

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

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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)

Your advantages

- Channel-to-channel electrical isolation
- Extended temperature range, -40 °C ... +70 °C
- Easy module replacement even during operation (hot swap)
- Digital wide-range inputs/outputs (0 ...250 V AC/DC)
- Easy startup via thumbwheel
- Approved for use in zone 2

RoHS



Key Commercial Data

Packing unit	1 pc
GTIN	 4 046356 610216
GTIN	4046356610216
Weight per Piece (excluding packing)	240.000 g
Custom tariff number	85177000
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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Dimensions

Width	17.5 mm
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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
Overvoltage category	II
Mounting position	any
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	889 Years (SN 29500 standard, temperature 25°C, operating cycle 21%) 391 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%) 151 Years (SN 29500 standard, temperature 40°C, operating cycle 100%)

Supply

Supply voltage range	19.2 V DC ... 30.5 V DC (DIN rail connector)
Max. current consumption	≤ 95 mA (At 24 V DC, at 25°C)
Transient surge protection	Yes

Analog inputs

Number of inputs	1
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
Precision	≤ 0.02 % (at 25 °C)

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Analog inputs

Temperature coefficient, typical	typ. 0.0025 %/K (at -40 °C ... +70 °C)
Supply voltage	≥ 12 V DC (For passive sensors (via terminal PWR1, +I1))
Resolution	16 bit
Protective circuit	Short-circuit and overload protection

Digital inputs

Description of the input	Digital input
Number of inputs	2
Switching level "1" signal	10 V AC/DC ... 50 V AC/DC (Low-voltage input)
	50 V AC/DC ... 250 V AC/DC (High-voltage input)
Switching level "0" signal	0 V AC/DC ... 4 V AC/DC (Low-voltage input)
	0 V AC/DC ... 20 V AC/DC (High-voltage input)
Input frequency	≤ 2 Hz
Min. voltage input signal	0 V AC/DC
Max. voltage input signal	250 V AC/DC
Max. current consumption	< 1 mA

Analog outputs

Number of outputs	1
Voltage output signal	0 V ... 10 V
Max. voltage output signal	approx. 10.83 V
Load	≥ 10 kΩ
Precision	typ. 0.5 % (Voltage output)
Current output signal	0 mA ... 20 mA
	4 mA ... 20 mA
Max. current output signal	approx. 21.67 mA
Load	≤ 500 Ω
Precision	≤ 0.02 % (at 25 °C)
Resolution	16 bit
Temperature coefficient, typical	typ. 0.0025 %/K (at -40 °C ... +70 °C)
Protective circuit	Transient protection of outputs

Digital outputs

Number of outputs	2
Contact type	PDT
Contact material	AgSnO ₂
Maximum switching voltage	250 V AC/DC
Min. switching current	≥ 10 mA
Max. switching current	2 A (per channel)

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Digital outputs

Mechanical service life	1x 10 ⁷ cycles
Electrical service life	2x 10 ⁵ cycles (At 2 A, 250 V AC, cosφ 0.4)
	2x 10 ⁵ cycles (At 1 A, 24 V DC, L/R = 48 ms)
Maximum switching frequency	2 Hz
Switching capacity	120 W (24 V DC)
	120 W (30 V DC)
	20 W (48 V DC)
	18 W (60 V DC)
	22 W (110 V DC)
	40 W (220 V DC)
	42 W (250 V DC)
	1250 VA
Behavior of the outputs (adjustable via DIP switch)	Hold / Reset

Electrical isolation

Digital I/O	300 V (Rated insulation voltage (in each case between the digital inputs // digital outputs // TBUS supply, reinforced insulation according to EN 61010))
Analog I/O	50 V (Rated insulation voltage (in each case between the TBUS analog inputs / analog outputs / supply, reinforced insulation according to EN 61010))
Digital/analog I/O	300 V (Rated insulation voltage (in each case between the digital inputs and outputs and between the analog inputs and outputs, reinforced insulation according to EN 61010))

Test voltage

Digital I/O	2.5 kV AC (50 Hz, 1 min.)
Analog I/O	1.5 kV AC (50 Hz, 1 min.)

Connection data

Connection method	Screw connection
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
Stripping length	7 mm
Tightening torque	0.6 Nm
Screw thread	M3

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Technical data

Status indicator

Status display	Green LED (supply voltage, PWR)
	Green LED (bus communication, DAT)
	Red LED (periphery error, ERR)
	Yellow LED (digital input, DI1)
	Yellow LED (digital input, DI2)
	Yellow LED (digital output, DO1)
	Yellow LED (digital output, DO2)

Conformance/approvals

Designation	CE
Identification	CE-compliant
Designation	EAC
Identification	EAC
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
Identification	Ex nA nC IIC T4 Gc
Certificate	IECEX IBE 13.0019X
Designation	EAC Ex
Identification	2Ex nA nC IIC T4 Gc X
Certificate	TC RU C-DE.AB72.B.01483
Designation	UL, USA/Canada
Identification	508 Listed
	Class I, Div. 2, Groups A, B, C, D T4A
	Class I, Zone 2, IIC T4
Designation	KC
Certificate	R-R-PCK-2901533
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
Standards/specifications	EMC Directive 2014/30/EU EN 61000-6-2
	EMC Directive 2014/30/EU EN 61000-6-4
	Ex Directive (ATEX) EN 60079-0
	Ex Directive (ATEX) EN-60079-15

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Technical data

Standards and Regulations

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"

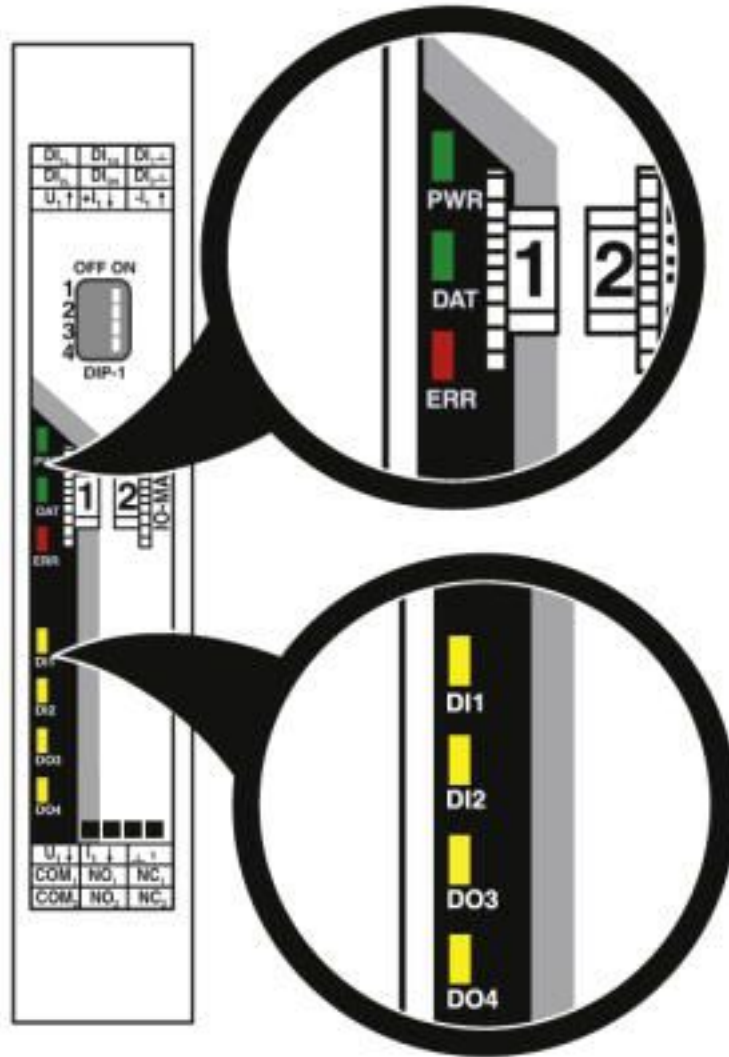
Drawings

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

Functional drawing



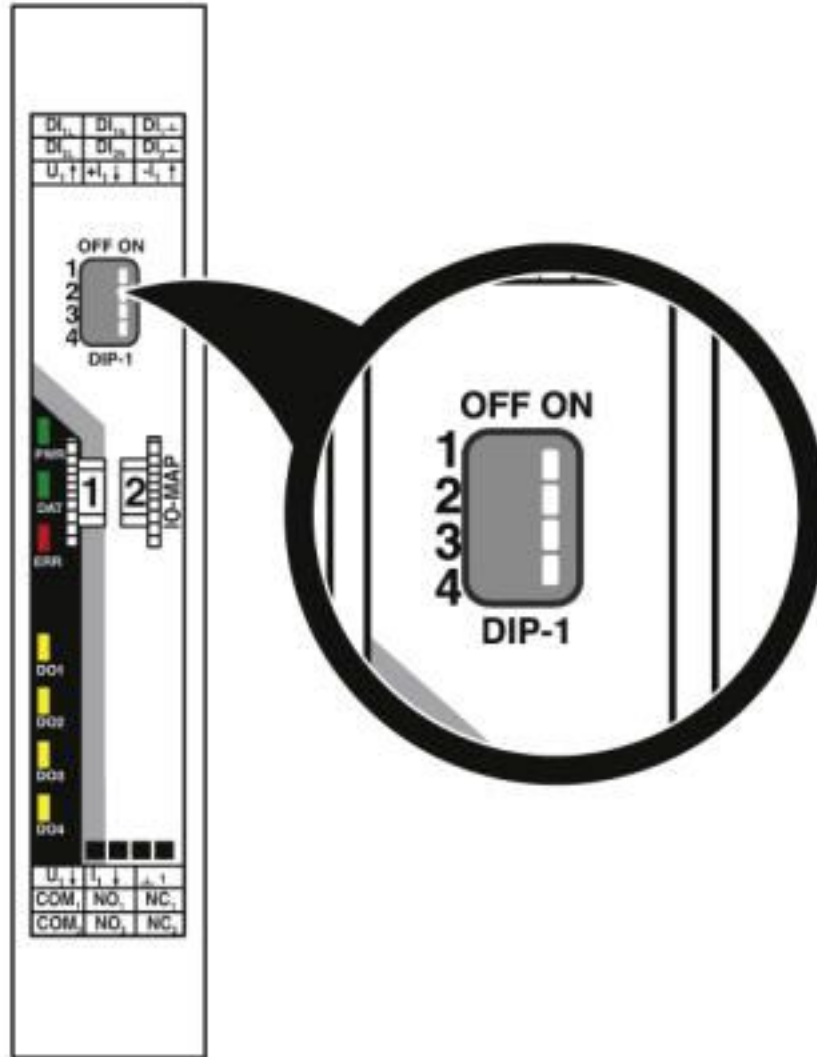
Schematic diagram



RAD-DAIO6-IFS assignment: analog/digital inputs and outputs LED indicators

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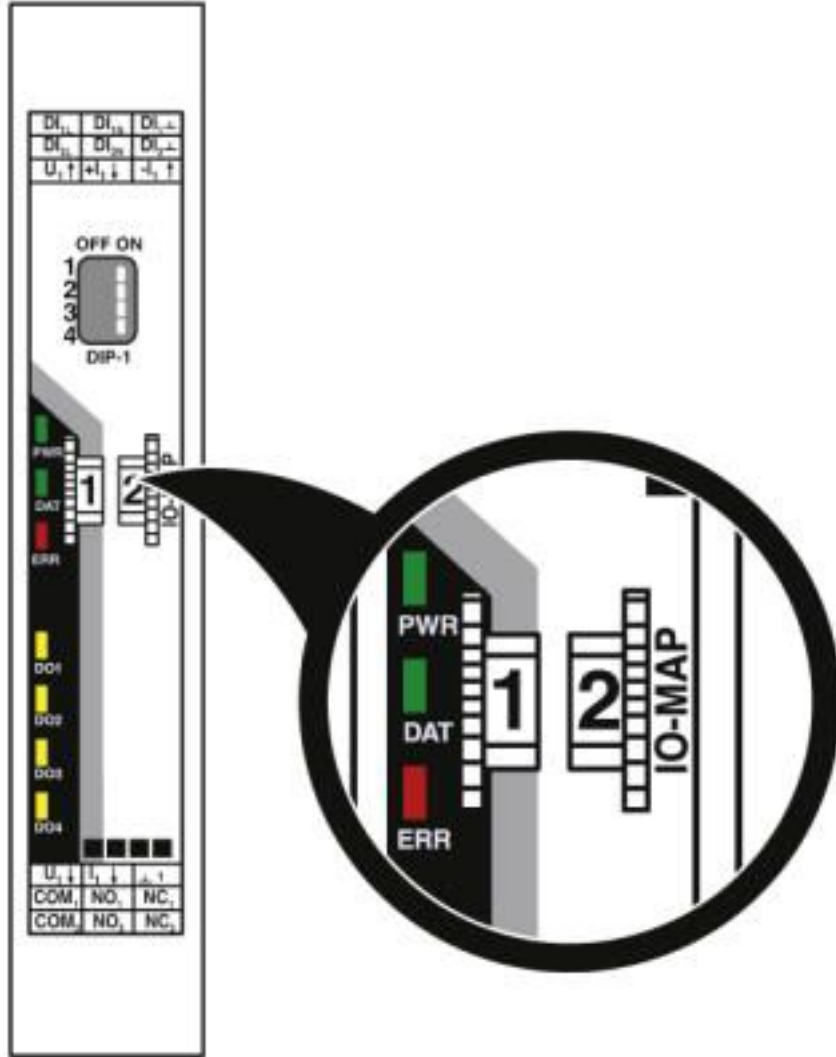
Schematic diagram



DIP switches

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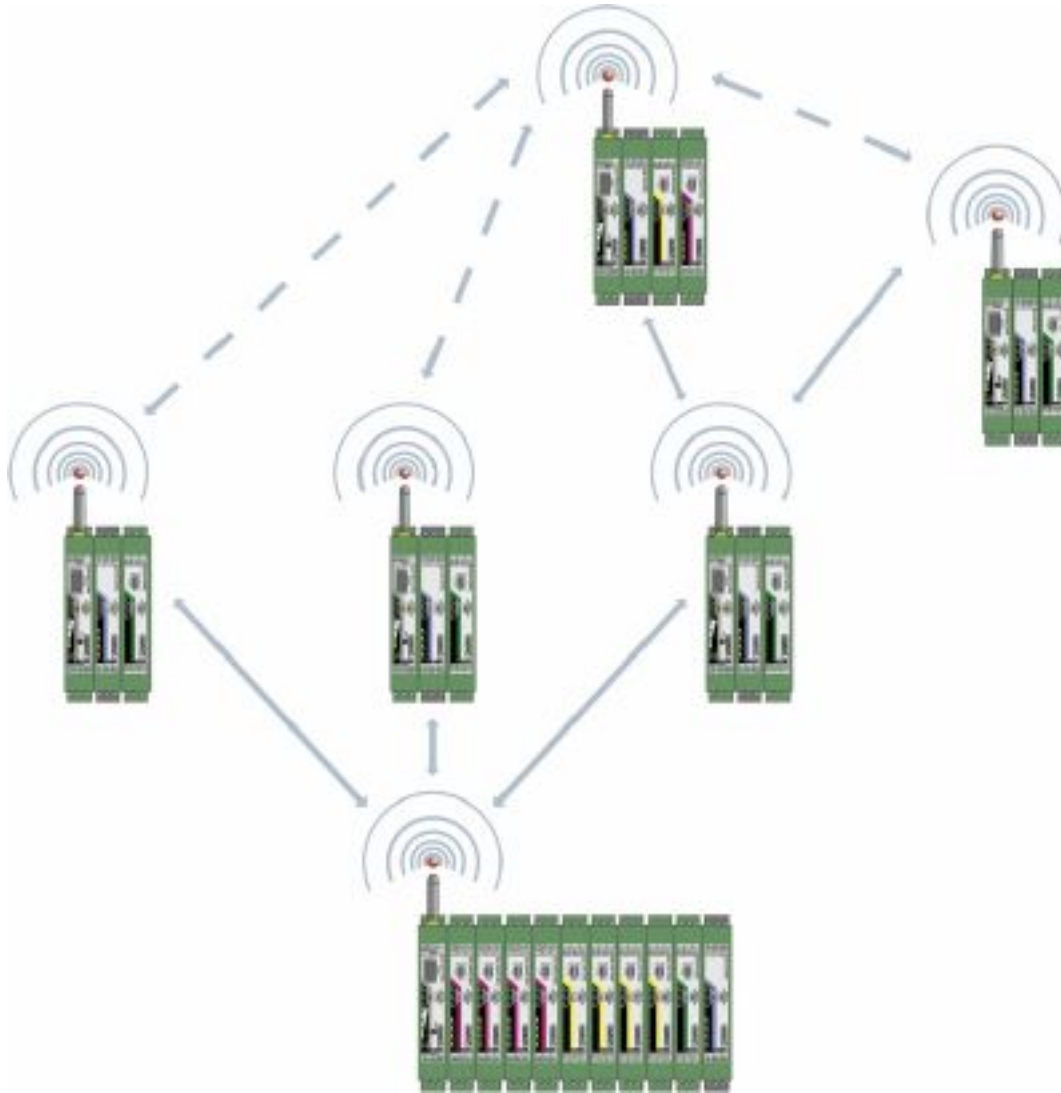
Schematic diagram



Thumb wheel

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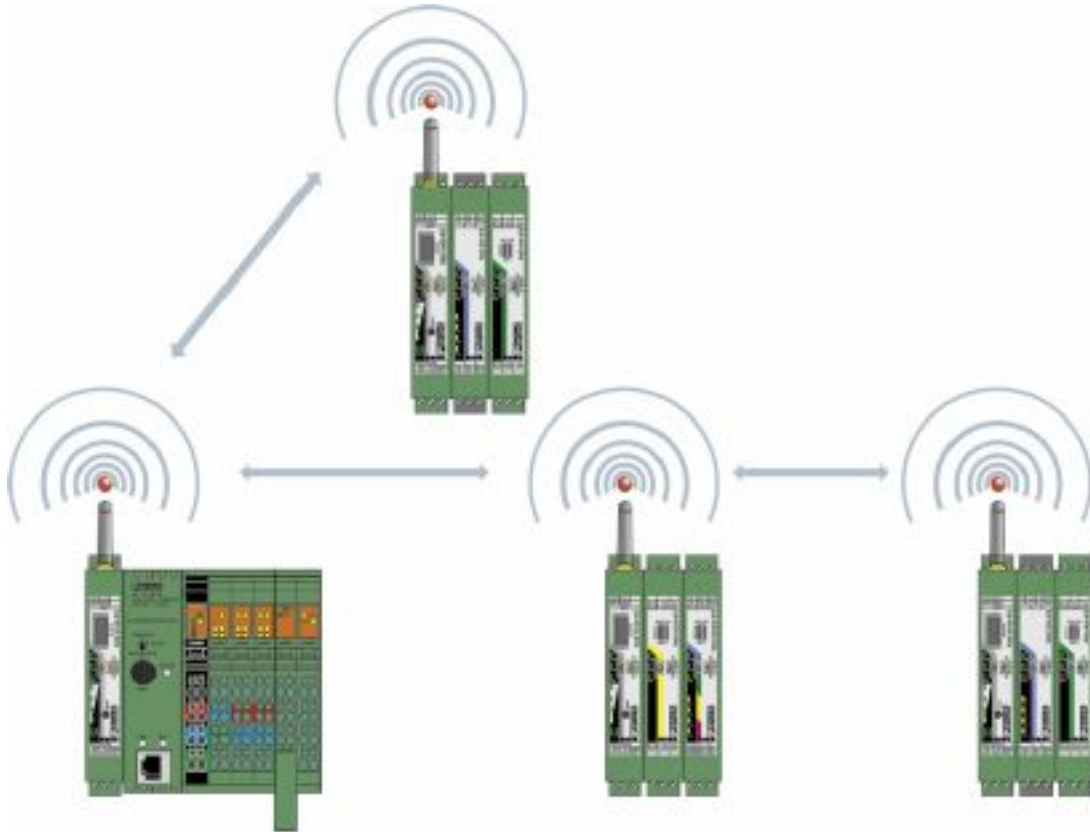
Application drawing



Wireless module in I/O data mode

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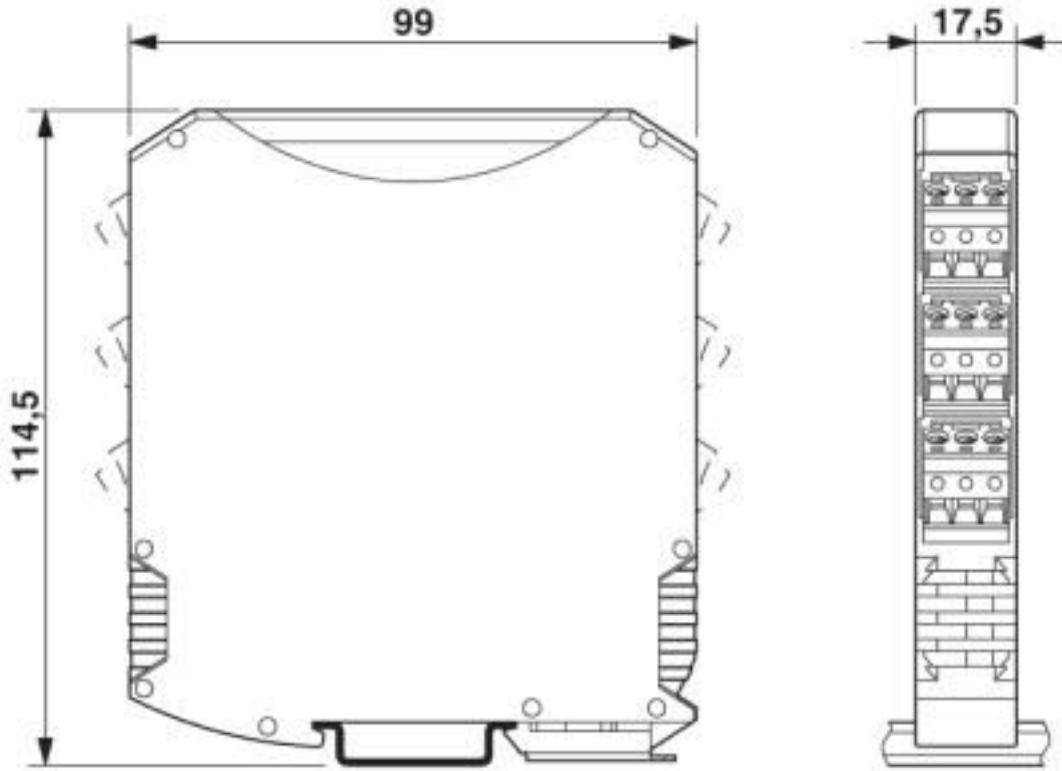
Application drawing



Wireless module in PLC/Modbus RTU mode

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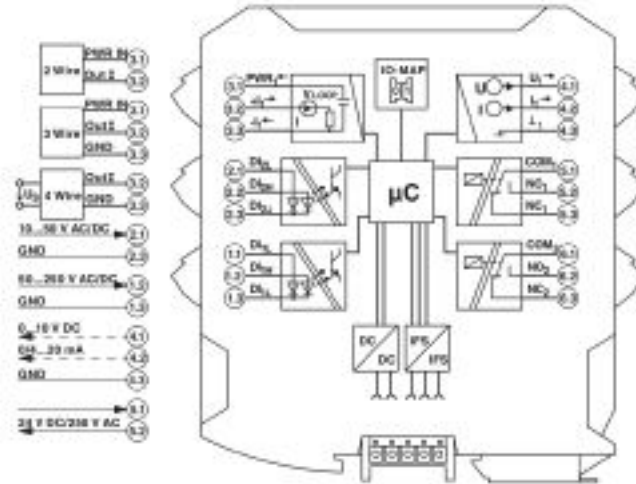
Dimensional drawing



Slim design

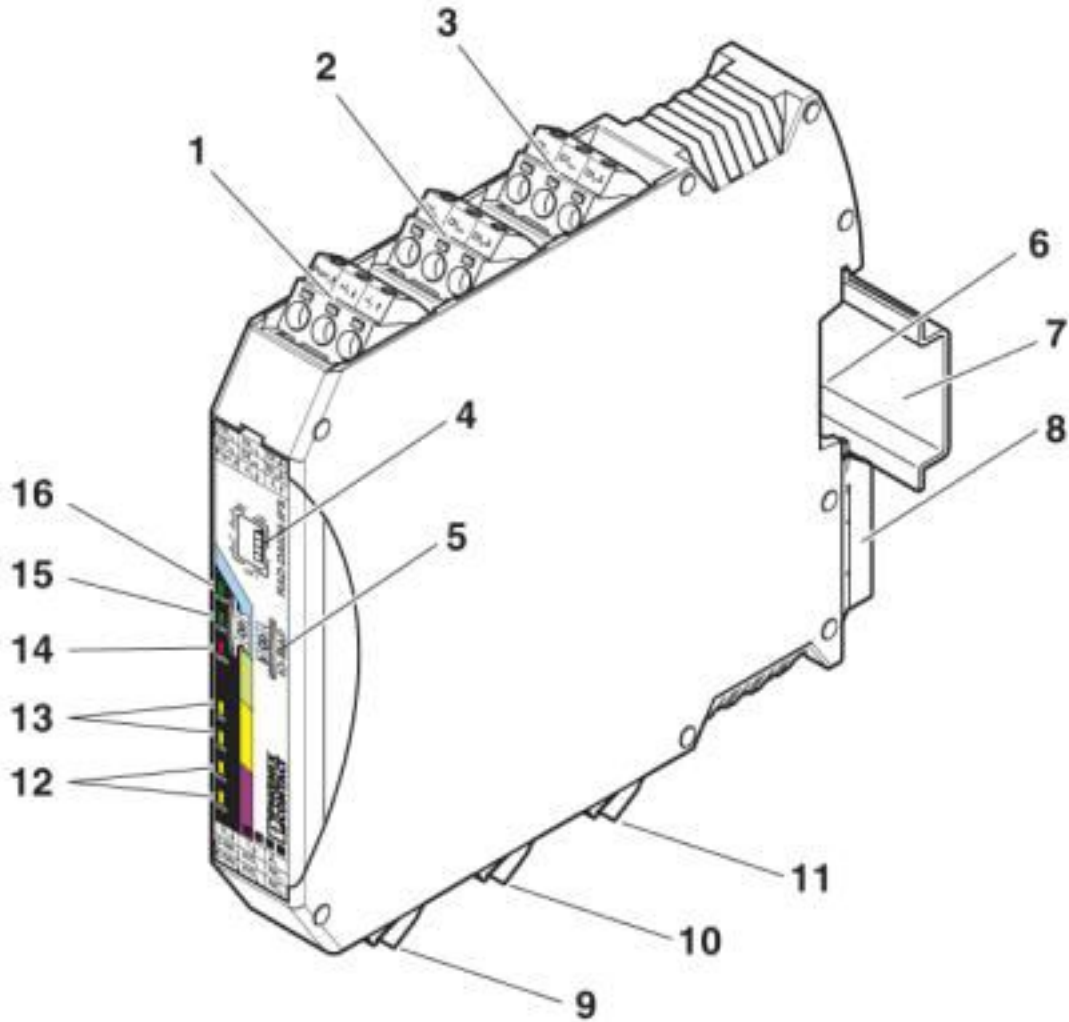
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Circuit diagram



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Schematic diagram



Function elements

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.

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Classifications

eCl@ss

eCl@ss 10.0.1	27242602
eCl@ss 4.0	27230200
eCl@ss 4.1	27230200
eCl@ss 5.0	27250600
eCl@ss 5.1	27242200
eCl@ss 6.0	27242600
eCl@ss 7.0	27242602
eCl@ss 8.0	27242602
eCl@ss 9.0	27242602

ETIM

ETIM 3.0	EC001423
ETIM 4.0	EC000310
ETIM 5.0	EC001597
ETIM 6.0	EC001597
ETIM 7.0	EC001597

UNSPSC

UNSPSC 6.01	30211506
UNSPSC 7.0901	43223108
UNSPSC 11	39121008
UNSPSC 12.01	43223108
UNSPSC 13.2	43223108
UNSPSC 18.0	32151602
UNSPSC 19.0	32151602
UNSPSC 20.0	32151602
UNSPSC 21.0	32151602

Approvals

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UL Listed / cUL Listed / EAC / cULus Listed

Ex Approvals

IECEx / ATEX / UL Listed / cUL Listed / cULus Listed

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Approvals

Approval details

UL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 238705
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cUL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 238705
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EAC			EAC-Zulassung
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cULus Listed			
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Accessories

Accessories

DIN rail connector

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.

Interface converter

Multiplexer - FB-MUX/HS/DAIO/PA - 1005329



The FB-MUX/HS/DAIO/PA head station can be used with up to three, 6-channel Digital-Analog-Input-Output modules (RAD-DAIO6-IFS). This configuration can be used as a combination digital and analog I/O solution.

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Accessories

Necessary add-on products

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

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

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

Communication module - RAD-RS485-IFS - 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

Wireless module - RAD-2400-IFS-JP - 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

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

Accessories

Wireless module - RAD-900-IFS-AU - 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.

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)