

RAD-DAIO6-IFS - I/O extension module



2901533

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

- 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)
- Digital wide-range inputs/outputs (0 ...250 V AC/DC)
- Approved for use in zone 2

Commercial data

Item number	2901533
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN26
Product key	DNC61D
Catalog page	Page 380 (C-6-2019)
GTIN	4046356610216
Weight per piece (including packing)	200.6 g
Weight per piece (excluding packing)	123.43 g
Customs tariff number	85177900
Country of origin	DE

RAD-DAIO6-IFS - I/O extension module



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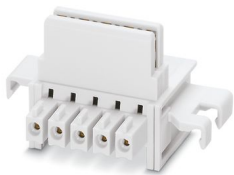
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Set consists of

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

2713645

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DIN rail connector, color: light grey, nominal current: 8 A (parallel contacts), rated voltage (III/2): 125 V, number of positions: 5, pitch: 3.81 mm, mounting: DIN rail mounting, locking: without, mounting: without, type of packaging: packed in cardboard, Item with gold-plated contacts, bus connectors for connecting with electronics housings, 5 parallel contacts

Technical data

Product properties

Product type	Extension module
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%)

Insulation characteristics

Overvoltage category	II
Degree of pollution	2

Electrical properties

Electrical isolation	300 V (Rated insulation voltage (in each case between the digital inputs // digital outputs // TBUS supply, reinforced insulation in accordance with EN/IEC 61010))
	50 V (Rated insulation voltage (in each case between the analog inputs / analog outputs / TBUS supply, reinforced insulation in accordance with EN/IEC 61010))
	300 V (Rated insulation voltage (in each case between the digital inputs and outputs // analog inputs and outputs, reinforced insulation in accordance with EN/IEC 61010))
	300 V (Rated insulation voltage (to adjacent devices, basic insulation in accordance with EN/IEC 61010))
Test voltage for digital I/Os	2.5 kV AC (50 Hz, 1 min.)
Test voltage for analog I/Os	1.5 kV AC (50 Hz, 1 min.)
Maximum power dissipation for nominal condition	2.28 W
Transient surge protection	Yes

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)

Input data

Digital

Max. current consumption	< 1 mA
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Analog

Description of the input	Analog input
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

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Resolution	16 bit
Precision	$\leq 0.02\%$ (at 25 °C)
Protective circuit	Short-circuit and overload protection
Temperature coefficient, typical	typ. 0.0025 %/K (at -40 °C ... +70 °C)
Supply voltage	12 V DC (U_{ANA} via terminal block PWR1, +I1, for passive sensors, 25 mA)

Digital

Description of the input	Digital input
Number of inputs	2
Voltage input signal	0 V AC/DC ... 250 V AC/DC
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)
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)
Input frequency	≤ 2 Hz

Output data

Digital

Output name	Relay output
Number of outputs	2
Contact switching type	Changeover contact
Contact material	AgSnO ₂
Maximum switching voltage	250 V AC/DC
Min. switching current	≥ 10 mA
Max. switching current	2 A (250 V AC) 0.168 A (250 V DC) 2 A (24 V DC)
Mechanical service life	1×10^7 cycles
Electrical service life	2×10^5 cycles (At 2 A, 250 V AC, $\cos\phi$ 0.4) 2×10^5 cycles (At 1 A, 24 V DC, L/R = 48 ms)
Maximum switching frequency	2 Hz
Behavior of the outputs (adjustable via DIP switch)	Hold / Reset

Analog

Output name	Analog output
Number of outputs	1
Voltage output signal	0 V ... 10 V
Max. voltage output signal	~ 10.83 V
Current output signal	0 mA ... 20 mA 4 mA ... 20 mA
Max. current output signal	~ 21.67 mA
Load	≥ 10 k Ω ≤ 500 Ω
Resolution	16 bit

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Precision	$\leq 0.02\%$ (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

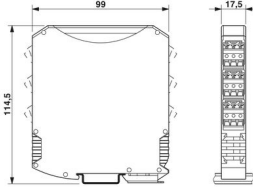
Connection data

Cross section AWG	(converted acc. to IEC)
Tightening torque	0.5 Nm ... 0.6 Nm
	5 lb _F in. ... 7 lb _F in.
Connection method	Screw connection
Stripping length	7 mm
Conductor cross section, rigid min.	0.2 mm ²
Conductor cross section, rigid 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

Signaling

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)

Dimensions

Dimensional drawing	
Width	17.5 mm
Height	113 mm
Depth	114.5 mm

Material specifications

Material	PA 6.6-FR
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, see technical documentation) -40 °F ... 158 °F (>131°F derating, see technical documentation)
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

Approvals

CE

Certificate	CE-compliant
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UKCA

Certificate	UKCA-compliant
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ATEX

Identification	Ⓔ II 3 G Ex ec nC IIC T4 Gc
Certificate	IBExU 15 ATEX B008 X
Note	Please follow the special installation instructions in the documentation!

IECEX

Identification	Ex ec nC 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
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CCC / China-Ex

Identification	Ex ec nC IIC T4 Gc
Certificate	2022122310115625

KC approval for South Korea

Certificate	R-R-PCK-2901533
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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
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Standards and regulations

Standard designation	EMC Directive 2014/30/EU
Standards/specifications	EN 61000-6-2
Standard designation	EMC Directive 2014/30/EU
Standards/specifications	EN 61000-6-4
Standard designation	Ex Directive (ATEX)
Standards/specifications	EN 60079-0
Standard designation	Ex Directive (ATEX)
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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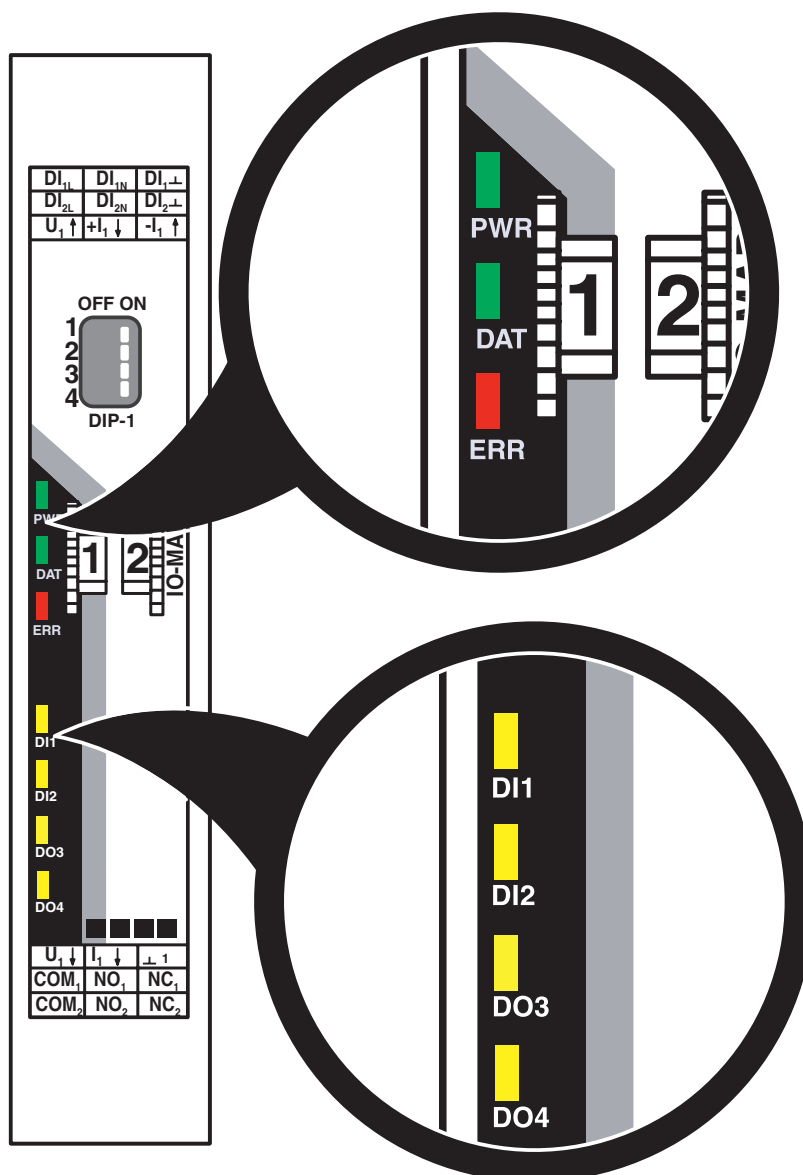
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Drawings

Schematic diagram



LED indicators

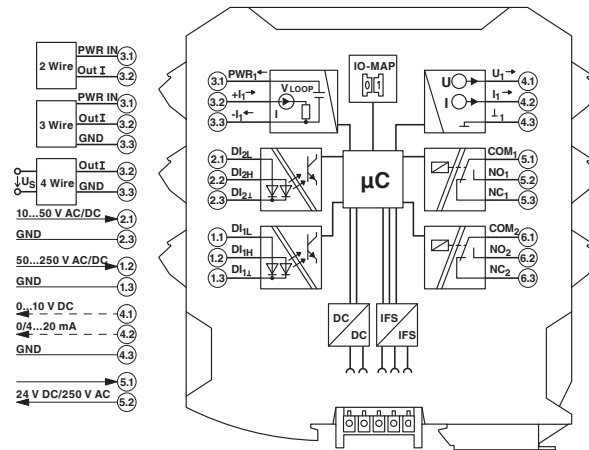
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Circuit diagram



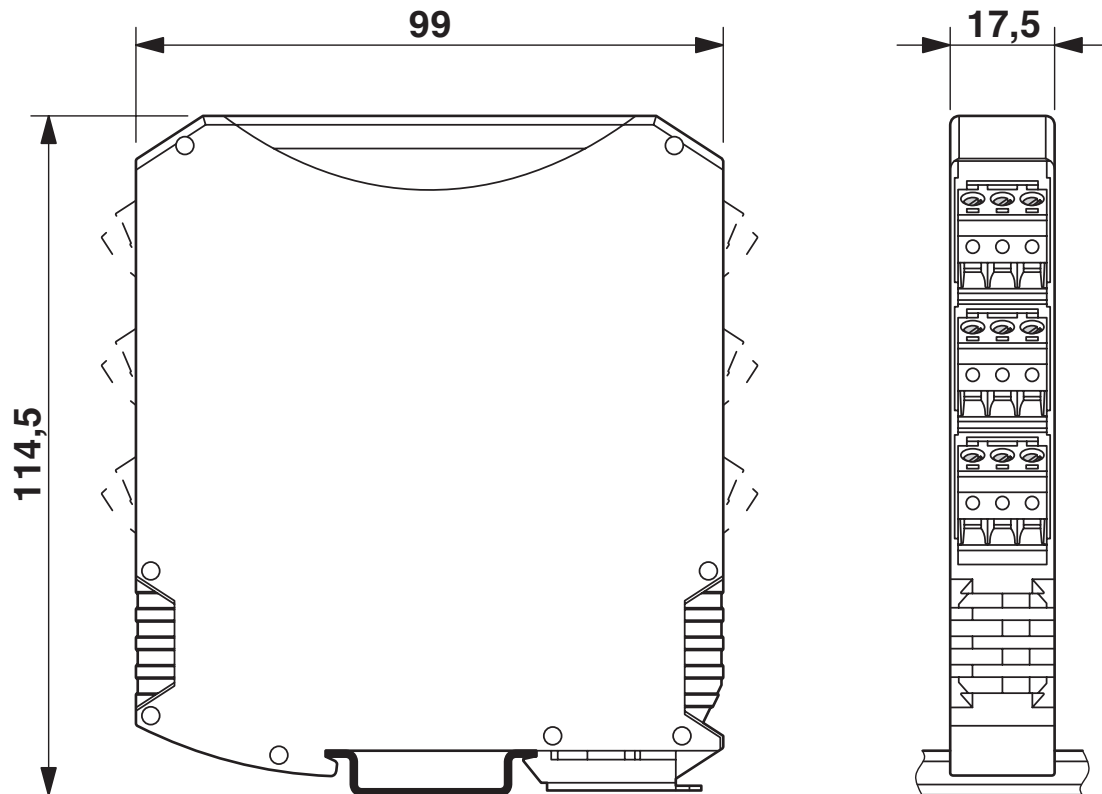
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Dimensional drawing



Slim design

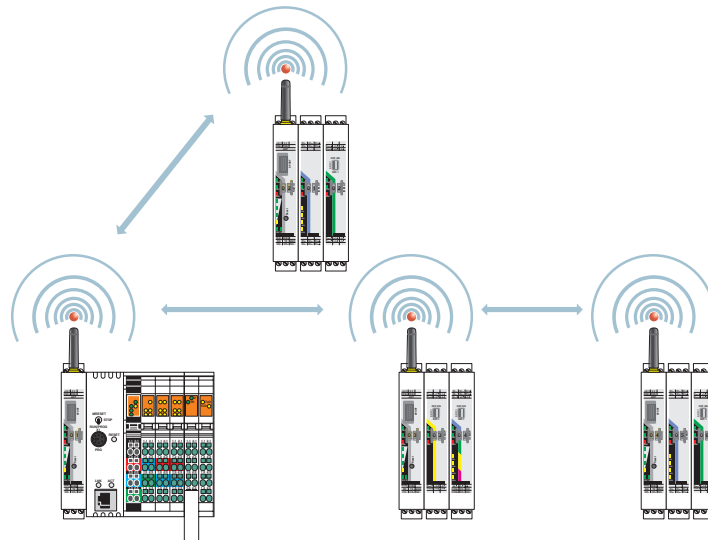
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Application drawing

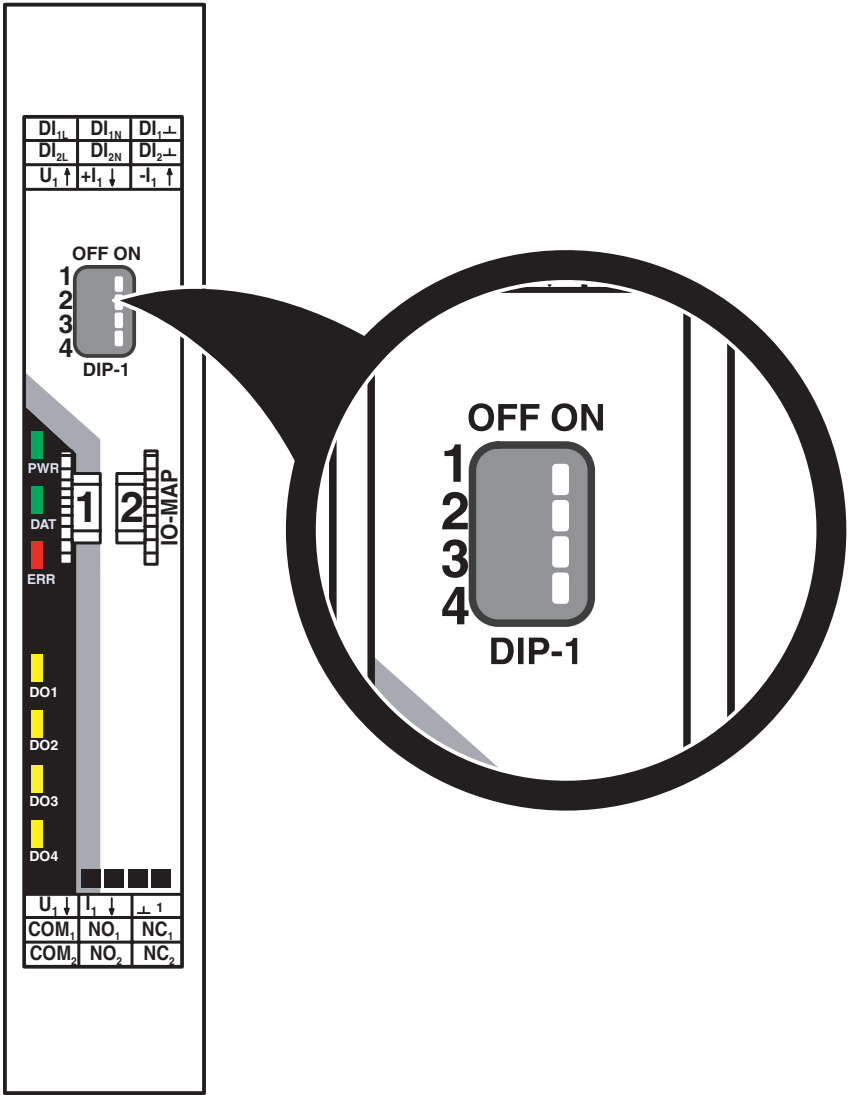


Wireless module in PLC/Modbus RTU mode

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Schematic diagram



DIP switches

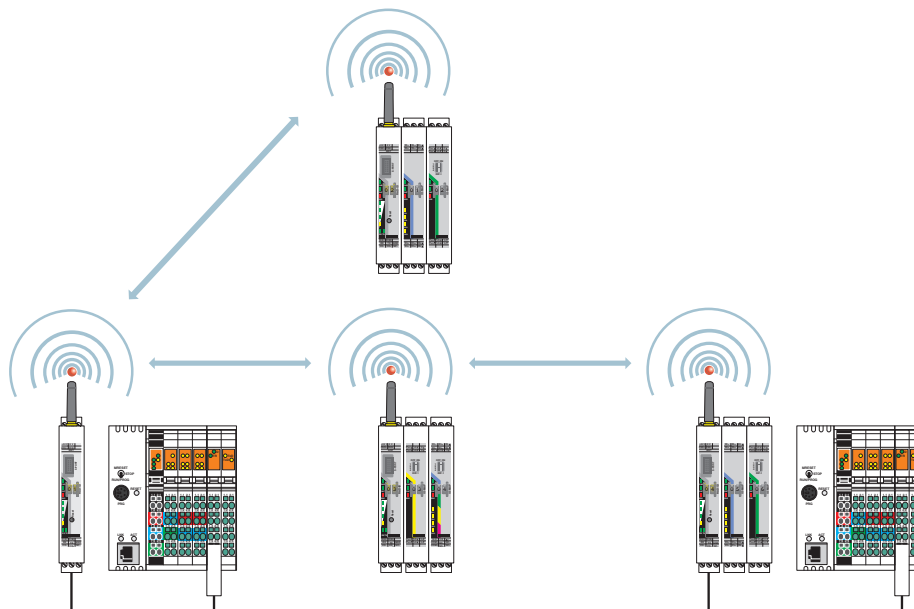
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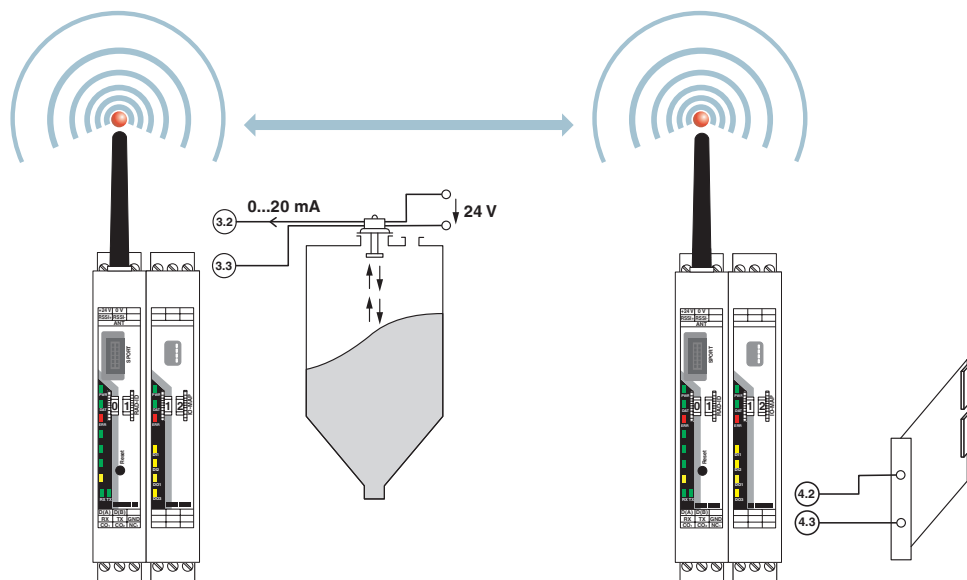


Application drawing



Wireless module in PLC/Modbus RTU dual mode

Application drawing



Application example: Level measurement

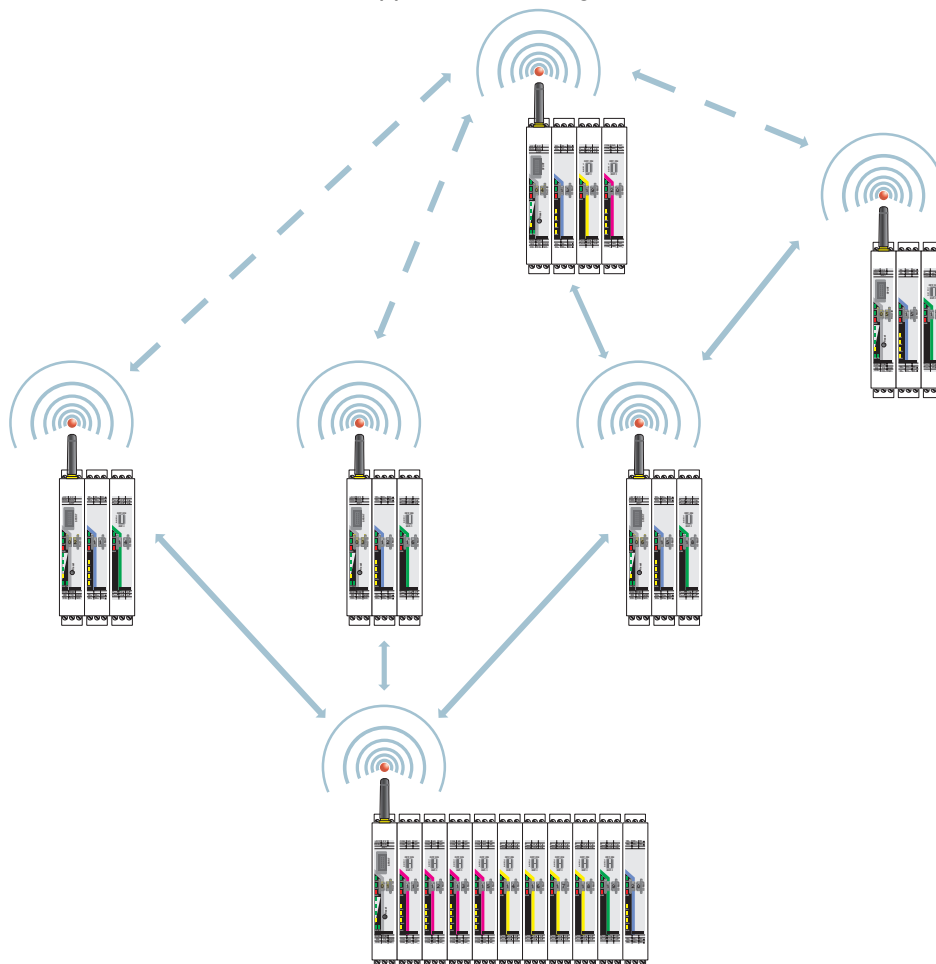
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Application drawing



Wireless module in I/O data mode

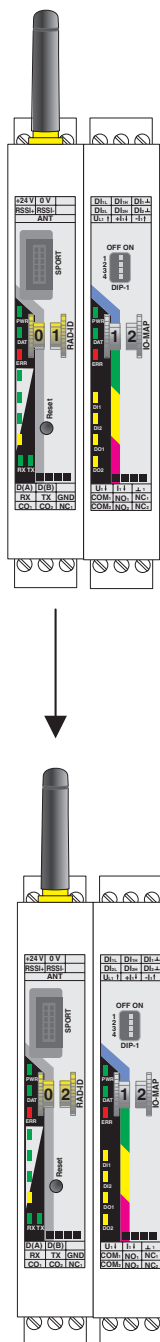
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Functional drawing



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

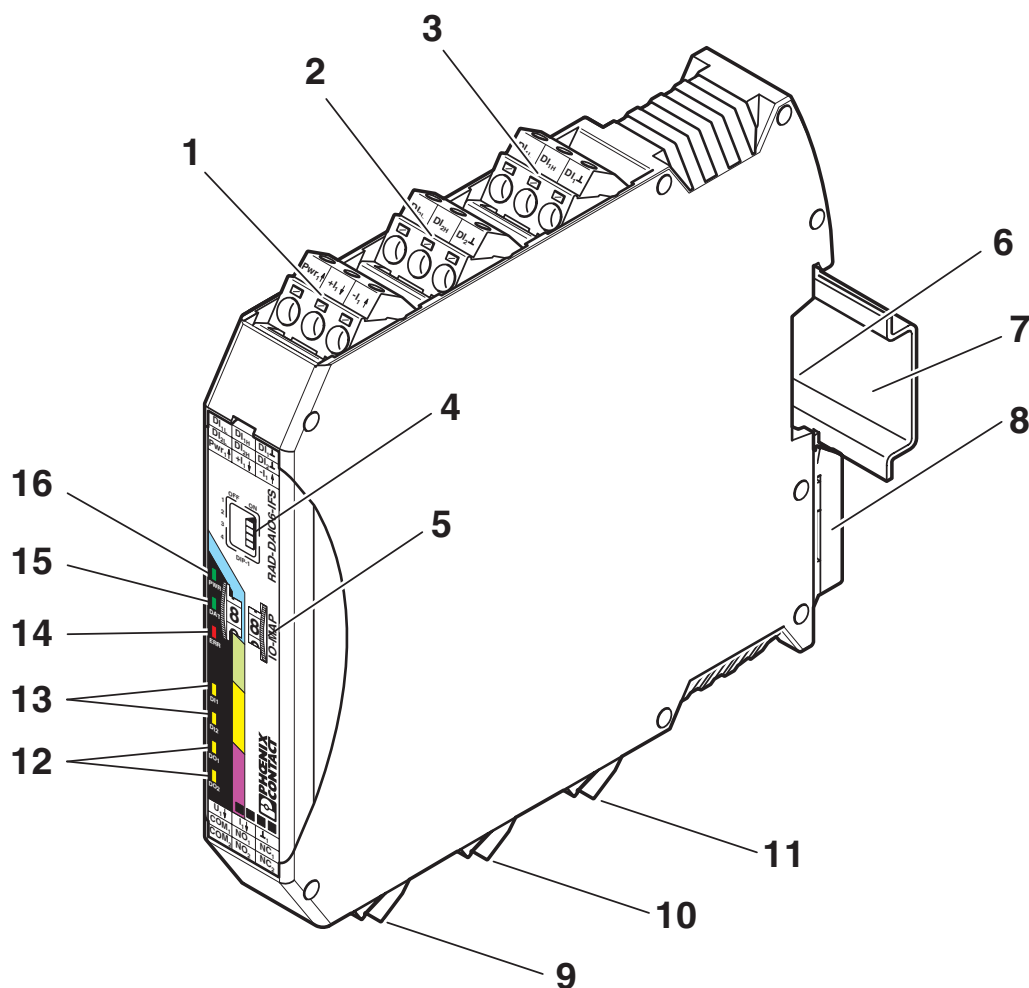
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Schematic diagram



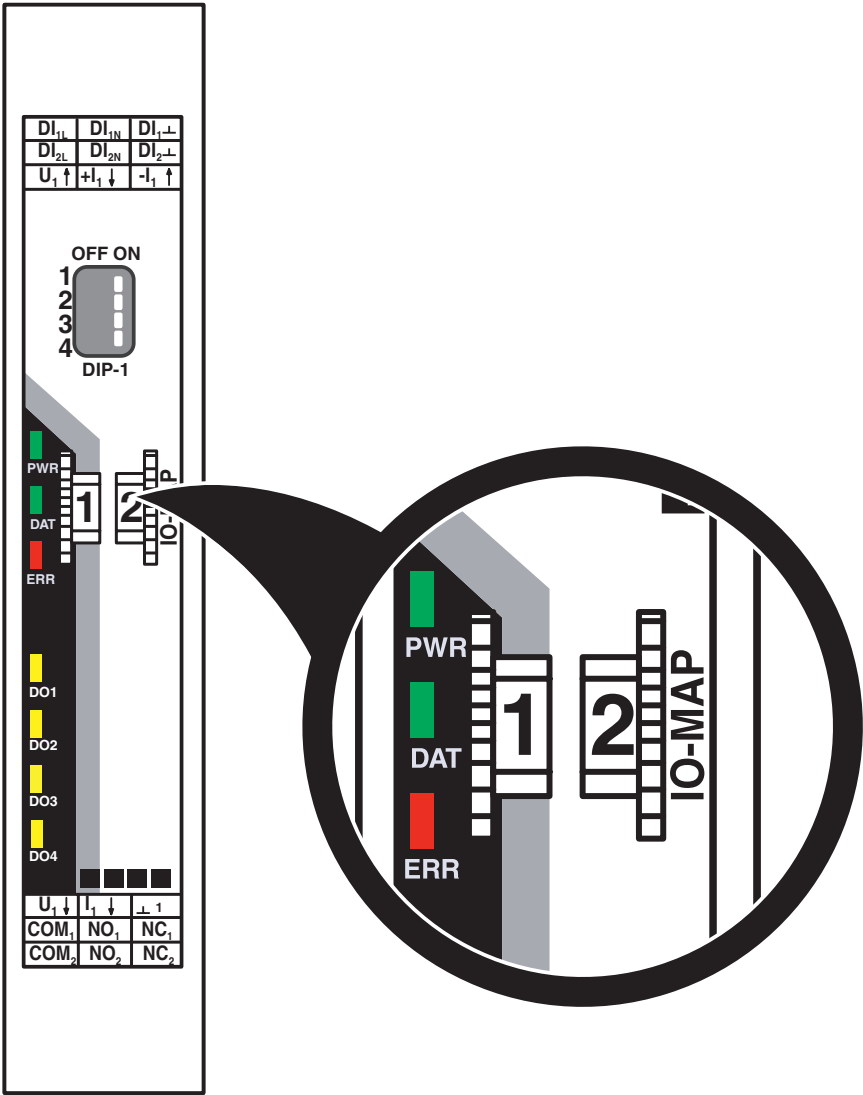
Function elements

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Schematic diagram



Thumbwheel

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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2901533>



UL Listed

Approval ID: FILE E 238705



cUL Listed

Approval ID: FILE E 238705



KC

Approval ID: R-R-PCK-2901533



EAC Ex

Approval ID: RU*HB49.B00033/20



cUL Listed

Approval ID: FILE E 196811



UL Listed

Approval ID: FILE E 196811



ATEX

Approval ID: IBExU 15 ATEX B008 X



IECEx

Approval ID: IECEx IBE 13.0019X



CCC

Approval ID: 2022122310115625



ATEX

Approval ID: IBExU15ATEXB008 X

cULus Listed

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Classifications

ECLASS

ECLASS-11.0	27242602
ECLASS-12.0	27242602
ECLASS-13.0	27242602

ETIM

ETIM 8.0	EC001597
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UNSPSC

UNSPSC 21.0	32151602
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Environmental product compliance

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

RAD-2400-IFS - Wireless module

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<https://www.phoenixcontact.com/us/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

RAD-900-IFS - Wireless module

2901540

<https://www.phoenixcontact.com/us/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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RAD-868-IFS - Wireless module

2904909

<https://www.phoenixcontact.com/us/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

RAD-RS485-IFS - Communication module

2702184

<https://www.phoenixcontact.com/us/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

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RAD-2400-IFS-JP - Wireless module

2702863

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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

RAD-900-IFS-AU - Wireless module

2702878

<https://www.phoenixcontact.com/us/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

RAD-DAIO6-IFS - I/O extension module

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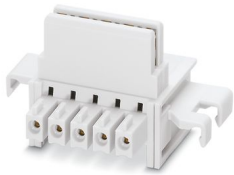
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ME 17,5 TBUS 1,5/ 5-ST-3,81 KMGY - DIN rail bus connectors

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