

<https://www.phoenixcontact.com/gb/products/2901537>

## I/O extension module - RAD-AI4-IFS - 2901537

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

### Your advantages

- Channel-to-channel electrical isolation
- Extended temperature range, -40 °C ... +70 °C
- Easy module replacement even during operation (hot swap)
- Easy startup via thumbwheel
- Approved for use in zone 2



### Key Commercial Data

|                                      |   |
|--------------------------------------|---|
| Packing unit                         | 1 pc  |
| GTIN                                 | <br>4 046356 610476 |
| GTIN                                 | 4046356610476   |
| Weight per Piece (excluding packing) | 203.700 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 |
|-------------------------|---|

#### Dimensions

|        |          |
|--------|----------|
| Width  | 17.5 mm  |
| Height | 113 mm   |
| Depth  | 114.5 mm |

#### Ambient conditions

|                      |      |
|----------------------|------|
| Degree of protection | IP20 |
|----------------------|------|

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### Technical data

#### Ambient conditions

|  |  |
|--|--|
| 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                                   | 771 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))     |
|  | 351 Years (Telcordia standard, 40°C temperature, 34.25% operating cycle (5 days a week, 12 hours a day)) |
|  | 136 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   | ≤ 120 mA (At 24 V DC, at 25°C)               |
| Transient surge protection | Yes  |

#### Analog inputs

|                                  |  |
|----------------------------------|--|
| Number of inputs                 | 4  |
| 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 | 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                    |

#### Electrical isolation

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#### Electrical isolation

|            |  |
|------------|--|
| Analog I/O | 50 V (Rated insulation voltage (in each case between the TBUS analog outputs / supply, reinforced insulation according to EN 61010)) |
|------------|--|

#### Test voltage

|            |                           |
|------------|---------------------------|
| 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 <sup>2</sup> |
| Conductor cross section solid max.    | 2.5 mm <sup>2</sup> |
| Conductor cross section flexible min. | 0.2 mm <sup>2</sup> |
| Conductor cross section flexible max. | 2.5 mm <sup>2</sup> |
| 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)     |

#### Conformance/approvals

|                 |   |
|-----------------|---|
| Designation     | CE  |
| Identification  | CE-compliant  |
| Designation     | EAC   |
| Identification  | EAC   |
| Designation     | ATEX  |
| Identification  | # II 3 G Ex nA 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 IIC T4 Gc   |
| Certificate     | IECEX IBE 13.0019X  |
| Designation     | UL, USA/Canada  |
| Identification  | 508 Listed  |
|                 | Class I, Div. 2, Groups A, B, C, D T4A                                    |
|                 | Class I, Zone 2, IIC T4   |
| 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 |
|-------------------------------|---|

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### Technical data

#### Standards and Regulations

|  |  |
|--|--|
| Standard designation                   | EMC Directive 2014/30/EU                               |
| Standards/regulations                  | EN 61000-6-2   |
| Standard designation                   | EMC Directive 2014/30/EU                               |
| 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  |
| Noise emission                         | EN 61000-6-4   |
| Noise immunity                         | EN 61000-6-2   |
| 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 |

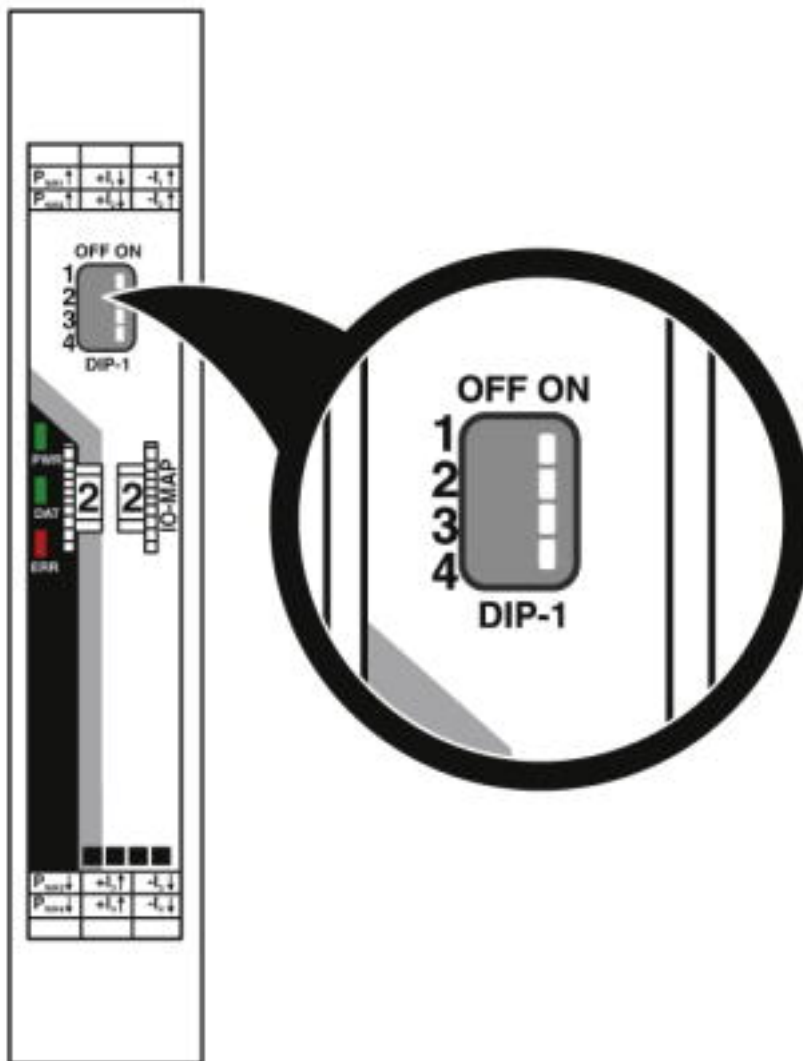
#### Environmental Product Compliance

|            |   |
|------------|---|
| REACH SVHC | Lead 7439-92-1  |
| China RoHS | Environmentally Friendly Use Period = 50  |
|            | For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration" |

### Drawings

# I/O extension module - RAD-AI4-IFS - 2901537

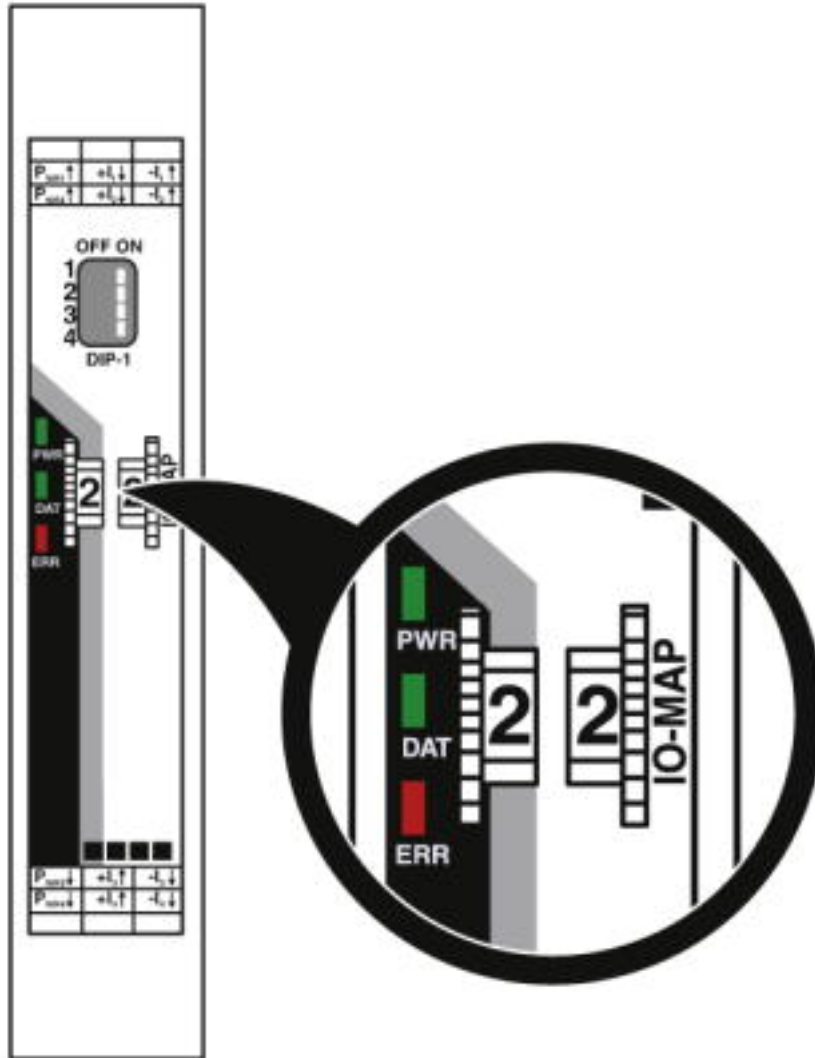
Schematic diagram



DIP switches

# I/O extension module - RAD-AI4-IFS - 2901537

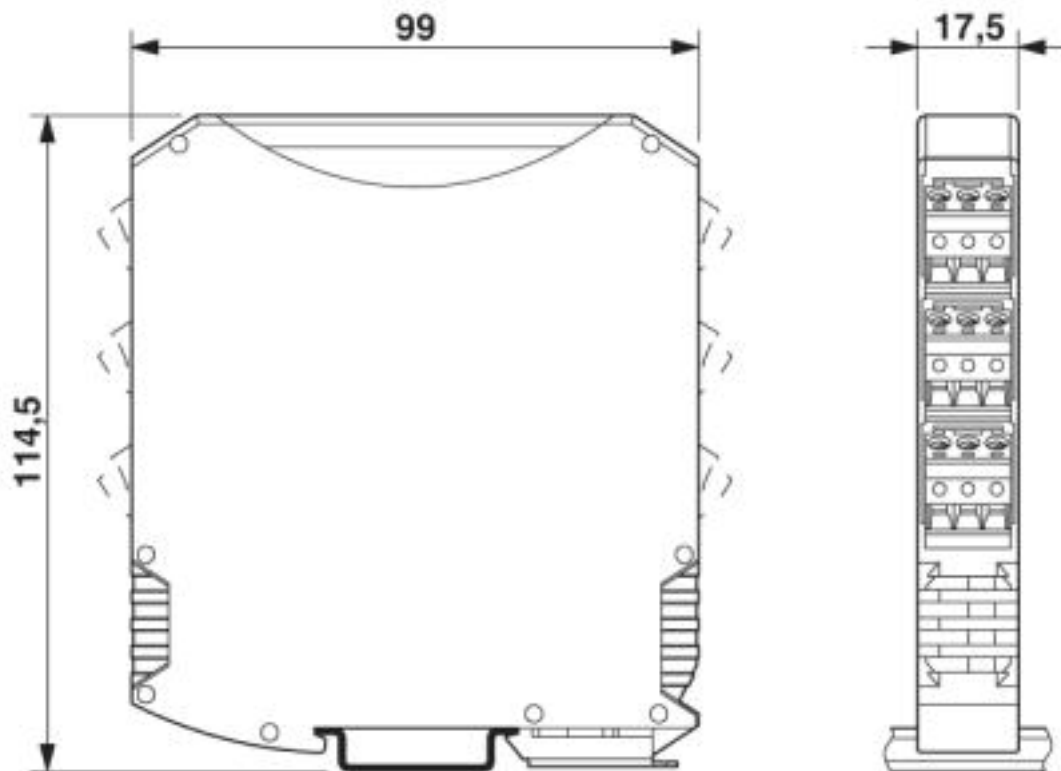
Schematic diagram



Thumb wheel

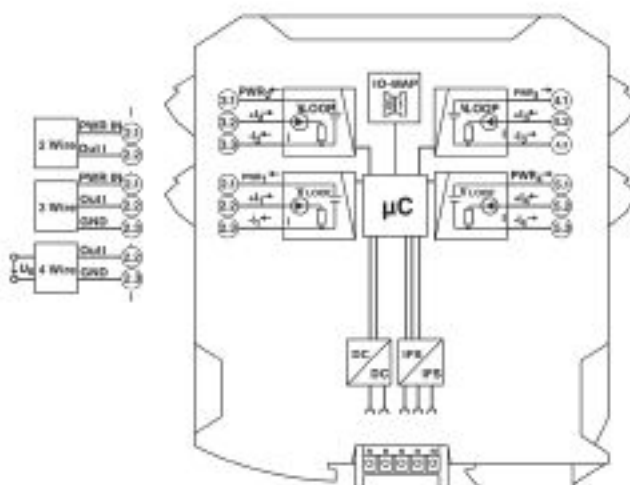
# I/O extension module - RAD-AI4-IFS - 2901537

Dimensional drawing



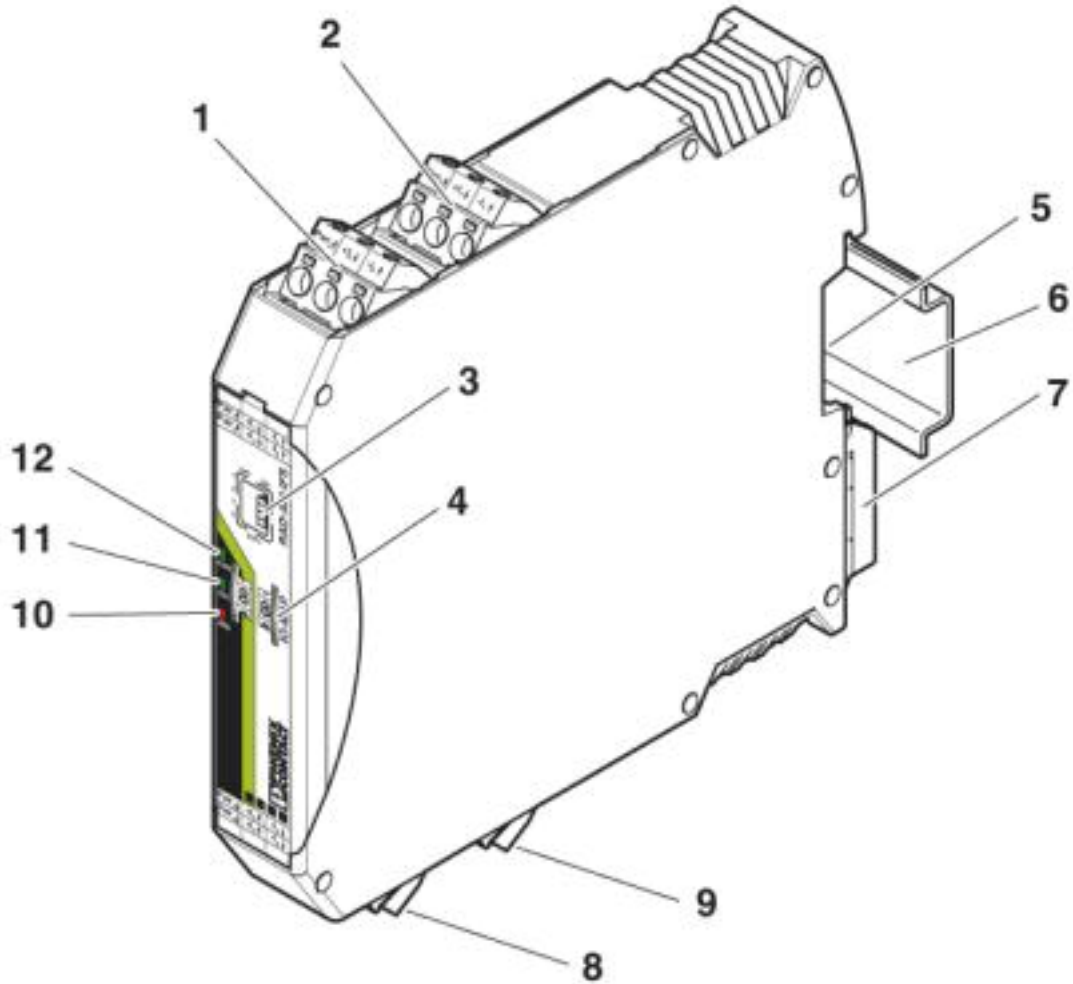
Slim design

Circuit diagram



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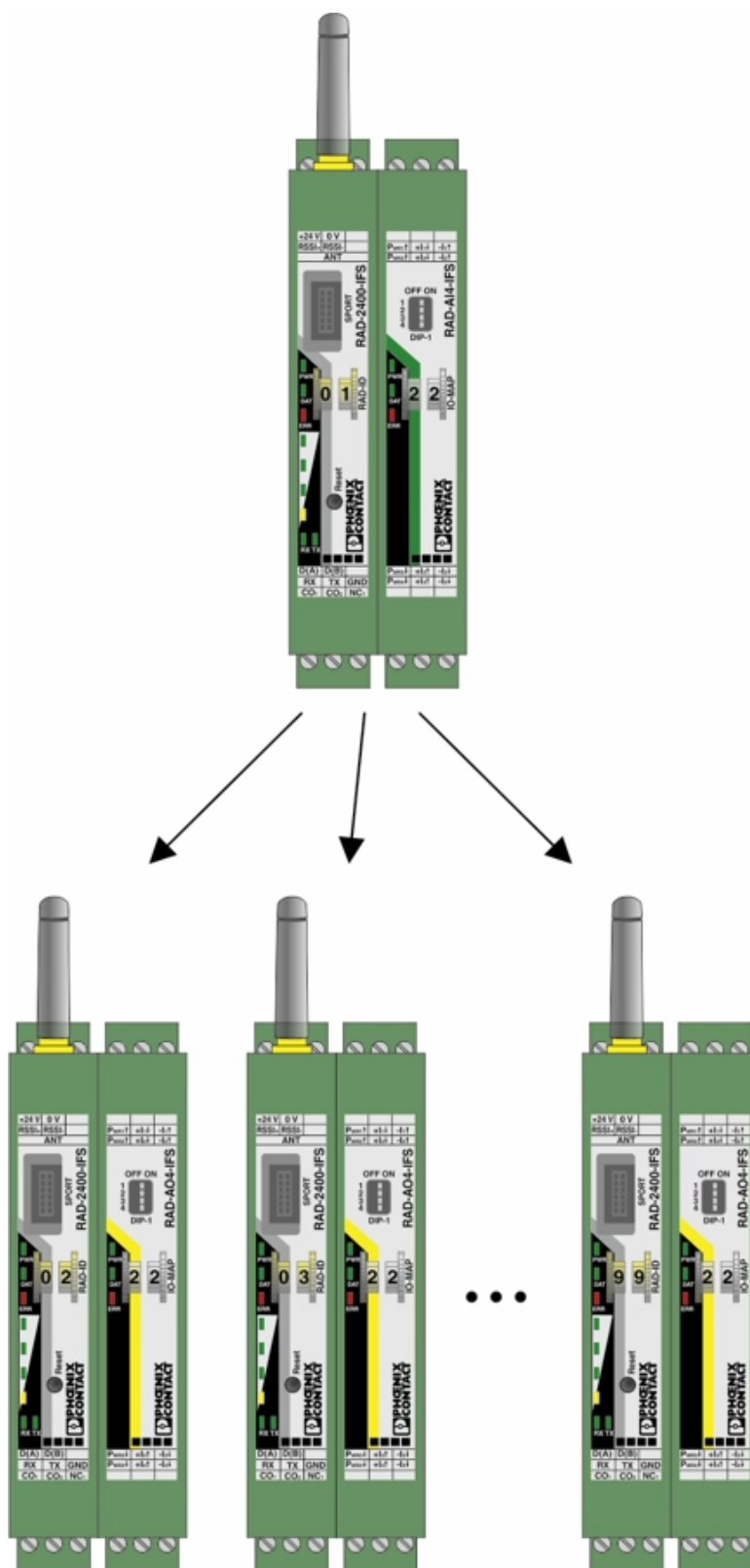
Schematic diagram



Function elements

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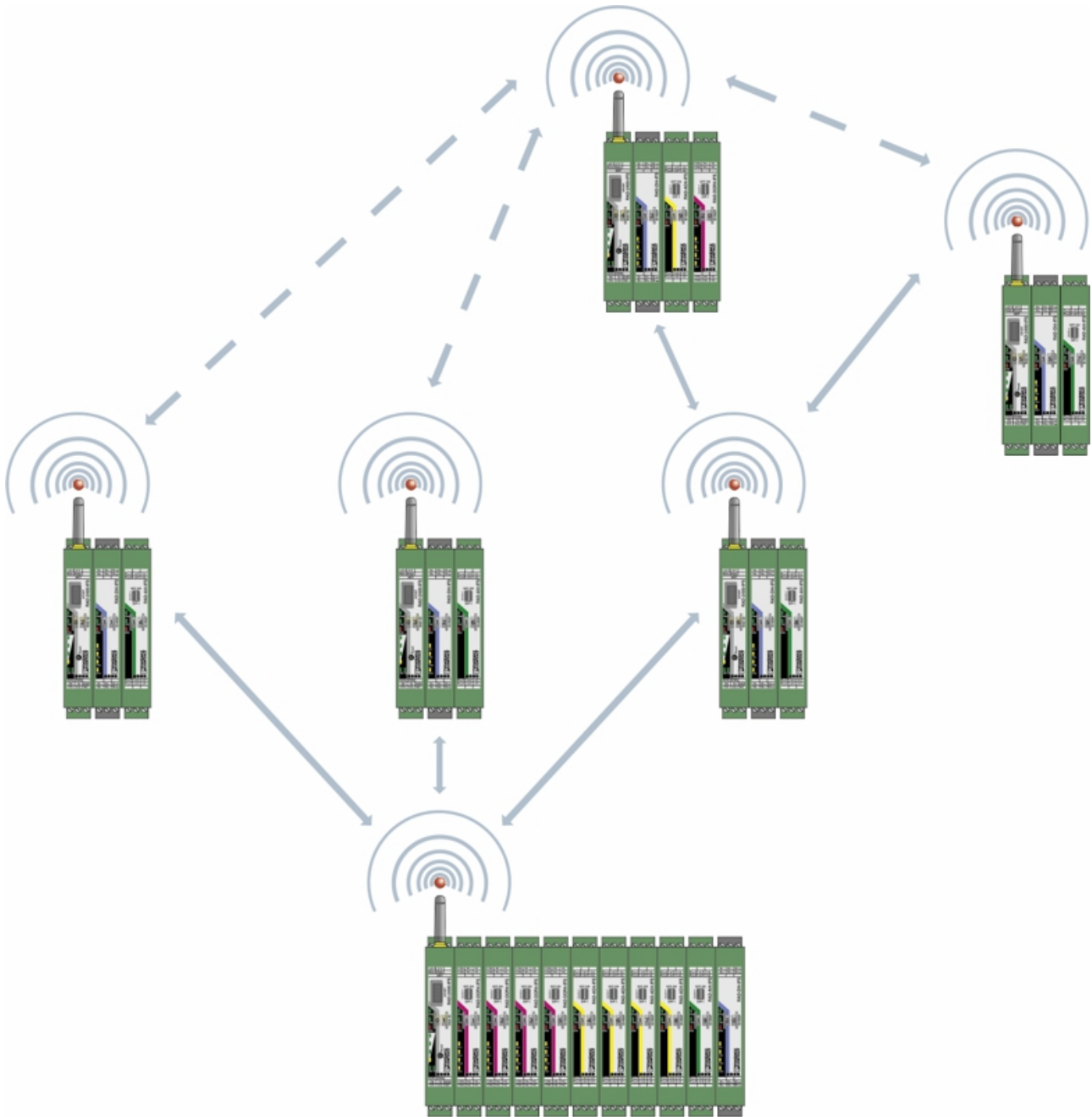
Functional drawing



Assignment of analog inputs and analog outputs

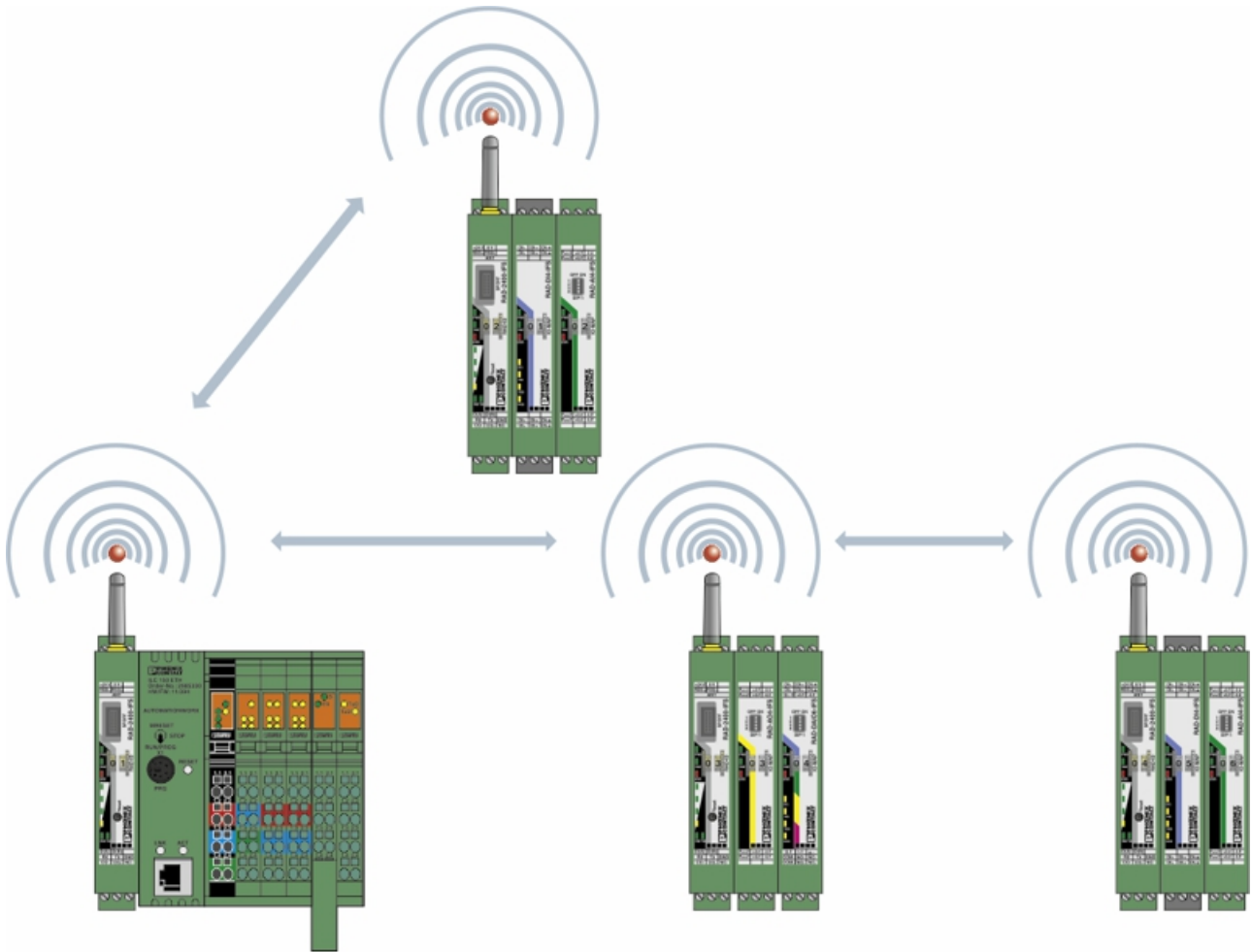
# I/O extension module - RAD-AI4-IFS - 2901537

Application drawing



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Application drawing



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## I/O extension module - RAD-AI4-IFS - 2901537

### 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.

### Classifications

#### eCl@ss

|            |          |
|------------|----------|
| eCl@ss 4.0 | 27230200 |
| eCl@ss 4.1 | 27230200 |
| eCl@ss 5.0 | 27242200 |
| eCl@ss 5.1 | 27242200 |
| eCl@ss 6.0 | 27242600 |
| eCl@ss 7.0 | 27242601 |
| eCl@ss 8.0 | 27242601 |
| eCl@ss 9.0 | 27242601 |

#### ETIM

|          |          |
|----------|----------|
| ETIM 3.0 | EC001423 |
| ETIM 4.0 | EC000310 |
| ETIM 5.0 | EC001596 |
| ETIM 6.0 | EC001596 |
| ETIM 7.0 | EC001596 |

#### UNSPSC

|               |          |
|---------------|----------|
| UNSPSC 6.01   | 30211506 |
| UNSPSC 7.0901 | 43223108 |
| UNSPSC 11     | 39121008 |
| UNSPSC 12.01  | 43223108 |
| UNSPSC 13.2   | 32151602 |

### Approvals

#### Approvals

Approvals

UL Listed / cUL Listed / EAC / cULus Listed

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### Approvals

Ex Approvals

IECEX / ATEX / UL Listed / cUL Listed / cULus Listed

#### Approval details

|              |   |   |               |
|--------------|---|---|---------------|
| UL Listed    |    | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 238705 |
| cUL Listed   |    | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 238705 |
| EAC          |    |   | EAC-Zulassung |
| cULus Listed |  |   |               |

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