

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
Catalog page	Page 383 (C-6-2019)
GTIN	4046356609166
Weight per piece (including packing)	180.67 g
Weight per piece (excluding packing)	124.84 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 GN - DIN rail bus connectors

2709561

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

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



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Technical data

Product properties

Product type	Extension module
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 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
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

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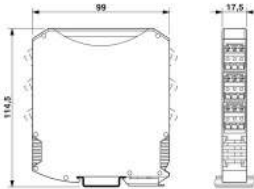
Connection data

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

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
Flammability rating according to UL 94	V0
Material	PA 6.6-FR

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

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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 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

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

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

Noise immunity	EN 61000-6-2
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU

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Noise emission	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

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

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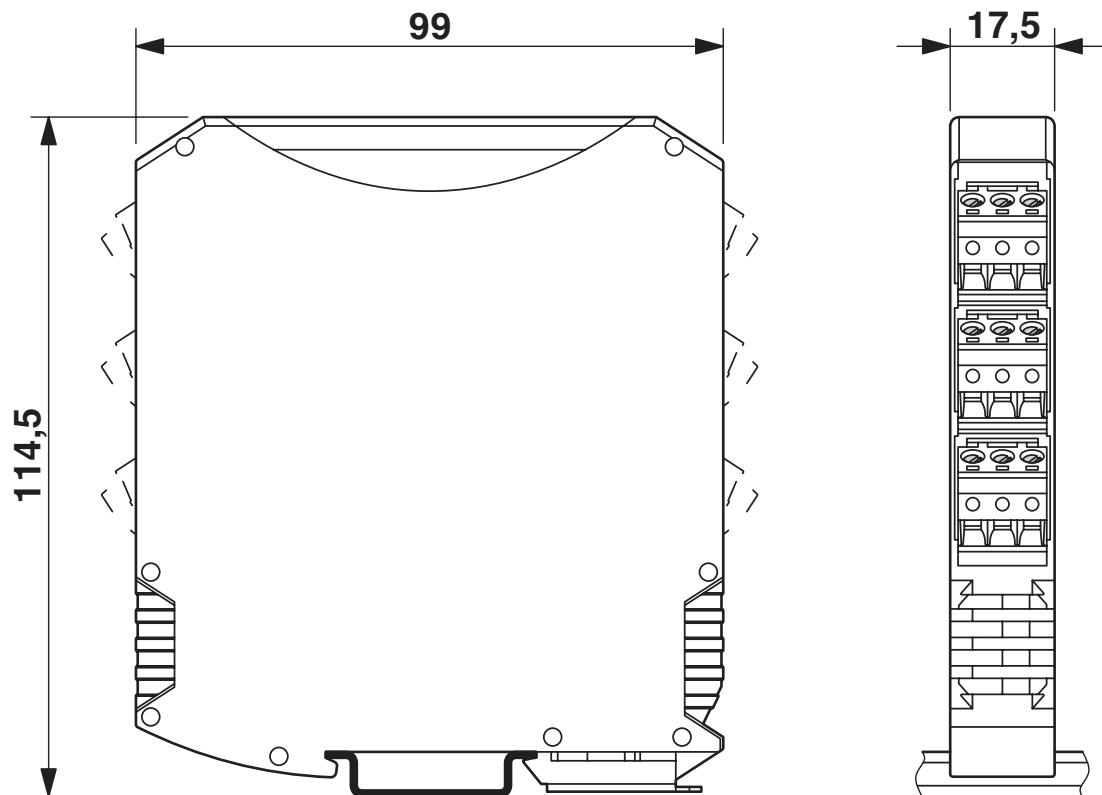
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Drawings

Dimensional drawing



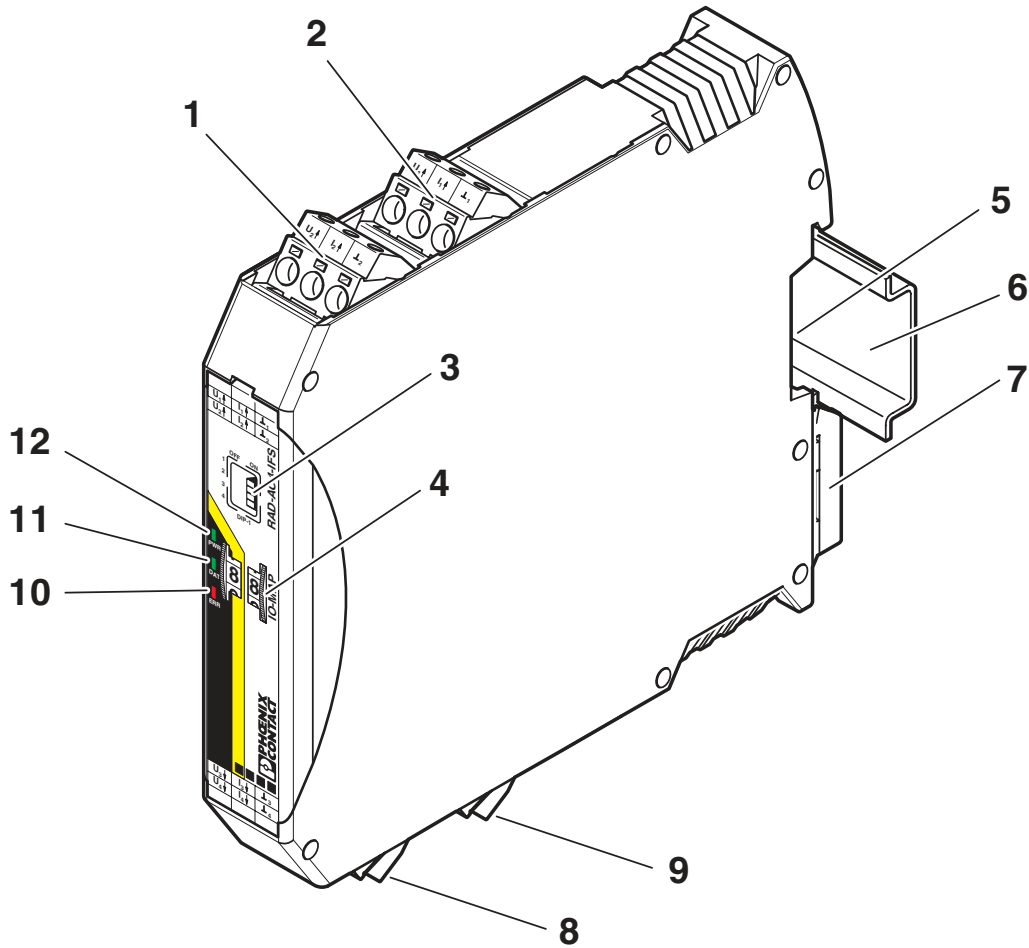
Slim design

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Schematic diagram



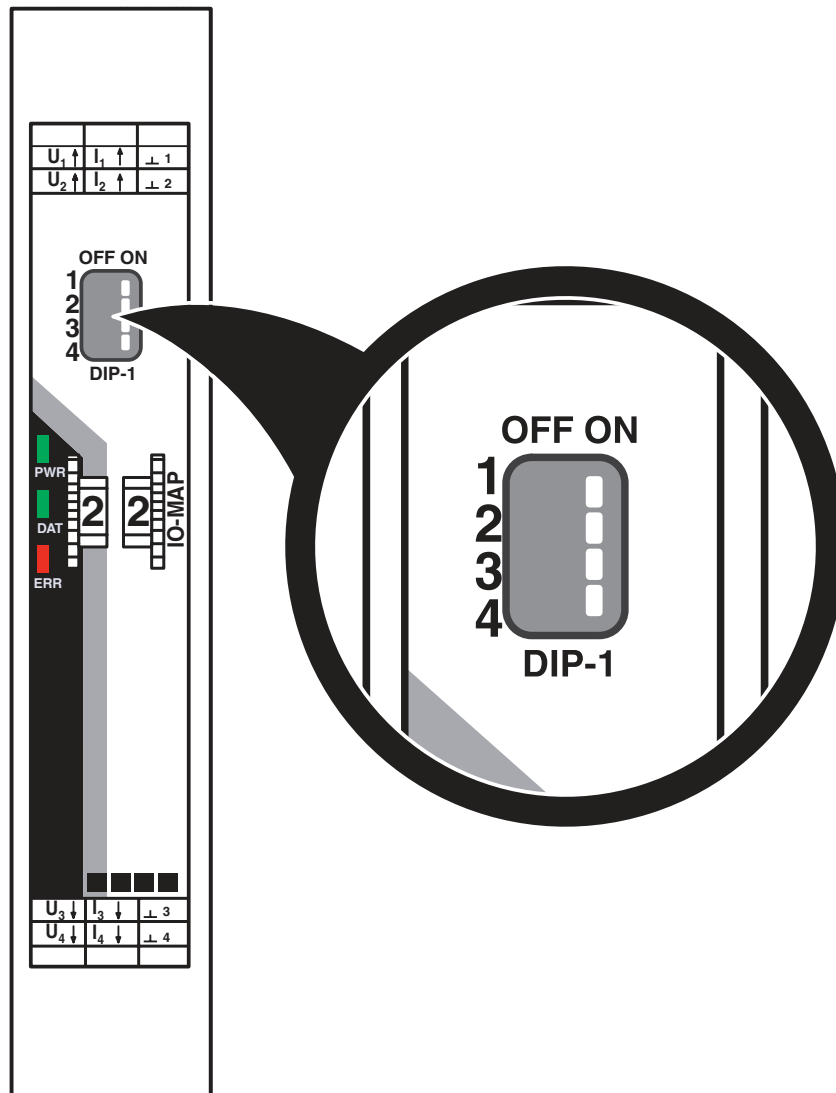
Function elements

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Schematic diagram



DIP switches

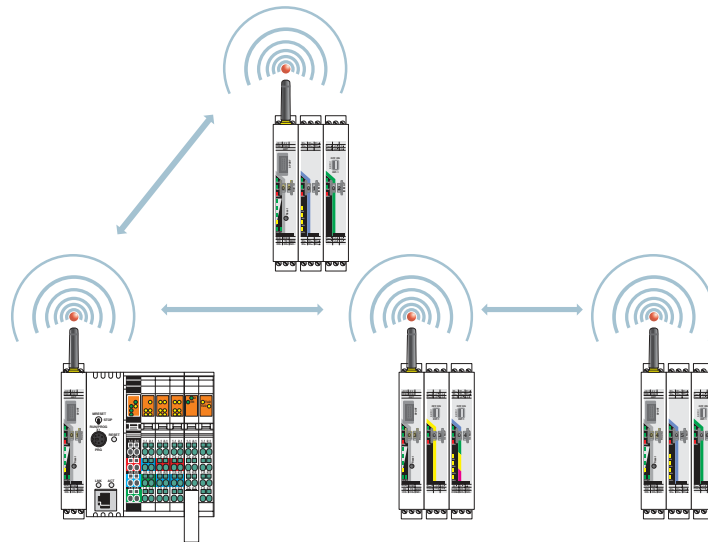
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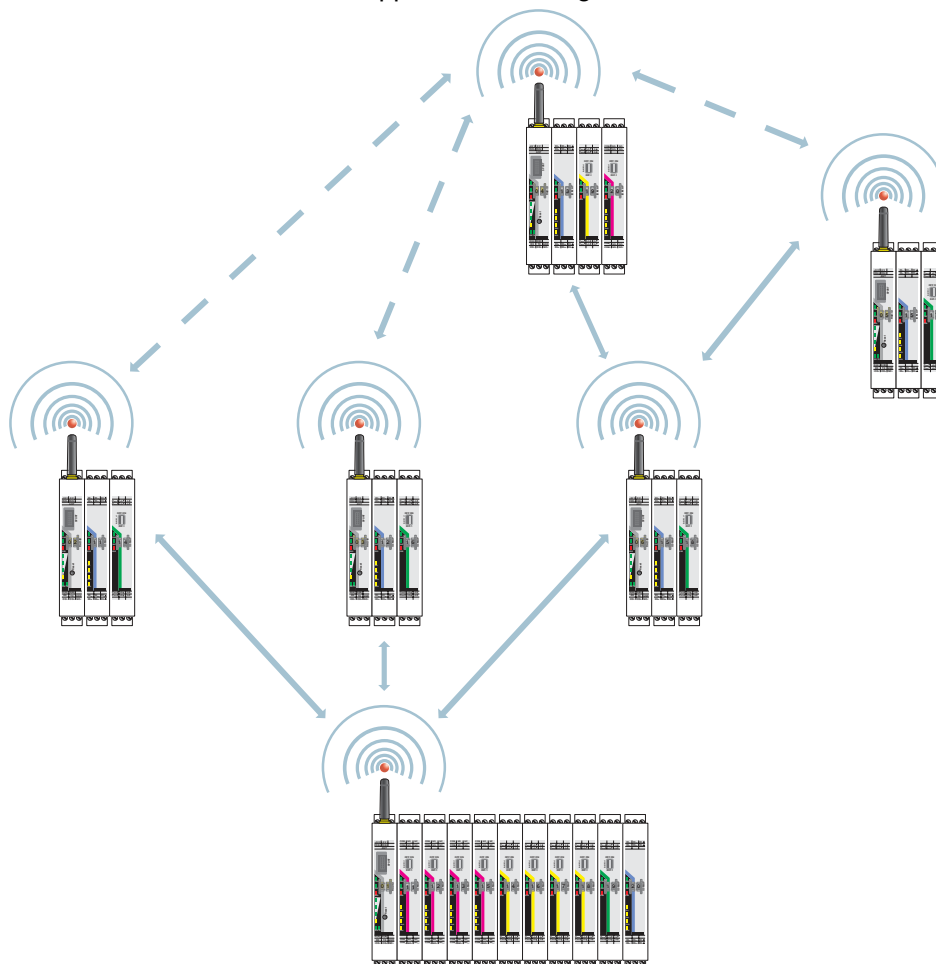


Application drawing



Wireless module in PLC/Modbus RTU mode

Application drawing



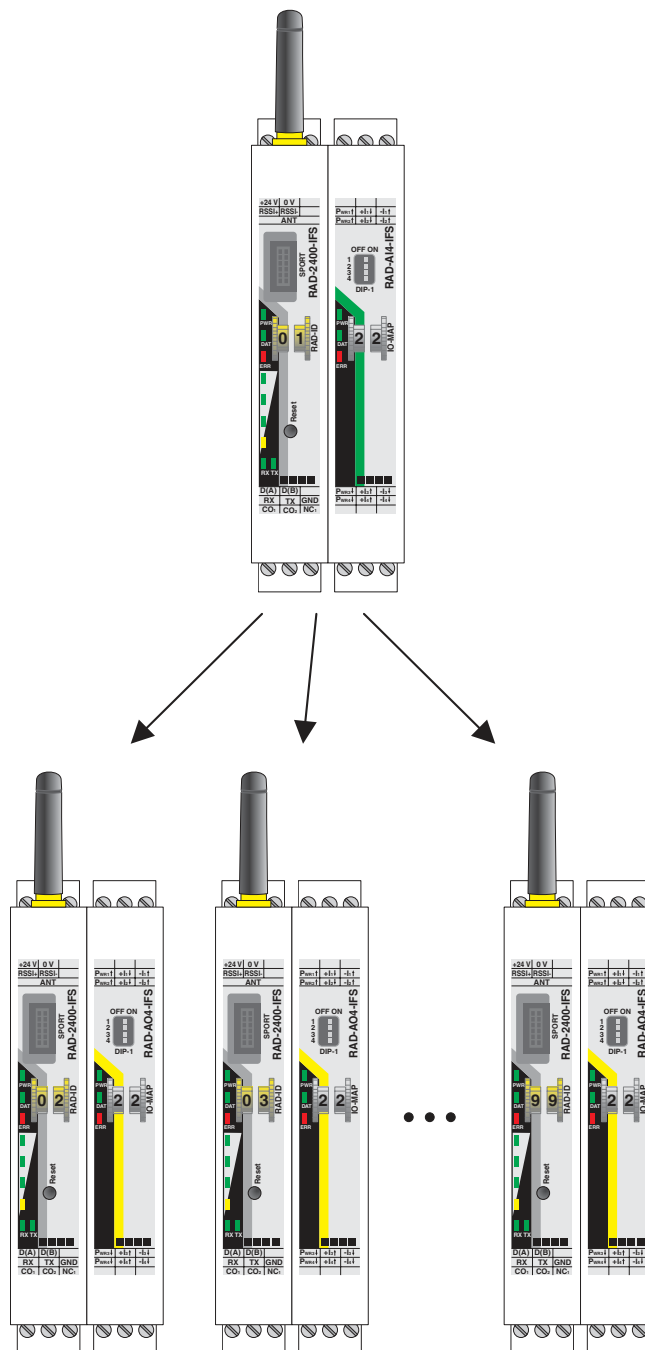
Wireless module in I/O data mode

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Functional drawing



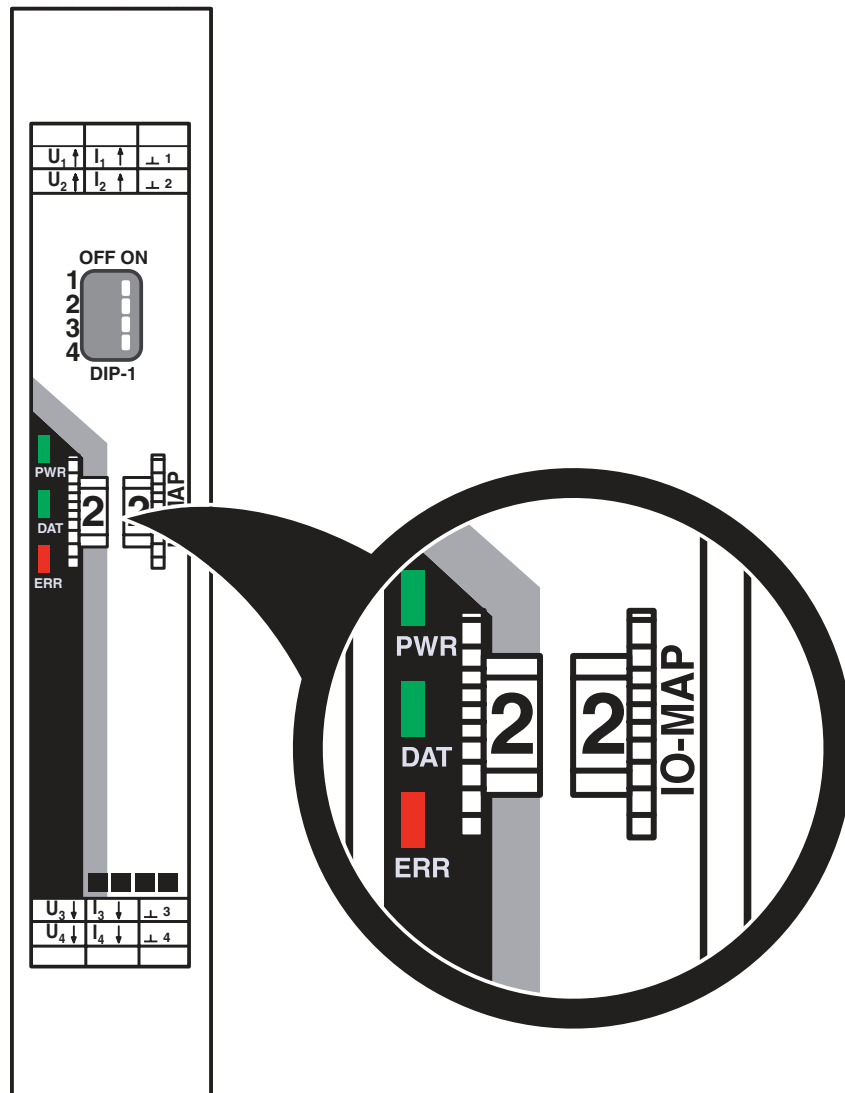
Assignment of analog inputs and analog outputs

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Schematic diagram



Thumbwheel

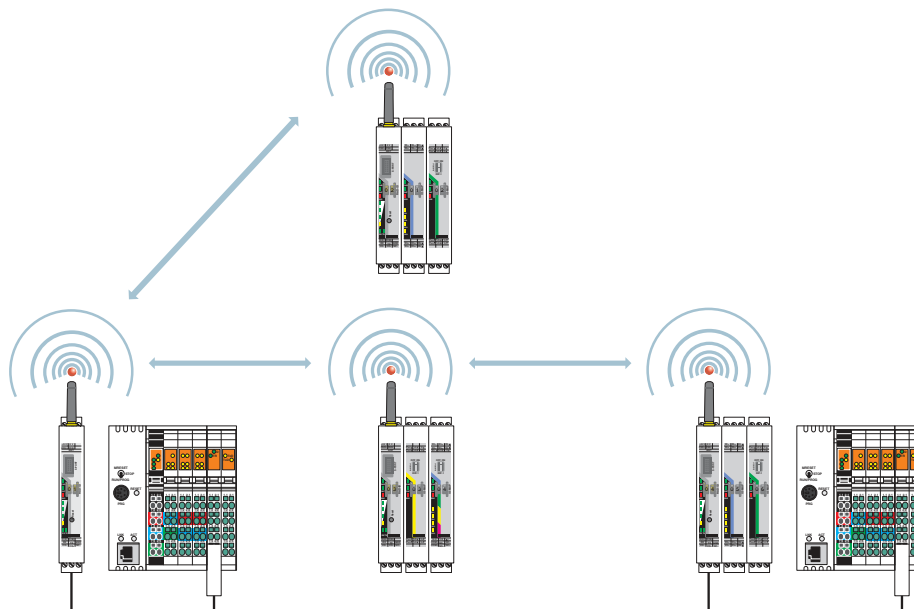
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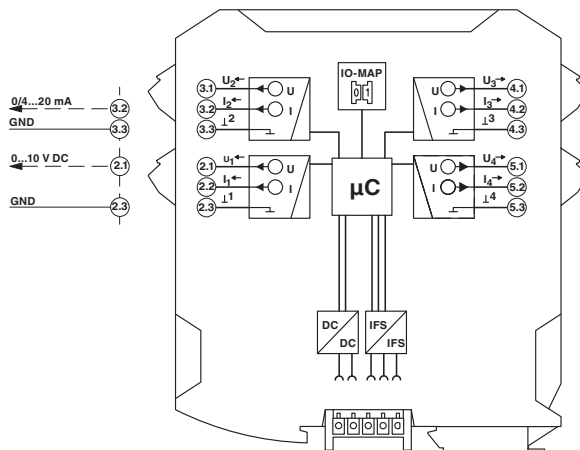
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Application drawing



Wireless module in PLC/Modbus RTU dual mode

Circuit diagram



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Approvals


To download certificates, visit the product detail page: <https://www.phoenixcontact.com/gb/products/2901538>


 **UL Listed**
Approval ID: FILE E 238705


 **cUL Listed**
Approval ID: FILE E 238705


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


 **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: IBEExU 15 ATEX B008 X

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

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

 **CCC**
Approval ID: 2022122310115625

 **ATEX**
Approval ID: IBEExU15ATEXB008 X

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cULus Listed

cULus Listed

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Classifications

ECLASS

ECLASS-11.0	27242601
ECLASS-12.0	27242601
ECLASS-13.0	27242601

ETIM

ETIM 8.0	EC001596
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UNSPSC

UNSPSC 21.0	32151602
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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

RAD-2400-IFS - Wireless module

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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 worldwide use

RAD-900-IFS - Wireless module

2901540

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

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RAD-AI4-IFS - I/O extension module

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

RAD-PT100-4-IFS - I/O extension module

2904035

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Radioline - I/O extension module, 4 Pt 100 inputs (-50°C ... +250°C / -58 °F ... 482 °F)

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

2709561

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

RAD-AI4-IFS - I/O extension module

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

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RAD-PT100-4-IFS - I/O extension module

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Radioline - I/O extension module, 4 Pt 100 inputs (-50°C ... +250°C / -58 °F ... 482 °F)

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