

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

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Analog/digital I/O extension module with 2 digital inputs/outputs (0...250 V AC/DC) and 1 analog input (0/4...20 mA) and output (0/4 ... 20 mA, 0...10 V), with screw connection, incl. DIN rail connector

Product Features

- 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)
- Suitable for ATEX zone 2
- Easy startup via thumbwheel



Key Commercial Data

Packing unit	1 pc
Weight per Piece (excluding packing)	240.0 g
Custom tariff number	85389091
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
Height	99 mm
Depth	114.5 mm

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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

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 (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))
	391 Years (Telcordia standard, 40°C temperature, 34.25% operating cycle (5 days a week, 12 hours a day))
	151 Years (Telcordia standard, temperature 40 °C, operating cycle 100 % (7 days a week, 24 hours a day))

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)
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)

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Analog inputs

Protective circuit	Short-circuit and overload protection
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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

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)
Behavior of the outputs (adjustable via DIP switch)	Hold / Reset
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 24 V DC
Min. switching current	≥ 10 mA
Max. switching current	2 A
Mechanical service life	1 x 10 ⁷ cycles
Electrical service life	2 x 10 ⁵ cycles (At 2 A, 250 V AC, cosφ 0.4) 2 x 10 ⁵ cycles (At 1 A, 24 V DC, L/R = 48 ms)

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Digital outputs

Maximum switching frequency	2 Hz
Switching capacity	48 W (24 V DC)
	60 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)
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 // 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

Status indicator

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

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Technical data

Status indicator

	Yellow LED (digital input, DI2)
	Yellow LED (digital output, DO1)
	Yellow LED (digital output, DO2)

Approvals and conformance

Conformance	CE-compliant
IECEX	Ex nA nC IIC T4 Gc
UL, USA / Canada	UL 508 Listed
Standard designation	EMC Directive 2004/108/EC
Standards/regulations	EN 61000-6-2
Standard designation	EMC Directive 2004/108/EC
Standards/regulations	EN 61000-6-4
Standard designation	Ex Directive (ATEX)
Standards/regulations	EN 60079-0
Standard designation	Ex Directive (ATEX)
Standards/regulations	EN-60079-15

Standards and Regulations

Electromagnetic compatibility	Conformance with EMC Directive 2004/108/EC (valid until 19.04.2016) / 2014/30/EU (valid from 20.04.2016)
Standard designation	EMC Directive 2004/108/EC
Standards/regulations	EN 61000-6-2
Standard designation	EMC Directive 2004/108/EC
Standards/regulations	EN 61000-6-4
Standard designation	Ex Directive (ATEX)
Standards/regulations	EN 60079-0
Standard designation	Ex Directive (ATEX)
Standards/regulations	EN-60079-15
Shock	16g, 11 ms
Flammability rating according to UL 94	V0
Vibration (operation)	in accordance with IEC 60068-2-6: 5g, 10 Hz ... 150 Hz
Conformance	CE-compliant
ATEX	# II 3 G Ex nA nC IIC T4 Gc X
IECEX	Ex nA nC IIC T4 Gc
UL, USA / Canada	UL 508 Listed
	Class I, Div. 2, Groups A, B, C, D T4A
	Class I, Zone 2, IIC T4

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Classifications

eCl@ss

eCl@ss 4.0	27230207
eCl@ss 4.1	27230207
eCl@ss 5.0	27230207
eCl@ss 5.1	27242208
eCl@ss 6.0	27242208
eCl@ss 7.0	27242208
eCl@ss 8.0	27242602

ETIM

ETIM 3.0	EC001423
ETIM 4.0	EC000310
ETIM 5.0	EC001597

UNSPSC

UNSPSC 6.01	30211506
UNSPSC 7.0901	43223108
UNSPSC 11	39121008
UNSPSC 12.01	43223108
UNSPSC 13.2	43223108

Approvals

Approvals

Approvals

UL Listed / cUL Listed / EAC / cULus Listed

Ex Approvals

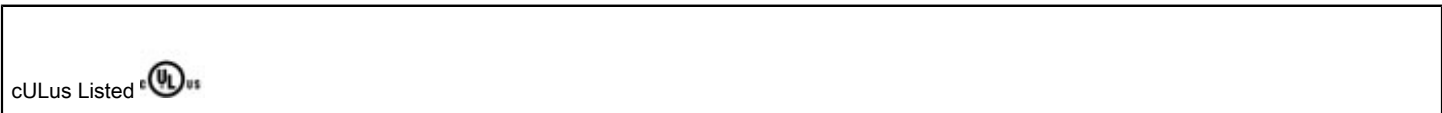
ATEX / IECEx / UL Listed / cUL Listed

Approvals submitted

Approval details

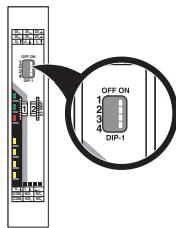
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Approvals



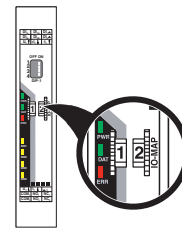
Drawings

Schematic diagram



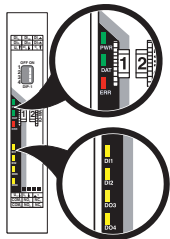
DIP switches

Schematic diagram



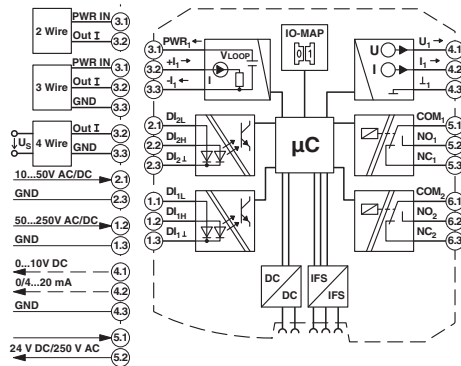
Thumb wheel

Schematic diagram



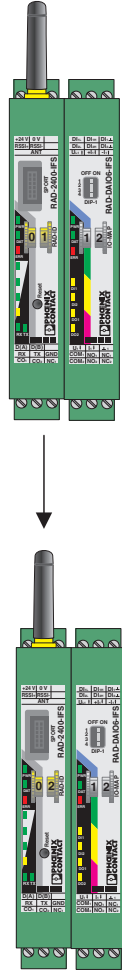
LED indicators

Block diagram

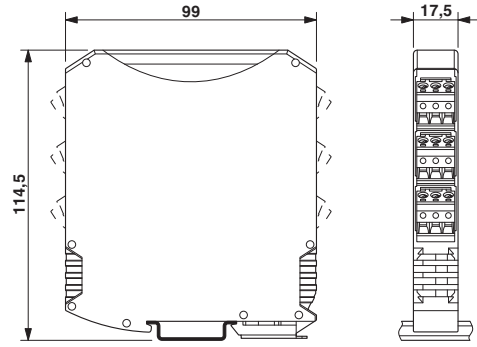


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Functional drawing



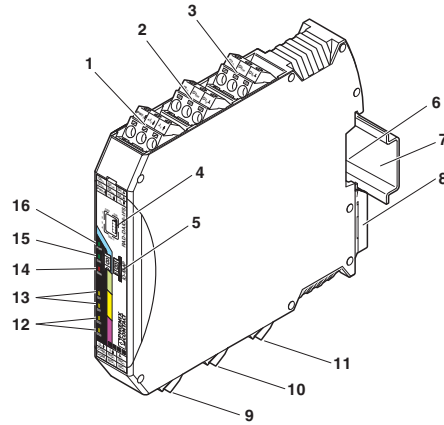
Dimensional drawing



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

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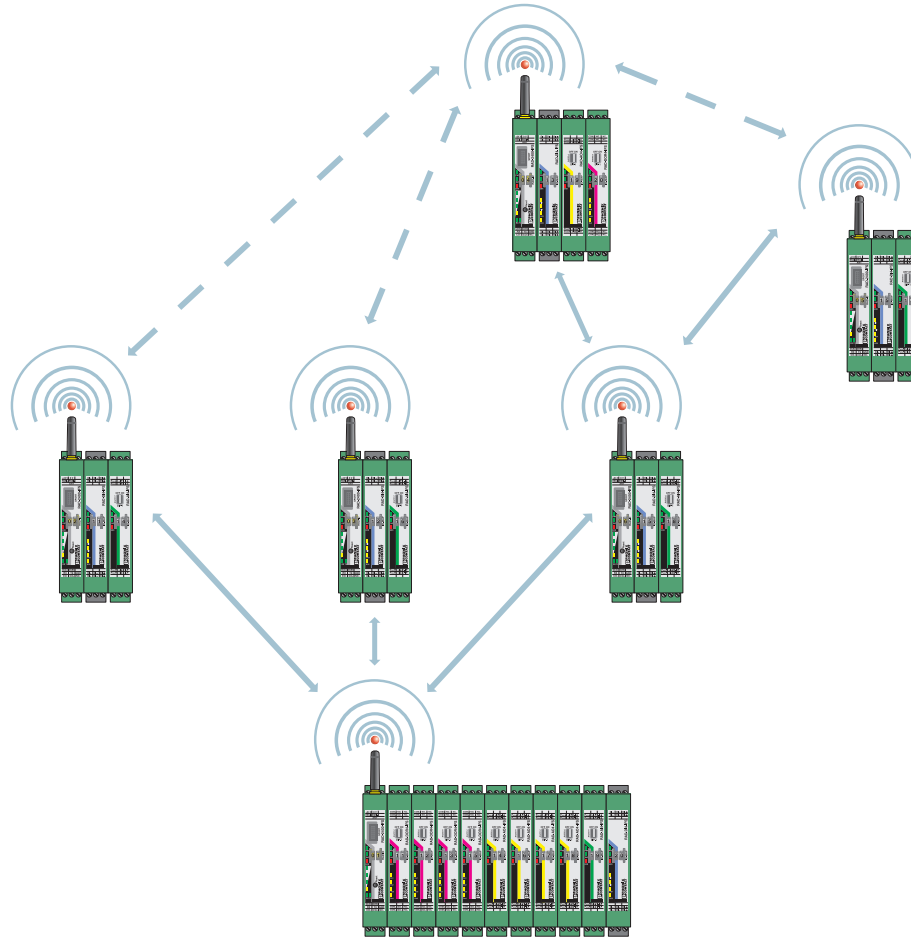
Schematic diagram



Function elements

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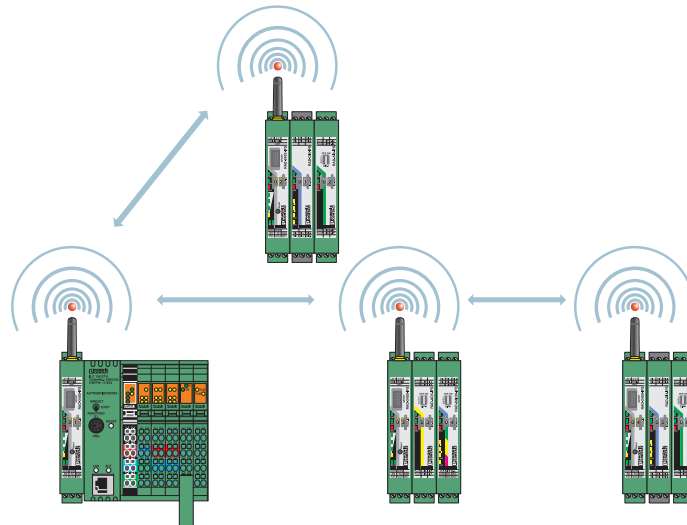
Application drawing



Wireless module in I/O data mode

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Application drawing



Wireless module in PLC/Modbus RTU mode