Wireless module - RAD-868-IFS - 2904909

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868 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.

Why buy this product

- License-free 868 MHz frequency band
- Particularly suitable for non-time-critical signal transmission over large distances with obstacles
- Range of several kilometers thanks to adjustable data rates for the wireless interface (16 ... 500 kbps)
- 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 99 devices
- Integrated RS-232/RS-485 interface
- Modular extension with up to 32 I/O extension modules supported
- Extended temperature range, -40 °C ... +70 °C
- Suitable for ATEX zone 2

Key Commercial Data

Packing unit	1 STK
GTIN	4 046356 899345
GTIN	4046356899345
Weight per Piece (excluding packing)	190.500 g
Custom tariff number	85176200
Country of origin	Germany

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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
	-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

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	729 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))
	331 Years (Telcordia standard, 40°C temperature, 34.25% operating cycle (5 days a week, 12 hours a day))
	131 Years (Telcordia standard, temperature 40 °C, operating cycle 100 % (7 days a week, 24 hours a day))
Wireless licences	Belgium
	Bulgaria
	Denmark
	Germany
	Estonia
	France
	Finland

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General

	Greece
	Great Britain
	Italy
	Ireland
	Iceland
	Croatia
	Liechtenstein
	Luxembourg
	Latvia
	Lithuania
	Malta
	Netherlands
	Norway (The device may not be operated within 20 km of Ny Ålesund town center.)
	Austria
	Poland
	Portugal
	Romania
	Sweden
	Switzerland
	Slovakia
	Slovenia
	Spain
	South Africa
	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
	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 (at 24 V DC, at 25 °C, stand-alone)
Transient surge protection	Yes

Wireless interface

Antenna connection	RSMA (female)
Direction	Bi-directional

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Wireless interface

Frequency	868 MHz
Frequency range	869.4 MHz ... 869.65 MHz
Number of channel groups	14
Channel distance	30 kHz (Depending on the network structure and the data transmission rate)
Data rate	1.2 kbps (adjustable)
	9.6 kbps (Default setting, adjustable)
	19.2 kbps (adjustable)
	60 kbps (adjustable)
	120 kbps (adjustable)
Receiver sensitivity	-122 dBm (1.2 kbps)
	-114 dBm (9.6 kbps)
	-111 dBm (19.2 kbps)
	-104 dBm (60 kbps)
	-103 dBm (120 kbps)
Transmit capacity, minimum	16 dBm
Transmit capacity, maximum	≤ 27 dBm (Default setting, adjustable)
Range	± 20 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
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 ... 115,2 kbit/s
Interface 3	Configuration interface
Connection method	S-PORT (socket)

System limits

Designation	Wireless module
Number of supported devices	≤ 99 (per wireless network)
Number of possible extension modules	≤ 32 (per wireless module)

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System limits

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
	60 V 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 mm²
Conductor cross section solid max.	2.5 mm²
Conductor cross section flexible min.	0.2 mm²
Conductor cross section flexible max.	2.5 mm²
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 compliance (R&TTE directive 1999/5/EC)
IECEx	Ex nA nC IIC T4 Gc
Standard designation	Ex Directive (ATEX)

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Approvals and conformance

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

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
Shock	16g, 11 ms
Flammability rating according to UL 94	V0
Interface description	Trusted Wireless
Channel distance	30 kHz (Depending on the network structure and the data transmission rate)
Security	128-bit data encryption
Vibration (operation)	in accordance with IEC 60068-2-6: 5g, 10 Hz ... 150 Hz
Conformance	CE compliance (R&TTE directive 1999/5/EC)
ATEX	# II 3 G Ex nA nC IIC T4 Gc
IECEx	Ex nA nC IIC T4 Gc

Environmental Product Compliance

China RoHS	Environmentally Friendly Use Period = 50
	For details about hazardous substances go to tab “Downloads”, Category “Manufacturer's declaration”

Drawings

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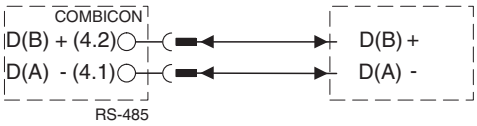
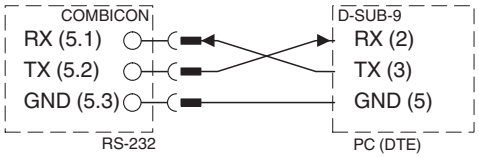
Connection diagram



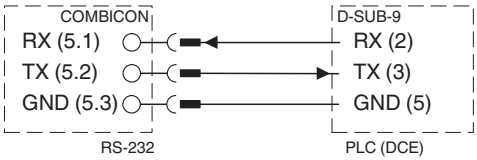
RS-485 connection

Connection diagram



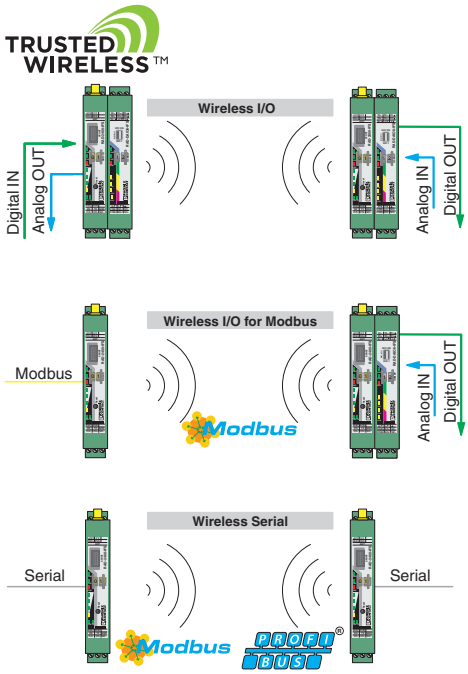
RS-232 connection

Connection diagram



RS-232 connection

Application drawing



Trusted Wireless

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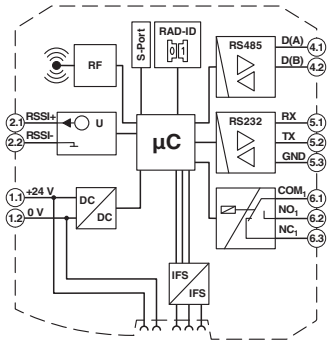
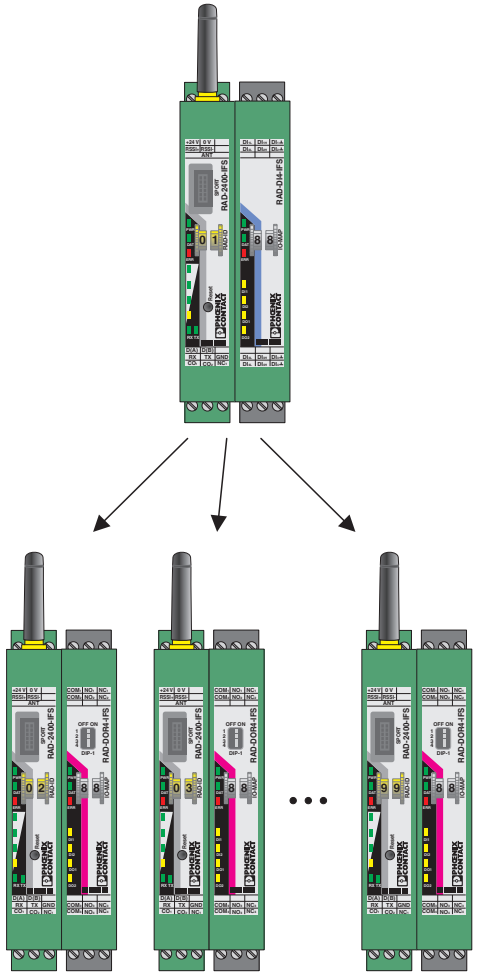
Block diagram



Functional drawing



Assignment of digital inputs and digital outputs

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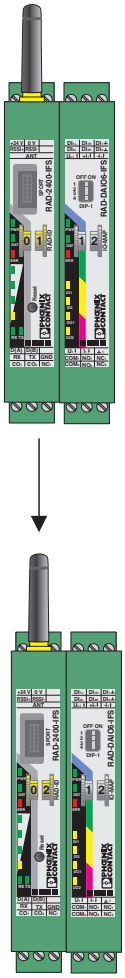
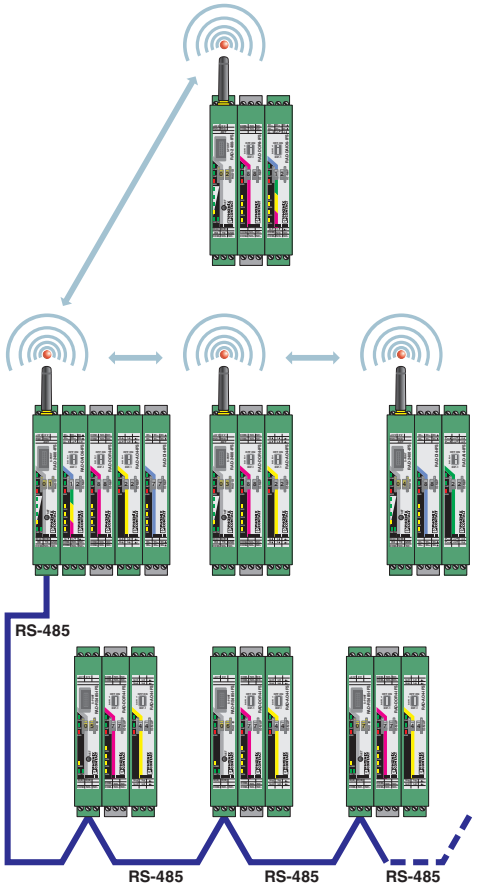
Functional drawing



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

Functional drawing



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

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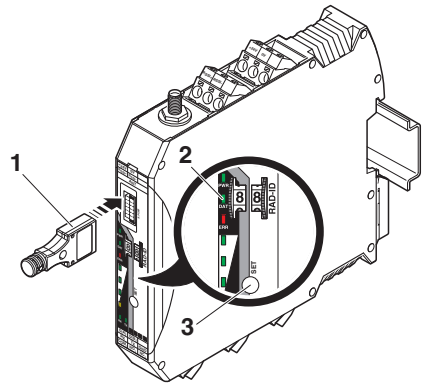
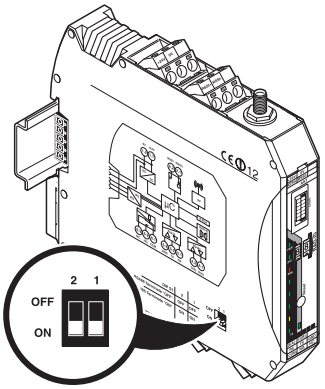
Schematic diagram



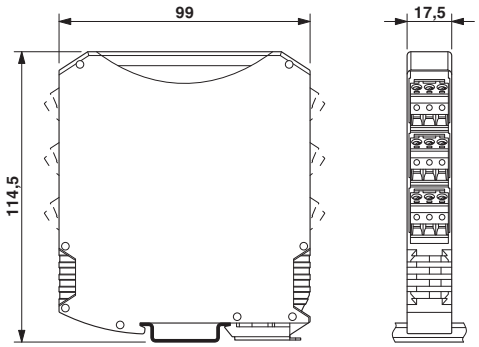
Schematic diagram



Configuration via CONFSTICK

DIP switches

Dimensional drawing



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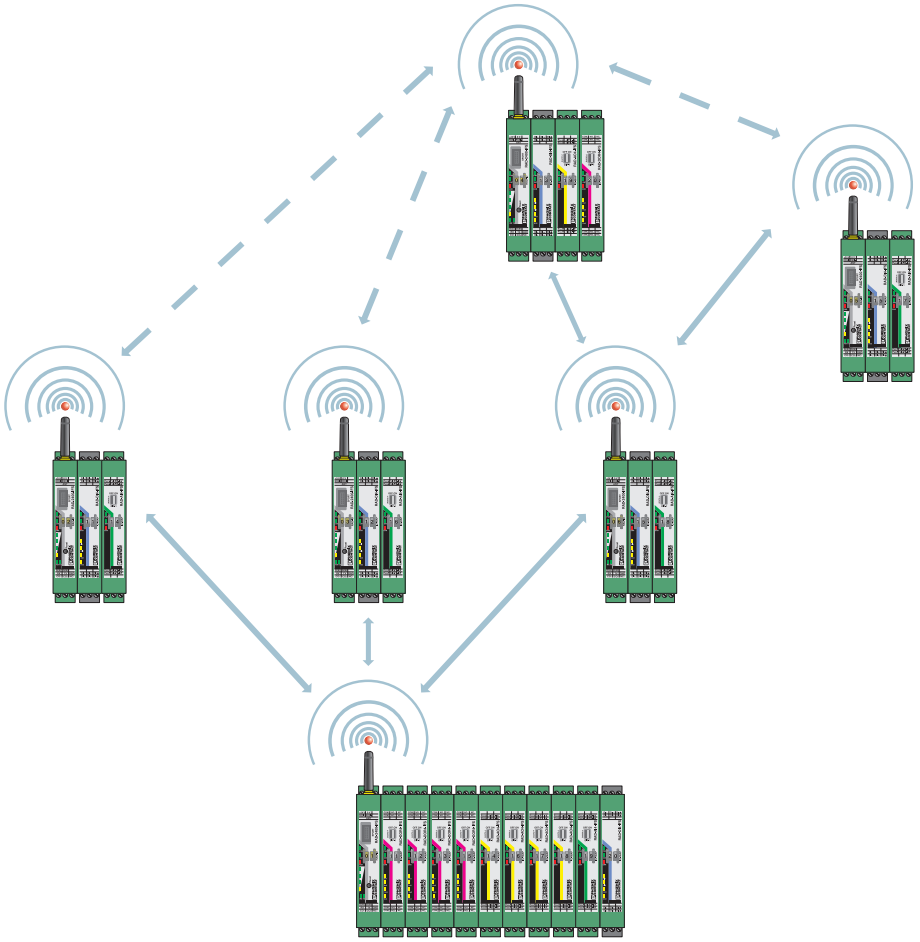
Application drawing



Wireless module in I/O data mode

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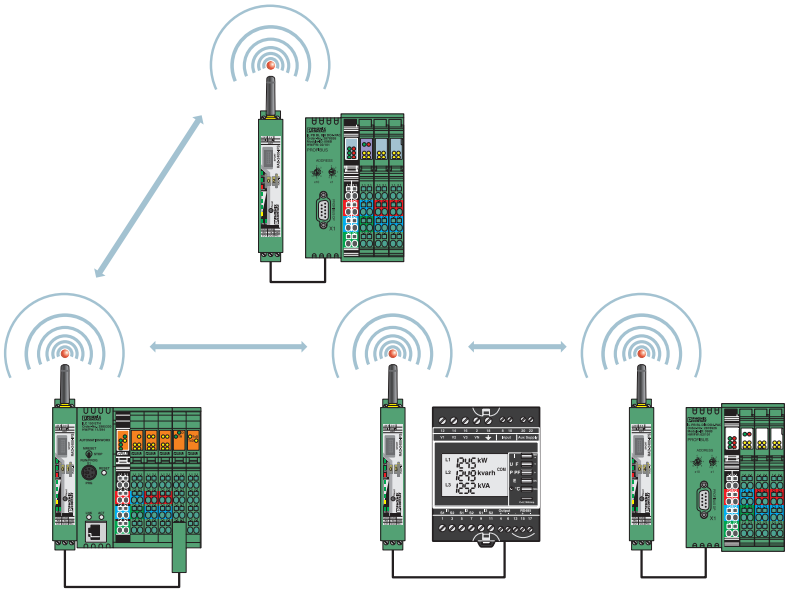
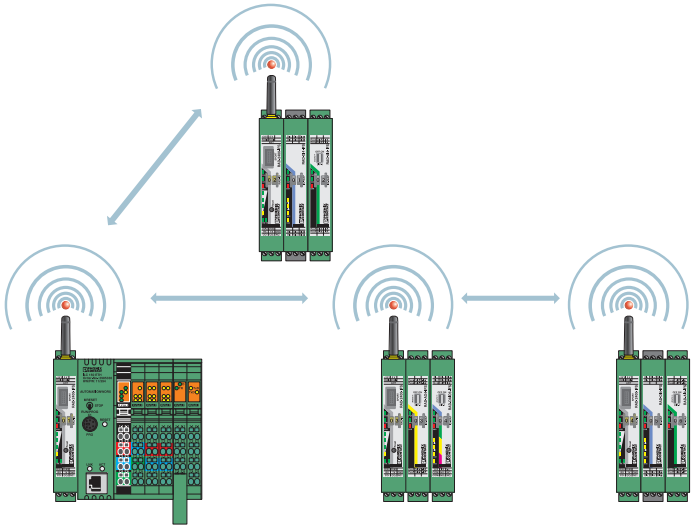
Application drawing



Serial data mode

Application drawing



Wireless module in PLC/Modbus RTU mode

Classifications

eCl@ss

eCl@ss 5.1	27242208
eCl@ss 6.0	27242208

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Classifications

eCl@ss

eCl@ss 8.0	19170201
eCl@ss 9.0	19170201

ETIM

ETIM 4.0	EC000816
ETIM 5.0	EC000816