

Wireless module - RAD-2400-IFS - 2901541

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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, 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.

Product Features

- License-free 2.4 GHz frequency band
- 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)
- Suitable for ATEX zone 2
- Mesh networks of up to 250 devices



Key commercial data

package_quantity	1
GTIN	4046356610193

Technical data

Note

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

Width	17.5 mm
Height	99 mm
Depth	114.5 mm

Ambient conditions

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Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-40 °C ... 70 °C (>55°C Derating)
Ambient temperature (operation)	-40 °F ... 158 °F (>131°F derating)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Ambient temperature (storage/transport)	-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

General

Surge voltage category	II
Assembly instructions	on standard DIN rail NS 35 in accordance with EN 60715
Pollution degree	2
Housing material	PA 6.6-FR
Inflammability class according to UL 94	V0
MTTF	778 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))
MTTF	358 Years (Telcordia standard, 40°C temperature, 34.25% operating cycle (5 days a week, 12 hours a day))
MTTF	142 Years (Telcordia standard, temperature 40 °C, operating cycle 100 % (7 days a week, 24 hours a day))
Wireless licences	Belgium
Wireless licences	Bulgaria
Wireless licences	Denmark
Wireless licences	Germany
Wireless licences	Estonia
Wireless licences	France
Wireless licences	Finland
Wireless licences	Greece
Wireless licences	Great Britain
Wireless licences	Italy
Wireless licences	Ireland
Wireless licences	Iceland
Wireless licences	Liechtenstein
Wireless licences	Luxembourg
Wireless licences	Latvia
Wireless licences	Lithuania
Wireless licences	Malta
Wireless licences	The Netherlands
Wireless licences	Norway (The device may not be operated within 20 km of Ny Ålesund town center.)

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General

Wireless licences	Austria
Wireless licences	Poland
Wireless licences	Poland
Wireless licences	Romania
Wireless licences	Russia
Wireless licences	Sweden
Wireless licences	Switzerland
Wireless licences	Slovakia
Wireless licences	Slovenia
Wireless licences	Spain
Wireless licences	Czech Republic
Wireless licences	Turkey (The device may only be operated with Phoenix Contact antennae (see "Wireless accessories" data sheet, Doc. No. 101580) in accordance with the "Short Range Radio Devices (SRD) Regulations" Gazette No. 26464 dated March 16, 2007.)
Wireless licences	Hungary
Wireless licences	Cyprus (rep.)
Wireless licences	Singapore
Wireless licences	Ukraine
Export note	The latest country registrations for the relevant product can be found on the Internet at phoenixcontact.com.

Supply

Supply voltage range	19.2 V DC ... 30.5 V DC
Max. current consumption	≤ 65 mA (@ 24 V DC, @ 25°C, stand-alone)
Transient surge protection	Yes

Wireless interface

Antenna connection	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)
Data rate	125 kbps (Default setting, adjustable)
Data rate	250 kbps (adjustable)
Receiver sensitivity	-106 dBm (16 kbps)
Receiver sensitivity	-96 dBm (125 kbps)
Receiver sensitivity	-93 dBm (250 kbps)
Transmission power	≤ 100 mW (Default setting, adjustable)
Security	128-bit data encryption
Operating mode	I/O data (Default setting, configuration via thumbwheel)

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Wireless interface

Operating mode	Serial data (Activation and configuration via PSI-CONF software)
Operating mode	PLC/Modbus RTU mode (Activation and configuration via PSI-CONF software)

Serial interface

Interface 1	RS-232
Connection method	COMBICON plug-in screw terminal block
Connection method	3-conductor
Transmission speed	0,3 ... 115,2 kbit/s
Interface 2	RS-485
Connection method	COMBICON plug-in screw terminal block
Connection method	2-wire
Termination resistor	390 Ω (switchable via DIP switches)
Termination resistor	150 Ω (switchable via DIP switches)
Termination resistor	390 Ω (switchable via DIP switches)
Transmission speed	0,3 ... 187,5 kbit/s
Interface 3	Configuration interface
Connection method	S port (female connector)

System limits

Designation	Wireless module
Number of supported devices	≤ 250 (Addressing via PSI-CONF software)
Number of supported devices	≤ 99 (Addressing via thumbwheel)
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

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
Maximum switching voltage	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

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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 stranded min.	0.2 mm ²
Conductor cross section stranded max.	2.5 mm ²
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)
Status display	Green LED (bus communication, DAT)
Status display	Red LED (periphery error, ERR)
Status display	3 x green, 1 x yellow LED (LED bar graph receive quality, RSSI)
Status display	Green LED (RS-232/485 receive data, RX)
Status display	Green LED (RS-232/485 transmit data, TX)

Approvals and conformance

Conformance	CE compliance (R&TTE directive 1999/5/EC)
IECEX	Ex nA nC IIC T4 Gc
UL, USA / Canada	UL 508 Listed
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
Standards/regulations	EN 61000-6-4
Standards/regulations	EN 61000-6-2
Standards/regulations	EN 50371
Standards/regulations	EN 60950-1

classifications

eCl@ss

eCl@ss 4.0	27230207
eCl@ss 4.1	27230207
eCl@ss 5.0	27230207
eCl@ss 5.1	27242208
eCl@ss 6.0	27242208
eCl@ss 7.0	27242208

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classifications

eCl@ss

eCl@ss 8.0	27242208
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ETIM

ETIM 3.0	EC001423
ETIM 4.0	EC000310
ETIM 5.0	EC000310

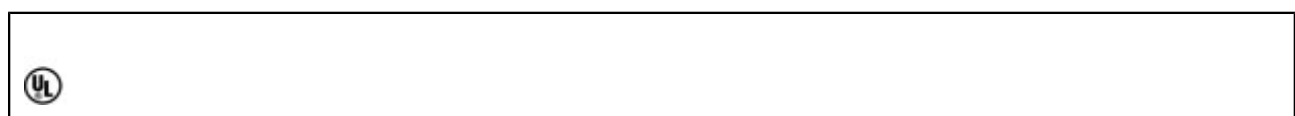
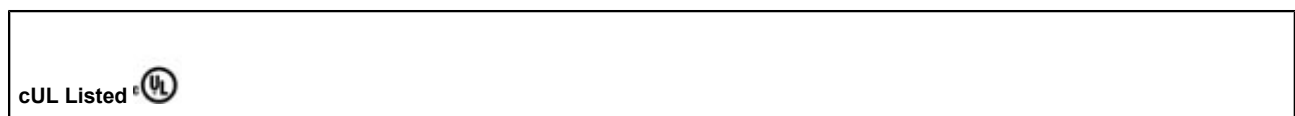
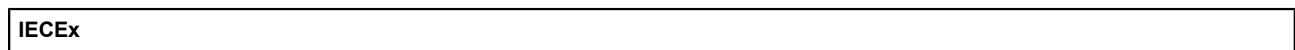
UNSPSC

UNSPSC 6.01	30211506
UNSPSC 7.0901	43223108
UNSPSC 11	39121008
UNSPSC 12.01	43223108
UNSPSC 13.2	43223108

approvals

ATEX / IECEx / UL Listed / cUL Listed / cULus Listed / UL Listed / cUL Listed / cULus Listed /

Approval details



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approvals



accessories

Extension module

RAD-DAIO6-IFS - 2901533



RAD-DI4-IFS - 2901535



RAD-DOR4-IFS - 2901536



RAD-DI8-IFS - 2901539



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accessories

RAD-DO8-IFS - 2902811



RAD-AI4-IFS - 2901537



RAD-AO4-IFS - 2901538



RAD-PT100-4-IFS - 2904035



DIN rail connector

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



Configuration memory

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accessories

RAD-CONF-RF3 - 2902814



RAD-CONF-RF5 - 2902815



RAD-CONF-RF7 - 2902816



RAD-MEMORY - 2902828



Programming cable

RAD-CABLE-USB - 2903447



Antenna

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accessories

RAD-ISM-2400-ANT-OMNI-2-1-RSMA - 2701362



RAD-ISM-2400-ANT-VAN-3-0-RSMA - 2701358



RAD-ISM-2400-ANT-OMNI-6-0 - 2885919



RAD-2400-ANT-OMNI-6-0-SW - 2903219



ANT-DIR-2459-01 - 2701186



RAD-ISM-2400-ANT-PAN- 8-0 - 2867610



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accessories

RAD-ISM-2400-ANT-PAR-19-0 - 2867885



Coaxial cable

RAD-PIG-EF316-N-RSMA - 2701402



RAD-PIG-RSMA/N-0.5 - 2903263



RAD-PIG-RSMA/N-1 - 2903264



RAD-PIG-RSMA/N-2 - 2903265



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accessories

RAD-PIG-RSMA/N-3 - 2903266



RAD-PIG-RSMA/N-5 - 2702140



RAD-PIG-RSMA-N-EX/ATEX - 2904788



RAD-CAB-EF393- 3M - 2867649



RAD-CAB-EF393- 5M - 2867652



RAD-CAB-EF393-10M - 2867665



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accessories

RAD-CAB-EF393-15M - 2885634



Surge protection for transceiver systems

CN-LAMBDA/4-5.9-BB - 2838490



Coaxial adapter

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



RAD-ADP-RSMA/F-SMA/F - 2884538



RAD-ADP-RSMA/M-RSMA/F-90 - 2904790



Mounting material

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RAD-TAPE-SV-19-3 - 2903182



FL RUGGED BOX POLE SET - 2701205



Solar set

RAD-SOL-SET-24-100 - 2885472



RAD-SOL-SET-24-200 - 2917722



Power supply

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



Control box

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accessories

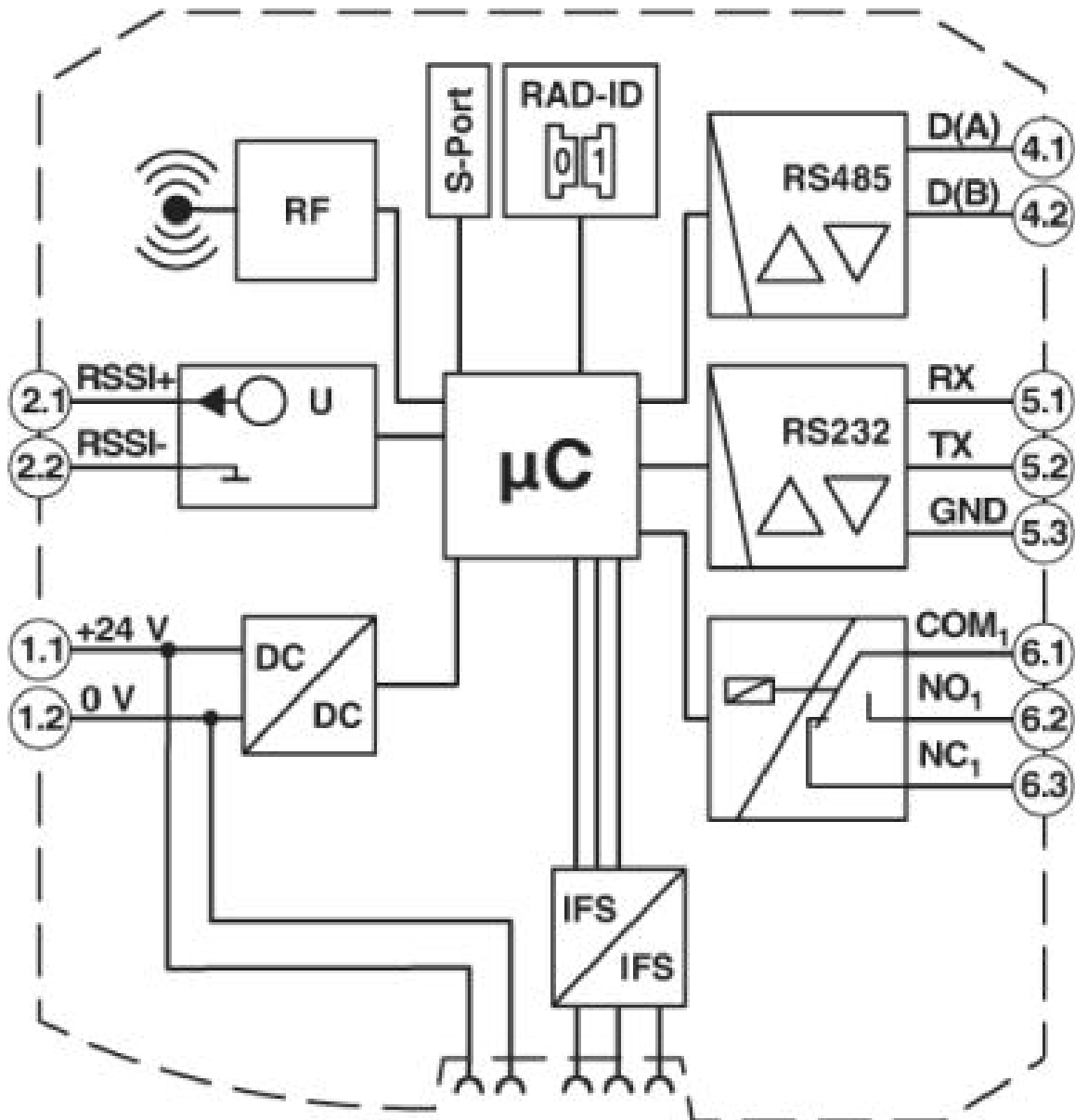
FL RUGGED BOX - 2701204



Drawings

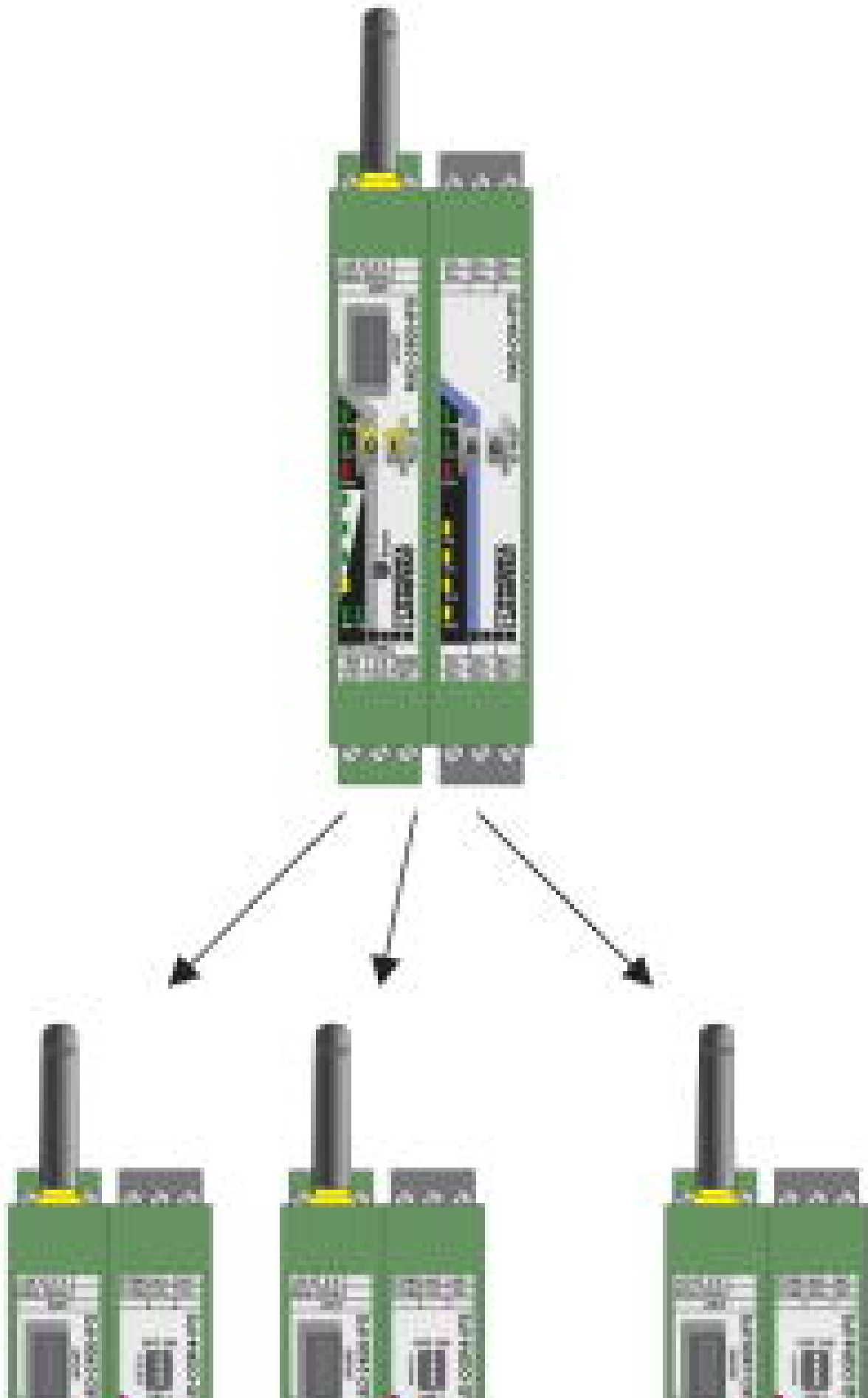
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Block diagram



Wireless module - RAD-2400-IFS - 2901541

Functional drawing



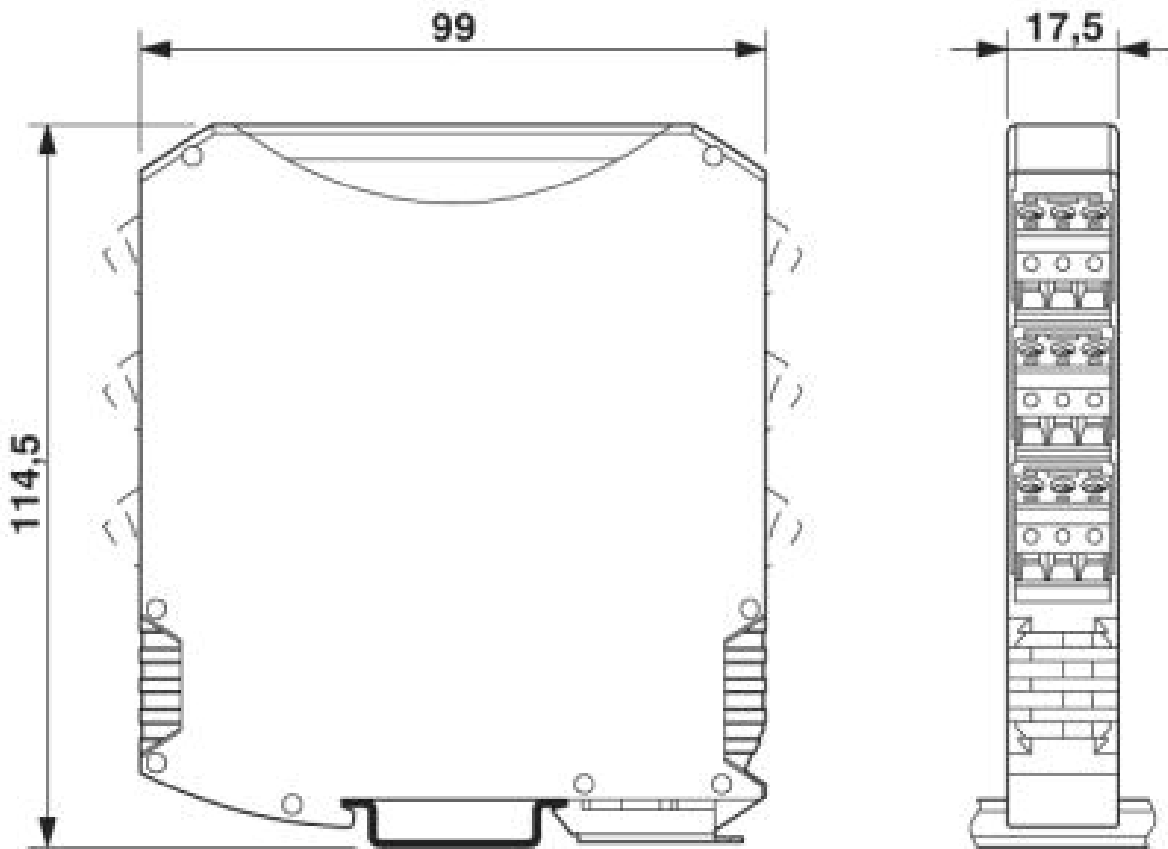
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Functional drawing



Wireless module - RAD-2400-IFS - 2901541

Dimensioned drawing



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