

I/O extension module - RAD-AO4-IFS

2901538

<https://www.phoenixcontact.com/de/produkte/2901538>



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

Your advantages

- Easy startup via thumbwheel
- Channel-to-channel electrical isolation
- Extended temperature range, -40 °C ... +70 °C
- Easy module replacement even during operation (hot swap)
- Approved for use in zone 2

I/O extension module - RAD-AO4-IFS



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Commercial Data

Item number	2901538
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	M1 - Kommunikationstechn.
Product Key	DNC61D
Catalog Page	Page 383 (C-6-2019)
GTIN	4046356609166
Weight per Piece (including packing)	215 g
Weight per Piece (excluding packing)	174,4 g
Customs tariff number	85177900
Country of origin	DE

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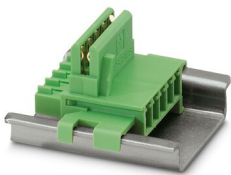
Set consists of

DIN rail bus connectors

DIN rail bus connectors - ME 17,5 TBUS 1,5/ 5-ST-3,81 GN - 2709561

<https://www.phoenixcontact.com/de/produkte/2709561>

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



Technical Data

Notes

Utilization restriction

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

CCCex note	Use in potentially explosive areas is not permitted in China.
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Product properties

Product type	Extension module
MTTF	999 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
	404 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%)
	156 Years (SN 29500 standard, temperature 40°C, operating cycle 100%)

Insulation characteristics

Overvoltage category	II
Degree of pollution	2

Electrical properties

Electrical isolation	50 V (Rated insulation voltage (in each case between the analog outputs / TBUS supply, reinforced insulation according to EN 61010))
	300 V (Rated insulation voltage (to adjacent devices, basic insulation in accordance with EN 61010))
Test voltage for analog I/Os	1.5 kV AC (50 Hz, 1 min.)
Maximum power dissipation for nominal condition	2.76 W
Transient surge protection	Yes
Supply voltage range	19.2 V DC ... 30.5 V DC (DIN rail connector)
Max. current consumption	≤ 115 mA (At 24 V DC, at 25°C)

Output data

Output name	Analog outputs
Number of outputs	4
Voltage output signal	0 V ... 10 V
Max. voltage output signal	approx. 10.83 V
Current output signal	0 mA ... 20 mA
	4 mA ... 20 mA
Max. current output signal	approx. 21.67 mA
Load	≥ 10 kΩ
	≤ 500 Ω
Resolution	16 bit

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Precision	≤ 0.02 % (at 25 °C) typ. 0.5 % (Voltage output)
Temperature coefficient, typical	typ. 0.0025 %/K (at -40 °C ... +70 °C)
Protective circuit	Transient protection of outputs

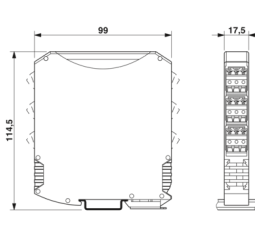
Connection data

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

LED signaling

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

Dimensions

Dimensional drawing	
Width	17.5 mm
Height	113 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 (>55°C derating)
	-40 °F ... 158 °F (>131°F derating)
Ambient temperature (storage/transport)	-40 °C ... 85 °C

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	-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

Approval data

CE

Certificate	CE-compliant
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CE

Identification	EAC
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CE

Identification	<input type="checkbox"/> II 3 G Ex nA IIC T4 Gc
Certificate	IBExU 15 ATEX B008 X
Note	Please follow the special installation instructions in the documentation!

CE

Identification	Ex nA IIC T4 Gc
Certificate	IECEx IBE 13.0019X

CE

Identification	2Ex nA nC IIC T4 Gc X
Certificate	RU C-DE.HB49.B.00033/20

CE

Identification	508 Listed
	Class I, Div. 2, Groups A, B, C, D T4A
	Class I, Zone 2, IIC T4

CE

Certificate	R-R-PCK-2901538
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CE

Certificate	KTL 20-KA4BO-0148X
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CE

Identification	ISA-S71.04-1985 G3 Harsh Group A
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EMC data

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Noise emission	EN 61000-6-4
Noise immunity	EN 61000-6-2

Standards and regulations

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Standards/specifications	EN 61000-6-2
Standards/specifications	EN 61000-6-4
Standards/specifications	EN 60079-0
Standards/specifications	EN-60079-15

Mounting

Assembly instructions	on standard DIN rail NS 35 in accordance with EN 60715
Mounting position	any

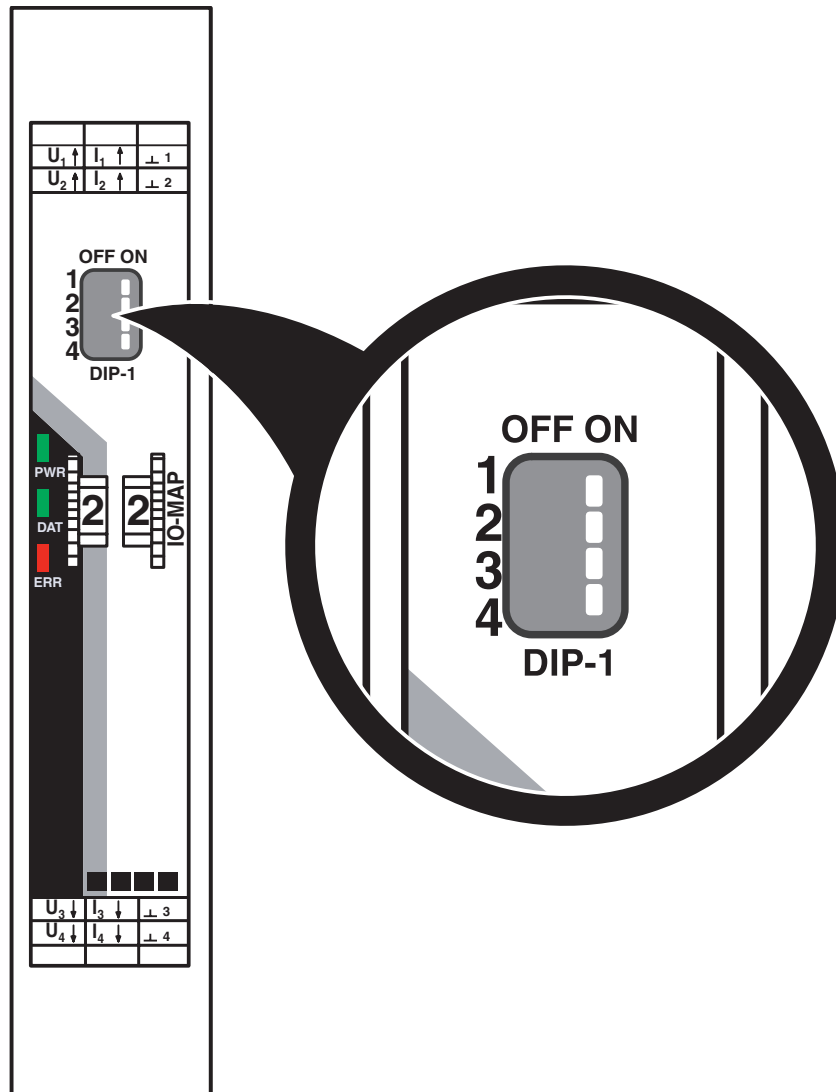
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Drawings

Schematic diagram



DIP switches

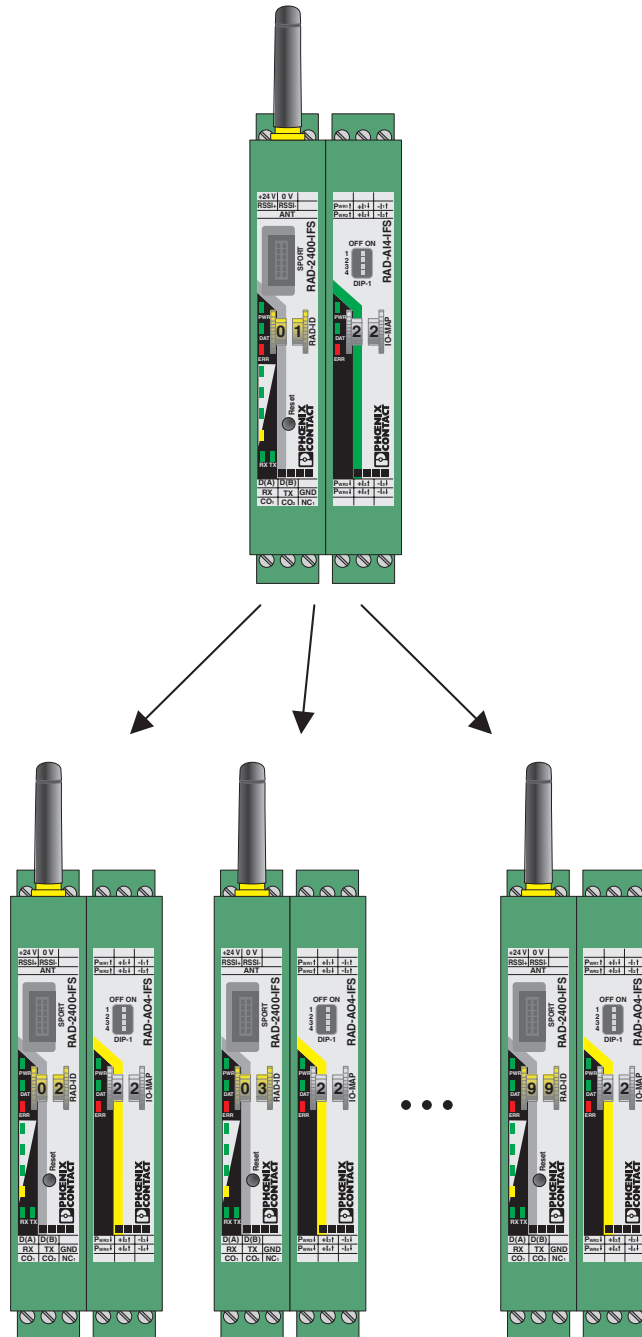
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Functional drawing



Assignment of analog inputs and analog outputs

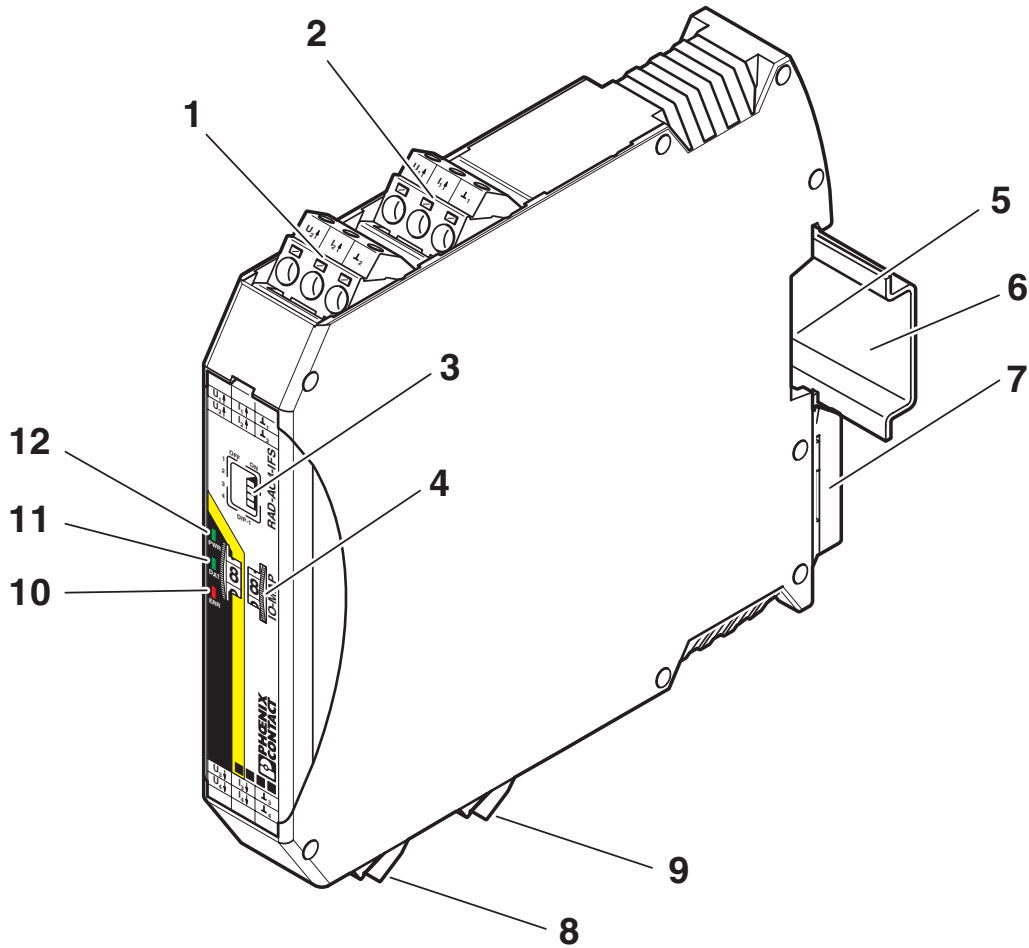
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Schematic diagram



Function elements

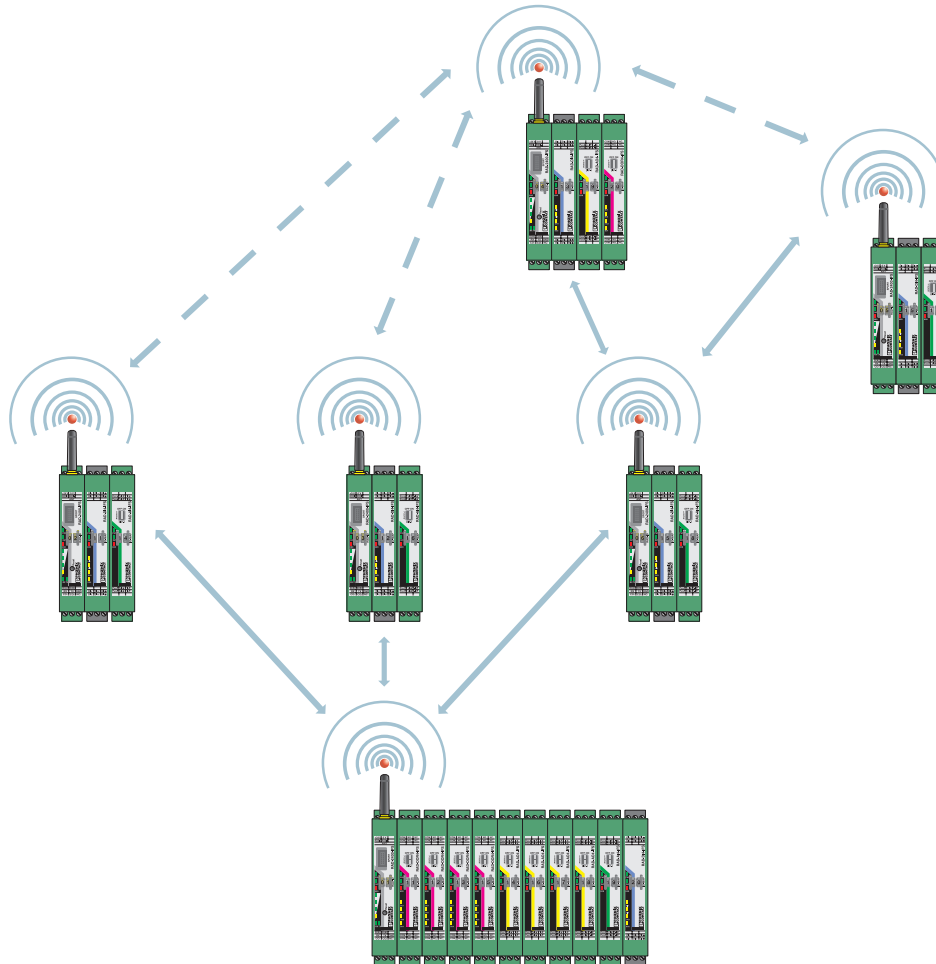
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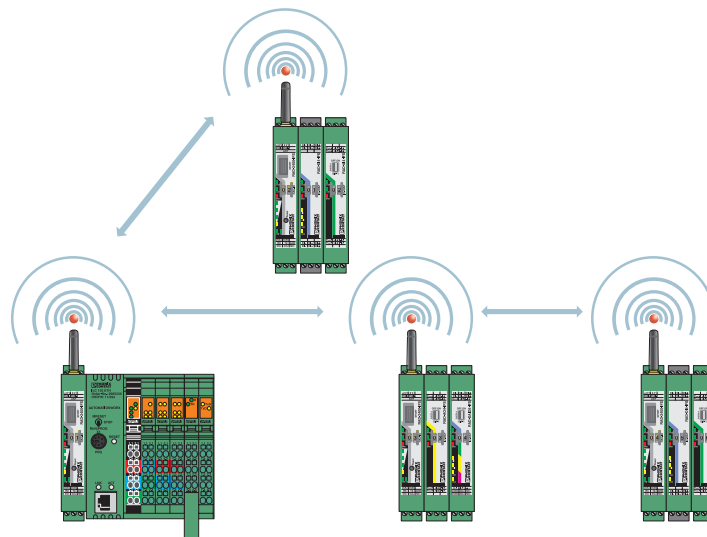


Application drawing



Wireless module in I/O data mode

Application drawing



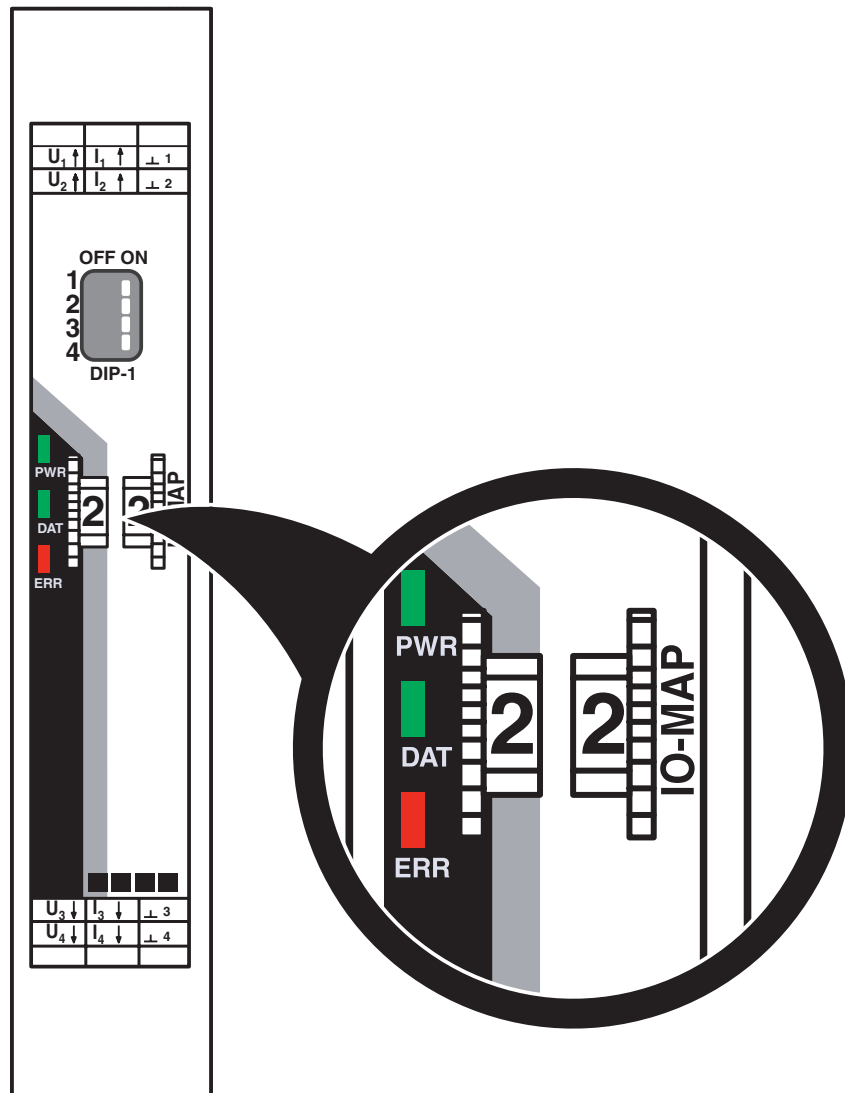
Wireless module in PLC/Modbus RTU mode

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Schematic diagram



Thumbwheel

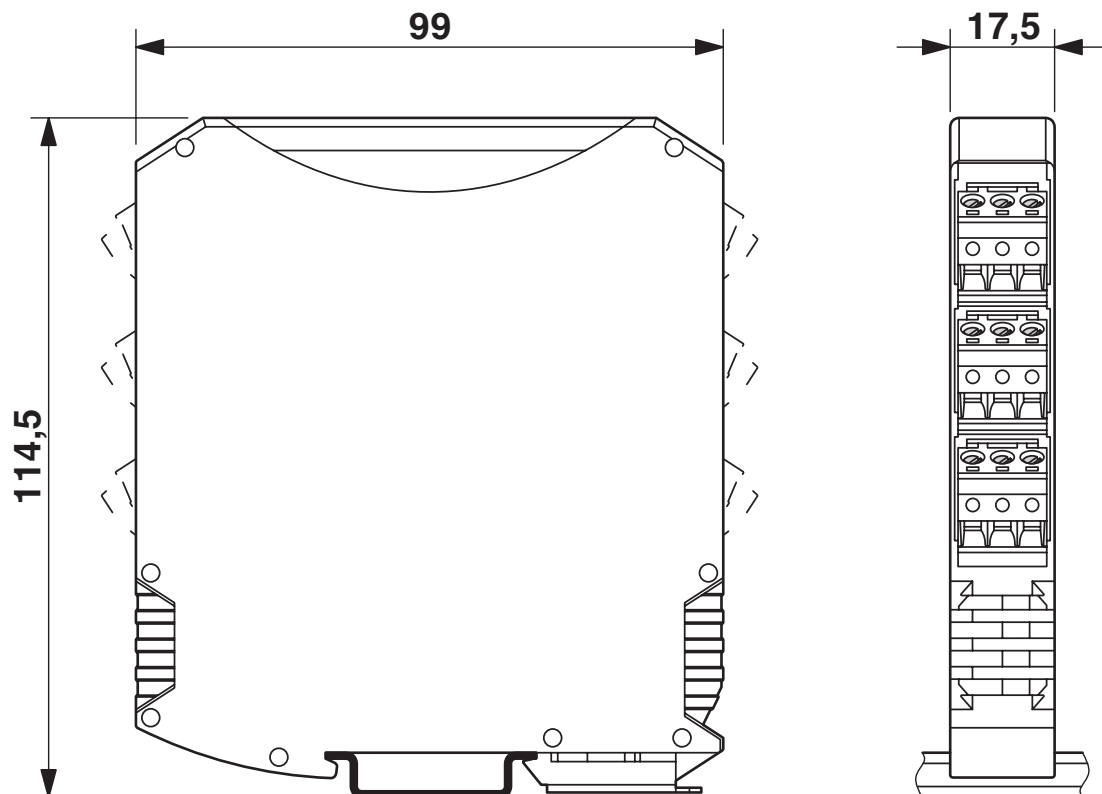
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Dimensional drawing



Slim design

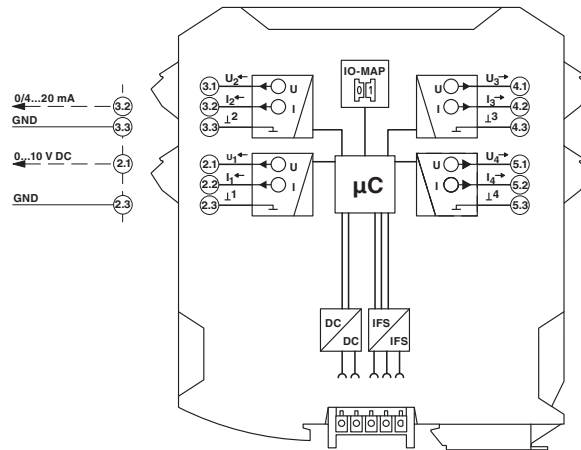
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Circuit diagram



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Approvals



UL Listed

Approval ID: FILE E 238705



cUL Listed

Approval ID: FILE E 238705



KC

Approval ID: R-R-PCK-2901538



EAC Ex

Approval ID: RU*HB49.B00033/20



IECEx

Approval ID: IECEx IBE 13.0019X



cUL Listed

Approval ID: FILE E 196811



UL Listed

Approval ID: FILE E 196811



ATEX

Approval ID: IBExU 15 ATEX B008 X

KC-s

Approval ID: 20-KA4BO-0148X

cULus Listed

cULus Listed

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Classifications

ECLASS

ECLASS-9.0	27242601
ECLASS-10.0.1	27242601
ECLASS-11.0	27242601
ECLASS-12.0	27242601

ETIM

ETIM 8.0	EC001596
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UNSPSC

UNSPSC 21.0	32151600
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Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads"

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Mandatory Accessories

Wireless module

Wireless module - RAD-2400-IFS - 2901541

<https://www.phoenixcontact.com/de/produkte/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

Wireless module

Wireless module - RAD-900-IFS - 2901540

<https://www.phoenixcontact.com/de/produkte/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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Wireless module

Wireless module - RAD-868-IFS - 2904909

<https://www.phoenixcontact.com/de/produkte/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

Communication module

Communication module - RAD-RS485-IFS - 2702184

<https://www.phoenixcontact.com/de/produkte/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

I/O extension module - RAD-AO4-IFS

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Wireless module

Wireless module - RAD-2400-IFS-JP - 2702863

<https://www.phoenixcontact.com/de/produkte/2702863>



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

Wireless module

Wireless module - RAD-900-IFS-AU - 2702878

<https://www.phoenixcontact.com/de/produkte/2702878>



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), for use in Australia.

Accessories

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I/O extension module

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

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

I/O extension module

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

<https://www.phoenixcontact.com/de/produkte/2904035>



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

I/O extension module - RAD-AO4-IFS

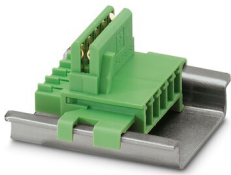
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DIN rail bus connectors

DIN rail bus connectors - ME 17,5 TBUS 1,5/ 5-ST-3,81 GN - 2709561

<https://www.phoenixcontact.com/de/produkte/2709561>



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

Multiplexer

Multiplexer - FB-MUX/HS/AIOTEMP/PA - 1005330

<https://www.phoenixcontact.com/de/produkte/1005330>



The FB-MUX/HS/AIOTEMP/PA head station can be used with up to three 4-channel analog input modules (RAD-AI4-IFS) or three 4-channel PT100 temperature sensing modules (RAD-PT100-4-IFS), and two 4-channel analog output modules (RAD-AO4-IFS). This configuration can be used as an analog input/output and temperature control solution.

I/O extension module - RAD-AO4-IFS

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I/O extension module

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

<https://www.phoenixcontact.com/de/produkte/2901537>

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



I/O extension module

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

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



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