

Wireless module - RAD-868-IFS - 2904909

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Radioline - 868 MHz wireless transceiver with RS-232/RS-485 interface, can be extended with I/O modules, RSMA (female) antenna connection, point-to-point, star, and mesh networks up to 99 stations, range of up to 20 km (with a clear line of sight), for use in Europe

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.

Your advantages

- ✓ 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
- ✓ 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
- ✓ Approved for use in zone 2



Key Commercial Data

Packing unit	1 pc
GTIN	 4 046356 899345
GTIN	4046356899345

Technical data

Note

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

Dimensions

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)
	(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
	Greece
	Great Britain
	Italy
	Ireland
	Iceland
	Croatia

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General

	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
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)

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Wireless interface

	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
Connection technology	3-wire
Transmission length	≤ 15 m
Transmission speed	0.3 ... 115.2 kbps
Interface 2	RS-485
Connection method	COMBICON plug-in screw terminal block
Connection technology	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 kbps
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)
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

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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	5x 10 ⁵ switching cycles with 0.5 A at 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

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

Standards and Regulations

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Standard designation	Ex Directive (ATEX)
Standards/regulations	EN 60079-0
Standard designation	Ex Directive (ATEX)
Standards/regulations	EN-60079-15
Standard designation	RED directive 2014/53/EU
Standards/regulations	EN 300328
	EN 61000-6-4
	EN 61000-6-2
	EN 50371

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Standards and Regulations

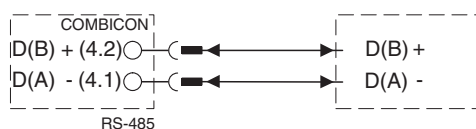
	EN 60950-1
	EN 61000-4-2
Contact discharge	± 6 kV (Test Level 3)
Indirect discharge	± 6 kV
Standards/regulations	EN 61000-4-3
Frequency range	26 MHz ... 3 GHz (Test Level 3)
Standards/regulations	EN 61000-4-4
Comments	Criterion B
Standards/regulations	EN 61000-4-5
Signal	± 1 kV (asymmetrical)
Standards/regulations	EN 61000-4-6
Frequency range	0.15 MHz ... 80 MHz
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
Shock	16g, 11 ms
Vibration (operation)	in accordance with IEC 60068-2-6: 5g, 10 Hz ... 150 Hz
Conformance	CE-compliant (RED Directive 2014/53/EU)
ATEX	# II 3 G Ex nA nC IIC T4 Gc
IECEX	Ex nA nC IIC T4 Gc
Noxious gas test	ISA-S71.04-1985 G3 Harsh Group A

Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

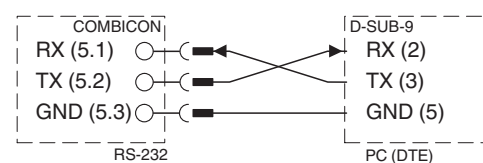
Drawings

Connection diagram



RS-485 connection

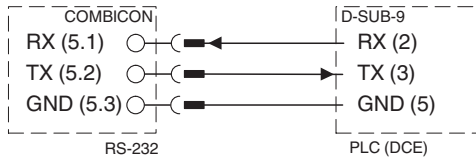
Connection diagram



RS-232 connection

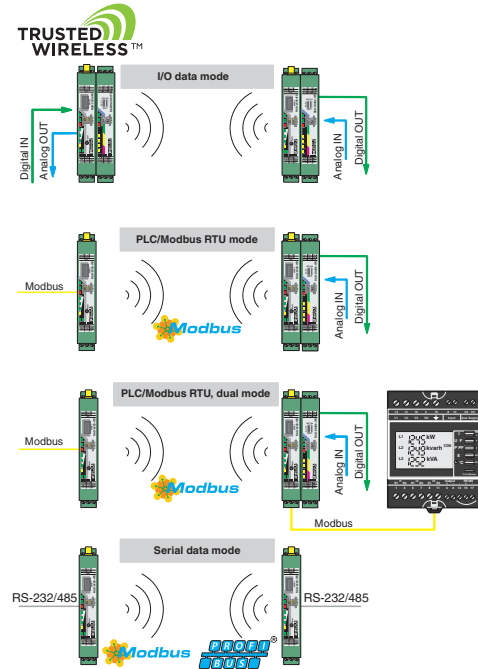
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Connection diagram



RS-232 connection

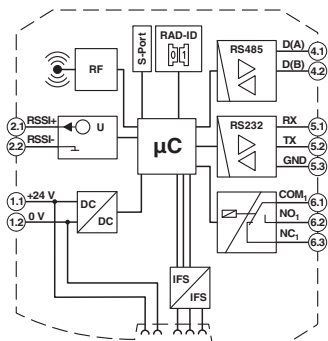
Application drawing



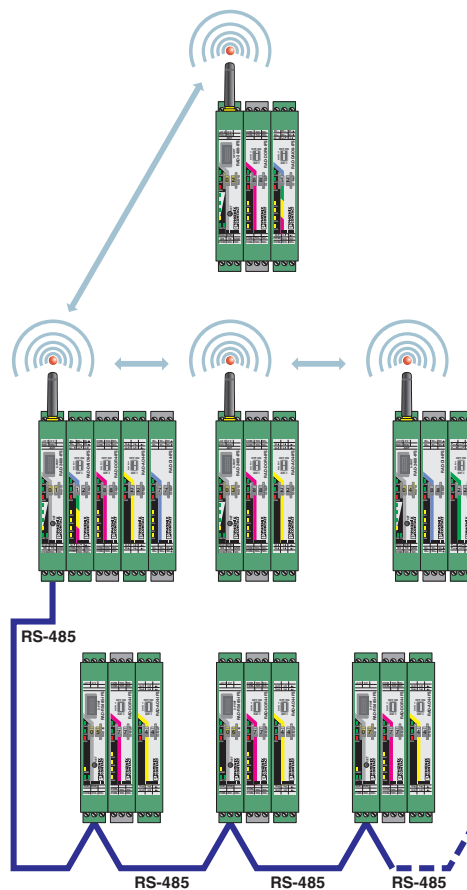
Trusted Wireless

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Block diagram

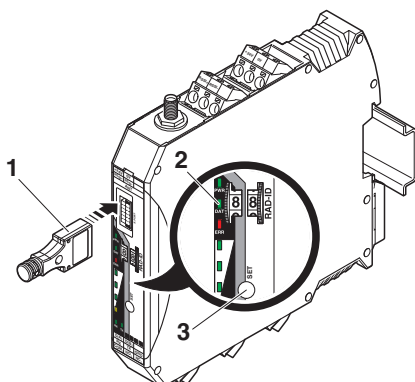


Functional drawing



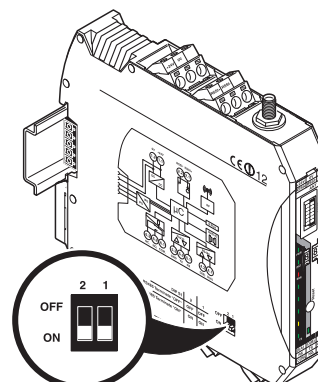
I/O-to-I/O, wireless, and RS-485

Schematic diagram



Configuration via CONFSTICK

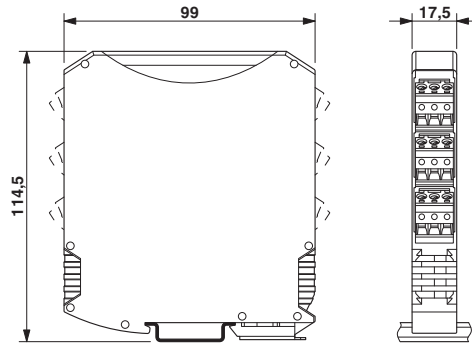
Schematic diagram



DIP switches

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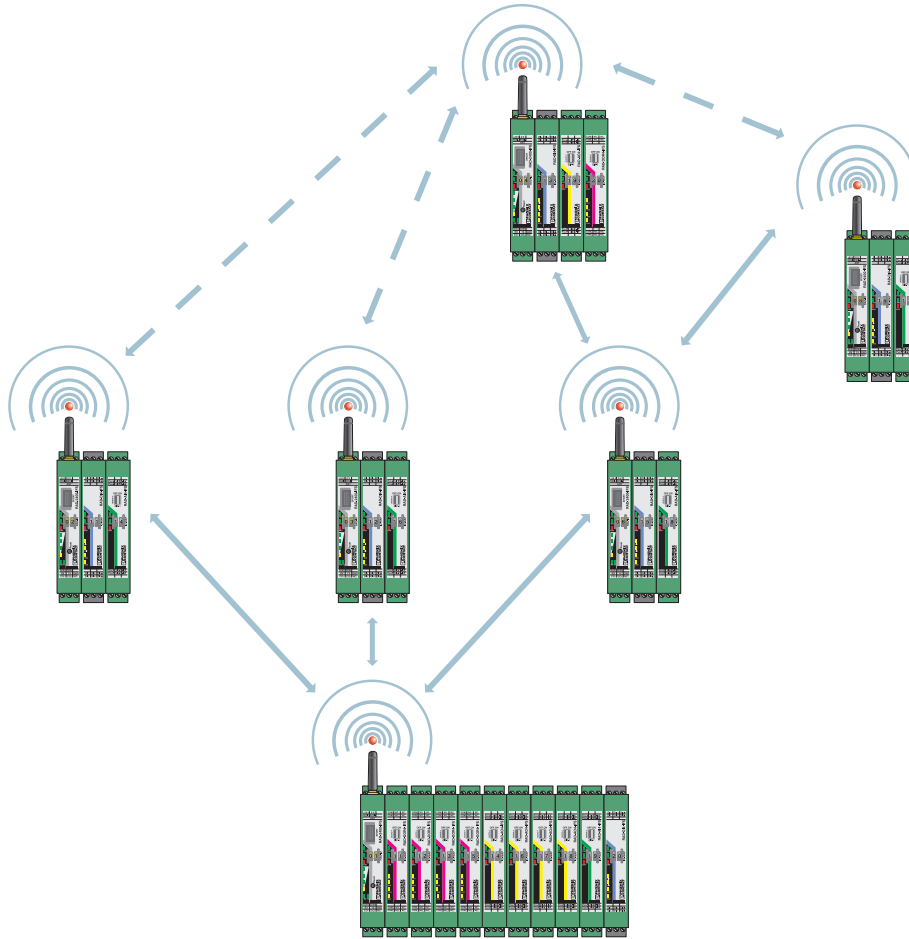
Dimensional drawing



Slim design

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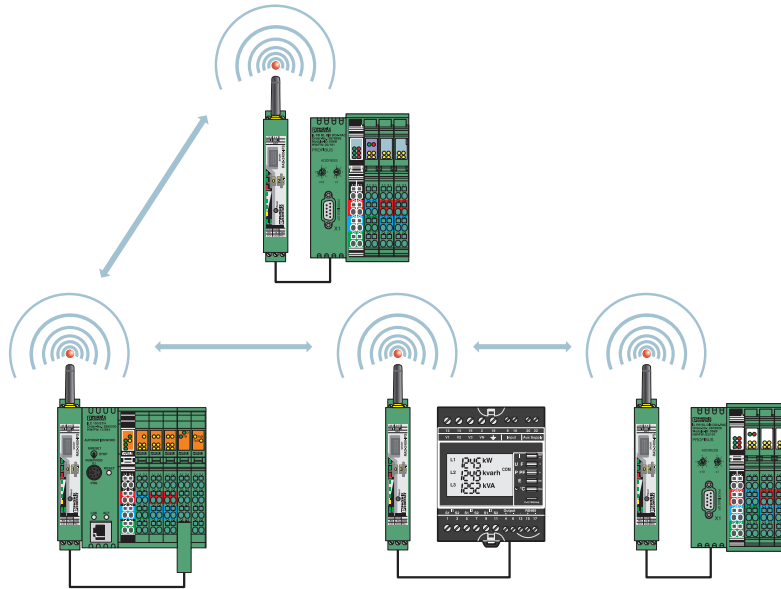
Application drawing



Wireless module in I/O data mode

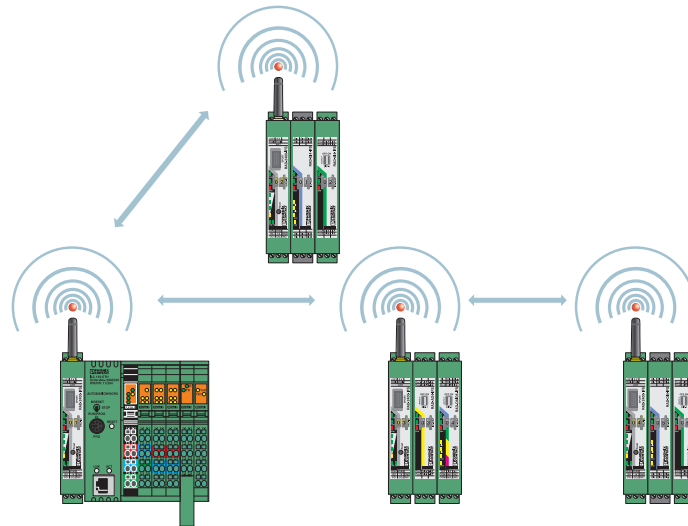
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Application drawing



Serial data mode

Application drawing



Wireless module in PLC/Modbus RTU mode

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Articles in set

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.

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