

RAD-900-IFS - Wireless module



2901540
<https://www.phoenixcontact.com/us/products/2901540>

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Radioline - 900 MHz wireless transceiver with RS-232/485 interface, can be extended with I/O modules, RSMA (female) antenna connection, point-to-point, star, and mesh networks up to 250 stations, range of up to 32 km (line of sight), use in North America

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

- 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
- Extended temperature range of -40 °C ... +70 °C
- Range of several kilometers thanks to adjustable data rates for the wireless interface
- Integrated RS-232/RS-485 interface

Commercial data

Item number	2901540
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN26
Product key	DNC611
Catalog page	Page 377 (C-6-2019)
GTIN	4046356610209
Weight per piece (including packing)	320.8 g
Weight per piece (excluding packing)	180 g
Customs tariff number	85176200
Country of origin	US

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Technical data

Notes

Trade restriction

CE note	The products are offered exclusively for export outside the EU and the European Economic Area.
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Product properties

Product type	Wireless module
Operating mode	PLC / Modbus RTU dual mode (Activation and configuration via PSI-CONF software)
MTTF	20.4 Years

Data management status

Article revision	11
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Insulation characteristics

Overvoltage category	II
Degree of pollution	2

Electrical properties

Transient surge protection	yes
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Supply

Supply voltage	24 V DC
Supply voltage range	10.8 V DC ... 30.5 V DC
Max. current consumption	328 mA (@24 V DC)
Power consumption	8.4 W (peak; 30 dBm)

Output data

Digital

Output name	RF link relay output
Number of outputs	1
Contact switching type	Changeover contact
Contact material	PdRu, gold-plated
Maximum switching voltage	30 V AC/DC
Max. switching current	500 mA
Electrical service life	5x 10 ⁵ switching cycles with 0.5 A at 30 V DC

Analog

Output name	RSSI voltage output
Number of outputs	1
Voltage output signal	0 V ... 3 V

Connection data

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Connection method	Screw connection
Stripping length	7 mm
Conductor cross section, rigid min.	0.2 mm ²
Conductor cross section, rigid 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

Interfaces

Wireless

Range	≤ 32 km (The range may be considerably above or below that stated, and depends on the environment, antenna technology, and the product used)
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Serial: RS-232

Data rate	300 bps / 600 bps / 1.2 kbps / 2.4 kbps / 4.8 kbps / 9.6 kbps / 19.2 kbps / 38.4 kbps / 57.6 kbps / 93.75 kbps / 115.2 kbps
Connection method	COMBICON plug-in screw terminal block D-SUB-9 female connector
Connection technology	3-conductor

Serial: RS-485

Data rate	300 bps / 600 bps / 1.2 kbps / 2.4 kbps / 4.8 kbps / 9.6 kbps / 19.2 kbps / 38.4 kbps / 57.6 kbps / 93.75 kbps / 115.2 kbps / 187.5 kbps
Connection method	COMBICON plug-in screw terminal block
Connection technology	2-conductor
Termination resistor	390 Ω (switchable via DIP switches) 150 Ω (switchable via DIP switches) 390 Ω (switchable via DIP switches)

Serial: Configuration interface

Connection method	S-PORT (socket)
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Wireless

Interface description	Trusted Wireless
Direction	Bi-directional
Frequency	900 MHz
Frequency range	902 MHz ... 928 MHz
Transmission power	max. 1 W (adjustable)
Data rate	16 kbps (adjustable) 125 kbps (adjustable) 250 kbps (adjustable) 500 kbps (adjustable)
Minimum receiver sensitivity	-112 dBm (16 kbps) -105 dBm (125 kbps)

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	-102 dBm (250 kbps)
	-95 dBm (500 kbps)
Antenna connection method	RSMA (female)
Security	128-bit data encryption

Functions

Wireless licenses	Americas, more countries in E-shop
Country support	USA (FCC, Part 15.247, ID: SGV-SHR-900)
	Canada (IC, RSS210, ID: 4720C-SHR900)
	Mexico (IFT, ID: RCPHRA17-1113)
	Chile
	Argentina

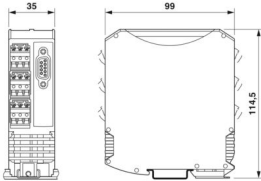
Wireless

Frequency band	900 MHz
Wireless standard	Trusted Wireless

Signaling

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

Dimensions

Dimensional drawing	
Width	35 mm
Height	116 mm
Depth	114.5 mm

Material specifications

Color	green
Flammability rating according to UL 94	V0
Housing material	PA 6.6-FR

Environmental and real-life conditions

Ambient conditions

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

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

Approvals

Conformity/Approvals

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

EMC data

Electromagnetic compatibility	Conformance with EMC Directive 2004/108/EC
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Standards and regulations

Standard designation	NOM
Note	IFT RCPHRA17-1113

Mounting

Mounting type	DIN rail mounting
Assembly note	on standard DIN rail NS 35 in accordance with EN 60715

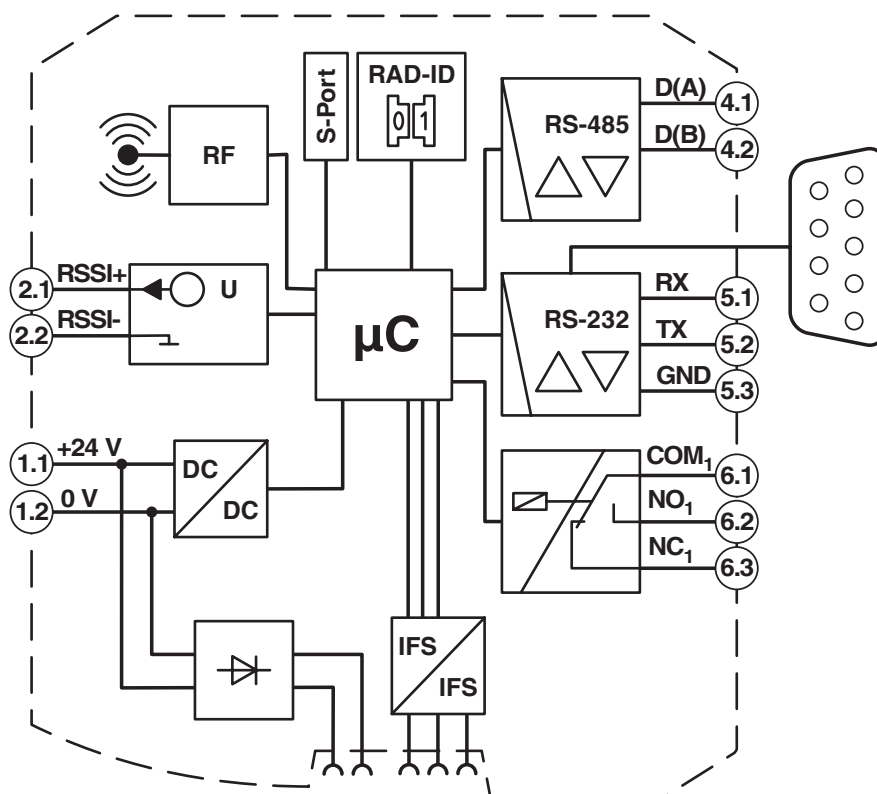
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Drawings

Block diagram



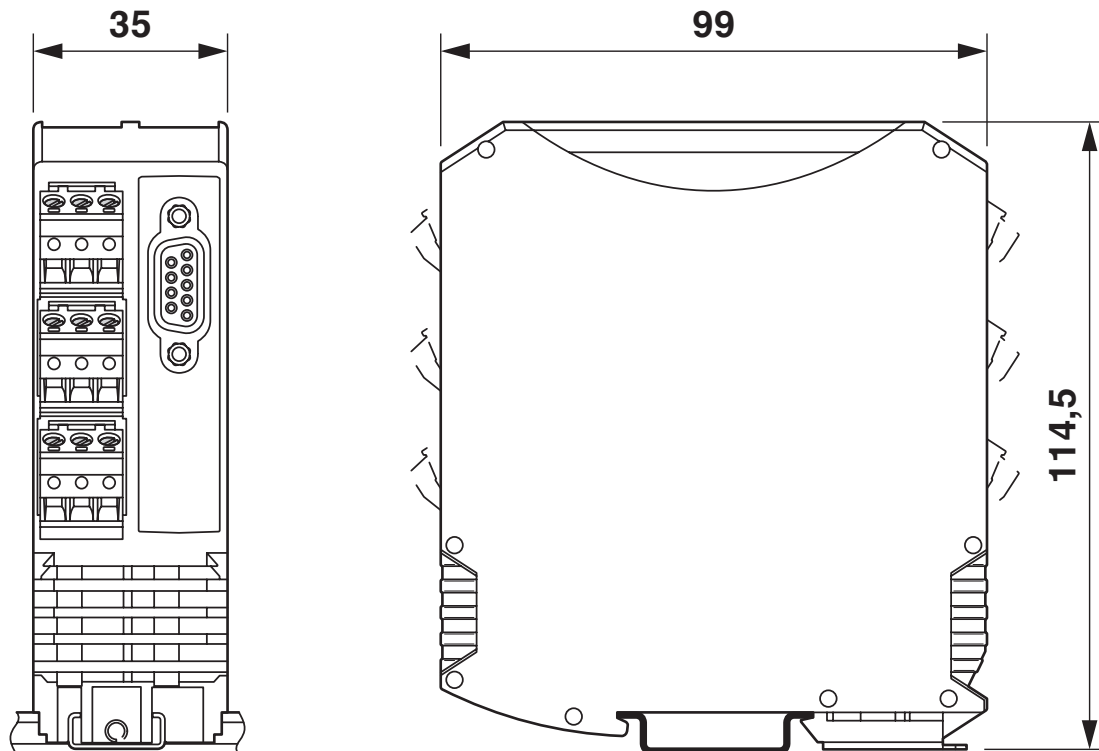
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Dimensional drawing



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Approvals

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UL Listed
Approval ID: E238705



cUL Listed
Approval ID: E238705

FCC
Approval ID: SGV-SHR-900

Industry Canada
Approval ID: 4720C-SHR900



NOM
Approval ID: RCPHRA17-1113

FCC
Approval ID: SGV-SHR-900

Industry Canada
Approval ID: 4720C-SHR900

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Classifications

ECLASS

ECLASS-11.0	19170501
ECLASS-12.0	19170501
ECLASS-13.0	19170501

ETIM

ETIM 9.0	EC000816
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UNSPSC

UNSPSC 21.0	43222600
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Environmental product compliance

EU RoHS	
Fulfills EU RoHS substance requirements	Yes
Exemption	6(c), 7(a), 7(c)-I
China RoHS	
Environment friendly use period (EFUP)	EFUP-50
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.
EU REACH SVHC	
REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
SCIP	282908e6-3884-4187-ae03-2b9b4e935451

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Accessories

RAD-DAIO6-IFS - I/O extension module

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Radioline - I/O extension module, 2 digital inputs and outputs (0 ... 250 V AC/DC) and 1 analog input (0/4 ... 20 mA) and output (0/4 ... 20 mA, 0 ... 10 V)

RAD-DI4-IFS - I/O extension module

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Radioline - I/O extension module, 4 digital inputs (0 ... 250 V AC/DC)

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RAD-DOR4-IFS - I/O extension module

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Radioline - I/O extension module, 4 digital relay outputs (5 A, 250 V AC/DC)

RAD-DI8-IFS - I/O extension module

2901539

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Radioline - I/O extension module, 8 digital inputs (0 ... 30.5 V DC) or 2 pulse inputs up to 100 Hz

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RAD-DO8-IFS - I/O extension module

2902811

<https://www.phoenixcontact.com/us/products/2902811>



Radioline - I/O extension module, 8 digital transistor outputs (30.5 V DC/200 mA)

RAD-AI4-IFS - I/O extension module

2901537

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Radioline - I/O extension module, 4 analog current inputs (0/4 mA ... 20 mA)

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RAD-AO4-IFS - I/O extension module

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Radioline - I/O extension module, 4 analog current or voltage outputs (0/4 mA ... 20 mA, 0 V ... 10 V)

RAD-RS485-IFS - Communication module

2702184

<https://www.phoenixcontact.com/us/products/2702184>



Radioline - RS-485 multipoint multiplexer, can be extended with I/O modules, can be used as Modbus/RTU bus coupler or can be combined with Radioline wireless system, up to 99 stations, range of up to 1.2 km on in-house copper cables

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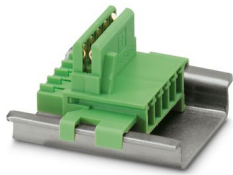
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ME 17,5 TBUS 1,5/ 5-ST-3,81 GN - DIN rail bus connectors

2709561

<https://www.phoenixcontact.com/us/products/2709561>



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

RAD-MEMORY - Configuration memory

2902828

<https://www.phoenixcontact.com/us/products/2902828>



Radioline - memory stick for saving custom configuration data

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RAD-CABLE-USB - Cable for programming

2903447

<https://www.phoenixcontact.com/us/products/2903447>



Radioline - USB data cable for communication between the PC and Radioline devices, energy supply for diagnostics and configuration via the USB port of the PC, cable length: 2 m / 6.5 ft

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

2903263

<https://www.phoenixcontact.com/us/products/2903263>



Antenna cable, outside diameter: 5 mm (0.2 in.), inner conductor: solid, attenuation: 0.4 / 0.5 / 0.6 dB at 0.9 / 2.4 / 5.8 GHz, connection: N (male) -> RSMA (male), cable length: 0.5 m (1.6 ft.)

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

2903264

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Antenna cable, outside diameter: 5 mm (0.2 in.), inner conductor: solid, attenuation: 0.5 / 0.8 / 1.1 dB at 0.9 / 2.4 / 5.8 GHz, connection: N (male) -> RSMA (male), cable length: 1 m (3.3 ft.)

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

2903265

<https://www.phoenixcontact.com/us/products/2903265>



Antenna cable, outside diameter: 5 mm (0.2 in.), inner conductor: solid, attenuation: 0.9 / 1.3 / 2.0 dB at 0.9 / 2.4 / 5.8 GHz, connection: N (male) -> RSMA (male), cable length: 2 m (6.5 ft.)

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

2903266

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Antenna cable, outside diameter: 5 mm (0.2 in.), inner conductor: solid, attenuation: 1.2 / 2.0 / 3.0 dB at 0.9 / 2.4 / 5.8 GHz, connection: N (male) -> RSMA (male), cable length: 3 m (10 ft.)



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

2867843

<https://www.phoenixcontact.com/us/products/2867843>

Antenna adapter for control cabinet feed-through, frequency range: 0.3 GHz ... 6 GHz, degree of protection: IP65, connection: 2 x N (female)



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

2903182

<https://www.phoenixcontact.com/us/products/2903182>

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



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

2803166

<https://www.phoenixcontact.com/us/products/2803166>

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



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RAD-CAB-PFP240-10 - Antenna cable

5606124

<https://www.phoenixcontact.com/us/products/5606124>

Antenna cable, outside diameter: 6 mm (0.24 in.), inner conductor: solid, attenuation: 1.0 / 1.5 / 2.1 dB at 0.9 / 2.4 / 5.8 GHz, connection: 2x N (male), cable length: 3 m (10 ft.)



RAD-CAB-PFP400-20 - Antenna cable

5606125

<https://www.phoenixcontact.com/us/products/5606125>

Antenna cable, outside diameter: 10 mm (0.4 in.), inner conductor: solid, attenuation: 1.0 / 1.5 / 2.2 dB at 0.9 / 2.4 / 5.8 GHz, connection: 2x N (male), cable length: 6 m (20 ft.)



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RAD-CAB-PFP600-25 - Antenna cable

5606126

<https://www.phoenixcontact.com/us/products/5606126>

Antenna cable, outside diameter: 15 mm (0.6 in.), inner conductor: solid, attenuation: 1.0 / 1.3 / 2.0 dB at 0.9 / 2.4 / 5.8 GHz, connection: 2x N (male), cable length: 7.5 m (25 ft.)



RAD-CAB-RG213-40 - Antenna cable

2867377

<https://www.phoenixcontact.com/us/products/2867377>

Antenna cable, outside diameter: 10 mm (0.4 in.), inner conductor: solid, attenuation: 2.9 dB at 900 MHz, connection: 2 x N (male), cable length: 12 m (40 ft.)



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RAD-CAB-RG213-50 - Antenna cable

2867225

<https://www.phoenixcontact.com/us/products/2867225>

Antenna cable, outside diameter: 10 mm (0.4 in.), inner conductor: solid, attenuation: 3.5 dB at 900 MHz, connection: 2 x N (male), cable length: 15 m (50 ft.)



RAD-CAB-PFP400-60 - Antenna cable

2867380

<https://www.phoenixcontact.com/us/products/2867380>

Antenna cable, outside diameter: 10 mm (0.4 in.), inner conductor: solid, attenuation: 2.5 / 4.2 / 6.3 dB at 0.9 / 2.4 / 5.8 GHz, connection: 2x N (male), cable length: 18 m (60 ft.)



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RAD-CAB-PFP400-80 - Antenna cable

2867393

<https://www.phoenixcontact.com/us/products/2867393>

Antenna cable, outside diameter: 10 mm (0.4 in.), inner conductor: solid, attenuation: 3.3 / 5.6 / 8.4 dB at 0.9 / 2.4 / 5.8 GHz, connection: 2x N (male), cable length: 24 m (80 ft.)



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

2867801

<https://www.phoenixcontact.com/us/products/2867801>

Directional antenna, 868 MHz / 900 MHz, gain: 5 dBi, polarization: linear, opening angle: h/v 168°/78°, degree of protection: IP65, connection: N (female), incl. mounting bracket and mast clips



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

2867814

<https://www.phoenixcontact.com/us/products/2867814>



Directional antenna, 868 MHz / 900 MHz, gain: 8.5 dBi, polarization: linear, opening angle: h/v 100°/62°, degree of protection: IP65, connection: N (female), incl. mounting bracket and mast clips

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

5606614

<https://www.phoenixcontact.com/us/products/5606614>



Directional antenna 868 MHz / 900 MHz, gain: 12 dBi, polarization: linear, opening angle: h/v 56°/46°, degree of protection: IP65, connection: N (female), incl. mounting bracket and mast clips

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

2904801

<https://www.phoenixcontact.com/us/products/2904801>



Omnidirectional antenna, 900 MHz, gain: 2 dBi, polarization: linear, degree of protection: IP65, connection: RSMA (male), incl. 1.8 m / 6 ft. connecting cable and mounting bracket for wall mounting

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

2904802

<https://www.phoenixcontact.com/us/products/2904802>



Omnidirectional antenna, 868 MHz / 900 MHz, gain: 2 dBi, polarization: linear, opening angle: h/v 360°/50°, degree of protection: IP66, connection: N (female), for control cabinet mounting (optional wall mounting)

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RAD-900-CONF-RF1 - Configuration memory

2702122

<https://www.phoenixcontact.com/us/products/2702122>



Radioline - configuration stick for easy and safe network addressing for the 900 MHz wireless module (RAD-900-...), unique network ID, RF band 1

RAD-ADP-RSMA/M-RSMA/F-90 - Adapter

2904790

<https://www.phoenixcontact.com/us/products/2904790>



Antenna adapter, frequency range: 0.3 GHz ... 6 GHz, connection: RSMA (male)
-> RSMA (female), 90° angled

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CN-LAMBDA/4-2.25-BB - Surge protection device

2801057

<https://www.phoenixcontact.com/us/products/2801057>

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



RAD-NAM4-IFS - I/O extension module

2316275

<https://www.phoenixcontact.com/us/products/2316275>



Radioline - I/O extension module, 4 NAMUR digital input module used in Radioline and PROFIBUS PA MUX I/O systems. Fulfills the NAMUR proximity sensor standard EN 60947-5-6, and communication to the head stations for Radioline systems and the FB-MUX/HS...PA via the T-BUS connector installed on the DIN rail. This module has channel-to-channel isolation.

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

2702290

<https://www.phoenixcontact.com/us/products/2702290>



Radioline - I/O extension module, 4 analog voltage inputs (0 ... 5 V, 0 ... 10 V)

ANT-OMNI-900-5 - Antenna

1361276

<https://www.phoenixcontact.com/us/products/1361276>



Omnidirectional antenna, 900 MHz, gain: 5 dB, connection: N female including mounting hardware.

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