

RAD-2400-IFS-JP - Wireless module



2702863

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Radioline - 2.4 GHz 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 250 stations, range of up to 5 km (with a clear line of sight), for use in Japan

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

- Approval for Japan
- License-free 2.4 GHz frequency band
- 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 250 devices
- Integrated RS-232/RS-485 interface
- Modular extension with up to 32 I/O extension modules supported
- Extended temperature range of -40 °C ... +70 °C

Commercial data

Item number	2702863
Packing unit	1 pc
Minimum order quantity	1 pc
Product key	DNC614
GTIN	4055626369853
Weight per piece (including packing)	206.3 g
Weight per piece (excluding packing)	197.5 g
Country of origin	DE

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Set consists of

ME 17,5 TBUS 1,5/ 5-ST-3,81 KMGY - DIN rail bus connector

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DIN rail bus connector, color: light gray, nominal current: 8 A (parallel contacts), rated voltage (III/2): 125 V, number of positions: 5, product range: TBUS5-17,5..., pitch: 3.81 mm, mounting: DIN rail mounting, locking: without, mounting method: without, type of packaging: packed in cardboard, Item with gold-plated contacts, bus connectors for connecting with electronics housings, 5 parallel contacts

Technical data

Notes

Note on application

Note on application	Only for industrial use
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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
Application	I/O
	RS-232
	RS-485
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)
	PLC / Modbus RTU dual mode (Activation and configuration via PSI-CONF software)
MTTF	778 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
	358 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%)
	142 Years (SN 29500 standard, temperature 40°C, operating cycle 100%)

Insulation characteristics

Overvoltage category	II
Degree of pollution	2

Electrical properties

Maximum power dissipation for nominal condition	1.56 W
Transient surge protection	yes

System limits

Designation	Wireless module
Number of supported devices	≤ 250 (Addressing via PSI-CONF software)
	≤ 99 (Addressing via thumbwheel)
Number of possible extension modules	≤ 32 (per wireless module)

System limits

Designation	Wireless network
Number of supported devices	≤ 99 (I/O extension modules per wireless network, serial interfaces deactivated)
	0 (no I/O extension modules can be used)

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≤ 99 (I/O extension modules per wireless network, access to extension modules via Modbus RTU protocol)

Supply

Supply voltage	24 V DC
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)
	≤ 6 A (at 24 V DC, with DIN rail connector at full capacity)

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
	60 V DC
Max. switching current	500 mA (30 V AC/DC)
	300 mA (60 V DC)
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

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	≤ 5 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

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Connection technology	3-conductor
Transmission length	≤ 15 m

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
Transmission length	≤ 1200 m
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	2400 MHz
Frequency range	2.4002 GHz ... 2.4785 GHz
Channel distance	1.3 MHz
Number of channel groups	8
Number of channels per group	55
Transmit capacity, minimum	0 dBm
Transmit capacity, maximum	≤ 20 dBm
Data rate	16 kbps (adjustable) 125 kbps (Default setting, adjustable) 250 kbps (adjustable)
Minimum receiver sensitivity	-106 dBm (16 kbps) -96 dBm (125 kbps) -93 dBm (250 kbps)
Antenna connection method	RSMA (female)
Security	128-bit data encryption

Functions

Wireless licenses	Japan
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Wireless

Frequency band	2.4 GHz
Wireless standard	Trusted Wireless

Signaling

Status display	LED supply voltage, PWR (green) Green LED (bus communication, DAT) LED periphery error, ERR (red)
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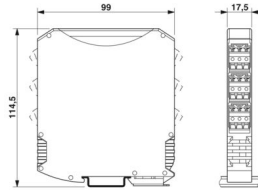


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	3x green, 1x yellow LED (LED bar graph receive quality, RSSI)
	Green LED (receive data, RX)
	Green LED (transmit data, TX)

Dimensions

Dimensional drawing	
Width	17.5 mm
Height	116 mm
Depth	114.5 mm

Material specifications

Color (Housing)	gray (RAL 7042)
Material (Housing)	PA 6.6-FR
Flammability rating according to UL 94	V0

Environmental and real-life conditions

Ambient conditions	
Degree of protection	IP20
Ambient temperature (operation)	-40 °C ... 70 °C (>55°C derating, see technical documentation) -40 °F ... 158 °F (>131°F derating, see technical documentation)
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

Wireless approval Japan, MIC	
Identification	Japan MIC (RF) ID:202-LSE100
Corrosive gas test	
Identification	ISA-S71.04-1985 G3 Harsh Group A

EMC data

Electromagnetic compatibility	Conformance with RED Directive 2014/53/EU
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Mounting

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

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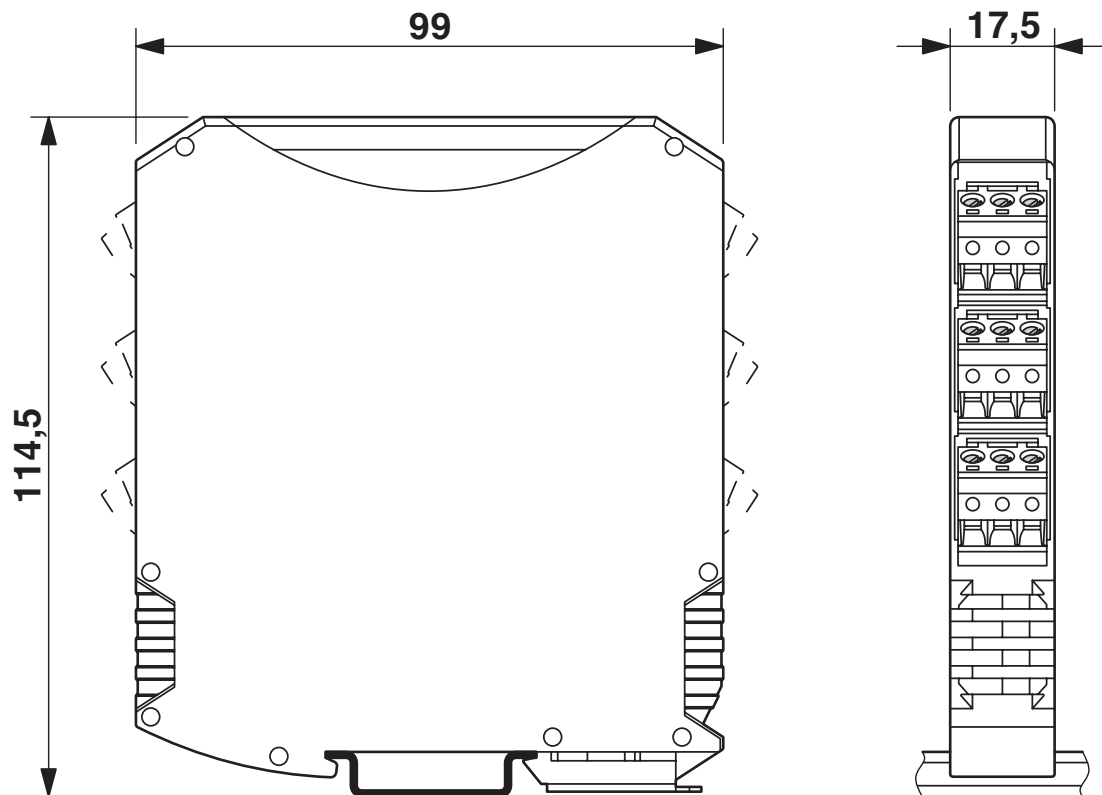
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Drawings

Dimensional drawing



Slim design

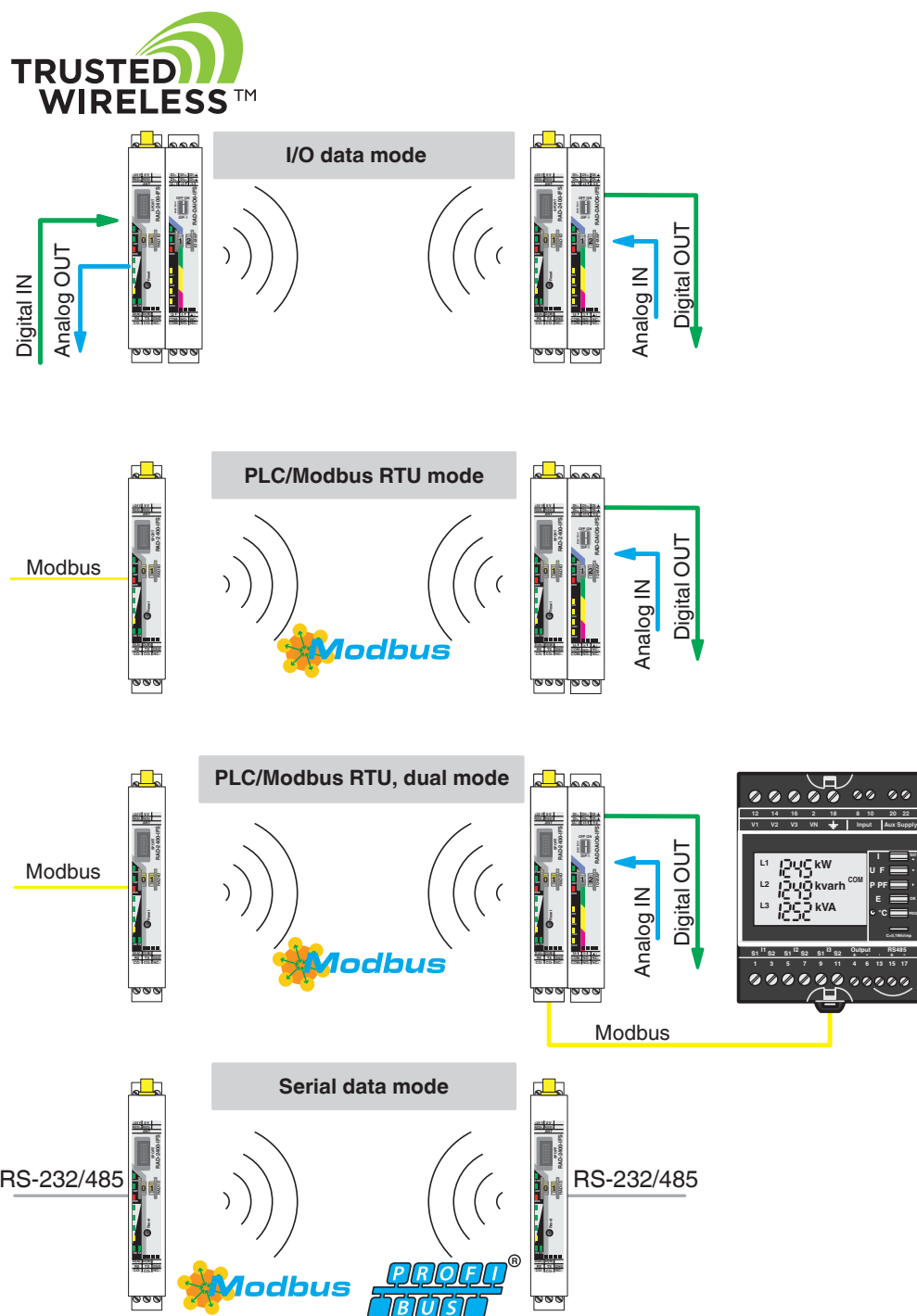
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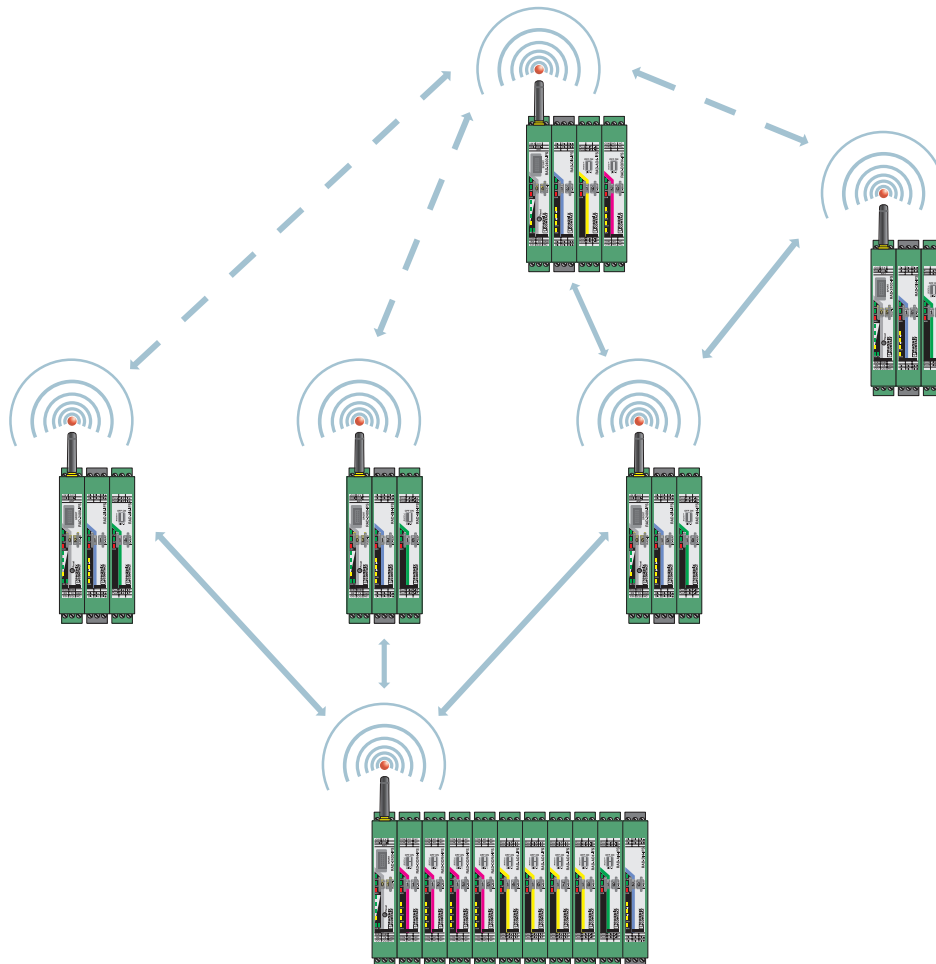


Application drawing



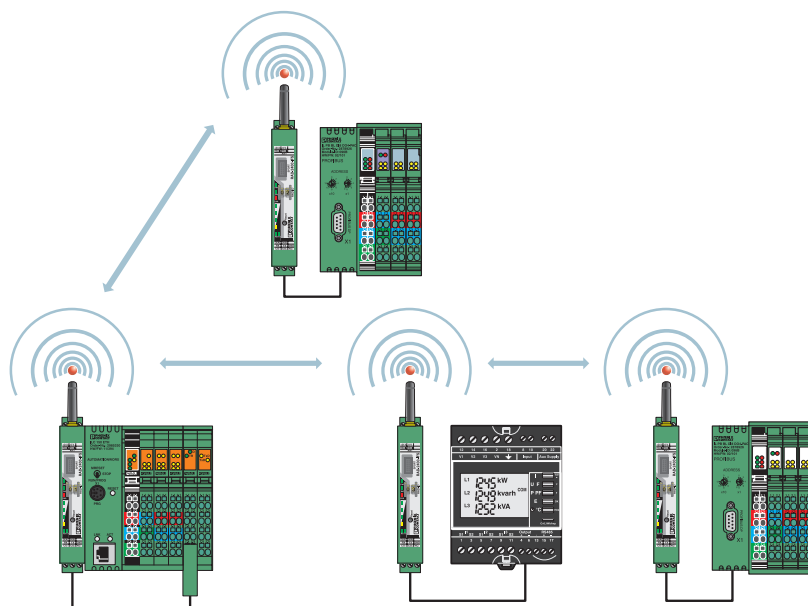
Operating modes

Application drawing



Wireless module in I/O data mode

Application drawing



Serial data mode

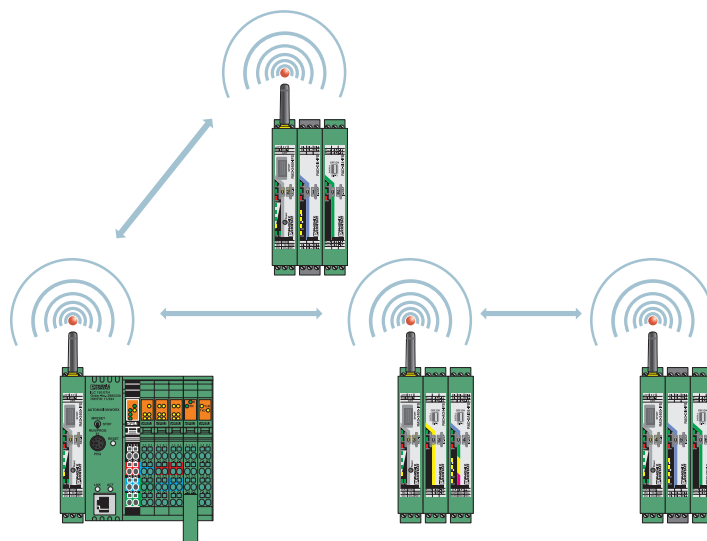
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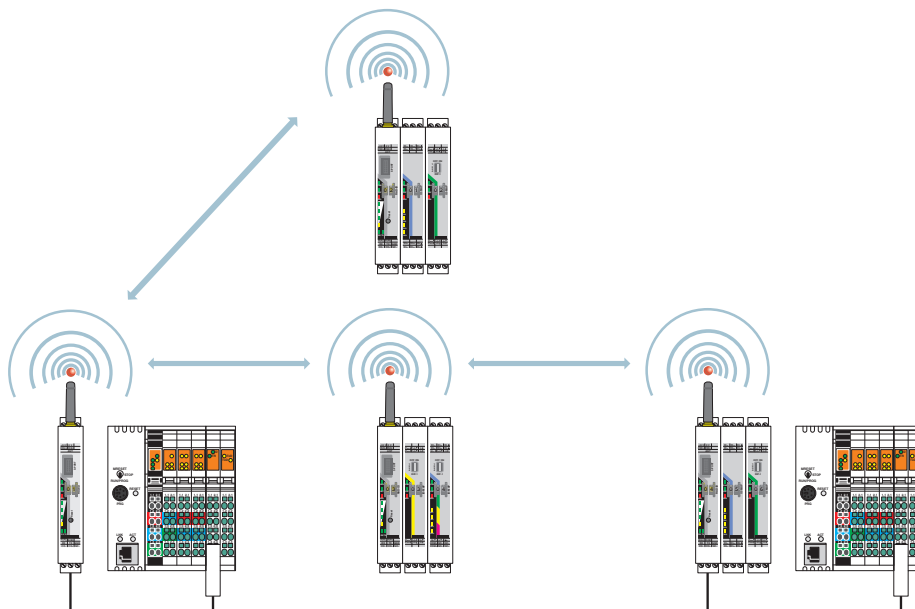


Application drawing



Wireless module in PLC/Modbus RTU mode

Application drawing

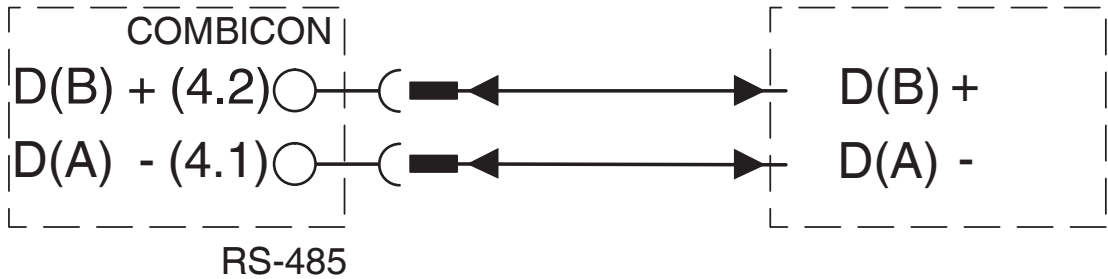


PLC / Modbus/RTU dual mode

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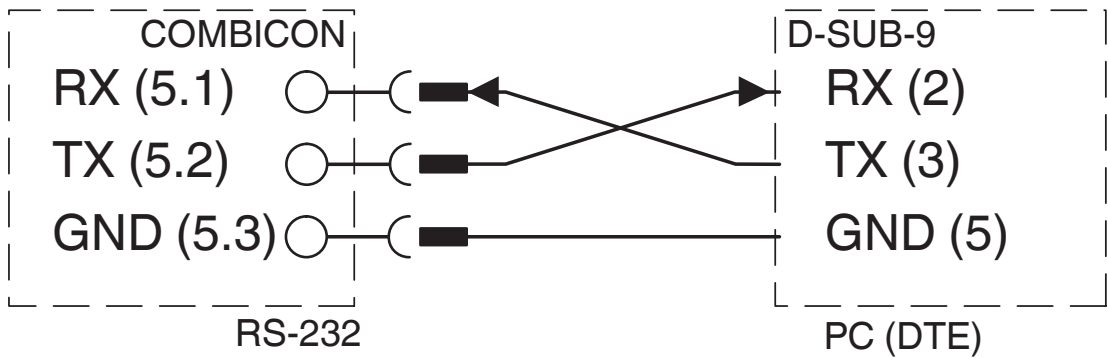
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Connection diagram



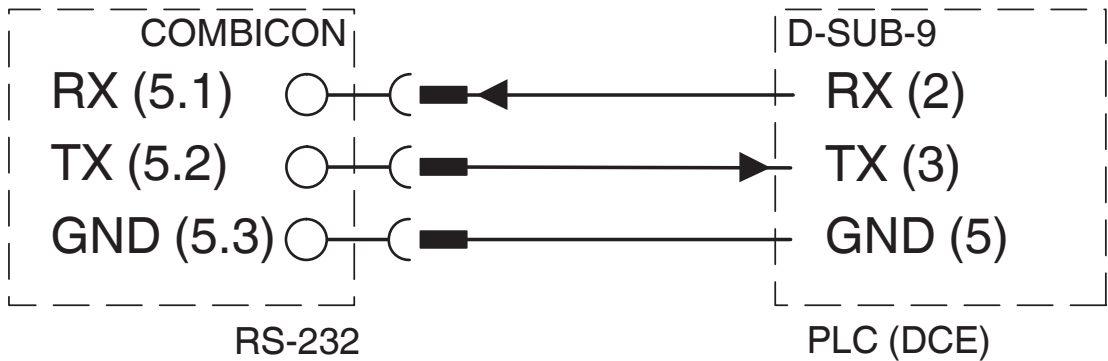
RS-485 connection

Connection diagram



RS-232 connection

Connection diagram



RS-232 connection

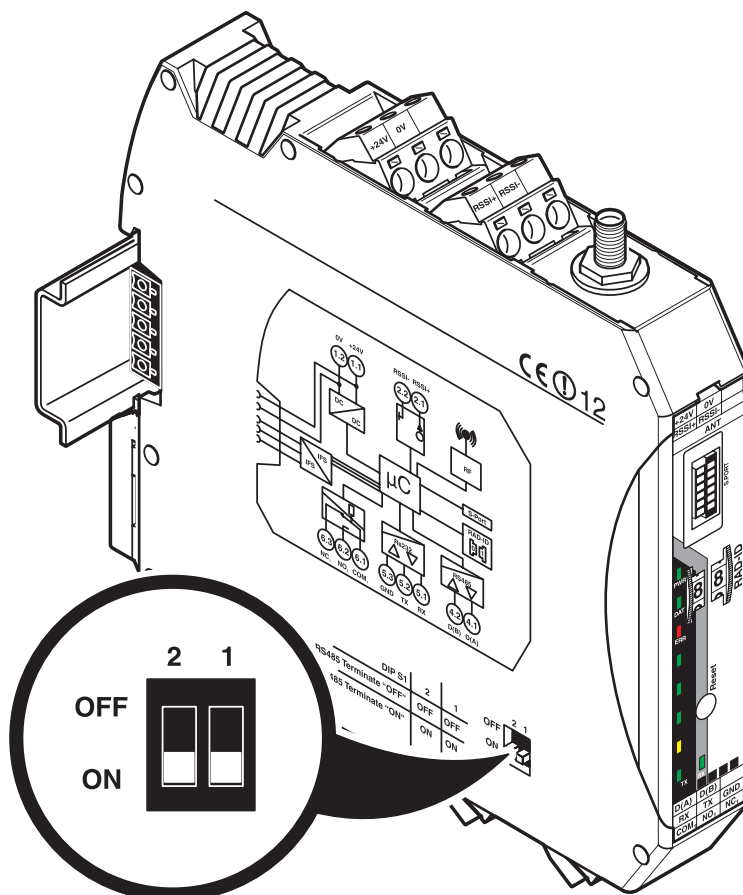
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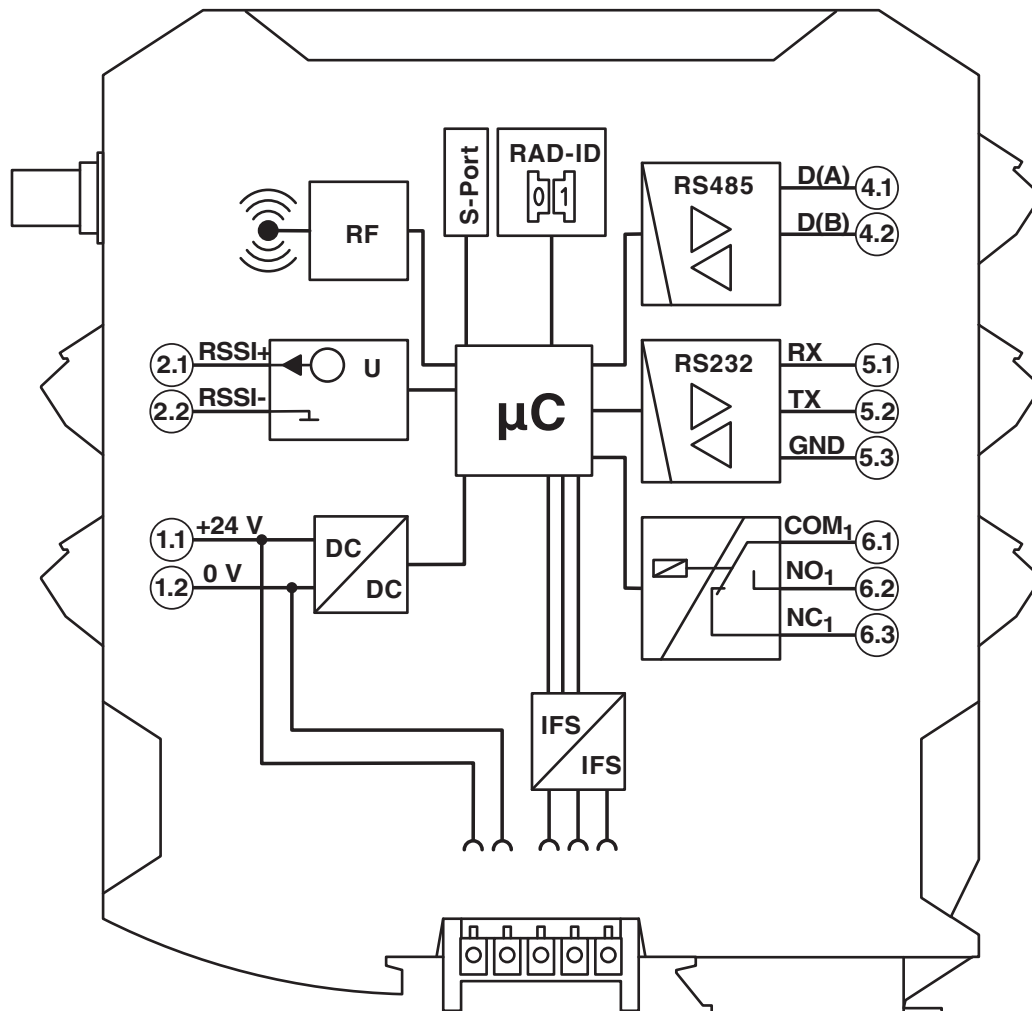


Schematic diagram



DIP switches

Circuit diagram



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Approvals

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MIC

Approval ID: 202-LSE100

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Classifications

ECLASS

ECLASS-13.0	19170501
ECLASS-15.0	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)