

## 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

### Why buy this product

- 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 STK
GTIN	 4 055626 007373
GTIN	4055626007373
Weight per Piece (excluding packing)	200.000 g
Custom tariff number	85176200
Country of origin	Germany

### Technical data

#### Note

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

### 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

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 (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))
	514 Years (Telcordia standard, 40°C temperature, 34.25% operating cycle (5 days a week, 12 hours a day))
	212 Years (Telcordia standard, temperature 40 °C, operating cycle 100 % (7 days a week, 24 hours a day))

### 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

### 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)
	390 Ω (switchable via DIP switches)
Transmission speed	0.3 ... 115.2 kbps (Default setting: 19.2/8/E/1)

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## Technical data

### Serial interface

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	5 x 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)

### 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
Conformance	CE-compliant
ATEX	# II 3 G Ex nA nC IIC T4 Gc
IECEX	Ex nA nC IIC T4 Gc

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## Technical data

### Standards and Regulations

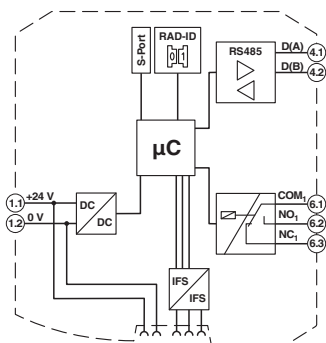
UL, USA/Canada	UL 508 Listed
	Class I, Div. 2, Groups A, B, C, D T4A
	Class I, Zone 2, IIC T4
Noxious gas test	ISA-S71.04-1985 G3 Harsh Group A

### Environmental Product Compliance

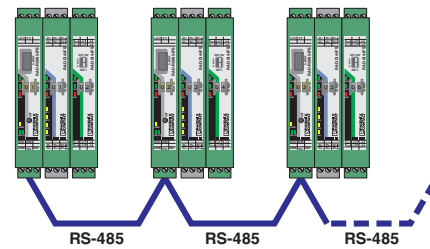
China RoHS	Environmentally Friendly Use Period = 50
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

## Drawings

Block diagram



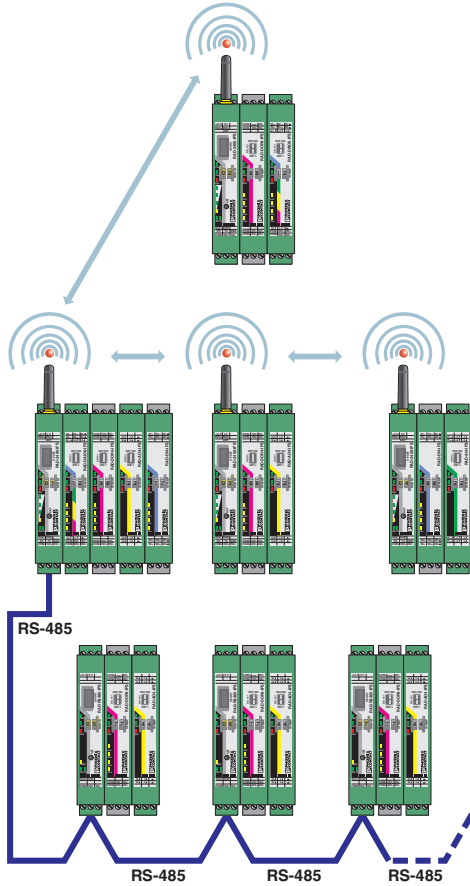
Functional drawing



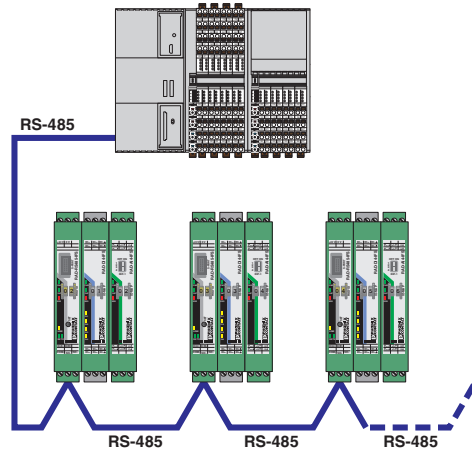
I/O-to-I/O, only RS-485

# Communication module - RAD-RS485-IFS - 2702184

Functional drawing



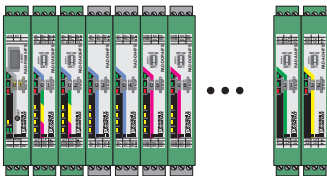
Functional drawing



Modbus/RTU slave

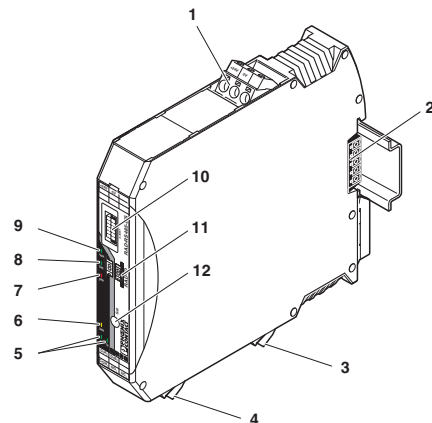
I/O-to-I/O, wireless, and RS-485

Functional drawing



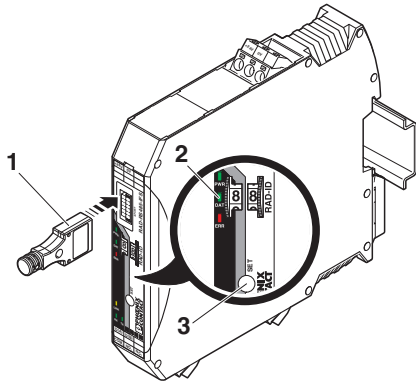
Radioline connection station with up to 32 I/O extension modules

Schematic diagram

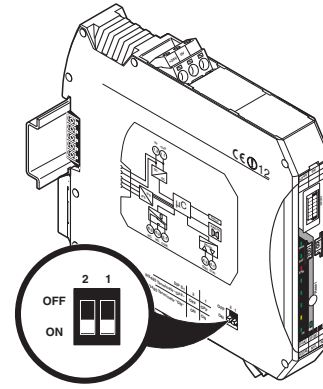


# Communication module - RAD-RS485-IFS - 2702184

Schematic diagram



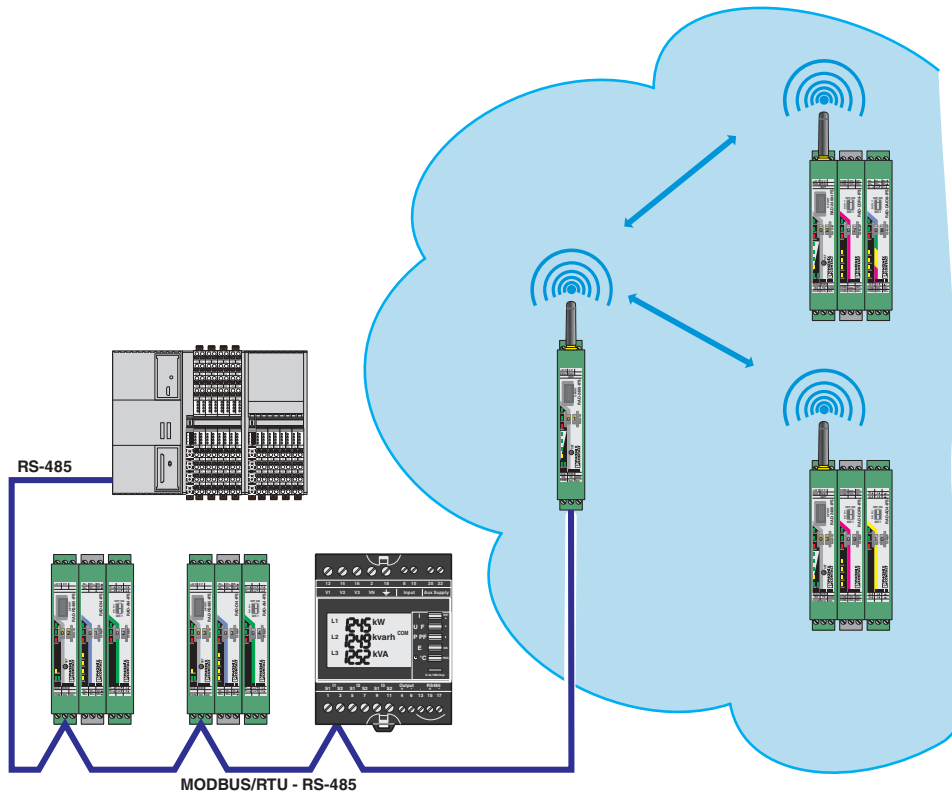
Schematic diagram



Configuration with memory stick

DIP switches

Functional drawing



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

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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.

## Classifications

### eCl@ss

eCl@ss 5.1	27242208
eCl@ss 6.0	27242208
eCl@ss 8.0	19179290
eCl@ss 9.0	19179290

### ETIM

ETIM 5.0	EC000310
ETIM 6.0	EC000310

### UNSPSC

UNSPSC 13.2	43222604
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## Approvals

### Approvals

#### Approvals

UL Listed / cUL Listed / cULus Listed

#### Ex Approvals

UL Listed / cUL Listed / ATEX / IECEx / 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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## Communication module - RAD-RS485-IFS - 2702184

### Approvals

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cULus Listed			
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### 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)



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

### Accessories

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



Radioline - I/O extension module, 4 digital relay outputs (5 A, 250 V AC/24 V 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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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, 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

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

### Accessories

Shield connection terminal block - SKS 8-SNS35 - 3062786



Shield connection terminal block, for applying the shield to busbars

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### 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

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

### Accessories

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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)

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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/24 V 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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## Communication module - RAD-RS485-IFS - 2702184

### Accessories

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-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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