

RAD-AO4-IFS - I/O extension module



2901538

<https://www.phoenixcontact.com/gb/products/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 of -40 °C ... +70 °C
- Easy module replacement even during operation (hot swap)
- Approved for use in zone 2

Commercial data

Item number	2901538
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DNC61D
Product key	DNC61D
GTIN	4046356609166
Weight per piece (including packing)	175 g
Weight per piece (excluding packing)	123.91 g
Customs tariff number	85177900
Country of origin	DE

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Set consists of

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

2713645

<https://www.phoenixcontact.com/gb/products/2713645>



DIN rail bus connector, color: light gray, nominal current: 8 A (parallel contacts), rated voltage (III/2): 125 V, number of positions: 5, product range: TBUS5-17,5..., pitch: 3.81 mm, mounting: DIN rail mounting, locking: without, mounting method: without, type of packaging: packed in cardboard, Item with gold-plated contacts, bus connectors for connecting with electronics housings, 5 parallel contacts

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Technical data

Notes

Note on application

Note on application	Only for industrial use
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Product properties

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

Rated insulation voltage	60 V (In accordance with EN/IEC 60079-7)
Electrical isolation	50 V (Rated insulation voltage (in each case between the analog outputs / 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	2.76 W
Transient surge protection	yes

Supply

Supply voltage range	19.2 V DC ... 30.5 V DC (DIN rail bus connector)
Max. current consumption	≤ 115 mA (At 24 V DC, at 25°C)

Output data

Analog

Output name	Analog outputs
Number of outputs	4
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 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

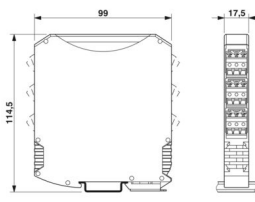
Connection data

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
Tightening torque	0.5 Nm ... 0.6 Nm 5 lb _F -in. ... 7 lb _F -in.

Signaling

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

Dimensional drawing	
Width	17.5 mm
Height	113 mm
Depth	114.5 mm

Material specifications

Color (Housing)	gray (RAL 7042)
Material (Housing)	PA 6.6-FR
Flammability rating according to UL 94	V0

Environmental and real-life conditions

Ambient conditions

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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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ATEX

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

IECEX

Identification	Ex ec IIC T4 Gc
Certificate	IECEX IBE 13.0019X

UL, USA/Canada

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

CCC / China-Ex

Identification	Ex ec IIC T4 Gc
Certificate	2022122310115625

KC approval for South Korea

Certificate	R-R-PCK-2901538
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KC-s

Certificate	KTL 20-KA4BO-0148X
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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 immunity	EN 61000-6-2

Noise emission

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Standards/regulations	EN 61000-6-4
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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

Mounting type	DIN rail mounting
Assembly note	on standard DIN rail NS 35 in accordance with EN 60715
Mounting position	any
Useable DIN rail type	DIN rail: 35 mm

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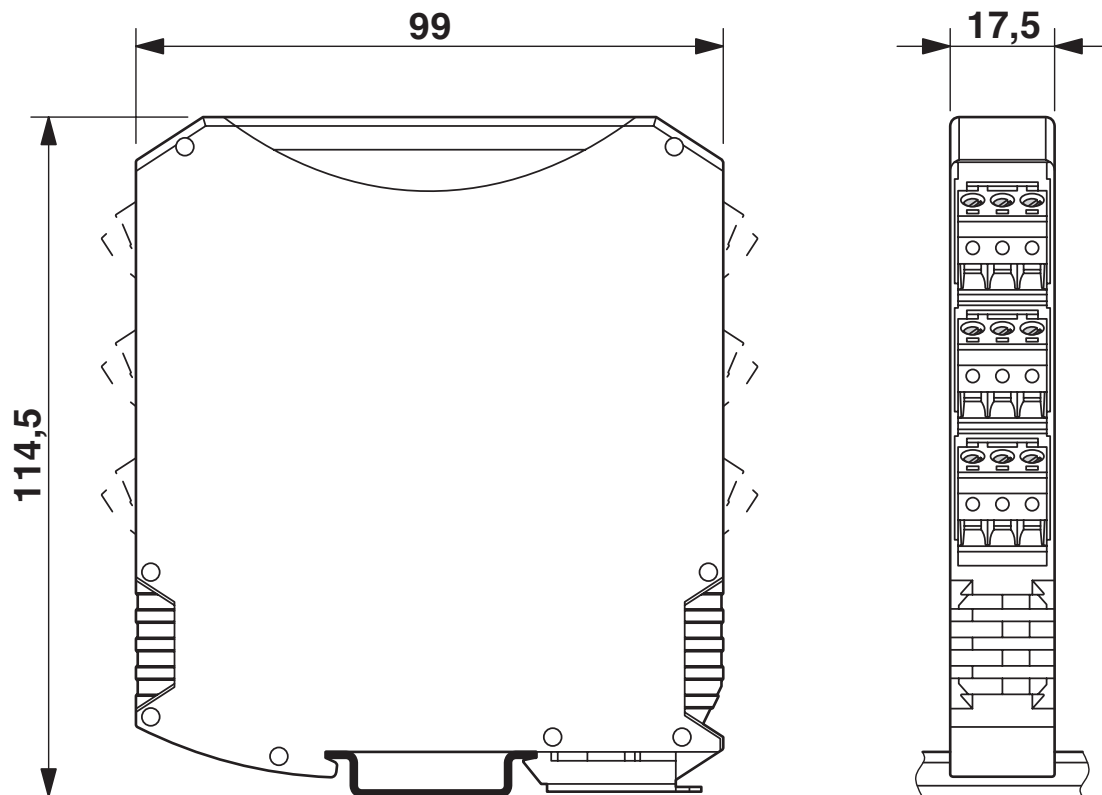
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Drawings

Dimensional drawing



Slim design

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Application drawing



Wireless module in I/O data mode

Application drawing



Wireless module in PLC/Modbus RTU mode

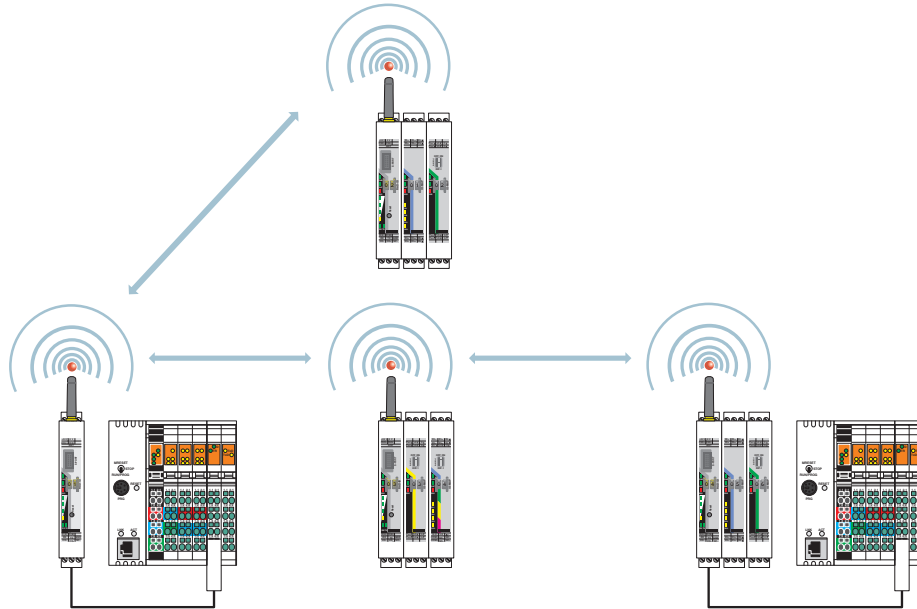
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Application drawing



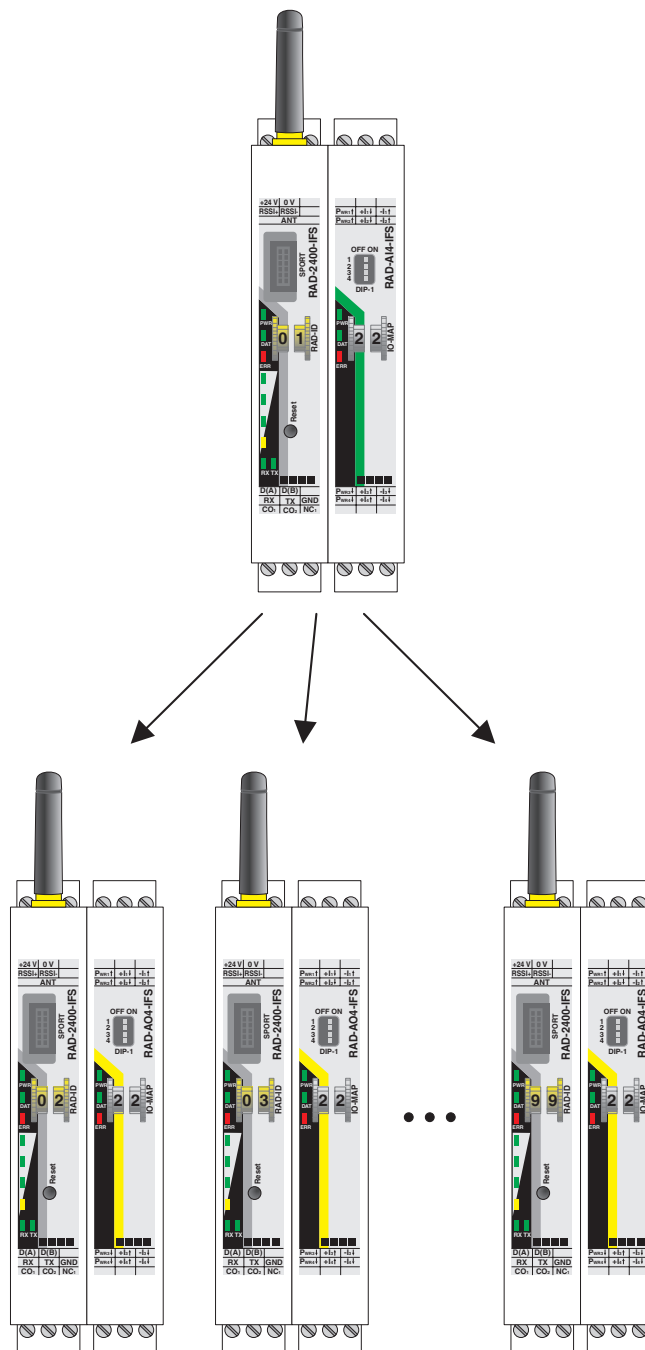
Wireless module in PLC/Modbus RTU dual mode

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Functional drawing



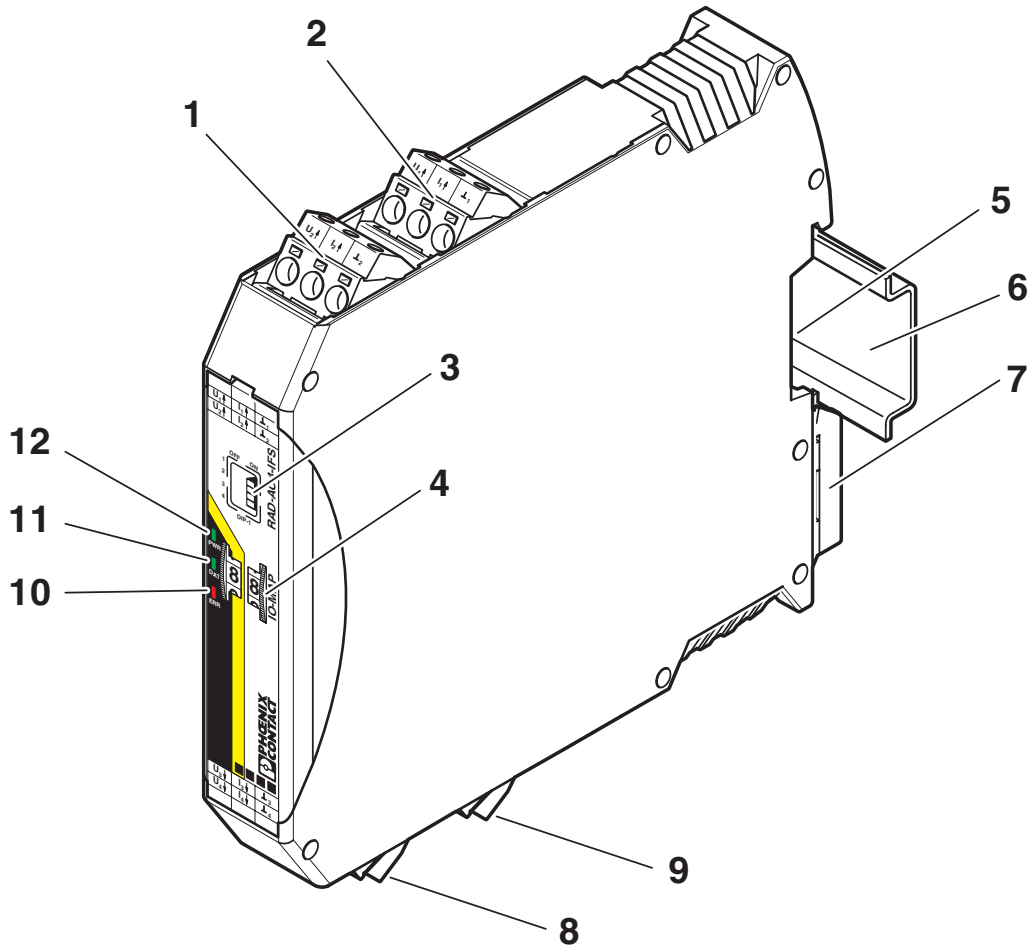
Assignment of analog inputs and analog outputs

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Schematic diagram



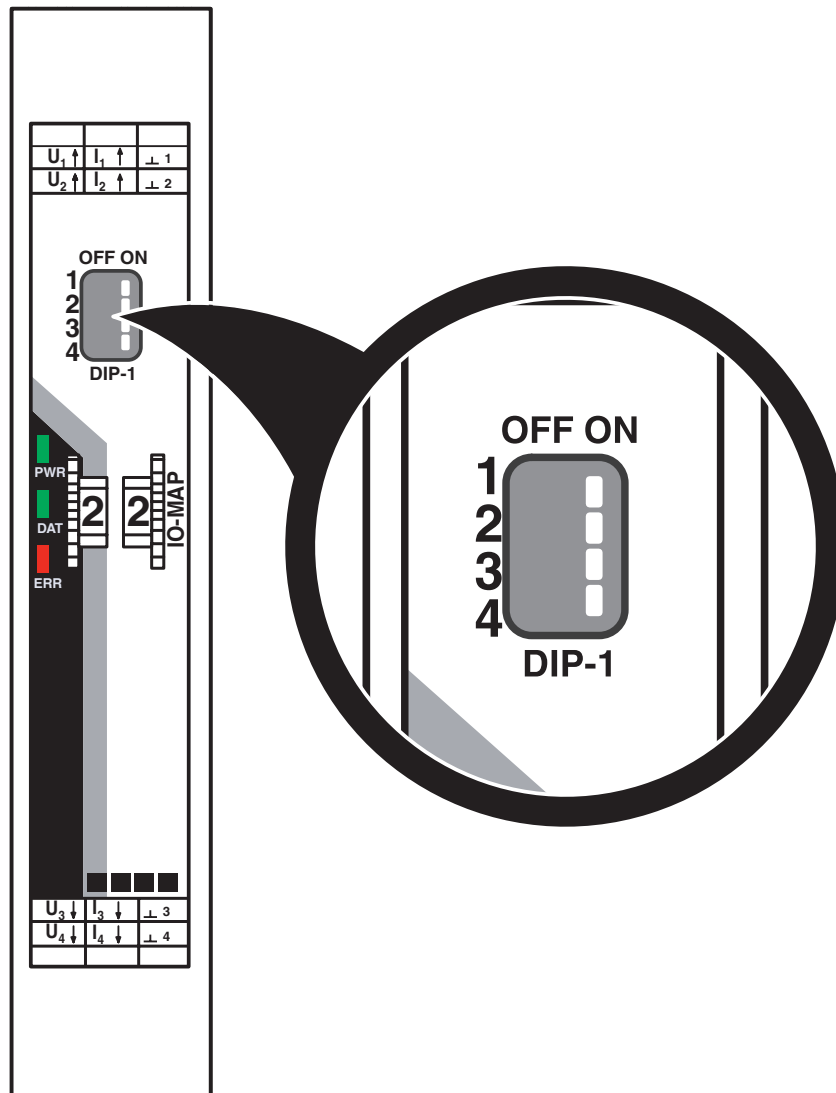
Function elements

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Schematic diagram



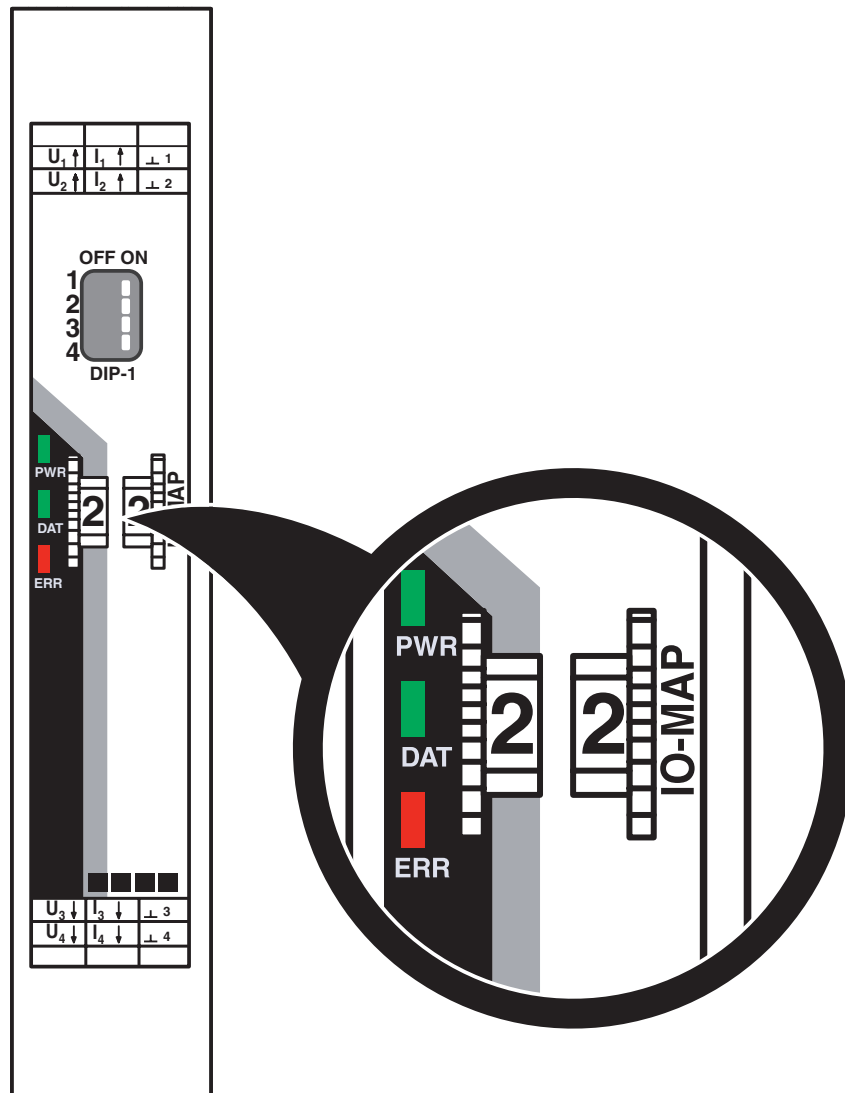
DIP switches

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Schematic diagram



Thumbwheel

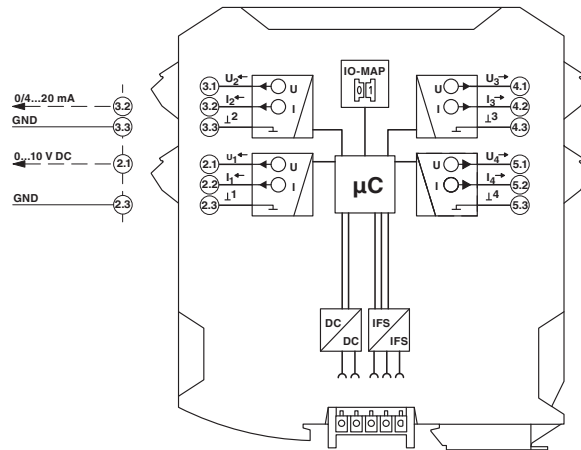
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Circuit diagram



Basic circuit diagram

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Approvals


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 **UL Listed**
Approval ID: E238705


 **cUL Listed**
Approval ID: E238705


 **KC**
Approval ID: R-R-PCK-2901538


 **cUL Listed**
Approval ID: E196811

 **UL Listed**
Approval ID: E196811

 **ATEX**
Approval ID: IBExU15ATEXB008 X

 **KC-s**
Approval ID: 20-KA4BO-0148X

 **IECEX**
Approval ID: IECEX IBE 13.0019X

 **CCC**
Approval ID: 2022122310115625

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Classifications

ECLASS

ECLASS-13.0	27242601
ECLASS-15.0	27242601

ETIM

ETIM 10.0	EC001596
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UNSPSC

UNSPSC 21.0	32151602
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Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	7(a), 7(c)-I

China RoHS

Environment friendly use period (EFUP)	EFUP-50
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.

EU REACH SVHC

REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
SCIP	a615c633-202d-48ff-a597-87e0ec513a15