial and I/O data

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.

Why buy this product

- 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)
- Mesh networks of up to 250 devices



Key Commercial Data

Packing unit	1 pc
Weight per Piece (excluding packing)	327.4 GRM
Country of origin	United States
Note	Made to Order (non-returnable)

Technical data

Note

Trade restriction	The products are offered exclusively for export outside the EU and the European Economic Area.
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Dimensions

Width	35 mm
Height	99 mm
Depth	114.5 mm

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Technical data

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-40 °C ... 70 °C
	-40 °F ... 158 °F
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

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
Export note	The products are offered exclusively for export outside the European Economic Area (EEA).

Supply

Supply voltage range	10.8 V DC ... 30.5 V DC
Max. current consumption	328 mA (@24 V DC)
Nominal power consumption	1.7 W (30 dBm)
Power consumption	8.4 W (peak; 30 dBm)
Transient surge protection	Yes

Wireless interface

Antenna connection	RSMA (female)
Direction	Bi-directional
Frequency	900 MHz
Frequency range	902 MHz ... 928 MHz
Data rate	16 kbps (adjustable)
	125 kbps (adjustable)
	250 kbps (adjustable)
	500 kbps (adjustable)
Receiver sensitivity	-112 dBm (16 kbps)
	-105 dBm (125 kbps)
	-102 dBm (250 kbps)
	-95 dBm (500 kbps)
Transmission power	max. 1 W (adjustable)

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Wireless interface

Range	± 32 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
	D-SUB 9 (socket)
	3-conductor
Transmission speed	0.3 ... 115.2 kbps
Interface 2	RS-485
Connection method	COMBICON plug-in screw terminal block
	2-wire
Termination resistor	390 Ω (switchable via DIP switches)
	150 Ω (switchable via DIP switches)
	390 Ω (switchable via DIP switches)
Transmission speed	0.3 ... 115.2 kbps

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
Max. switching current	500 mA
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
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

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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	FCC Directive, Part 15.247
UL, USA / Canada	Class I, Div. 2, Groups A, B, C, D
Standards/regulations	EN 300328
	EN 61000-6-2
	EN 61000-6-4
	EN 50371
	EN 60950-1

Standards and Regulations

Electromagnetic compatibility	Conformance with EMC Directive 2004/108/EC
Standards/regulations	EN 300328
	EN 61000-6-2
	EN 61000-6-4
	EN 50371
	EN 60950-1
Shock	16g, 11 ms
Flammability rating according to UL 94	V0
Interface description	Trusted Wireless
Security	128-bit data encryption
Vibration (operation)	in accordance with IEC 60068-2-6: 5g, 10 Hz ... 150 Hz
Conformance	FCC Directive, Part 15.247
	ISC Directive RSS 210
UL, USA	Class I, Zone 2, AEx nA nC IIC T4
UL, USA / Canada	Class I, Div. 2, Groups A, B, C, D
UL, Canada	Class I, Zone 2, Ex nA nC nL IIC T4 Gc X
CSA	CSA C22.2

Classifications

eCl@ss

eCl@ss 4.0	27230207
eCl@ss 4.1	27230207
eCl@ss 5.0	27230207
eCl@ss 5.1	27242208

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Classifications

eCl@ss

eCl@ss 6.0	27242208
eCl@ss 7.0	27242208
eCl@ss 8.0	19179290
eCl@ss 9.0	19179290

ETIM

ETIM 3.0	EC001423
ETIM 4.0	EC000310
ETIM 5.0	EC000310

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 / cULus Listed

Ex Approvals

UL Listed / cUL Listed / cULus Listed

Approvals submitted

Approval details

UL Listed

cUL Listed

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Approvals

cULus Listed

Accessories

Accessories

Antenna

Antenna - RAD-ISM-900-ANT-OMNI-FG-3-N - 2867791

Omnidirectional antenna, IP65 protection, gain 5 dBi, connection N (female)



Antenna - RAD-ISM-900-ANT-OMNI-5 - 2867199

Omnidirectional antenna, IP65 protection, gain 7 dBi, connection N (female)



Antenna - RAD-ISM-900-ANT-YAGI-3-N - 2867801

Panel antenna, IP65 protection, gain 5 dBi, cable length 0.6 m, connection N (female)



Antenna - RAD-ISM-900-ANT-OMNI-FG-6-N - 2885579

Omnidirectional antenna, IP65 protection, gain 8 dBi, connection N (female)



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Accessories

Antenna - RAD-ISM-900-ANT-YAGI-6.5-N - 2867814



Panel antenna, IP65 protection, gain 8.5 dBi, cable length 0.6 m, connection N (female)

Antenna - RAD-ISM-900-ANT-YAGI-10-N - 5606614



Yagi directional antenna, 12.15 dBi gain, 0.6 m (2 ft.) RG-213 cable with type N (female) connector

Antenna - RAD-900-ANT-OMNI-2-2-RSMA - 2904801



Omnidirectional antenna, IP65 protection, cable length 1.8 m, connection RSMA (male)

Antenna - RAD-900-ANT-OMNI-2-N - 2904802



Omnidirectional antenna, 868/900 MHz, 2 dBi, linear vertical polarization, N (female), IP66

Coaxial adapter

Adapter - RAD-ADP-N/F-N/F - 2867843



Adapter, N (female) -> N (female); insertion attenuation < 0.3 dB at 2.4 GHz

Coaxial cable

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Accessories

Antenna cable - RAD-PIG-RSMA/N-0.5 - 2903263



Antenna cable, 0.5 m in length; N (male) -> RSMA (male), impedance 50 ohms

Antenna cable - RAD-PIG-RSMA/N-1 - 2903264



Antenna cable, 1 m in length; N (male) -> RSMA (male), impedance 50 ohms

Antenna cable - RAD-PIG-RSMA/N-2 - 2903265



Antenna cable, 2 m in length; N (male) -> RSMA (male), impedance 50 ohms

Antenna cable - RAD-PIG-RSMA/N-3 - 2903266



Antenna cable, 3 m in length; N (male) -> RSMA (male), impedance 50 ohms

Antenna cable - RAD-CAB-PFP240-10 - 5606124



Antenna cable, 10 ft. in length, type N (male) to type N (male), 50 Ω impedance

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Accessories

Antenna cable - RAD-CAB-PFP400-20 - 5606125



Antenna cable, 20 ft. in length, type N (male) to type N (male), 50 Ω impedance

Antenna cable - RAD-CAB-PFP500-25 - 5606126



Antenna cable, 25 ft. in length, type N (male) to type N (male), 50 Ω impedance

Antenna cable - RAD-CAB-RG213-40 - 2867377



Antenna extension cable, length: 40 ft

Antenna cable - RAD-CAB-RG213-50 - 2867225



Antenna extension cable, length: 50 ft

Antenna cable - RAD-CAB-PFP400-60 - 2867380



Antenna extension cable, length: 60 ft

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Antenna cable - RAD-CAB-PFP400-80 - 2867393



Antenna extension cable, length: 80 ft

Antenna cable - RAD-CAB-PFP400-100 - 2867238



Antenna extension cable, length: 100 ft

Antenna cable - RAD-CAB-PFP600-150 - 2885184



Antenna extension cable, length: 150 ft

Antenna cable - RAD-CAB-PFP900-200 - 2885197



Antenna extension cable, length: 200 ft

Configuration memory

Configuration memory - RAD-MEMORY - 2902828



Memory stick for saving individual configuration data for the Radioline wireless module

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Accessories

Configuration memory - RAD-900-CONF-RF1 - 2702122



Randomly-generated, pre-configured CONFSTICK for easy and secure network addressing of a RAD-900-IFS wireless module.

Control box

Control cabinet - RAD-SYS-NEMA4X-900 - 2917188



NEMA 4X enclosure for wireless systems

DIN rail connector

Electronic housing - ME 17,5 TBUS 1,5/ 5-ST-3,81 GN - 2709561



DIN rail connector for DIN rail mounting. Universal for TBUS housing. Gold-plated contacts, 5-pos.

Extension module

I/O extension module - RAD-DAIO6-IFS - 2901533



Analog/digital I/O extension module with 2 digital inputs/outputs (0...250 V AC/DC) and 1 analog input (0/4...20 mA) and output (0/4 ... 20 mA, 0...10 V), with screw connection, incl. DIN rail connector

I/O extension module - RAD-DI4-IFS - 2901535



Digital I/O extension module with 4 digital inputs (0...250 V AC/DC), with screw connection, incl. DIN rail connector

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Accessories

I/O extension module - RAD-DOR4-IFS - 2901536



Digital I/O extension module with 4 digital relay outputs (5 A, 250 V AC/ 24 V DC), with screw connection, incl. DIN rail connector

I/O extension module - RAD-DI8-IFS - 2901539



Digital I/O extension module with 8 digital inputs (0 ... 30.5 V DC) or 2 pulse inputs (0 ... 100 Hz), with screw connection, including DIN rail connector

I/O extension module - RAD-DO8-IFS - 2902811



Digital I/O extension module with 8 digital transistor outputs (30.5 V DC/200 mA), with screw connection, including DIN rail connector

I/O extension module - RAD-AI4-IFS - 2901537



Analog extension module with 4 analog current inputs (0/4 mA ... 20 mA), with screw connection, incl. DIN rail connector

I/O extension module - RAD-AO4-IFS - 2901538



Analog I/O extension module with 4 analog current/voltage outputs (0/4 mA ... 20 mA, 0...10 V), with screw connection, incl. DIN rail connector

Mounting material

Wireless module - RAD-900-IFS - 2901540

Accessories

Weather protection tape - RAD-TAPE-SV-19-3 - 2903182



Vulcanizing sealing tape for external protection of adapters, cable connections, etc. against the effects of weather, roll length: 3 m

Power supply

Power supply unit - MINI-SYS-PS-100-240AC/24DC/1.5 - 2866983



Primary-switched MINI POWER supply for DIN rail mounting, input: 1-phase, output: 24 V DC/1.5 A

Programming cable

Cable for programming - RAD-CABLE-USB - 2903447



USB data cable for communication between the PC and RAD-... Radioline devices. Energy supply for diagnostics and configuration via the USB port of the PC, cable length: 2 m

Surge protection for transceiver systems

Surge protection device - CN-UB-70DC-6-BB - 2803166



Attachment plug with surge protection for coaxial signal interfaces. Connection: N connector, female/female

Surge protection device - CN-LAMBDA/4-2.2-BB - 2800024



Attachment plug with Lambda/4 technology as surge protection for coaxial signal interfaces. Connection: N connectors socket-socket

Additional products

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Accessories

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Digital I/O extension module with 8 digital inputs (0 ... 30.5 V DC) or 2 pulse inputs (0 ... 100 Hz), with screw connection, including DIN rail connector

I/O extension module - RAD-DO8-IFS - 2902811



Digital I/O extension module with 8 digital transistor outputs (30.5 V DC/200 mA), with screw connection, including DIN rail connector

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I/O extension module - RAD-AI4-IFS - 2901537



Analog extension module with 4 analog current inputs (0/4 mA ... 20 mA), with screw connection, incl. DIN rail connector

I/O extension module - RAD-AO4-IFS - 2901538



Analog I/O extension module with 4 analog current/voltage outputs (0/4 mA ... 20 mA, 0...10 V), with screw connection, incl. DIN rail connector

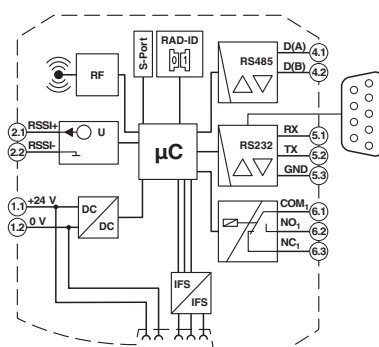
I/O extension module - RAD-PT100-4-IFS - 2904035



Temperature I/O extension module with 4 PT 100 inputs (-50...+250 °C), with screw connection, including DIN rail connector

Drawings

Block diagram



Dimensional drawing

