

# Communication module - RAD-RS485-IFS - 2702184

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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

## Product Description

The popular, straightforward method of distributing I/O information using white thumbwheels on the front of the equipment is now also available for RS-485 networks.

Addressing the RS-485 front module is quick and easy too – all it takes is a turn of the yellow thumbwheel. This enhances the Radioline system's flexibility, allowing it to be used for solutions in even more applications.

To increase the range, it is of course possible to replace the RS-485 line with alternative transmission media.


Phoenix Contact offers a range of converters for fiber-optic cables, SHDSL, wireless or Ethernet technology.

## Your advantages

- Multipoint multiplexer for I/O signals
- Up to 99 bus stations in the network
- Quick and easy startup without programming
- Can be combined with Radioline wireless modules
- 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 055626 007373
GTIN	4055626007373

## 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
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# Communication module - RAD-RS485-IFS - 2702184

## Technical data

### Dimensions

Height	113 mm
Depth	114.5 mm

### Ambient conditions

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

Set consists of	2709561 ME 17,5 TBUS 1,5/ 5-ST-3,81 GN
Operating mode	I/O data (Default setting, configuration via thumbwheel) Modbus/RTU slave (Default setting, configuration via thumbwheel)
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	1233 Years (SN 29500 standard, temperature 25°C, operating cycle 21%) 514 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%) 212 Years (SN 29500 standard, temperature 40°C, operating cycle 100%)

### 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) ≤ 6 A (at 24 V DC, with DIN rail connector at full capacity)
Transient surge protection	Yes

### Serial interface

Interface 1	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)

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## Technical data

### Serial interface

	390 Ω (switchable via DIP switches)
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 (Default setting: 19.2/E/1)
Interface 2	Configuration interface
Connection method	S-PORT (socket)

### RF link relay output

Number of outputs	1
Contact type	PDT
Contact material	PdRu, gold-plated
Maximum switching voltage	30 V AC/DC
	60 V DC
Max. switching current	500 mA (30 V AC/DC)
Electrical service life	5x 10 <sup>5</sup> switching cycles with 0.5 A at 30 V DC

### Connection data

Connection method	Screw connection
Conductor cross section solid min.	0.2 mm <sup>2</sup>
Conductor cross section solid max.	2.5 mm <sup>2</sup>
Conductor cross section flexible min.	0.2 mm <sup>2</sup>
Conductor cross section flexible max.	2.5 mm <sup>2</sup>
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)
	Green LED (receive data, RX)
	Green LED (transmit data, TX)

### Conformance/approvals

Designation	CE
Identification	CE-compliant
Designation	ATEX
Identification	# II 3 G Ex nA nC IIC T4 Gc
Certificate	IBExU 15 ATEX B008 X
Additional text	Please follow the special installation instructions in the documentation!
Designation	IECEX

## Communication module - RAD-RS485-IFS - 2702184

### Technical data

#### Conformance/approvals

Identification	Ex nA nC IIC T4 Gc
Certificate	IECEX IBE 13.0019X
Designation	UL, USA/Canada
Identification	508 Listed
	Class I, Div. 2, Groups A, B, C, D T4A
	Class I, Zone 2, IIC T4
Designation	Corrosive gas test
Identification	ISA-S71.04-1985 G3 Harsh Group A

#### Standards and Regulations

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Flammability rating according to UL 94	V0
Shock	16g, 11 ms
Vibration (operation)	in accordance with IEC 60068-2-6: 5g, 10 Hz ... 150 Hz

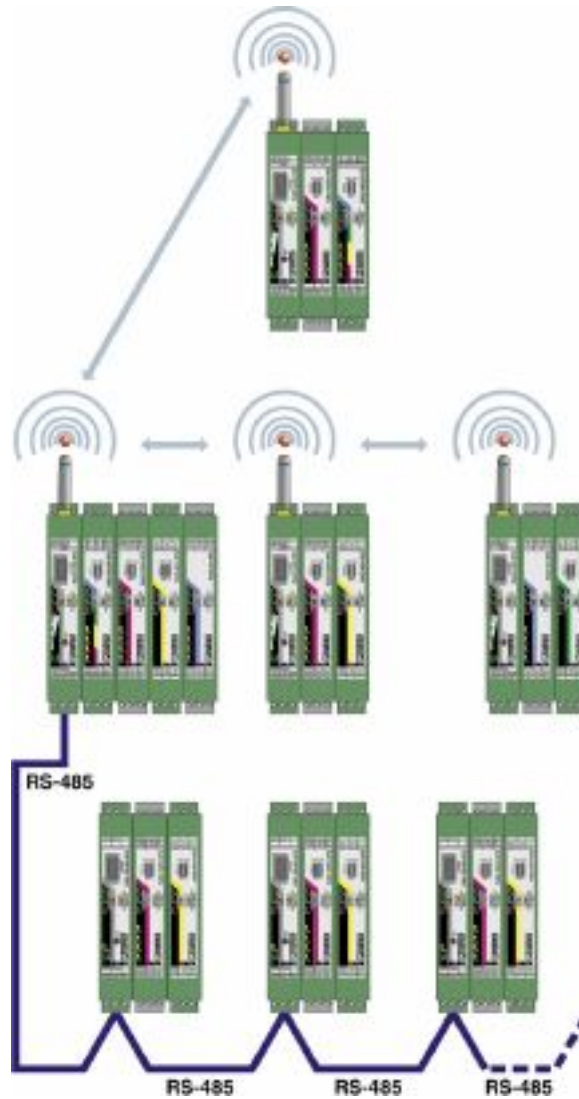
#### Environmental Product Compliance

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

### Drawings

# Communication module - RAD-RS485-IFS - 2702184

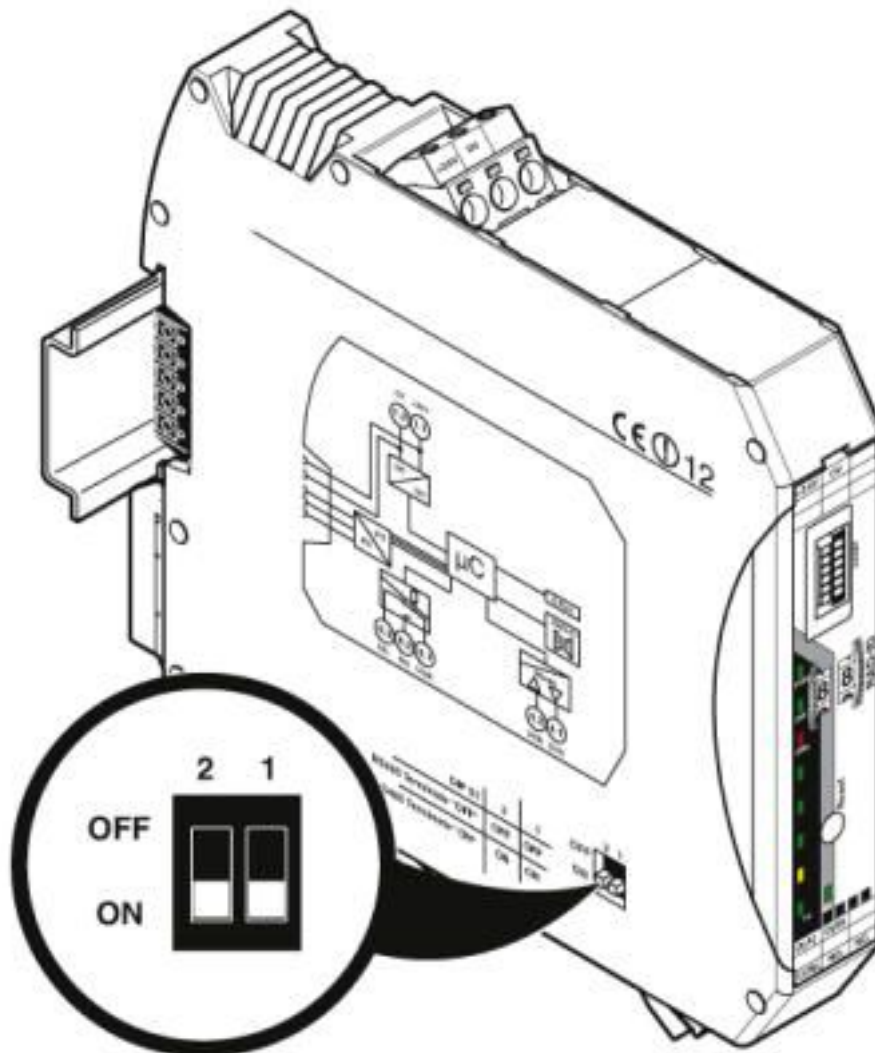
Functional drawing



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

# Communication module - RAD-RS485-IFS - 2702184

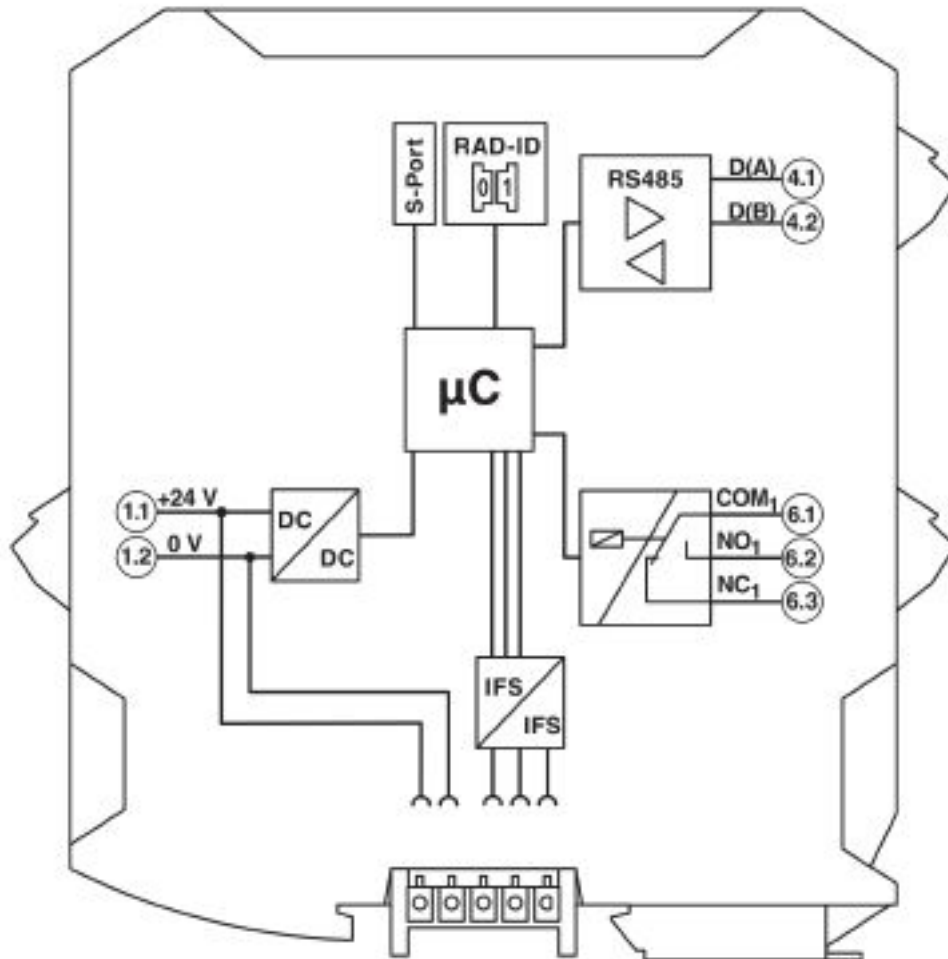
Schematic diagram



DIP switches

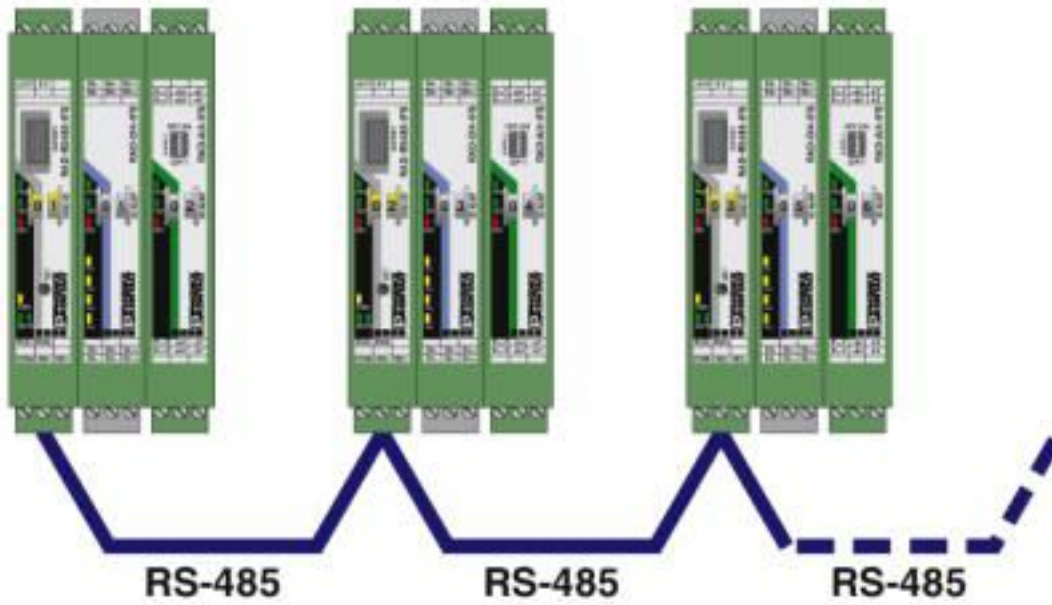
# Communication module - RAD-RS485-IFS - 2702184

Circuit diagram



# Communication module - RAD-RS485-IFS - 2702184

Functional drawing

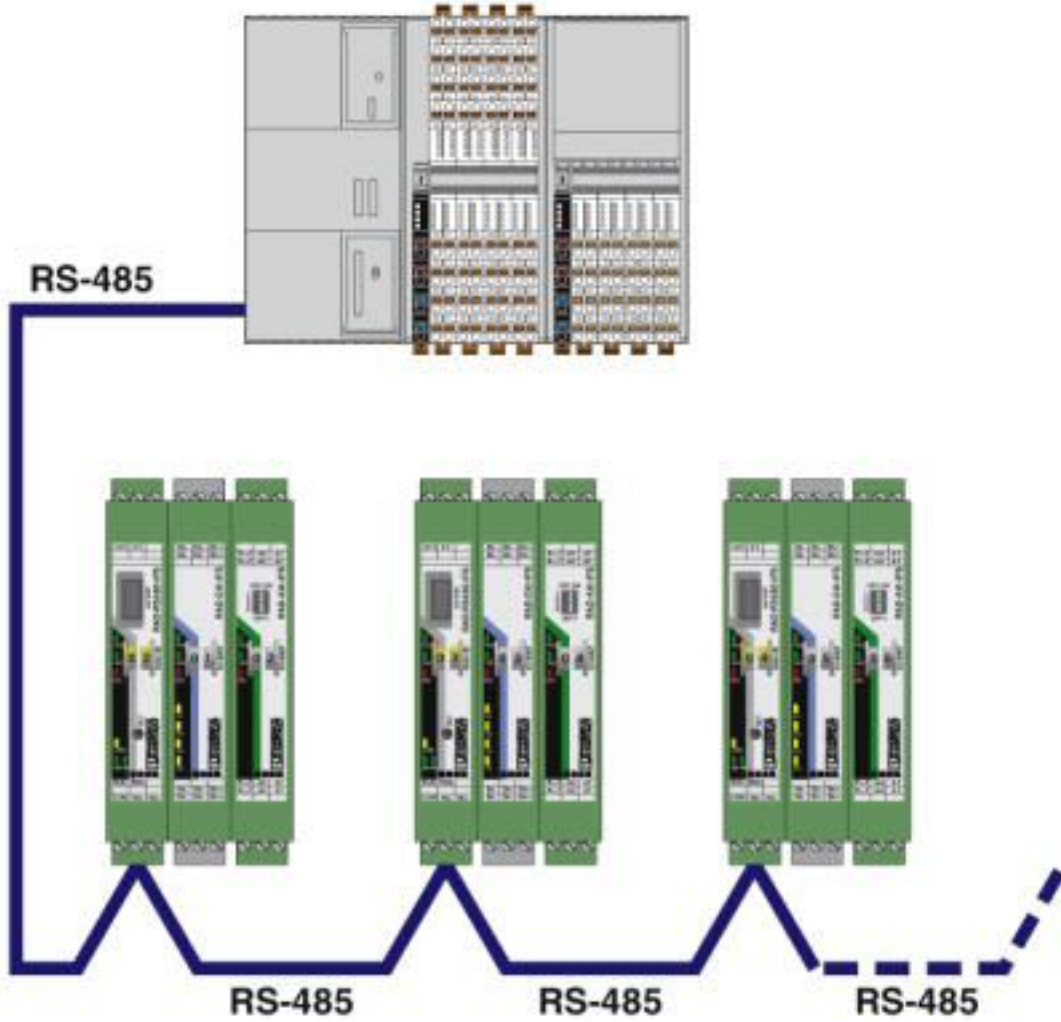


I/O-to-I/O, only RS-485



# Communication module - RAD-RS485-IFS - 2702184

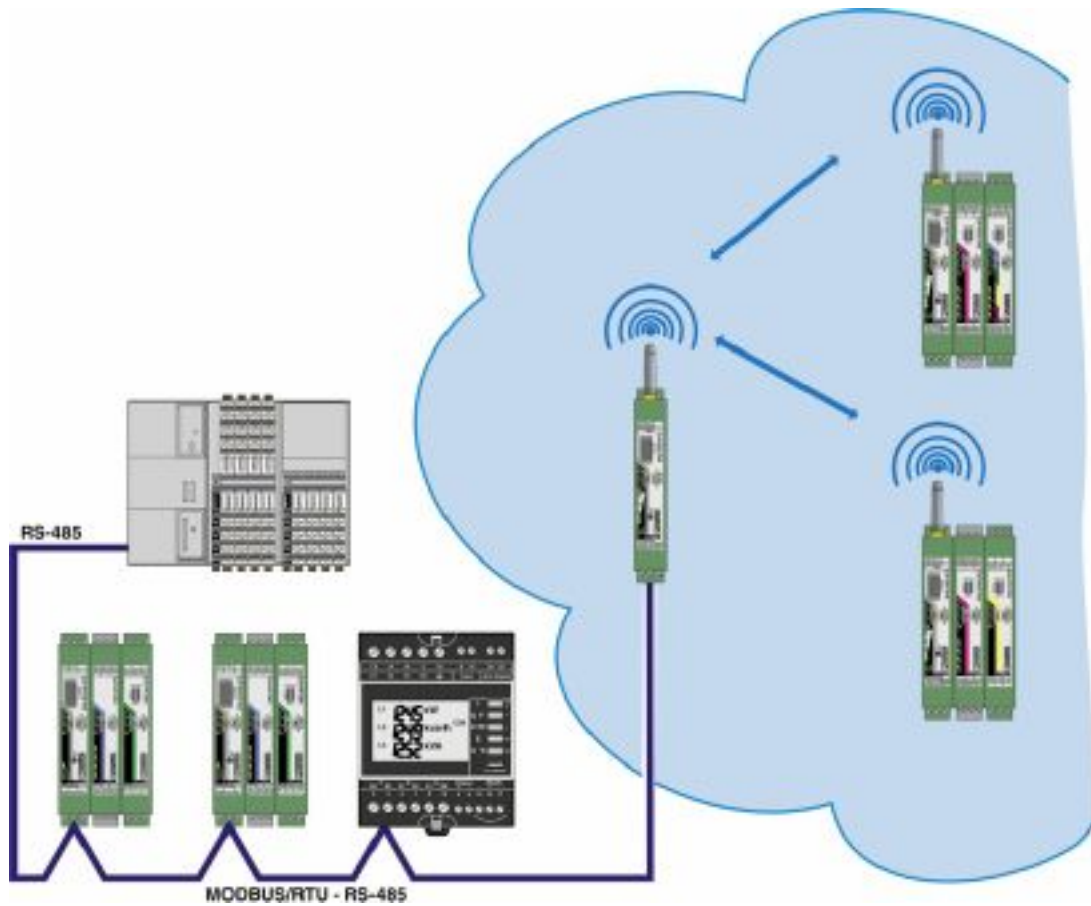
Functional drawing



Modbus/RTU slave

# Communication module - RAD-RS485-IFS - 2702184

Functional drawing



Radioline wireless system and RS-485 stations at a Modbus master (I/O-to-serial)

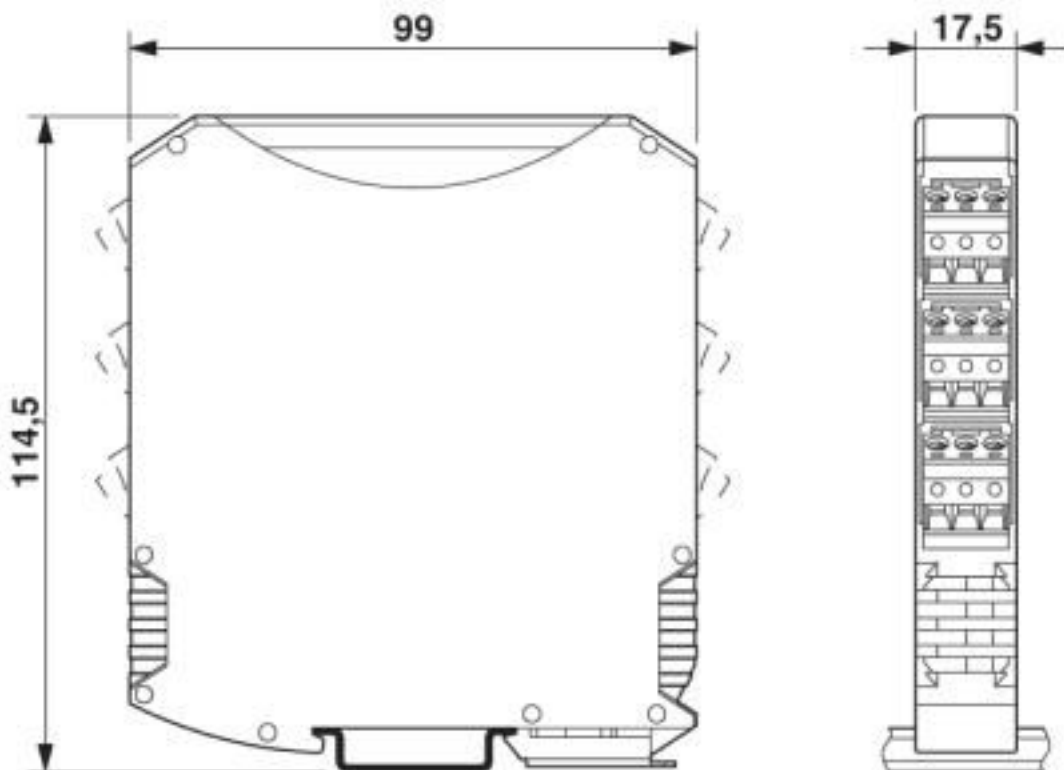
# Communication module - RAD-RS485-IFS - 2702184

Functional drawing



Radioline connection station with up to 32 I/O extension modules

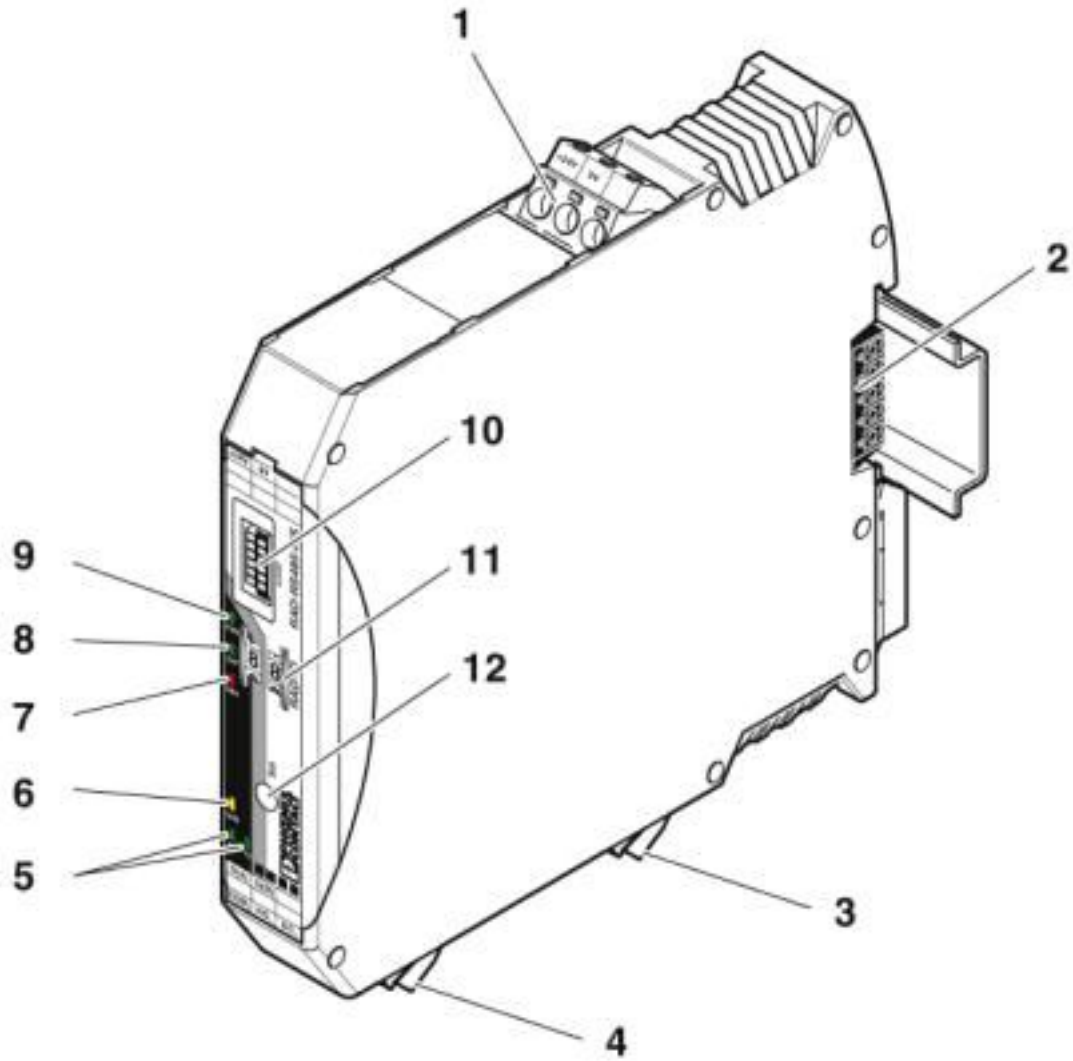
Dimensional drawing



Slim design

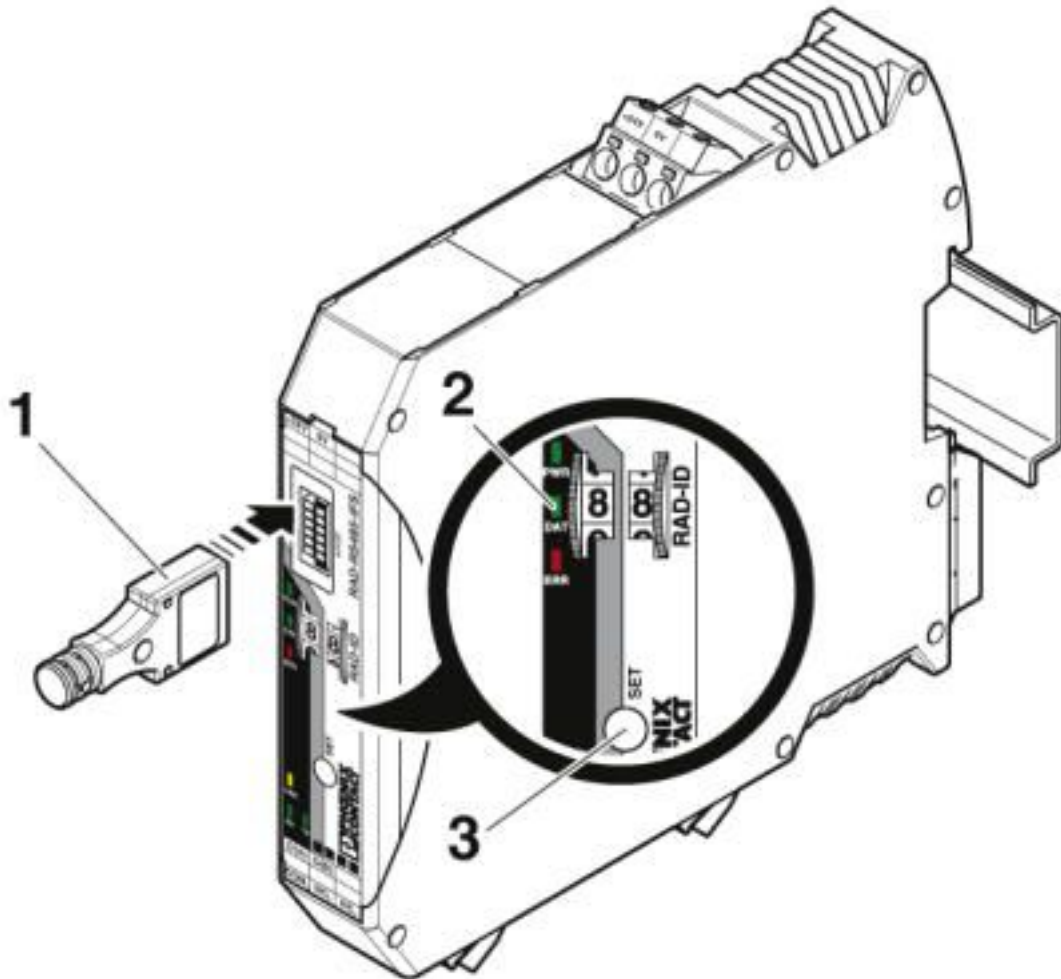
# Communication module - RAD-RS485-IFS - 2702184

Schematic diagram



# Communication module - RAD-RS485-IFS - 2702184

Schematic diagram



Configuration with memory stick

## Articles in set

DIN rail bus connectors - 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.

## Classifications

eCl@ss

eCl@ss 10.0.1	19179290
eCl@ss 5.0	27242200

# Communication module - RAD-RS485-IFS - 2702184

## Classifications

### eCl@ss

eCl@ss 5.1	27242200
eCl@ss 6.0	19179200
eCl@ss 7.0	19179290
eCl@ss 8.0	19179290
eCl@ss 9.0	19179290

### ETIM

ETIM 5.0	EC000310
ETIM 6.0	EC000310
ETIM 7.0	EC000310

### UNSPSC

UNSPSC 13.2	43222604
UNSPSC 18.0	43222604
UNSPSC 19.0	43222604
UNSPSC 20.0	43222604
UNSPSC 21.0	43222604

## Approvals

### Approvals

#### Approvals

UL Listed / cUL Listed / cULus Listed

#### Ex Approvals

IECEX / ATEX / UL Listed / cUL Listed / cULus Listed

### Approval details

UL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 238705
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cUL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 238705
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cULus Listed			
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## Communication module - RAD-RS485-IFS - 2702184

### Accessories

#### Accessories

#### Configuration memory

Configuration memory - RAD-MEMORY - 2902828



Radioline - memory stick for saving custom configuration data

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### Extension module

I/O extension module - RAD-DAIO6-IFS - 2901533



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)

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I/O extension module - RAD-DI4-IFS - 2901535



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

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I/O extension module - RAD-DOR4-IFS - 2901536



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

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I/O extension module - RAD-DI8-IFS - 2901539



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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## Communication module - RAD-RS485-IFS - 2702184

### Accessories

#### I/O extension module - RAD-NAM4-IFS - 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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#### I/O extension module - RAD-DO8-IFS - 2902811



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

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#### I/O extension module - RAD-AI4-IFS - 2901537



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

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#### I/O extension module - RAD-AI4-U-IFS - 2702290



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

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#### I/O extension module - RAD-AO4-IFS - 2901538



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

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## Communication module - RAD-RS485-IFS - 2702184

### Accessories

I/O extension module - RAD-PT100-4-IFS - 2904035

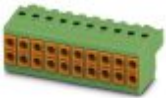


Radioline - I/O extension module, 4 Pt 100 inputs (-50°C ... +250°C / -58 °F ... 482 °F)

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### PCB plug

Printed-circuit board connector - TVFKC 1,5/ 3-ST - 1713842



PCB connector, nominal current: 10 A, rated voltage (III/2): 320 V, nominal cross section: 1.5 mm<sup>2</sup>, number of positions: 3, pitch: 5 mm, connection method: Push-in spring connection, color: green, contact surface: Tin

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### Power supply

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



Primary-switched MINI POWER supply for DIN rail mounting, input: 1-phase, output: 24 V DC/1.5 A

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### Programming cable

Cable for programming - RAD-CABLE-USB - 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

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### Shield connection clamp

Shield connection clamp - SKS 8-SNS35 - 3062786



Shield connection terminal block, for applying the shield to busbars

## Communication module - RAD-RS485-IFS - 2702184

### Accessories

#### Surge protection for information technology

Surge protection device - TTC-6P-3-HF-F-M-12DC-PT-I - 2906796



Surge protection, consisting of protective plug and base element, with integrated status indicator and knife disconnection for three signal wires with common reference potential. For HF applications and telecommunications interfaces without supply voltage. Indirect grounding via gas-filled surge arrester.

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### Trusted Wireless device

Wireless module - RAD-2400-IFS - 2901541



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 worldwide use

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Wireless module - RAD-868-IFS - 2904909



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

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Wireless module - RAD-900-IFS - 2901540



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

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### Additional products

I/O extension module - RAD-DAIO6-IFS - 2901533



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)

## Communication module - RAD-RS485-IFS - 2702184

### Accessories

I/O extension module - RAD-DI4-IFS - 2901535



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

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I/O extension module - RAD-DOR4-IFS - 2901536



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

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I/O extension module - RAD-DI8-IFS - 2901539



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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I/O extension module - RAD-DO8-IFS - 2902811



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

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I/O extension module - RAD-AI4-IFS - 2901537



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

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## Communication module - RAD-RS485-IFS - 2702184

### Accessories

I/O extension module - RAD-AO4-IFS - 2901538



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

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I/O extension module - RAD-PT100-4-IFS - 2904035



Radioline - I/O extension module, 4 Pt 100 inputs (-50°C ... +250°C / -58 °F ... 482 °F)

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