

# RAD-2400-IFS


Order No.: 2901541



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



## Commercial data

EAN	4  046356 610193
Pack	1
Customs tariff	85176200
Gross weight in pieces	197.50 g
Country of Origin	DE

## Product notes

WEEE/RoHS-compliant since: 25/07/2011



Please note that the data given here has been taken from the online catalog. For comprehensive information and data, please refer to the user documentation at <http://www.download.phoenixcontact.com>. The General Terms and Conditions of Use apply to Internet downloads.

## 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 as well as serial data and is therefore very versatile. 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.

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## Technical data

### General data

Width	17.5 mm
Height	99 mm
Depth	114.5 mm
Surge voltage category	II
Assembly instructions	on standard DIN rail NS 35 in accordance with EN 60715
Degree of protection	IP20
Pollution degree	2
Housing material	PA 6.6-FR
Inflammability class according to UL 94	V0

### Supply

Supply voltage range	19.2 V DC ... 30.5 V DC
Max. current consumption	max. 65 mA (At 24 V DC, at 25°C)
Transient surge protection	Yes

### Wireless interface

Antenna connection method	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 (adjustable) 250 kbps (adjustable)
Receiver sensitivity	-106.00 dBm (16 kBit/s) -96.00 dBm (125 kBit/s) -93.00 dBm (250 kBit/s)
Transmission power	max. 100 mW (adjustable)
Security	128-bit data encryption

### RS-232 interface, 3-wire

Connection method	COMBICON plug-in screw terminal block
Data rate	0,3 ... 115,2 kBit/s

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**RS-485 interface, 2-wire**

Connection method	COMBICON plug-in screw terminal block
Data rate	0,3...115,2 kBit/s
Termination resistor	390 Ω (switchable via DIP switches)
	150 Ω (switchable via DIP switches)
	390 Ω (switchable via DIP switches)

**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
	60 V DC
Max. switching current	500 mA
Electrical service life	5 x 10 <sup>5</sup> cycles with 0.5 A @ 30 V DC

**Connection data**

Connection method	Screw connection
Conductor cross section solid min.	0.2 mm <sup>2</sup>
Conductor cross section solid max.	2.5 mm <sup>2</sup>
Conductor cross section stranded min.	0.2 mm <sup>2</sup>
Conductor cross section stranded max.	2.5 mm <sup>2</sup>
Conductor cross section AWG/kcmil min.	24
Conductor cross section AWG/kcmil max	14
Stripping length	7 mm
Tightening torque	0.6 Nm
Screw thread	M3

**Status indicator**

Status display	Green LED (supply voltage, PWR)
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	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 (RS-232/485 receive data, RX)
	Green LED (RS-232/485 transmit data, TX)

#### Ambient conditions

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: 5 g, 10 Hz - 150 Hz
Shock	16 g, 11 ms

#### Approvals and conformance

Conformance	CE compliance (R&TTE directive 1999/5/EC)
ATEX	Ex II 3 G Ex nA nC IIC T4 Gc X
IECEX	Applied for
UL, USA / Canada	UL applied for
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

#### Certificates

Certification

Certifications applied for:

Certification Ex:

<b>Accessories</b>		
Item	Designation	Description
<b>Antennas</b>		
2701186	ANT-DIR-2459-01	Panel antenna, 2.4 / 5 GHz, 9 dBi, linear vertical, N (female), IP67
2903219	RAD-2400-ANT-OMNI-6-0-SW	Omnidirectional antenna, 2.4 GHz, 6 dBi, linear vertical, opening angle h/v 360°/20°, N (female), IP65, salt water resistant
2884936	RAD-ISM-2400-ANT-CIR-8-0	Panel antenna with a special type of polarization (circular) for applications in a highly reflective environment (highly metallic industrial hall). The antenna prevents polarization loss and can attain higher profits in this environment.
2701362	RAD-ISM-2400-ANT-OMNI-2-1-RSMA	Omnidirectional antenna, 2.4 GHz, 2 dBi, linear vertical, 1.5 m cable, RSMA (male), IP65, 50 Ω impedance
2885919	RAD-ISM-2400-ANT-OMNI-6-0	Omnidirectional antenna, 2.4 GHz, 6 dBi, linear vertical, N (female), IP55, 50 Ohm impedance
2867610	RAD-ISM-2400-ANT-PAN- 8-0	Panel antenna, degree of protection IP55, 8 dBi gain, linear vertical, SMA (female), impedance 50 ohms, apex angle h/v 75°/70°
2867885	RAD-ISM-2400-ANT-PAR-19-0	Parabolic antenna, IP65 degree of protection, 19 dBi gain, linear vertical, N (female) connection, impedance 50 Ω, apex angle h/v 17°/11°
2885867	RAD-ISM-2400-ANT-VAN- 3-0-SMA	Omnidirectional antenna with protection against vandalism, 2.4 GHz, 3 dBi gain, IP55 protection, 1.5 m cable length, SMA (male) connection, opening angle h/v 360°/85°.Appropriate mounting material is available for wall mounting.
2701358	RAD-ISM-2400-ANT-VAN-3-0-RSMA	Omnidirectional antenna with protection against vandalism, 2.4 GHz, 3 dBi gain, IP55 degree of protection, 1.5 m cable length, RSMA connection (male), h/v 360°/85° apex angle.Appropriate mounting material is available for wall mounting.
<b>Cable/conductor</b>		
2884512	RAD-CAB-EF142-3M	Antenna cable, 3 m in length; SMA (male) -> SMA (male), attenuation approx. 0.93 dB at 2.4 GHz; impedance 50 ohms
2884525	RAD-CAB-EF142-5M	Antenna cable, 5 m in length; SMA (male) -> SMA (male), attenuation approx. 0.93 dB at 2.4 GHz; impedance 50 ohms
2867649	RAD-CAB-EF393- 3M	Antenna cable, 3 m in length; N (male) -> N (male), attenuation approx. 0.45 dB/m at 2.4 GHz; impedance 50 ohms
2867652	RAD-CAB-EF393- 5M	Antenna cable, 5 m in length; N (male) -> N (male), attenuation approx. 0.45 dB/m at 2.4 GHz; impedance 50 ohms
2867665	RAD-CAB-EF393-10M	Antenna cable, 10 m in length; N (male) -> N (male), attenuation approx. 0.45 dB/m at 2.4 GHz; impedance 50 ohms
2885634	RAD-CAB-EF393-15M	Antenna extension cable, 15 m long; N (male) -> N (male), attenuation approx. 0.45 dB/m@2.4 GHz; impedance 50 Ω

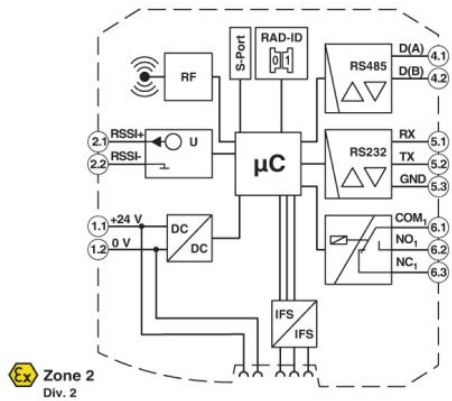
2903263	RAD-PIG-RSMA/N-0.5	Antenna cable, 0.5 m in length; N (male) -> RSMA (male), impedance 50 ohms
2903264	RAD-PIG-RSMA/N-1	Antenna cable, 1 m in length; N (male) -> RSMA (male), impedance 50 ohms
2903266	RAD-PIG-RSMA/N-3	Antenna cable, 3 m in length; N (male) -> RSMA (male), impedance 50 ohms
<b>General</b>		
2818863	CN-LAMBDA/4-2.0-BB	Attachment plug with Lambda/4 technology as surge protection for coaxial signal interfaces. Connection: N connectors female connector/female connector
2709561	ME 17,5 TBUS 1,5/ 5-ST-3,81 GN	DIN rail connector for DIN rail power supply unit, gold-plated contacts, for DIN rail mounting, 5-pos.
2866983	MINI-SYS-PS-100-240AC/24DC/1.5	DIN rail power supply unit, primary-switched mode, slim design, output: 24 V DC / 1.5 A
2901537	RAD-AI4-IFS	Analog expansion module with 4 analog current inputs (0/4 mA ... 20 mA), with screw connection, incl. DIN rail connector
2901538	RAD-AO4-IFS	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
2903447	RAD-CABLE-USB	USB cable for diagnostics and configuration of the RAD-2400-IFS wireless modules
2902814	RAD-CONF-RF3	CONFSTICK for easy and safe network addressing for the Radioline wireless module, unique network ID, RF band 3
2902815	RAD-CONF-RF5	CONFSTICK for easy and safe network addressing for the Radioline wireless module, unique network ID, RF band 5
2902816	RAD-CONF-RF7	CONFSTICK for easy and safe network addressing for the Radioline wireless module, unique network ID, RF band 7
2901533	RAD-DAIO6-IFS	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
2901535	RAD-DI4-IFS	Digital I/O extension module with 4 digital inputs (0...250 V AC/DC), with screw connection, incl. DIN rail connector
2901536	RAD-DOR4-IFS	Digital I/O extension module with 4 digital relay outputs (6 A, 250 V AC/ 24 V DC), with screw connection, incl. DIN rail connector
2902828	RAD-MEMORY	Memory stick for saving individual configuration data for the Radioline wireless module
2885472	RAD-SOL-SET-24-100	24 V / 100 Wp solar system for worldwide use. Consisting of a solar panel, prewired control cabinet with charge controller, solar batteries, fuses, surge protection and assembly material (including mast clips).
2917722	RAD-SOL-SET-24-200	24 V / 200 Wp solar system for worldwide use. Consisting of a solar panel, prewired control cabinet with charge controller, solar battery, fuses, surge protection and assembly material (including mast clips).

### Plug/Adapter

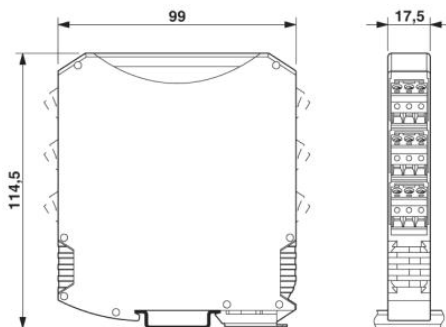
2867843	RAD-ADP-N/F-N/F	Adapter, N (female) -> N (female); insertion attenuation < 0.3 dB at 2.4 GHz
2884538	RAD-ADP-RSMA/F-SMA/F	Adapter, RSMA (male) -> SMA (female); insertion loss <0.3 dB at 2.4 GHz
2867694	RAD-PIG-EF316-N-SMA	Adapter cable, pigtail 30 cm N (female) -> SMA (male), insertion attenuation 1.5 dB at 2.4 GHz; impedance 50 ohms;
2885618	RAD-PIG-EF316-SMA-SMA	Adapter cable, pigtail 50 cm SMA (male) -> SMA (male), insertion attenuation 1.5 dB at 2.4 GHz; impedance 50 ohms;

### Drawings

#### Block diagram



#### Dimensioned drawing



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**Address**

PHOENIX CONTACT Ltd  
Halesfield 13  
Telford / Shropshire / TF7 4PG,England  
Phone 01952 681 700  
Fax 01952 681 799  
<http://www.phoenixcontact.co.uk>



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