

I/O extension module - RAD-AI4-IFS



2901537

<https://www.phoenixcontact.com/pc/products/2901537>

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



Your advantages

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

Commercial Data

Item number	2901537
Packing unit	1 pc
Minimum order quantity	1 pc
Product Key	DNC61D
Catalog Page	Page 382 (C-6-2019)
GTIN	4046356610476
Weight per Piece (including packing)	215 g
Weight per Piece (excluding packing)	195.8 g
Customs tariff number	85177900
Country of origin	DE

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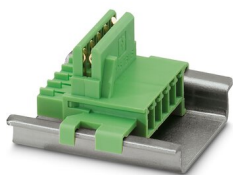
Set consists of

DIN rail bus connectors

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

<https://www.phoenixcontact.com/pc/products/2709561>

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



Technical Data

Notes

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	771 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
	351 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%)
	136 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 inputs / TBUS supply, reinforced insulation in accordance with EN 61010))
	300 V (Rated insulation voltage (to adjacent devices, basic insulation in accordance with EN/IEC 61010))
Test voltage for analog I/Os	1.5 kV AC (50 Hz, 1 min.)
Maximum power dissipation for nominal condition	2.88 W
Transient surge protection	Yes

Supply

Supply voltage range	19.2 V DC ... 30.5 V DC (DIN rail connector)
Max. current consumption	≤ 120 mA (At 24 V DC, at 25°C)

Input data

Analog

Description of the input	Analog input
Number of inputs	4
Current input signal	0 mA ... 20 mA (can be set via DIP switches)
	4 mA ... 20 mA (can be set via DIP switches)
Max. current input signal	22 mA
Input resistance current input	< 70 Ω
Resolution	16 bit
Precision	≤ 0.02 % (at 25 °C)
Protective circuit	Short-circuit and overload protection
Temperature coefficient, typical	0.0025 %/K (at -40 °C ... +70 °C)

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Supply voltage	≥ 12 V DC (For passive sensors (via terminal PWR1, +I1))
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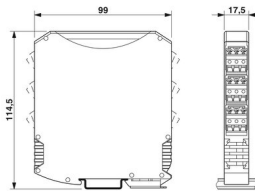
Connection data

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
Material	PA 6.6-FR (Housing)
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)
	-40 °F ... 158 °F (>131°F derating)
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

Approval data

CE

Certificate	CE-compliant
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EAC

Identification	EAC
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ATEX

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!

IECEX

Identification	Ex nA IIC T4 Gc
Certificate	IECEX IBE 13.0019X

EAC Ex

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

UL, USA / Canada

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

KC approval for South Korea

Certificate	R-R-PCK-2901537
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KC-s

Certificate	KTL 20-KA4BO-0147X
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Corrosive gas test

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

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

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Standards/specifications	EN-60079-15
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Mounting

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

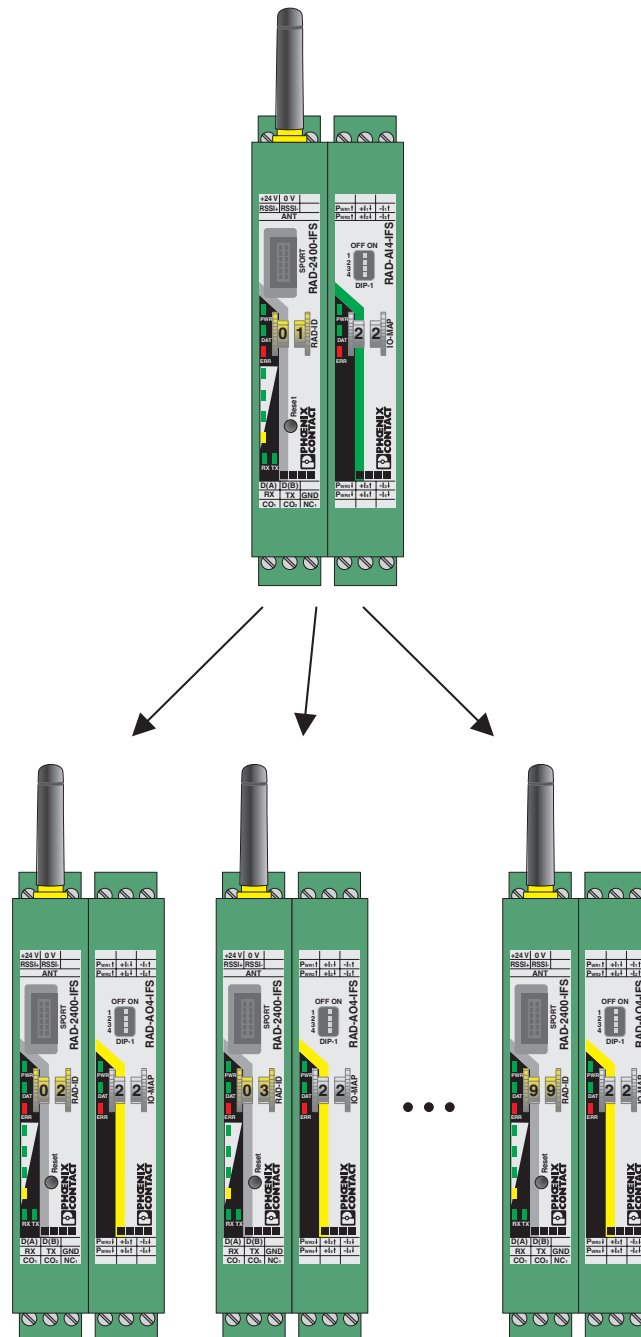
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Drawings

Functional drawing



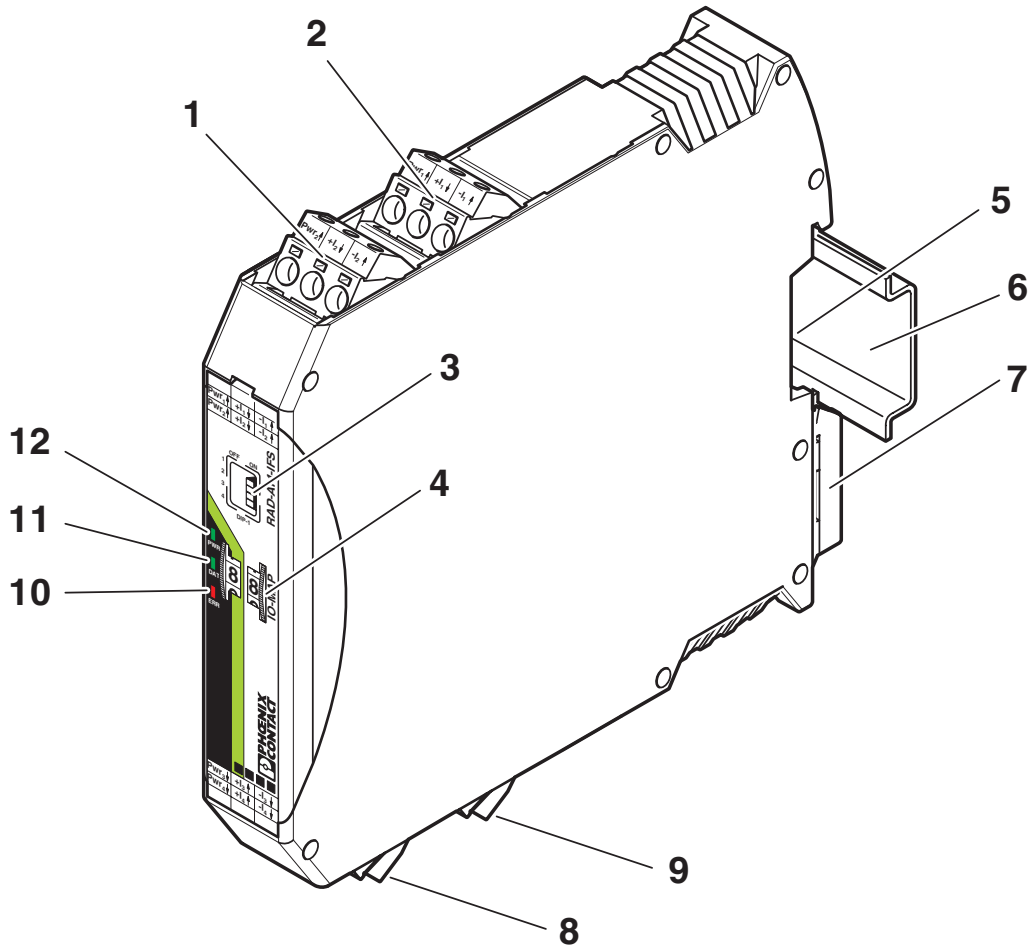
Assignment of analog inputs and analog outputs

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Schematic diagram



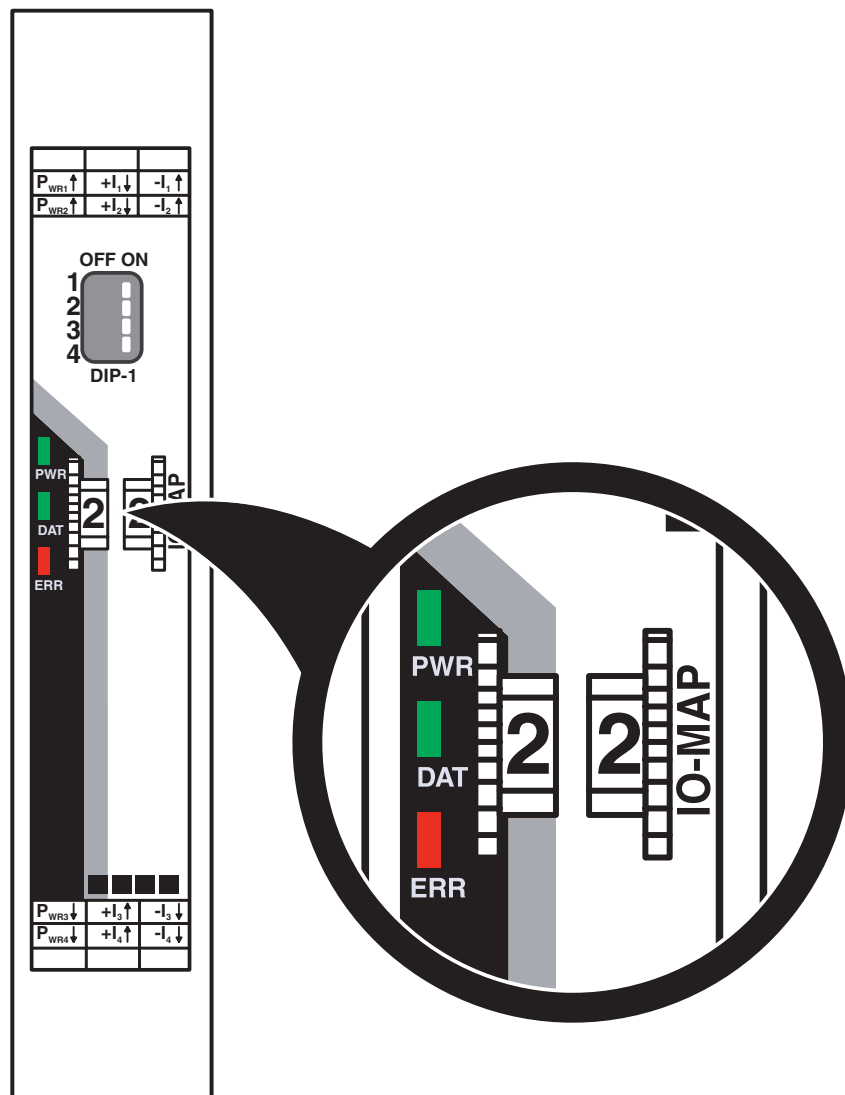
Function elements

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Schematic diagram



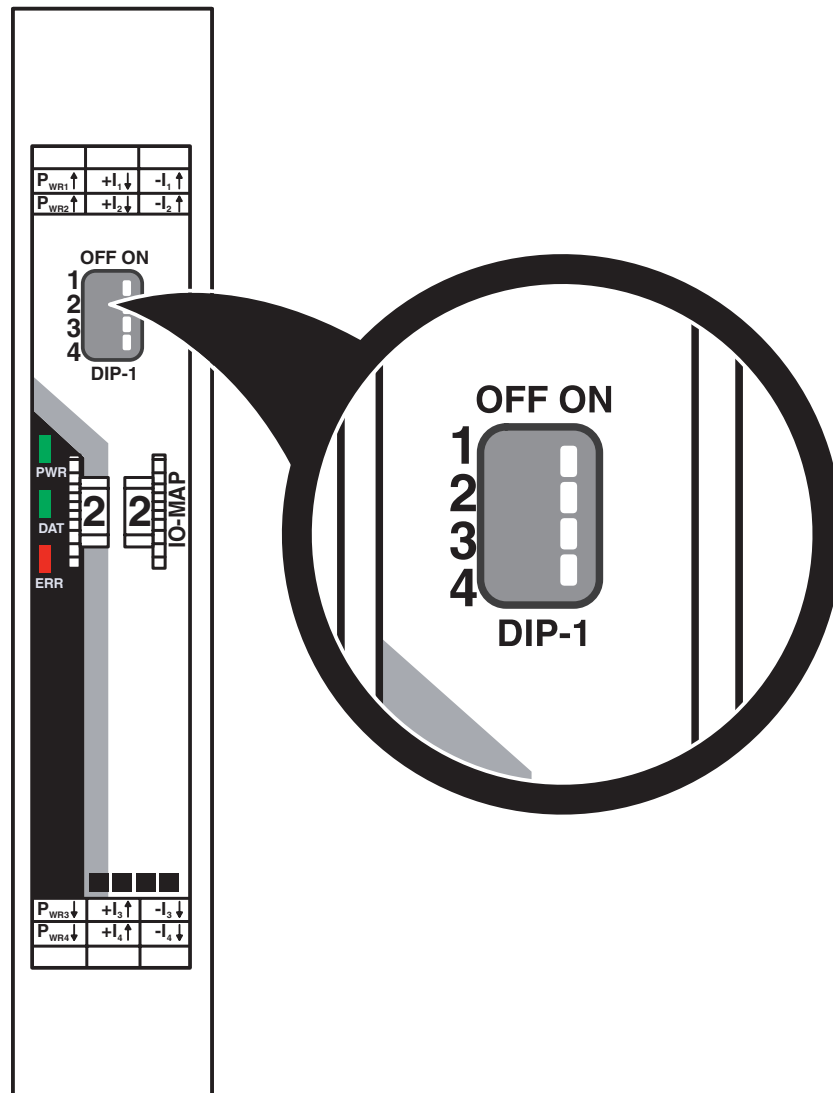
Thumbwheel

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Schematic diagram



DIP switches

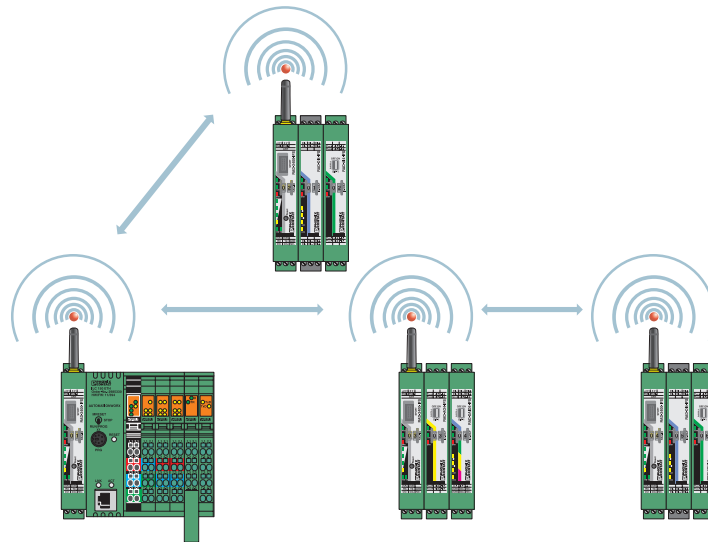
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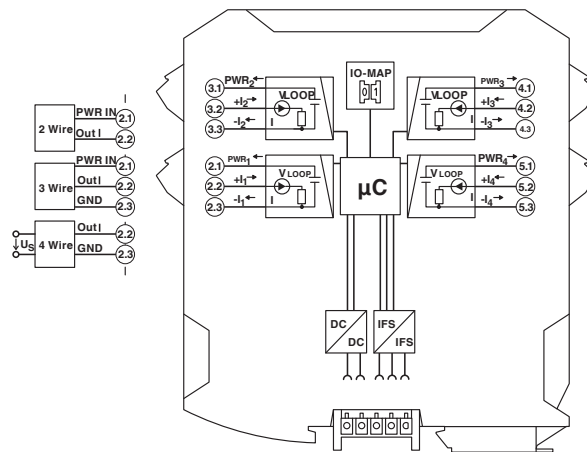


Application drawing



Wireless module in PLC/Modbus RTU mode

Circuit diagram



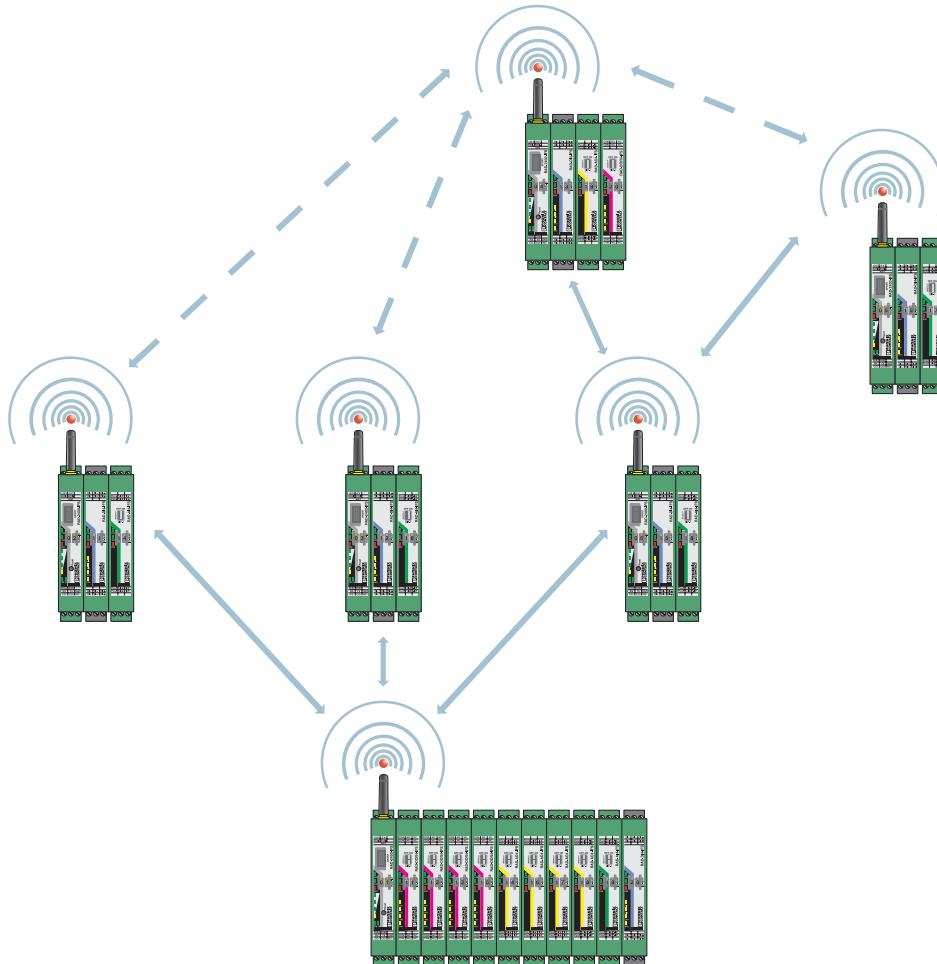
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Application drawing



Wireless module in I/O data mode

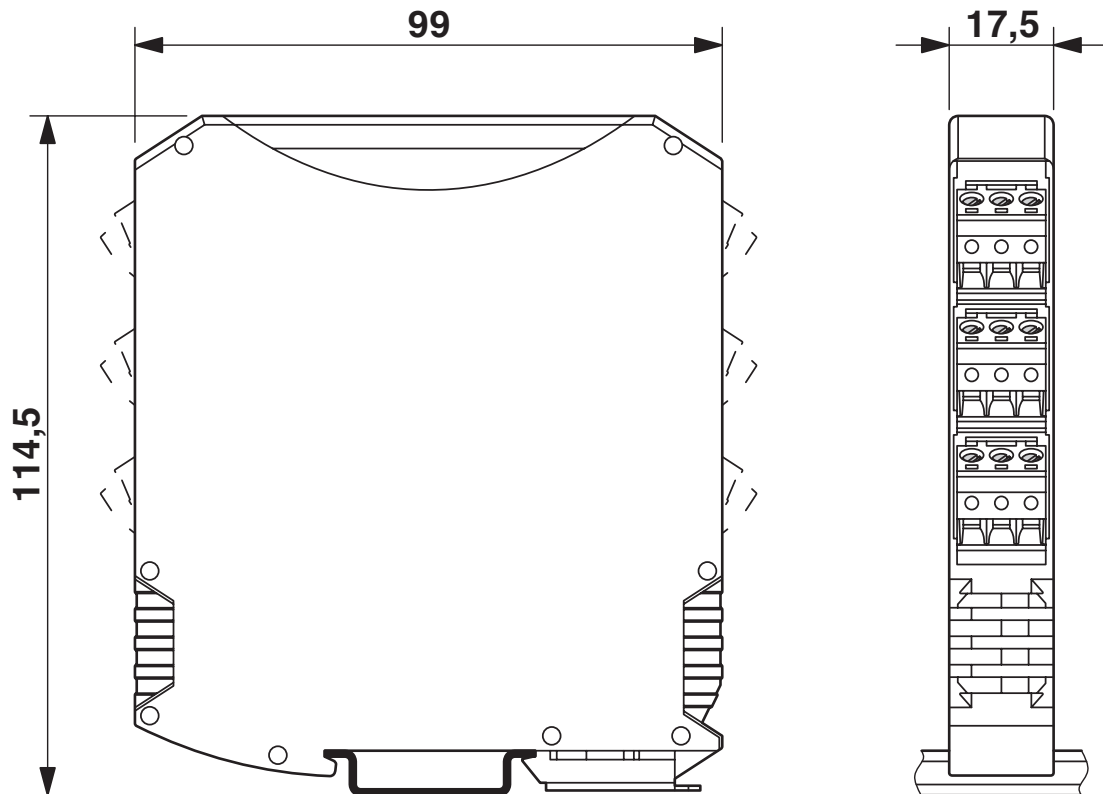
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Dimensional drawing



Slim design

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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-2901537



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: IBEExU 15 ATEX B008 X

KC-s

Approval ID: 20-KA4BO-0147X

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/pc/products/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/pc/products/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/pc/products/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/pc/products/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-AI4-IFS

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Wireless module

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

<https://www.phoenixcontact.com/pc/products/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/pc/products/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

I/O extension module - RAD-AI4-IFS

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I/O extension module

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

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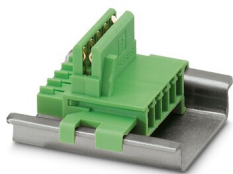


Radioline - I/O extension module, 4 analog current or voltage outputs (0/4 mA ... 20 mA, 0 V ... 10 V)

DIN rail bus connectors

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

<https://www.phoenixcontact.com/pc/products/2709561>



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

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Signal conditioner

Signal conditioner - MINI MCR-SL-UI-UI-NC - 2864150

<https://www.phoenixcontact.com/pc/products/2864150>



3-way isolating amplifier for the electrical isolation of analog signals, I/O can be configured via DIP switches, with screw connection, standard configuration

Multiplexer

Multiplexer - FB-MUX/HS/AI/PA - 1005331

<https://www.phoenixcontact.com/pc/products/1005331>



The FB-MUX/HS/AI/PA head station can be used with up to five 4-channel analog input modules (RAD-AI4-IFS), five 4-channel PT100 temperature sensing modules (PT100-4-IFS), or any combination of modules for a maximum of 20 channels. This configuration can be used as an analog input and temperature control solution.

I/O extension module - RAD-AI4-IFS



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I/O extension module

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

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