

## Series AV03



AVENTICS™ Series AV03



# AV03 series valve system

- Configurable valve systems, Multipole, Fieldbus, IO-Link, AV03/AV05, AV03/AV05/HF02-LG, AV03-BP, ATEX optional



|                                  |                           |
|----------------------------------|---------------------------|
| Mounting orientation             | Any                       |
| Working pressure min./max.       | -0.95 ... 10 bar          |
| Control pressure min./max.       | 3 ... 8 bar               |
| Ambient temperature min./max.    | -10 ... 60 °C             |
| Medium temperature min./max.     | -10 ... 60 °C             |
| Medium                           | Compressed air            |
| Max. particle size               | 40 µm                     |
| Oil content of compressed air    | 0 ... 5 mg/m <sup>3</sup> |
| Nominal flow Q <sub>n</sub>      | 300 l/min                 |
| Number of valve positions max.   | 64                        |
| Protection class with connection | IP65                      |
| DC operating voltage             | 24 V                      |
| Voltage tolerance DC             | -10% / +10%               |

An example configuration is illustrated.  
The delivered product may thus deviate from the illustration.

## Overview of variants

|                                                                                     | Version                                          | You have the following options:                                                                                        | Max.                                                                                 |
|-------------------------------------------------------------------------------------|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|  | Multipole                                        | D-Sub plug, 25-pin, top D-Sub plug, 44-pin, top                                                                        | 24 valves (24 coils) 36 valves (40 coils)                                            |
|  | Multipole                                        | D-Sub plug, 25-pin, on the side D-Sub plug, 44-pin, on the side                                                        | 24 valves (24 coils) 36 valves (40 coils)                                            |
|  | IO-Link                                          | type A type B                                                                                                          | 24 valves (24 coils)                                                                 |
|  | Fieldbus connection with I/O functionality (AES) | PROFINET IO EtherCAT EtherNET/IP POWERLINK PROFIBUS DP CANopen DeviceNet                                               | 64 valves (128 coils)                                                                |
|  | AV03/AV05 in combination                         | D-Sub plug, 25-pin D-Sub plug, 44-pin IO-Link PROFINET IO EtherCAT EtherNET/IP POWERLINK PROFIBUS DP CANopen DeviceNet | 24 valves (24 coils) 36 valves (40 coils) 24 valves (24 coils) 64 valves (128 coils) |
|  | AV03 / AV05 / HF02-LG in combination             | D-Sub plug, 25-pin D-Sub plug, 44-pin IO-Link PROFINET IO EtherCAT EtherNET/IP POWERLINK PROFIBUS DP CANopen DeviceNet | 24 valves (24 coils) 36 valves (40 coils) 24 valves (24 coils) 64 valves (128 coils) |

|                                                                                   | Version | You have the following options:                                                                                                                                                 | Max.                                                                                                     |
|-----------------------------------------------------------------------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
|  | AV03-BP | D-Sub plug, 25-pin, on the side D-Sub plug, 44-pin, top PROFINET IO EtherCAT<br>EtherNET/IP POWERLINK PROFIBUS DP<br>CANopen DeviceNet                                          | 24 valves (24 coils) 32 valves (40 coils) 32 valves (64 coils)                                           |
|  | ATEX    | D-Sub plug, 25-pin, top D-Sub plug, 44-pin, top D-Sub plug, 25-pin, on the side D-Sub plug, 44-pin, on the side PROFINET IO EtherCAT<br>POWERLINK PROFIBUS DP CANopen DeviceNet | 24 valves (24 coils) 36 valves (36 coils) 24 valves (24 coils) 36 valves (36 coils) 22 valves (22 coils) |

## Technical information

The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in the MediaCentre).

UL certification

When using polyurethane tubing, we recommend using additional stiffener sleeves.

For push-in fittings, only use plug accessories made of plastic (polyamide) from our catalog.

The combination of double and triple base plates allows a configuration in increments of 1.

See the following pages on the series for technical data on individual components.

See the Media Centre for information on pin assignment (version A and version B) of the D-Sub connector.

AV03-BP: Only 2x base plates

For assembly in a control cabinet with direct sealing or when using transition plates, a supply plate must be configured after 8 valves  
ATEX:

AV valve systems are certified components in accordance with directive 2014/34/EU

The maximum input power must not exceed 20 W.

The valve system must be installed in an ATEX-certified control cabinet with at least IP 54.

The maximum expansion stage is set in the configurator.

Min./max. ambient temperature -10 ... 45 °C

Min./max. medium temperature -10 ... 45 °C

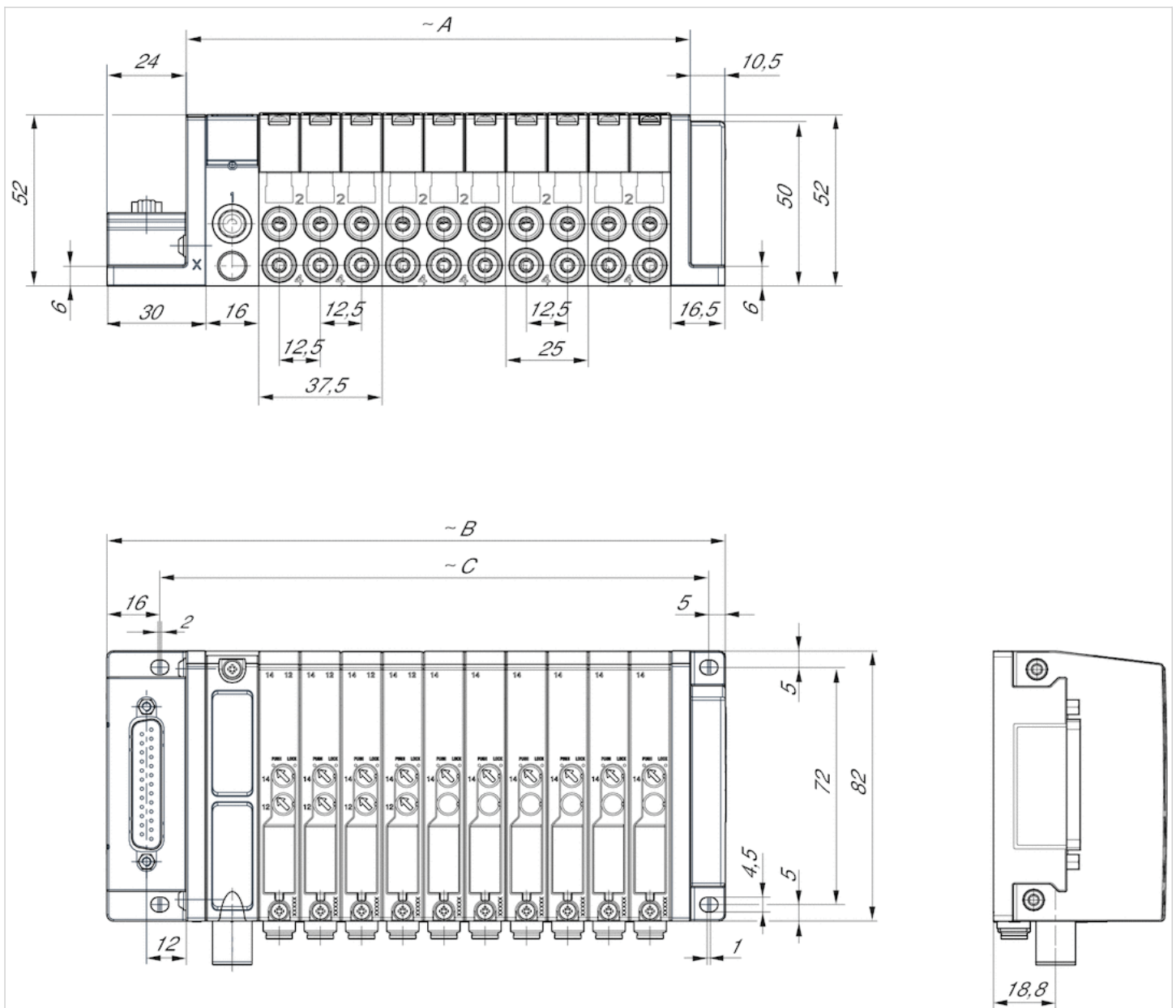
ATEX-certified valve systems with identification II 3G Ex nA IIC Gc can be generated in the Internet configurator.

## Technical information

| Material     |                     |
|--------------|---------------------|
| End plate    | Aluminum, Polyamide |
| Base plate   | Polyamide           |
| Supply plate | Aluminum            |

## Dimensions

### Dimensions, D-Sub plug, 25-pin, top



A = number of valve positions x 12.5 mm + number of supply plates x 16 mm + 12 mm

B = number of valve positions x 12.5 mm + number of supply plates x 16 mm + 46.5 mm

C = number of valve positions x 12.5 mm + number of supply plates x 16 mm + 25.5 mm

The supply plate in front of the first valve must be taken into consideration in the dimensions.

1 = push-in fitting Ø 4 mm, Ø 6 mm, and Ø 8 mm. Connection angle 1: straight and 90° (exchangeable)

2 and 4 = push-in fitting Ø3 mm. Connection angle: 90°

2 and 4 = push-in fitting Ø 4 mm and Ø 6 mm. Connection angle: straight and 90° (exchangeable)

3 and 5 = push-in fitting Ø8 mm. Connection angle: straight

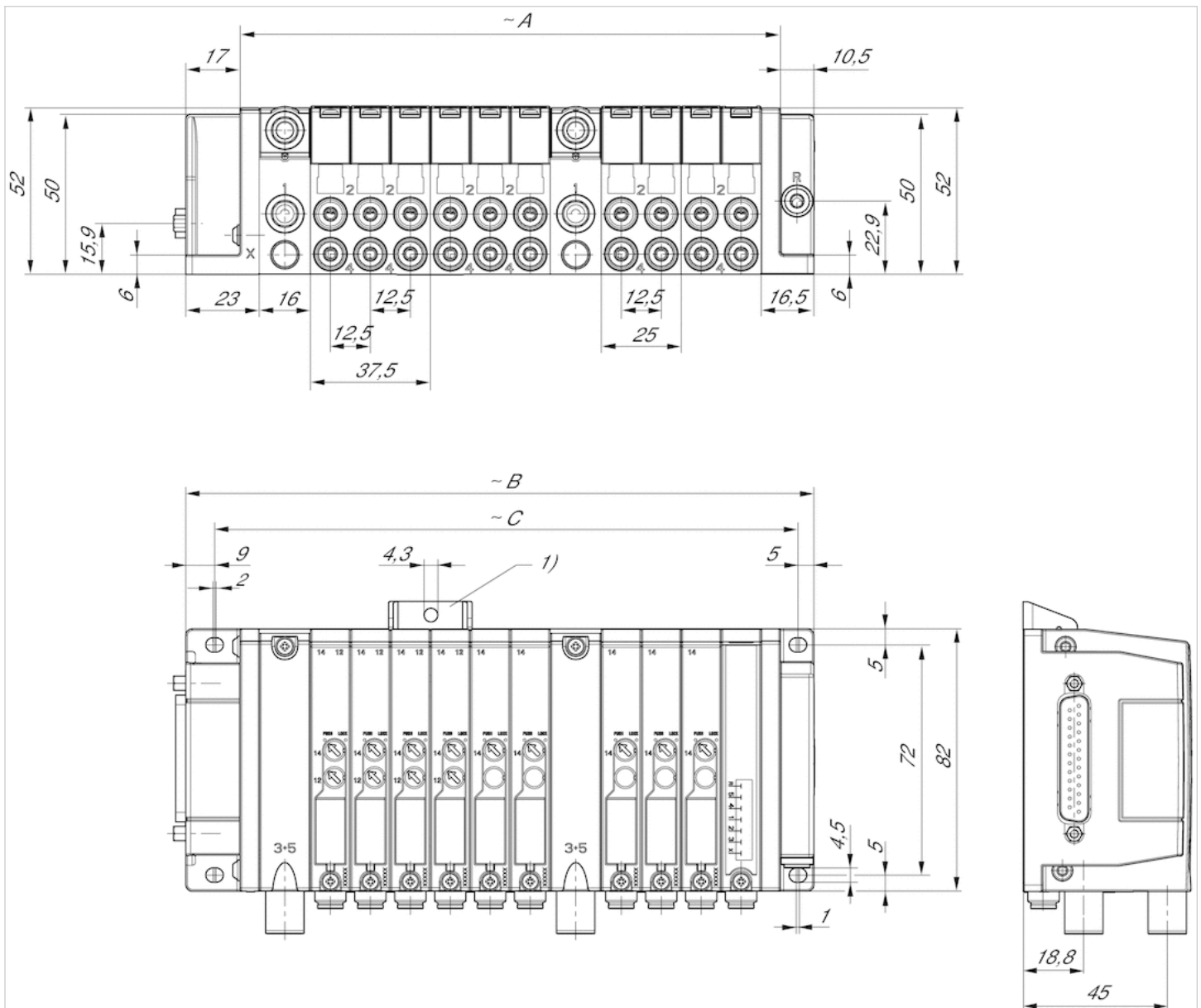
R = collected exhaust air, push-in fitting Ø 4 mm. Connection angle: straight

X = external pilot, push-in fitting Ø 4 mm. Connection angle: straight

An example configuration is shown. You can calculate the dimensions for your configuration using the formula or read them directly in the configurator.



## Dimensions, D-Sub plug, 25-pin, on the side



1) Retaining bracket (optional)

A = number of valve positions x 12.5 mm + number of supply plates x 16 mm + 12 mm

$$B = \text{number of valve positions} \times 12.5 \text{ mm} + \text{number of supply plates} \times 16 \text{ mm} + 39.5 \text{ mm}$$

C = number of valve positions x 12.5 mm + number of supply plates x 16 mm + 25.5 mm

The supply plate in front of the first valve must be taken into consideration in the dimensions.

1 = push-in fitting Ø 4 mm, Ø 6 mm, and Ø 8 mm. Connection angle 1: straight and 90° (exchangeable)

2 and 4 = push-in fitting Ø3 mm. Connection angle: 90°

2 and 4 = push-in fitting Ø 4 mm and Ø 6 mm. Connection angle: straight and 90° (exchangeable)

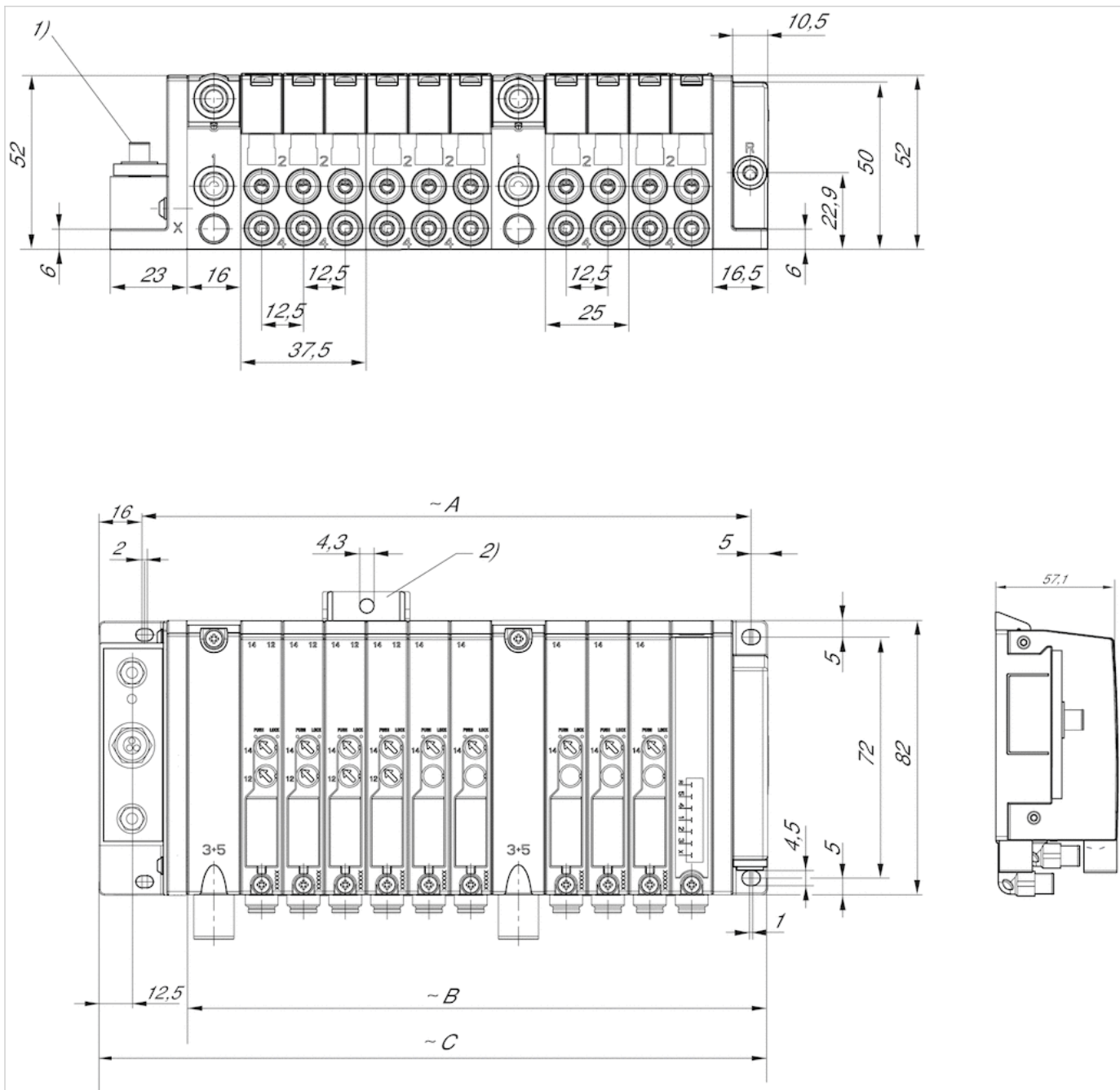
3 and 5 = push-in fitting Ø8 mm. Connection angle: straight

R = collected exhaust air, push-in fitting Ø 4 mm. Connection angle: straight

X = external pilot, push-in fitting Ø 4 mm. Connection angle: straight

An example configuration is shown. You can calculate the dimensions for your configuration using the formula or read them directly in the configurator.

## Dimensions, IO-Link



1) IO-Link

2) Retaining bracket (optional)

A = number of valve positions x 12.5 mm + number of supply plates x 16 mm + 12 mm

B = number of valve positions x 12.5 mm + number of supply plates x 16 mm + 39.5 mm

C = number of valve positions x 12.5 mm + number of supply plates x 16 mm + 25.5 mm

The supply plate in front of the first valve must be taken into consideration in the dimensions.

1 = push-in fitting Ø 4 mm, Ø 6 mm, and Ø 8 mm. Connection angle 1: straight and 90° (exchangeable)

2 and 4 = push-in fitting Ø 3 mm. Connection angle: 90°

2 and 4 = push-in fitting Ø 4 mm and Ø 6 mm. Connection angle: straight and 90° (exchangeable)

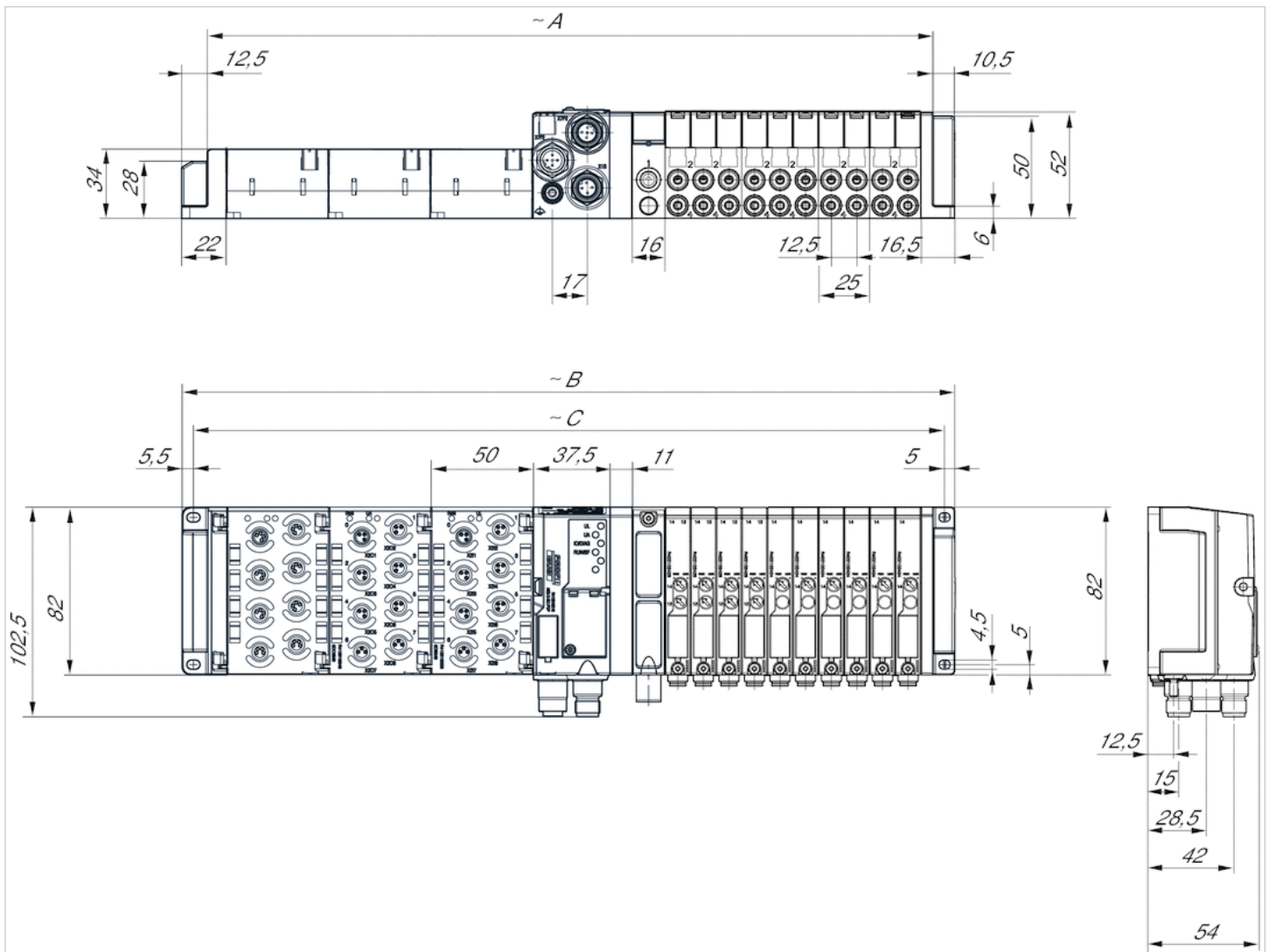
3 and 5 = push-in fitting Ø 8 mm. Connection angle: straight

R = collected exhaust air, push-in fitting Ø 4 mm. Connection angle: straight

X = external pilot, push-in fitting Ø 4 mm. Connection angle: straight

An example configuration is shown. You can calculate the dimensions for your configuration using the formula or read them directly in the configurator.

## Dimensions, Fieldbus connection with I/O functionality (AES)



$A = \text{number of valve positions} \times 12.5 \text{ mm} + \text{number of supply plates} \times 16 \text{ mm} + \text{number of I/O} \times 50 \text{ mm} + 64 \text{ mm}$

$B = \text{number of valve positions} \times 12.5 \text{ mm} + \text{number of supply plates} \times 16 \text{ mm} + \text{number of I/O} \times 50 \text{ mm} + 87 \text{ mm}$

$C = \text{number of valve positions} \times 12.5 \text{ mm} + \text{number of supply plates} \times 16 \text{ mm} + \text{number of I/O} \times 50 \text{ mm} + 76.5 \text{ mm}$

The supply plate in front of the first valve must be taken into consideration in the dimensions.

1 = push-in fitting  $\varnothing 4 \text{ mm}$ ,  $\varnothing 6 \text{ mm}$ , and  $\varnothing 8 \text{ mm}$ . Connection angle 1: straight and  $90^\circ$  (exchangeable)

2 and 4 = push-in fitting  $\varnothing 3 \text{ mm}$ . Connection angle:  $90^\circ$

2 and 4 = push-in fitting  $\varnothing 4 \text{ mm}$  and  $\varnothing 6 \text{ mm}$ . Connection angle: straight and  $90^\circ$  (exchangeable)

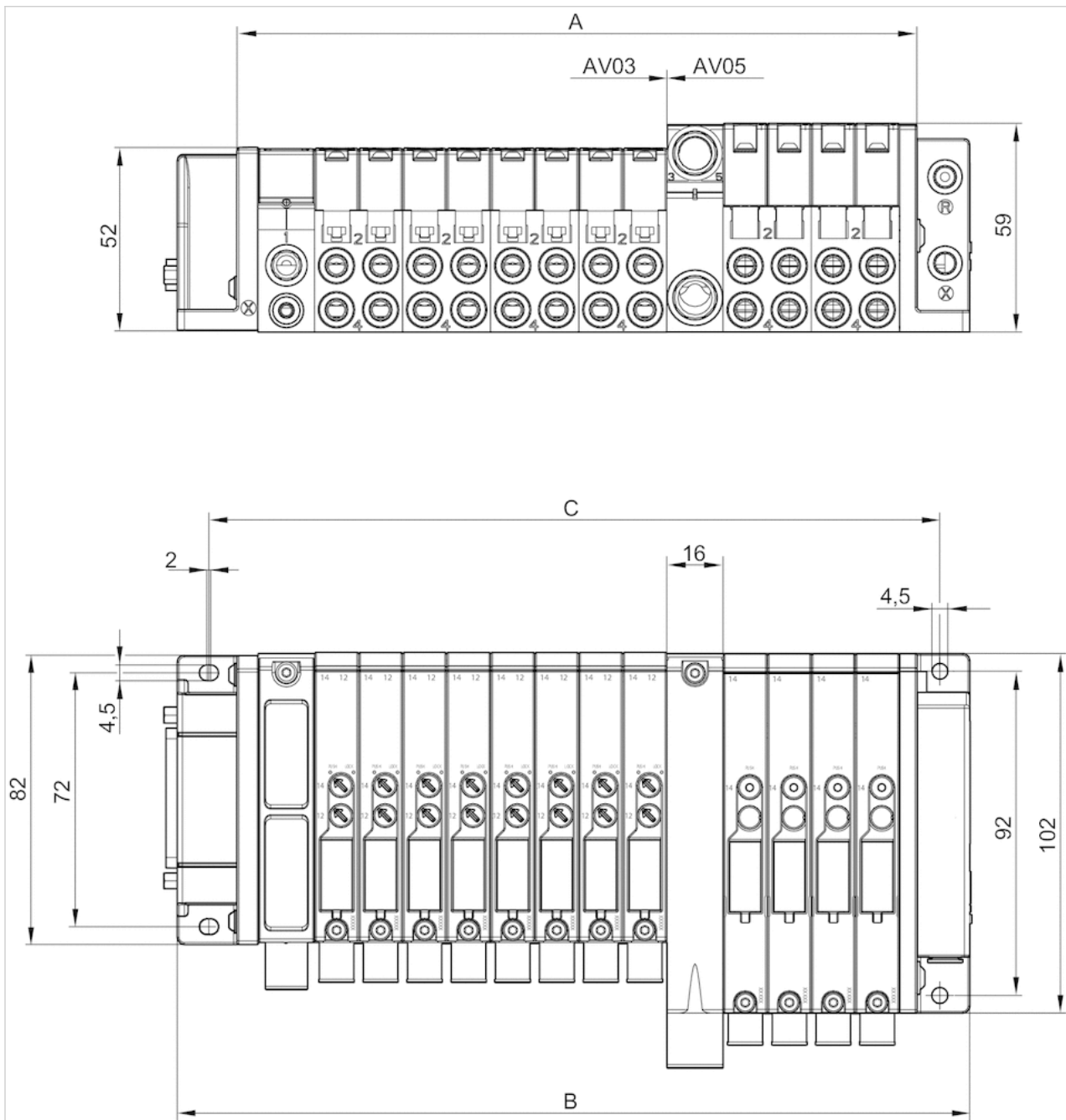
3 and 5 = push-in fitting  $\varnothing 8 \text{ mm}$ . Connection angle: straight

R = collected exhaust air, push-in fitting  $\varnothing 4 \text{ mm}$ . Connection angle: straight

X = external pilot, push-in fitting  $\varnothing 4 \text{ mm}$ . Connection angle: straight

An example configuration is shown. You can calculate the dimensions for your configuration using the formula or read them directly in the configurator.

## Dimensions, AV03/AV05 in combination



D-Sub plug, top or side

A = number of valve positions x 12.5 mm + number of supply plates x 16 mm + 11 mm

B = number of valve positions x 12.5 mm + number of supply plates x 16 mm + 43 mm

C = number of valve positions x 12.5 mm + number of supply plates x 16 mm + 25.5 mm

Bus coupler

A = number of valve positions x 12.5 mm + number of supply plates x 16 mm + number of I/O x 50 mm + 63 mm

B = number of valve positions x 12.5 mm + number of supply plates x 16 mm + number of I/O x 50 mm + 90.5 mm

C = number of valve positions x 12.5 mm + number of supply plates x 16 mm + number of I/O x 50 mm + 76.5 mm

The supply plate in front of the first valve must be taken into consideration in the dimensions.

1 = push-in fitting Ø12 mm. Connection angle 1: straight (exchangeable fittings)

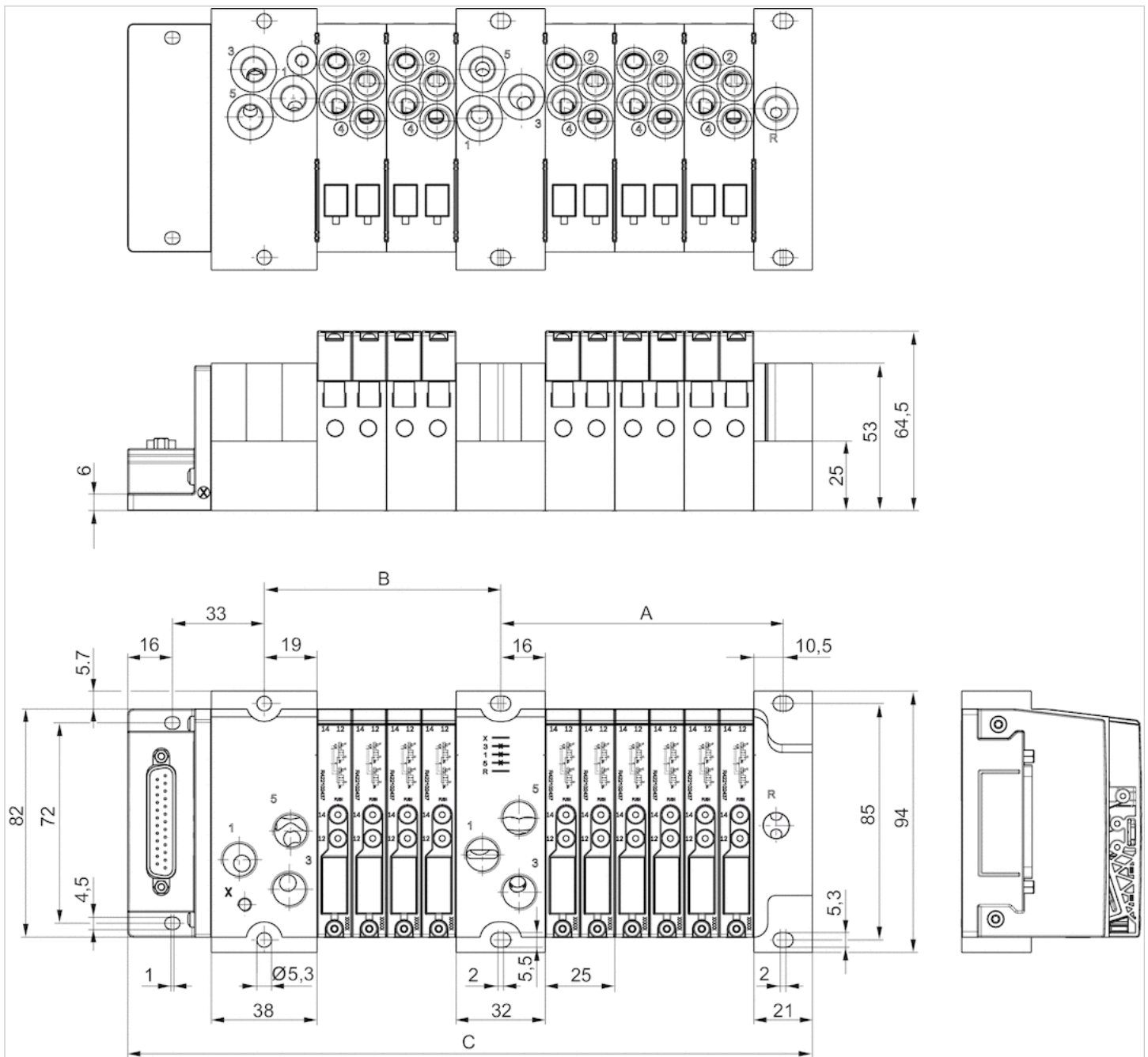
2 and 4 = push-in fitting Ø6 mm and Ø8 mm. Connection angle: straight and 90° (exchangeable fittings)

3 und 5 = push-in fitting Ø12 mm. Connection angle: straight

R = collected pilot exhaust air, push-in fitting Ø6 mm. Connection angle: straight

X = external pilot, push-in fitting Ø6 mm. Connection angle: straight

## Dimensions, AV-BP



A = number of valve positions x 12.5 mm + 26.5 mm

B = number of valve positions x 12.5 mm + 35 mm

D-SUB: C = number of valve positions x 12.5 mm + number of I/Os x 32 mm + 89 mm

AES: C = number of valve positions x 12.5 + number of supply plates x 32 + number of I/O x 50 + 129.3

Connections 2, 4: G1/8, depth 7 mm, max. external push-in fitting diameter: 12 mm

Connection R: G1/8, depth 8 mm, max. external push-in fitting diameter: 15 mm

Connection X on bottom: G1/8, depth 6 mm, max. external push-in fitting diameter: 10 mm Connection X on top: G1/8, depth 6 mm, max. external push-in fitting diameter: 12 mm

Connections 1, 3, 5 on bottom: G1/8, depth 7 mm, max. external push-in fitting diameter: 16 mm

Connections 1, 3, 5 on top: G1/8, depth 7 mm, max. external push-in fitting diameter: 16 mm

## 2x2/2-directional valve, Series AV03

- 2x2/2
- $Q_n = 280 \text{ l/min}$
- NC/NC
- Plate connection
- Manual override : with detent
- double solenoid
- With spring return
- Pilot : External



|                                  |                                       |
|----------------------------------|---------------------------------------|
| Version                          | Spool valve, positive overlapping     |
| Activation                       | Electrically                          |
| Pilot                            | External                              |
| Sealing principle                | Soft sealing                          |
| Blocking principle               | Base plate principle, multiple        |
| Working pressure min./max.       | -0.9 ... 10 bar                       |
| Control pressure min./max.       | 3 ... 8 bar                           |
| Ambient temperature min./max.    | -10 ... 60 °C                         |
| Medium temperature min./max.     | -10 ... 60 °C                         |
| Medium                           | Compressed air                        |
| Max. particle size               | 40 µm                                 |
| Oil content of compressed air    | 0 ... 5 mg/m <sup>3</sup>             |
| Nominal flow $Q_n$               | 280 l/min                             |
| Pilot control exhaust            | with directional pilot air exhaust    |
| Protection class with connection | IP65                                  |
| Protective circuit               | Z-diode                               |
| Reverse polarity protection      | Protected against polarity reversal   |
| LED status display               | Yellow                                |
| Duty cycle                       | 100 %                                 |
| Typ. switch-on time              | 16 ms                                 |
| Typ. switch-off time             | 20 ms                                 |
| mounting screws                  | Hexalobular socket (TORX) ISO 10664-8 |
| Mounting screw tightening torque | 0.52 Nm                               |
| Weight                           | 0.052 kg                              |

### Technical data

| Part No.   |                                                                                     | MO                                                                                  |       | Operational voltage | Voltage tolerance |
|------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------|---------------------|-------------------|
|            |                                                                                     |                                                                                     |       | DC                  | DC                |
| R422102436 |  |  | NC/NC | 24 V                | -10% / +10%       |
| R422102437 |  |  | NC/NC | 24 V                | -10% / +10%       |

| Part No.   | Power consumption | Flow conductance | Flow conductance |
|------------|-------------------|------------------|------------------|
|            | DC                | b                | C-value          |
| R422102436 | 0.55 W            | 0.4              | 1.17 l/(s*bar)   |
| R422102437 | 0.55 W            | 0.4              | 1.17 l/(s*bar)   |

Nominal flow  $Q_n$  at 6 bar and  $\Delta p = 1 \text{ bar}$ , MO = Manual override



## Technical information

The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in the MediaCentre).

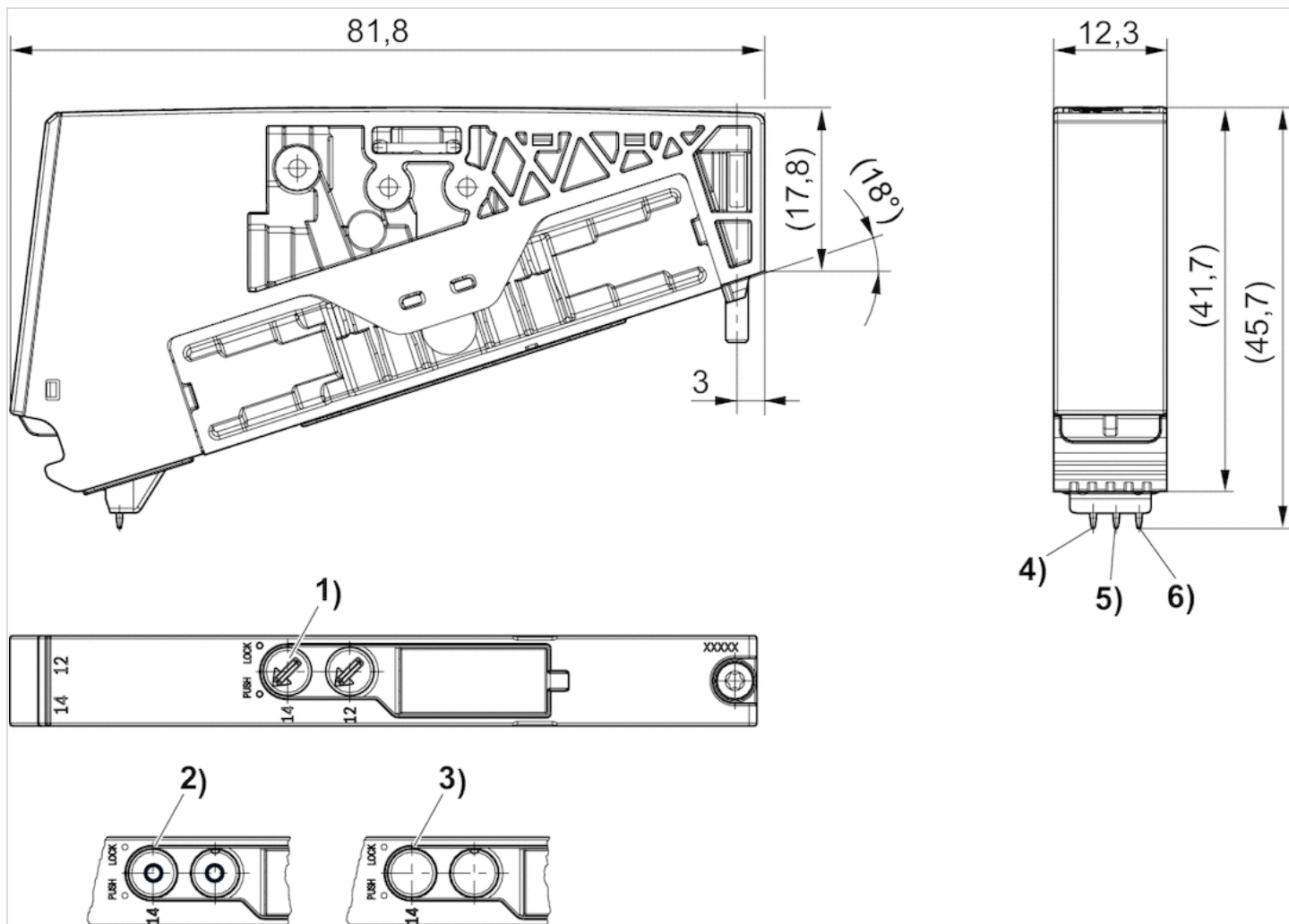
## Technical information

| Material    |                                                                            |
|-------------|----------------------------------------------------------------------------|
| Housing     | Polyamide fiber-glass reinforced                                           |
| Seals       | Acrylonitrile butadiene rubber Hydrogenated acrylonitrile butadiene rubber |
| Front plate | Polyamide fiber-glass reinforced                                           |
| End plate   | Polyamide                                                                  |



## Dimensions

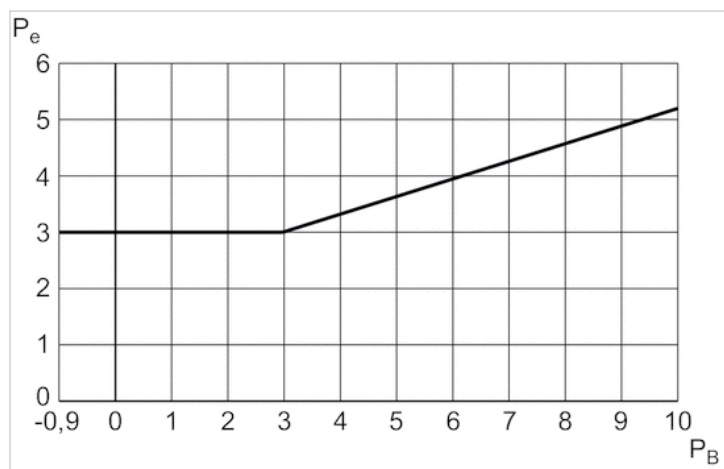
### Dimensions



- 1) Manual override: with detent
- 2) manual override: without detent
- 3) Manual override: without detent
- 4) Coil 12
- 5) Coil 14
- 6) Ground

## Diagrams

Control pressure: see diagram for min., max. 8 bar



PB= Working pressure

Pe = external control pressure, min.

## 2x3/2-directional valve, Series AV03

- 2x3/2
- $Q_n = 250\text{--}300\text{ l/min}$
- NC/NC NO/NO NC/NO
- Plate connection
- Manual override : with detent without detent
- double solenoid
- With spring return
- Pilot : External



|                                  |                                       |
|----------------------------------|---------------------------------------|
| Version                          | Spool valve, positive overlapping     |
| Activation                       | Electrically                          |
| Pilot                            | External                              |
| Sealing principle                | Soft sealing                          |
| Blocking principle               | Base plate principle, multiple        |
| Working pressure min./max.       | -0.9 ... 10 bar                       |
| Control pressure min./max.       | 3 ... 8 bar                           |
| Ambient temperature min./max.    | -10 ... 60 °C                         |
| Medium temperature min./max.     | -10 ... 60 °C                         |
| Medium                           | Compressed air                        |
| Max. particle size               | 40 µm                                 |
| Oil content of compressed air    | 0 ... 5 mg/m <sup>3</sup>             |
| Nominal flow $Q_n$               | See table below                       |
| Pilot control exhaust            | with directional pilot air exhaust    |
| Protection class with connection | IP65                                  |
| Protective circuit               | Z-diode                               |
| Reverse polarity protection      | Protected against polarity reversal   |
| LED status display               | Yellow                                |
| Duty cycle                       | 100 %                                 |
| Typ. switch-on time              | 16 ms                                 |
| Typ. switch-off time             | 20 ms                                 |
| mounting screws                  | Hexalobular socket (TORX) ISO 10664-8 |
| Mounting screw tightening torque | 0.5 Nm                                |
| Weight                           | See table below                       |

### Technical data

| Part No.   |                                                                                     | MO                                                                                  |       | Operational voltage | Voltage tolerance |
|------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------|---------------------|-------------------|
|            |                                                                                     |                                                                                     |       | DC                  | DC                |
| R422102430 |  |  | NC/NC | 24 V                | -10% / +10%       |
| R422102432 |  |  | NO/NO | 24 V                | -10% / +10%       |
| R422102434 |  |  | NC/NO | 24 V                | -10% / +10%       |
| R422102431 |  |  | NC/NC | 24 V                | -10% / +10%       |
| R422102433 |  |  | NO/NO | 24 V                | -10% / +10%       |
| R422102435 |  |  | NC/NO | 24 V                | -10% / +10%       |

| Part No.   | Power consumption | Flow conductance | Flow conductance | Nominal flow $Q_n$ | Weight  |
|------------|-------------------|------------------|------------------|--------------------|---------|
|            | DC                | b                | C-value          |                    |         |
| R422102430 | 0.55 W            | 0.29             | 1.17 l/(s*bar)   | 300 l/min          | 0.05 kg |

| Part No.   | Power consumption | Flow conductance | Flow conductance | Nominal flow<br>Qn | Weight   |
|------------|-------------------|------------------|------------------|--------------------|----------|
|            | DC                | b                | C-value          |                    |          |
| R422102432 | 0.55 W            | 0.38             | 0.92 l/(s*bar)   | 250 l/min          | 0.049 kg |
| R422102434 | 0.55 W            | 0.38             | 0.92 l/(s*bar)   | 250 l/min          | 0.05 kg  |
| R422102431 | 0.55 W            | 0.29             | 1.17 l/(s*bar)   | 300 l/min          | 0.05 kg  |
| R422102433 | 0.55 W            | 0.38             | 0.92 l/(s*bar)   | 250 l/min          | 0.049 kg |
| R422102435 | 0.55 W            | 0.38             | 0.92 l/(s*bar)   | 250 l/min          | 0.05 kg  |

Nominal flow Qn at 6 bar and  $\Delta p = 1$  bar, MO = Manual override

## Technical information

The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

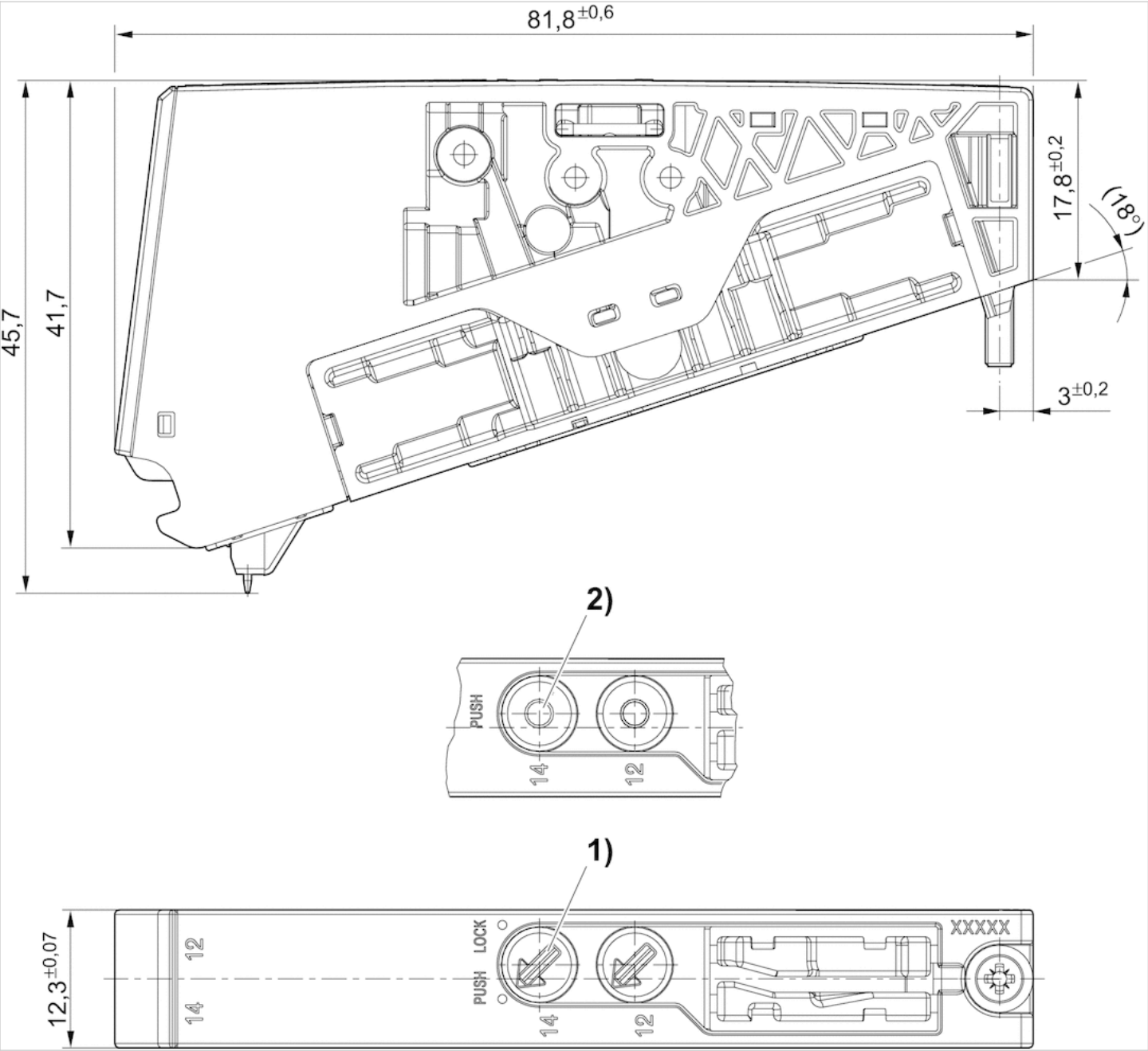
Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in the MediaCentre).

## Technical information

| Material    |                                                                            |
|-------------|----------------------------------------------------------------------------|
| Housing     | Polyamide fiber-glass reinforced                                           |
| Seals       | Acrylonitrile butadiene rubber Hydrogenated acrylonitrile butadiene rubber |
| Front plate | Polyamide fiber-glass reinforced                                           |
| End plate   | Polyamide                                                                  |

Dimensions

Dimensions



- 1) with detent
- 2) without detent

## Diagrams

Control pressure: see diagram for min., max. 8 bar



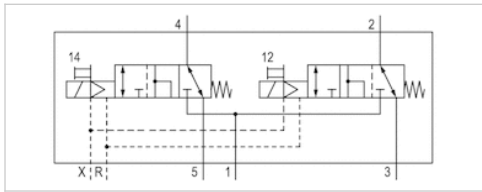
PB= Working pressure

Pe = external control pressure, min.



## 2x3/2-directional valve, Series AV03

- 2x3/2
- $Q_n = 300 \text{ l/min}$
- Plate connection
- Manual override : without detent
- double solenoid
- With spring return
- Pilot : External



|                                  |                                       |
|----------------------------------|---------------------------------------|
| Version                          | Spool valve, negative overlapping     |
| Activation                       | Electrically                          |
| Pilot                            | External                              |
| Sealing principle                | Soft sealing                          |
| Blocking principle               | Base plate principle, multiple        |
| Working pressure min./max.       | -0.9 ... 10 bar                       |
| Control pressure min./max.       | 3 ... 8 bar                           |
| Ambient temperature min./max.    | -10 ... 60 °C                         |
| Medium temperature min./max.     | -10 ... 60 °C                         |
| Medium                           | Compressed air                        |
| Max. particle size               | 40 µm                                 |
| Oil content of compressed air    | 0 ... 5 mg/m³                         |
| Nominal flow $Q_n$               | 300 l/min                             |
| Nominal flow 1 ► 2               | 300 l/min                             |
| Pilot control exhaust            | with directional pilot air exhaust    |
| Protection class with connection | IP65                                  |
| Protective circuit               | Z-diode                               |
| Reverse polarity protection      | Protected against polarity reversal   |
| LED status display               | Yellow                                |
| Duty cycle                       | 100 %                                 |
| Typ. switch-on time              | 16 ms                                 |
| Typ. switch-off time             | 20 ms                                 |
| mounting screws                  | Hexalobular socket (TORX) ISO 10664-8 |
| Mounting screw tightening torque | 0.5 Nm                                |

### Technical data

| Part No.   | Operational voltage | Voltage tolerance | Power consumption |
|------------|---------------------|-------------------|-------------------|
|            |                     | DC                | DC                |
| R422102856 | 24 V                | -10% / +10%       | 0.55 W            |

Nominal flow  $Q_n$  at 6 bar and  $\Delta p = 1 \text{ bar}$ , MO = Manual override

### Technical information

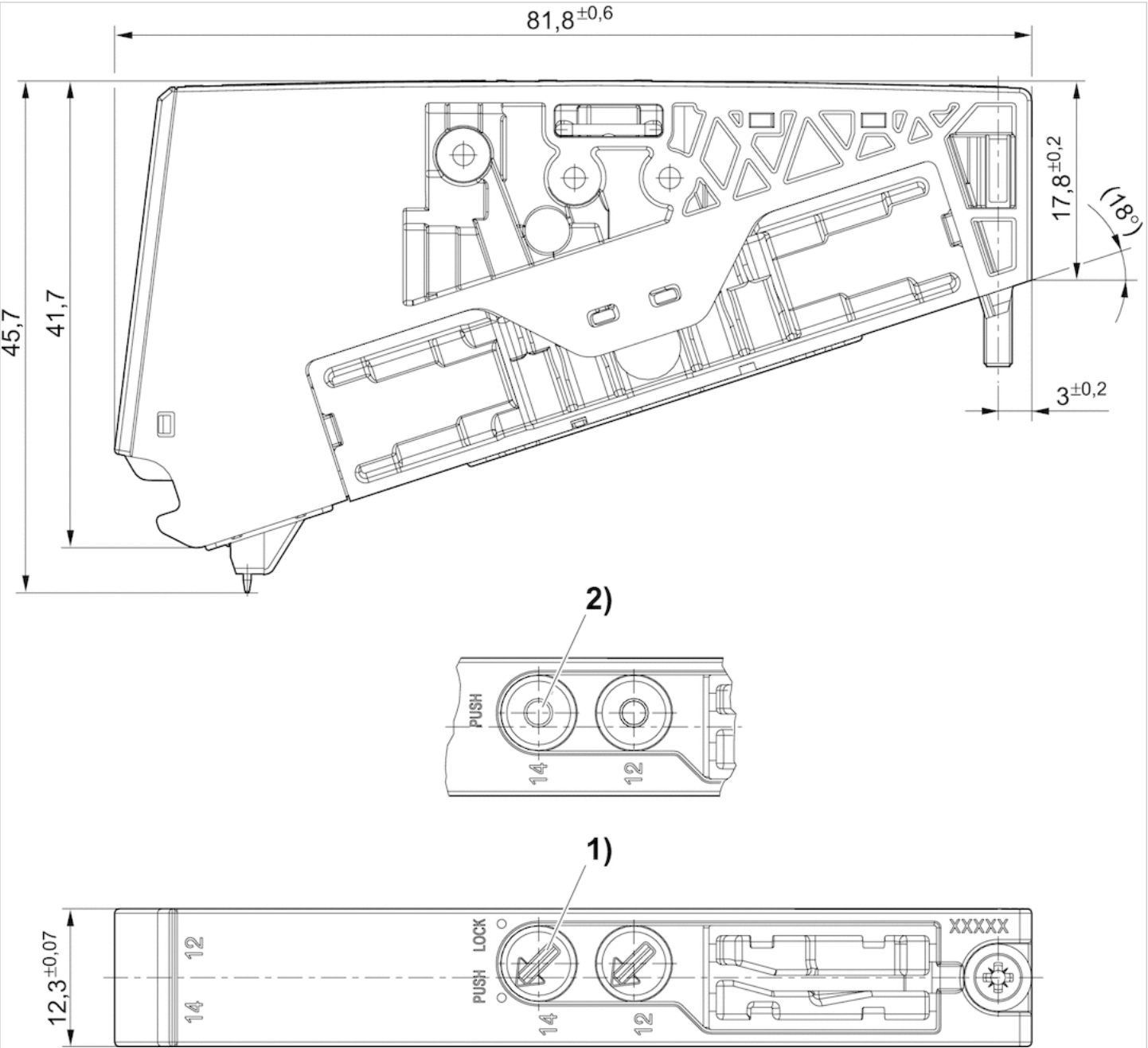
The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!  
 The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .  
 The oil content of compressed air must remain constant during the life cycle.  
 Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in the MediaCentre).

Technical information

| Material    |                                                                            |
|-------------|----------------------------------------------------------------------------|
| Housing     | Polyamide fiber-glass reinforced                                           |
| Seals       | Acrylonitrile butadiene rubber Hydrogenated acrylonitrile butadiene rubber |
| Front plate | Polyamide fiber-glass reinforced                                           |
| End plate   | Polyamide                                                                  |

Dimensions

Dimensions



1) with detent

2) without detent

## Diagrams

Control pressure: see diagram for min., max. 8 bar



PB= Working pressure

Pe = external control pressure, min.

# 5/2-directional valve, Series AV03

- 5/2
- $Q_n = 300 \text{ l/min}$
- Plate connection
- Manual override : with detent without detent
- single solenoid double solenoid
- Pilot : External



|                                  |                                       |
|----------------------------------|---------------------------------------|
| Version                          | Spool valve, positive overlapping     |
| Activation                       | Electrically                          |
| Pilot                            | External                              |
| Sealing principle                | Soft sealing                          |
| Blocking principle               | Base plate principle, multiple        |
| Working pressure min./max.       | -0.9 ... 10 bar                       |
| Control pressure min./max.       | 3 ... 8 bar                           |
| Ambient temperature min./max.    | -10 ... 60 °C                         |
| Medium temperature min./max.     | -10 ... 60 °C                         |
| Medium                           | Compressed air                        |
| Max. particle size               | 40 $\mu\text{m}$                      |
| Oil content of compressed air    | 0 ... 5 $\text{mg/m}^3$               |
| Nominal flow $Q_n$               | 300 l/min                             |
| Pilot control exhaust            | with directional pilot air exhaust    |
| Protection class with connection | IP65                                  |
| Protective circuit               | Z-diode                               |
| Reverse polarity protection      | Protected against polarity reversal   |
| LED status display               | Yellow                                |
| Duty cycle                       | 100 %                                 |
| mounting screws                  | Hexalobular socket (TORX) ISO 10664-8 |
| Mounting screw tightening torque | 0.5 Nm                                |
| Weight                           | See table below                       |

## Technical data

| Part No.   |                                                                                     | MO                                                                                  | Operational voltage | Voltage tolerance |
|------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------|-------------------|
|            |                                                                                     |                                                                                     | DC                  | DC                |
| R422102503 |  |  | 24 V                | -10% / +10%       |
| R422102504 |  |  | 24 V                | -10% / +10%       |
| R422102426 |  |  | 24 V                | -10% / +10%       |
| R422102424 |  |  | 24 V                | -10% / +10%       |
| R422102427 |  |  | 24 V                | -10% / +10%       |
| R422102425 |  |  | 24 V                | -10% / +10%       |

| Part No.   | Power consumption | Flow conductance | Flow conductance | Typ. switch-on time |
|------------|-------------------|------------------|------------------|---------------------|
|            | DC                | b                | C-value          |                     |
| R422102503 | 0.55 W            | 0.29             | 1.17 l/(s*bar)   | 10 ms               |
| R422102504 | 0.55 W            | 0.29             | 1.17 l/(s*bar)   | 10 ms               |
| R422102426 | 0.55 W            | 0.29             | 1.17 l/(s*bar)   | 8 ms                |
| R422102424 | 0.55 W            | 0.29             | 1.17 l/(s*bar)   | 12 ms               |
| R422102427 | 0.55 W            | 0.29             | 1.17 l/(s*bar)   | 8 ms                |

| Part No.   | Power consumption | Flow conductance | Flow conductance | Typ. switch-on time |
|------------|-------------------|------------------|------------------|---------------------|
|            | DC                | b                | C-value          |                     |
| R422102425 | 0.55 W            | 0.29             | 1.17 l/(s*bar)   | 12 ms               |

| Part No.   | Typ. switch-off time | Weight   |
|------------|----------------------|----------|
| R422102503 | 17 ms                | 0.045 kg |
| R422102504 | 17 ms                | 0.045 kg |
| R422102426 | 8 ms                 | 0.048 kg |
| R422102424 | 17 ms                | 0.043 kg |
| R422102427 | 8 ms                 | 0.048 kg |
| R422102425 | 17 ms                | 0.043 kg |

Nominal flow Qn at 6 bar and  $\Delta p = 1$  bar, MO = Manual override

## Technical information

The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in the MediaCentre).

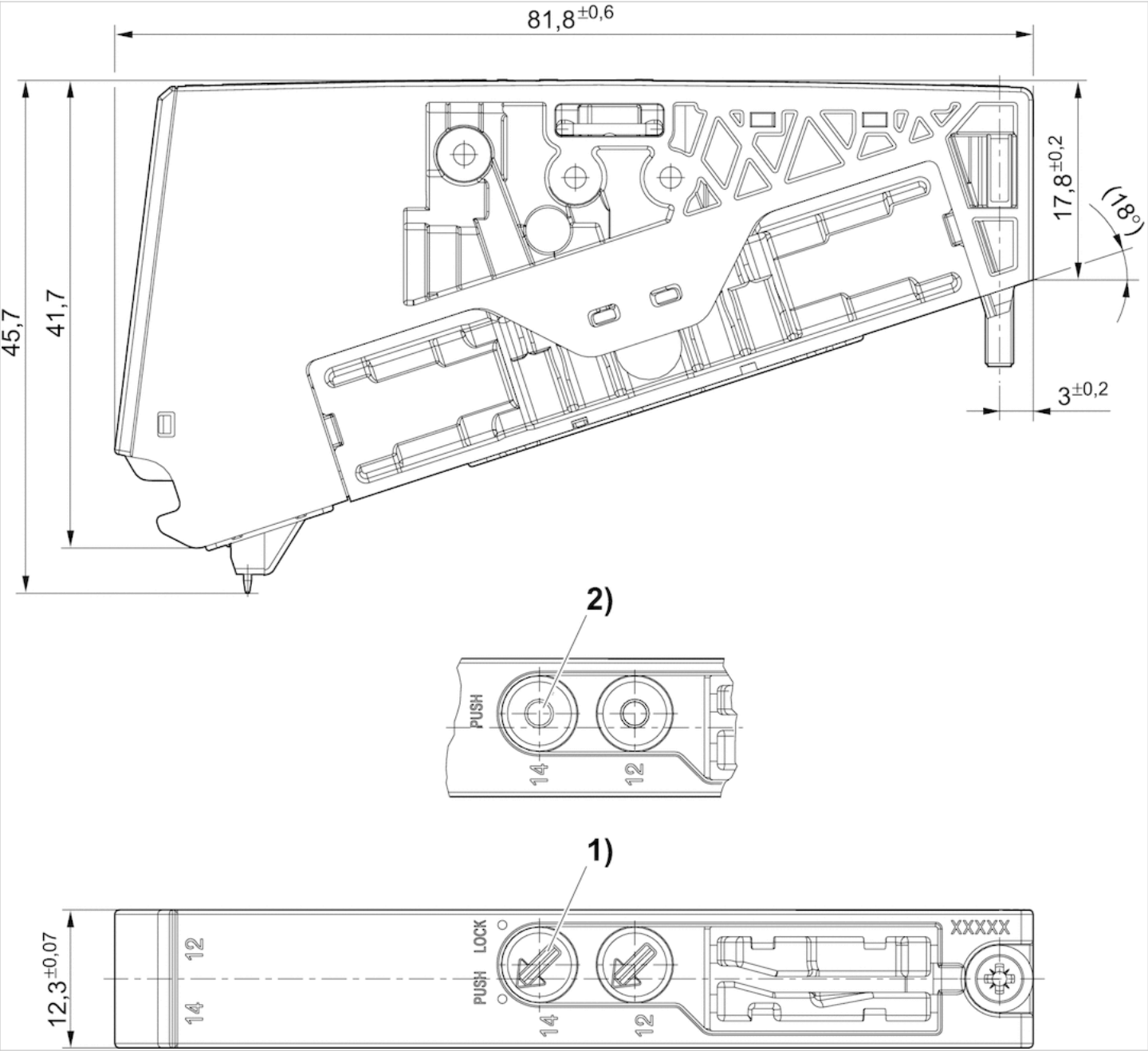
The pilot type (external/internal) is not implemented in the valve, but in the end plate of the valve system.

## Technical information

| Material    |                                                                            |
|-------------|----------------------------------------------------------------------------|
| Housing     | Polyamide fiber-glass reinforced                                           |
| Seals       | Acrylonitrile butadiene rubber Hydrogenated acrylonitrile butadiene rubber |
| Front plate | Polyamide fiber-glass reinforced                                           |
| End plate   | Polyamide                                                                  |

Dimensions

Dimensions



- 1) with detent
- 2) without detent

# 5/3-directional valve, Series AV03

- 5/3
- $Q_n = 240 \text{ l/min}$
- closed center
- Plate connection
- Manual override : with detent without detent
- double solenoid
- With spring return
- Pilot : External



|                                  |                                       |
|----------------------------------|---------------------------------------|
| Version                          | Spool valve, positive overlapping     |
| Activation                       | Electrically                          |
| Pilot                            | External                              |
| Sealing principle                | Soft sealing                          |
| Blocking principle               | Base plate principle, multiple        |
| Working pressure min./max.       | -0.9 ... 10 bar                       |
| Control pressure min./max.       | 3 ... 8 bar                           |
| Ambient temperature min./max.    | -10 ... 60 °C                         |
| Medium temperature min./max.     | -10 ... 60 °C                         |
| Medium                           | Compressed air                        |
| Max. particle size               | 40 µm                                 |
| Oil content of compressed air    | 0 ... 5 mg/m <sup>3</sup>             |
| Nominal flow $Q_n$               | 240 l/min                             |
| Pilot control exhaust            | with directional pilot air exhaust    |
| Protection class with connection | IP65                                  |
| Protective circuit               | Z-diode                               |
| Reverse polarity protection      | Protected against polarity reversal   |
| LED status display               | Yellow                                |
| Duty cycle                       | 100 %                                 |
| Typ. switch-on time              | 12 ms                                 |
| Typ. switch-off time             | 12 ms                                 |
| mounting screws                  | Hexalobular socket (TORX) ISO 10664-8 |
| Mounting screw tightening torque | 0.5 Nm                                |
| Weight                           | 0.046 kg                              |

## Technical data

| Part No.   |                                                                                     | MO                                                                                  |               | Operational voltage | Voltage tolerance |
|------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------|---------------------|-------------------|
|            |                                                                                     |                                                                                     |               | DC                  | DC                |
| R422102428 |  |  | closed center | 24 V                | -10% / +10%       |
| R422102429 |  |  | closed center | 24 V                | -10% / +10%       |

| Part No.   | Power consumption | Flow conductance | Flow conductance |
|------------|-------------------|------------------|------------------|
|            | DC                | b                | C-value          |
| R422102428 | 0.55 W            | 0.32             | 0.92 l/(s*bar)   |
| R422102429 | 0.55 W            | 0.32             | 0.92 l/(s*bar)   |

| Part No.   | basic valve with electrical connector |
|------------|---------------------------------------|
| R422102428 | Basic valve with pilot valve          |
| R422102429 | Basic valve without pilot valve       |

Nominal flow Q<sub>n</sub> at 6 bar and  $\Delta p = 1$  bar, MO = Manual override

## Technical information

The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!  
 The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .  
 The oil content of compressed air must remain constant during the life cycle.  
 Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in the MediaCentre).

The pilot type (external/internal) is not implemented in the valve, but in the end plate of the valve system.

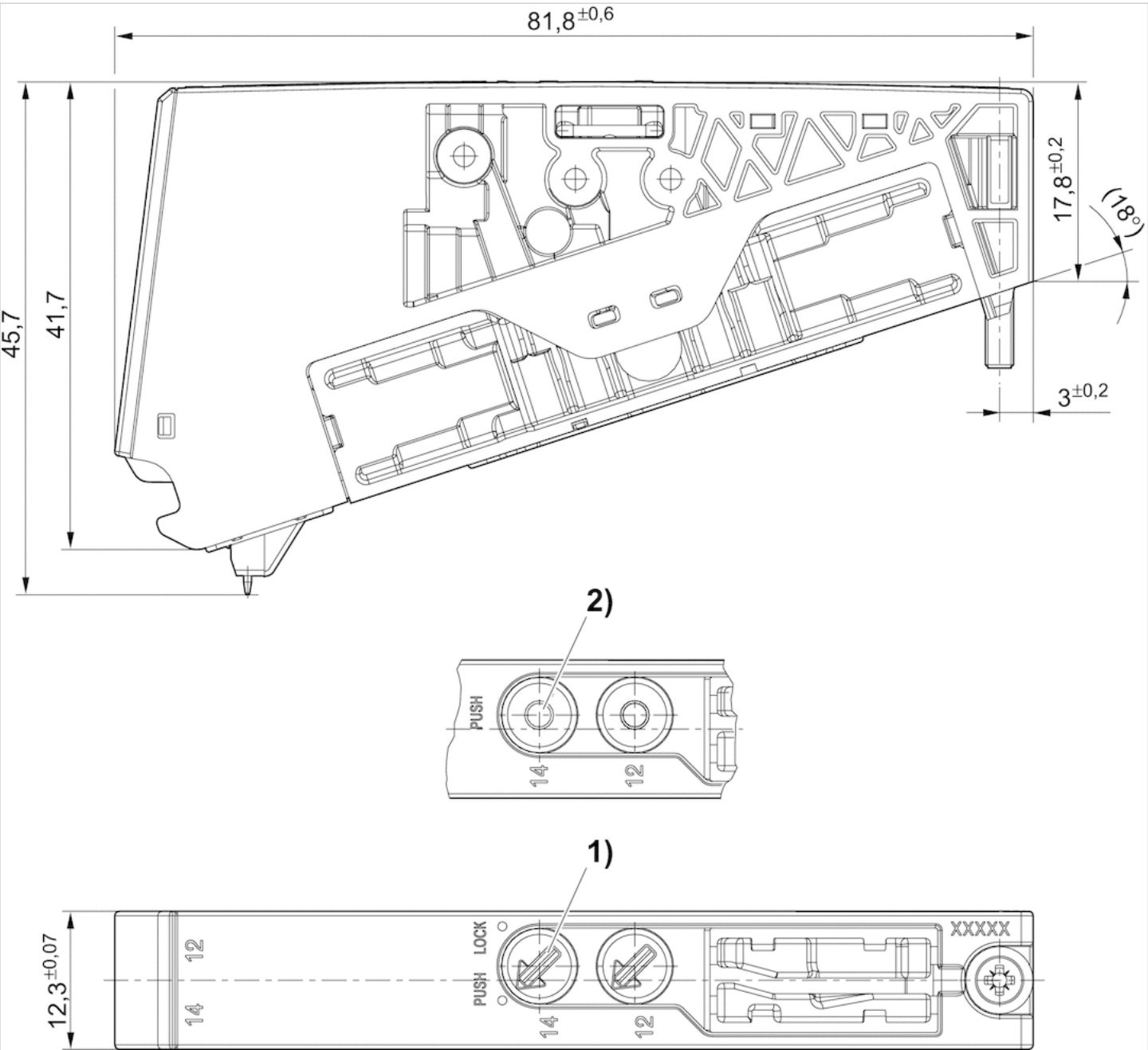
## Technical information

| Material    |                                                                            |
|-------------|----------------------------------------------------------------------------|
| Housing     | Polyamide fiber-glass reinforced                                           |
| Seals       | Acrylonitrile butadiene rubber Hydrogenated acrylonitrile butadiene rubber |
| Front plate | Polyamide fiber-glass reinforced                                           |
| End plate   | Polyamide                                                                  |



Dimensions

Dimensions



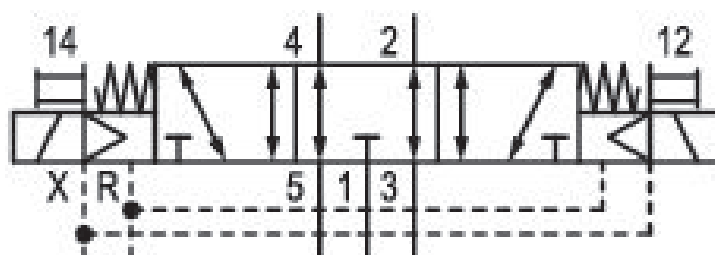
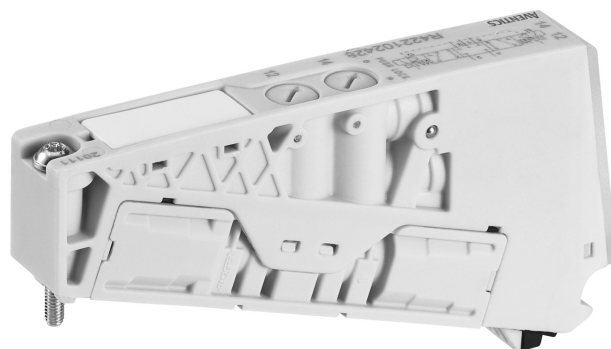
- 1) with detent
- 2) without detent

# 5/3-directional valve, Series AV03

## R422102875

### General series information Series AV03

- The AVENTICS Series AV03/AV05 provide a reliable basis for both compact handling systems and complex automation solutions. Within machine safety the Series AV03/AV05 offers intelligent solutions that significantly reduce your effort in creating a safe design. With the integration of the fieldbus and I/O-modules of the Series AES, also all requirements for distributed control are available. The Series AV03/AV05 is easy to configure, easy to use and easy to extend as well as IIoT futureproof thanks to the integration of OPC UA and the Digital Twin



### Technical data

|                             |                       |
|-----------------------------|-----------------------|
| Industry                    | Industrial            |
| Activation                  | electrically          |
| Nominal flow Q <sub>n</sub> | 240 l/min             |
| Switching principle         | 5/3, exhausted center |
| Function                    | Exhausted Center      |
| Working pressure min.       | -0.9 bar              |
| Working pressure max        | 10 bar                |
| Operational voltage         | 24 V DC               |
| DC operating voltage        | 24 V                  |
| Voltage tolerance DC        | -10% / +10%           |
| Manual override             | without detent        |

|                                    |                                                                               |
|------------------------------------|-------------------------------------------------------------------------------|
| Valve type                         | Spool valve, positive overlapping                                             |
| Actuating control                  | Double Solenoid                                                               |
| Sealing principle                  | soft seal                                                                     |
| Pilot                              | External                                                                      |
| Connection type                    | Plate connection                                                              |
| Blocking principle                 | Base plate principle, multiple                                                |
| Control pressure min.              | 3 bar                                                                         |
| Control pressure max.              | 8 bar                                                                         |
| Min. ambient temperature           | -10 °C                                                                        |
| Max. ambient temperature           | 60 °C                                                                         |
| Min. medium temperature            | -10 °C                                                                        |
| Max. medium temperature            | 60 °C                                                                         |
| Medium                             | Compressed air                                                                |
| Max. particle size                 | 40 µm                                                                         |
| Oil content of compressed air min. | 0 mg/m <sup>3</sup>                                                           |
| Oil content of compressed air max. | 5 mg/m <sup>3</sup>                                                           |
| Pilot control exhaust              | with directional pilot air exhaust                                            |
| Flow conductance b                 | 0.32                                                                          |
| Flow conductance C                 | 0.92 l/(s*bar)                                                                |
| Power consumption DC               | 0.55 W                                                                        |
| LED status display                 | Yellow                                                                        |
| Duty cycle                         | 100 %                                                                         |
| Typ. switch-on time                | 12 ms                                                                         |
| Typ. switch-off time               | 12 ms                                                                         |
| Protection class with connection   | IP65                                                                          |
| Protective circuit                 | Z-diode                                                                       |
| Reverse polarity protection        | Protected against polarity reversal                                           |
| mounting screws                    | Hexalobular socket (TORX) ISO 10664-8                                         |
| Mounting screw tightening torque   | 0.5 Nm                                                                        |
| Weight                             | 0.046 kg                                                                      |
| <b>Material</b>                    |                                                                               |
| Housing material                   | Polyamide fiber-glass reinforced                                              |
| Seal material                      | Acrylonitrile butadiene rubber<br>Hydrogenated acrylonitrile butadiene rubber |
| Material front plate               | Polyamide fiber-glass reinforced                                              |
| Material end plate                 | Polyamide                                                                     |

Part No.

R422102875

## Technical information

The pilot type (external/internal) is not implemented in the valve, but in the end plate of the valve system.

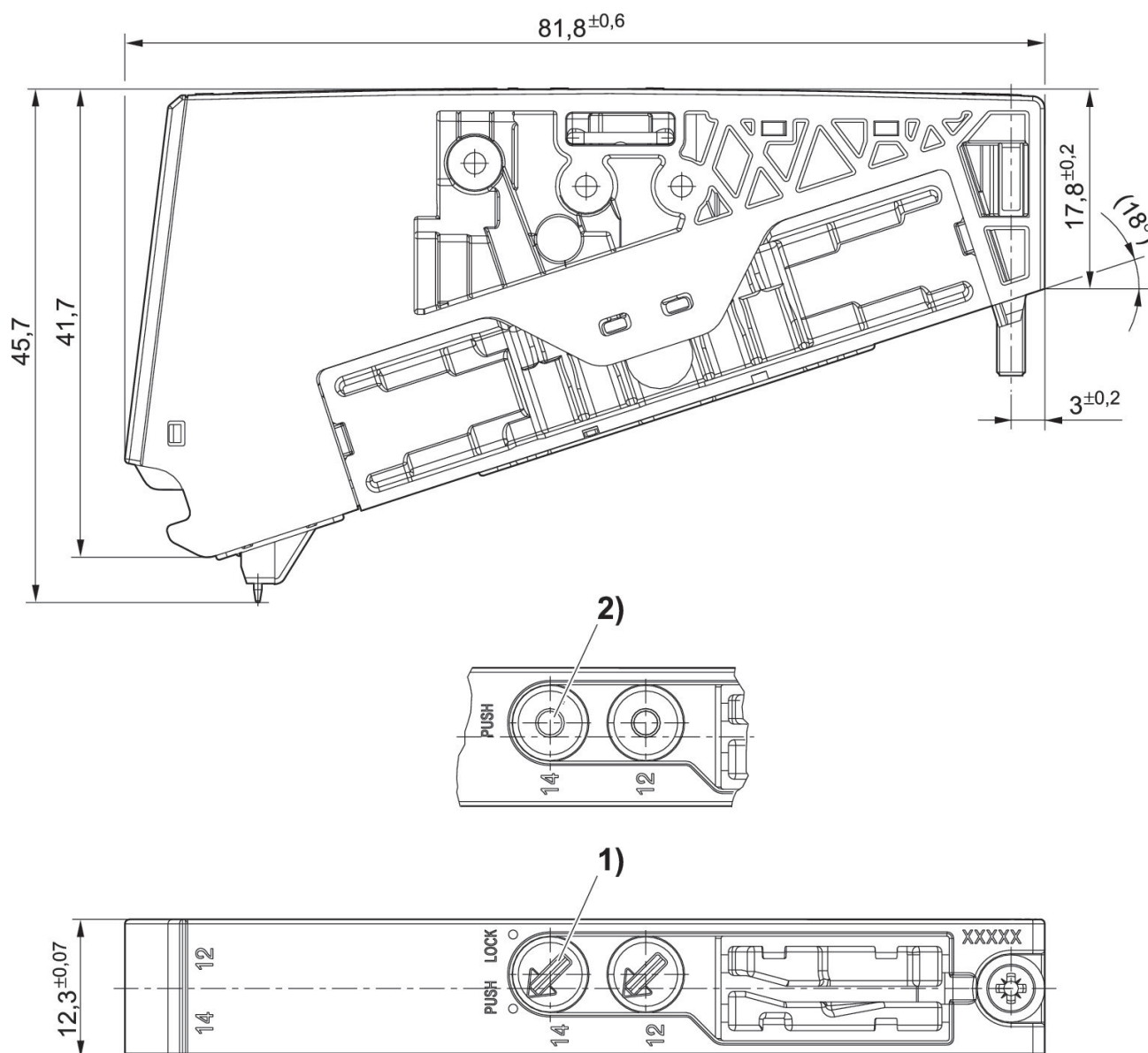
The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!

The pressure dew point must be at least 15 °C less than ambient and medium temperature and may not exceed 3 °C.

The oil content of compressed air must remain constant during the life cycle.

Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in <https://www.emerson.com/en-us/support>).

## Dimensions



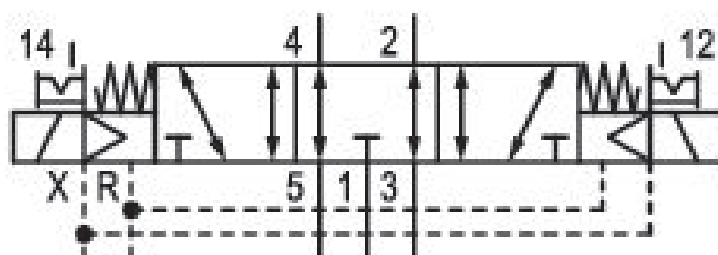
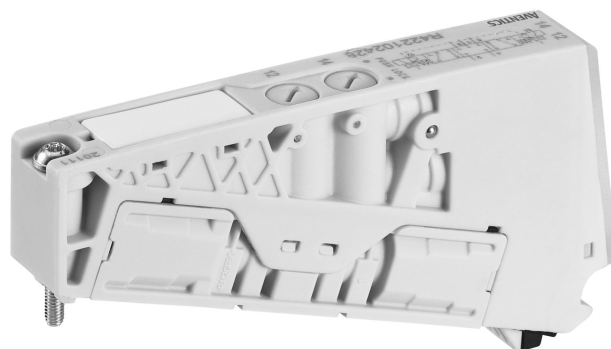
- 1) with detent  
2) without detent

# 5/3-directional valve, Series AV03

## R422102876

### General series information Series AV03

- The AVENTICS Series AV03/AV05 provide a reliable basis for both compact handling systems and complex automation solutions. Within machine safety the Series AV03/AV05 offers intelligent solutions that significantly reduce your effort in creating a safe design. With the integration of the fieldbus and I/O-modules of the Series AES, also all requirements for distributed control are available. The Series AV03/AV05 is easy to configure, easy to use and easy to extend as well as IIoT futureproof thanks to the integration of OPC UA and the Digital Twin



### Technical data

|                             |                       |
|-----------------------------|-----------------------|
| Industry                    | Industrial            |
| Activation                  | electrically          |
| Nominal flow Q <sub>n</sub> | 240 l/min             |
| Switching principle         | 5/3, exhausted center |
| Function                    | Exhausted Center      |
| Working pressure min.       | -0.9 bar              |
| Working pressure max        | 10 bar                |
| Operational voltage         | 24 V DC               |
| DC operating voltage        | 24 V                  |
| Voltage tolerance DC        | -10% / +10%           |
| Manual override             | with detent           |

|                                    |                                                                               |
|------------------------------------|-------------------------------------------------------------------------------|
| Valve type                         | Spool valve, positive overlapping                                             |
| Actuating control                  | Double Solenoid                                                               |
| Sealing principle                  | soft seal                                                                     |
| Pilot                              | External                                                                      |
| Connection type                    | Plate connection                                                              |
| Blocking principle                 | Base plate principle, multiple                                                |
| Control pressure min.              | 3 bar                                                                         |
| Control pressure max.              | 8 bar                                                                         |
| Min. ambient temperature           | -10 °C                                                                        |
| Max. ambient temperature           | 60 °C                                                                         |
| Min. medium temperature            | -10 °C                                                                        |
| Max. medium temperature            | 60 °C                                                                         |
| Medium                             | Compressed air                                                                |
| Max. particle size                 | 40 µm                                                                         |
| Oil content of compressed air min. | 0 mg/m <sup>3</sup>                                                           |
| Oil content of compressed air max. | 5 mg/m <sup>3</sup>                                                           |
| Pilot control exhaust              | with directional pilot air exhaust                                            |
| Flow conductance b                 | 0.32                                                                          |
| Flow conductance C                 | 0.92 l/(s*bar)                                                                |
| Power consumption DC               | 0.55 W                                                                        |
| LED status display                 | Yellow                                                                        |
| Duty cycle                         | 100 %                                                                         |
| Typ. switch-on time                | 12 ms                                                                         |
| Typ. switch-off time               | 12 ms                                                                         |
| Protection class with connection   | IP65                                                                          |
| Protective circuit                 | Z-diode                                                                       |
| Reverse polarity protection        | Protected against polarity reversal                                           |
| mounting screws                    | Hexalobular socket (TORX) ISO 10664-8                                         |
| Mounting screw tightening torque   | 0.5 Nm                                                                        |
| Weight                             | 0.046 kg                                                                      |
| <b>Material</b>                    |                                                                               |
| Housing material                   | Polyamide fiber-glass reinforced                                              |
| Seal material                      | Acrylonitrile butadiene rubber<br>Hydrogenated acrylonitrile butadiene rubber |
| Material front plate               | Polyamide fiber-glass reinforced                                              |
| Material end plate                 | Polyamide                                                                     |

Part No.

R422102876

## Technical information

The pilot type (external/internal) is not implemented in the valve, but in the end plate of the valve system.

The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!

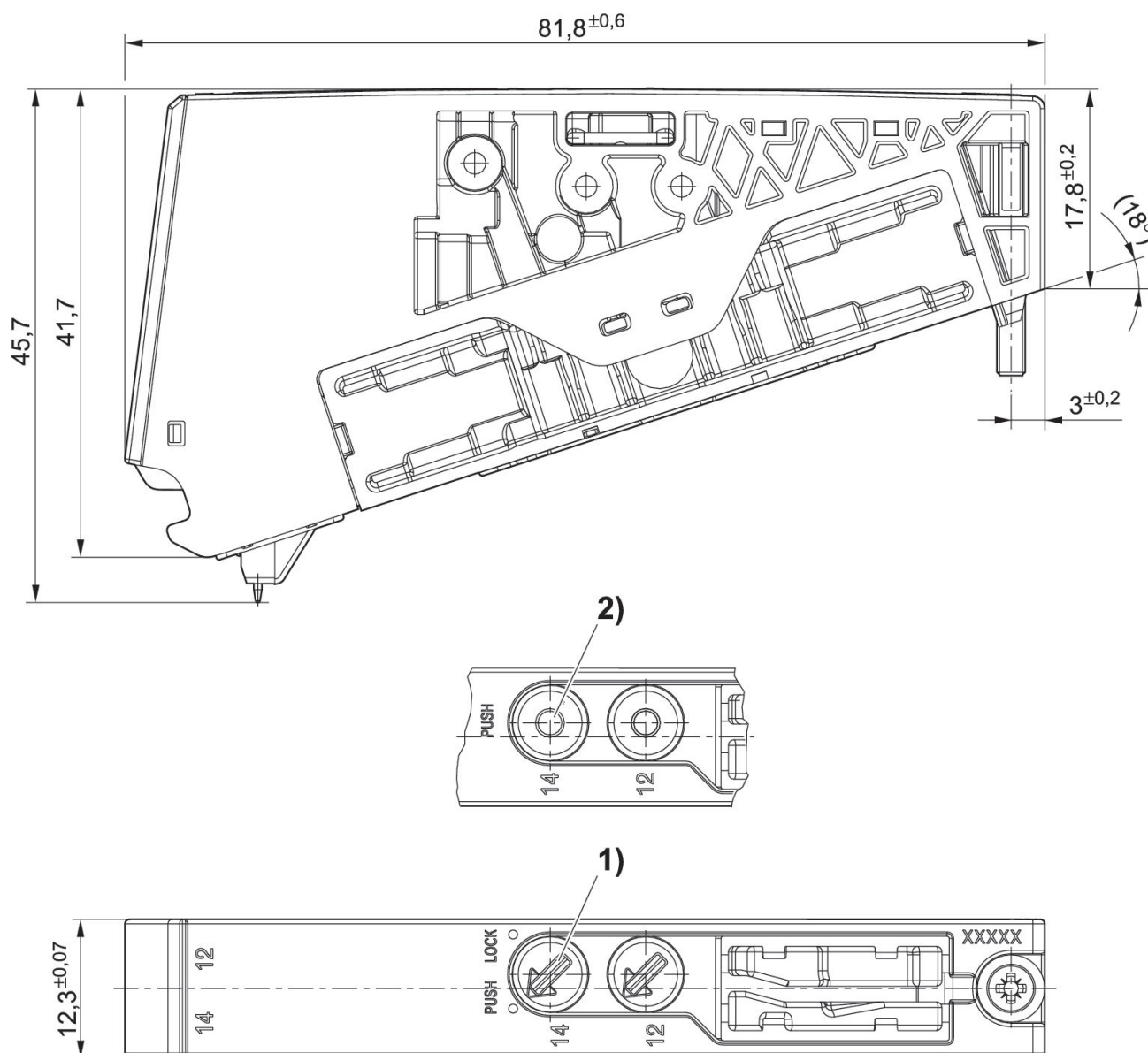
The pressure dew point must be at least 15 °C less than ambient and medium temperature and may not exceed 3 °C.

The oil content of compressed air must remain constant during the life cycle.

Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in <https://www.emerson.com/en-us/support>).



## Dimensions



- 1) with detent  
2) without detent

# E/P pressure regulator, Series AV03-EP

- For multipole control, Display: display
- Electr. connection M12, 5-pin, A-coded
- With collective pilot air exhaust



|                               |                            |
|-------------------------------|----------------------------|
| Version                       | Piloted pressure regulator |
| Mounting orientation          | Any                        |
| Working pressure max          | 11 bar                     |
| Ambient temperature min./max. | -10 ... 60 °C              |
| Medium temperature min./max.  | -10 ... 60 °C              |
| Medium                        | Compressed air             |
| Max. particle size            | 40 µm                      |
| Oil content of compressed air | 0 ... 5 mg/m³              |
| DC operating voltage          | 24 V                       |
| Voltage tolerance DC          | -20% / +30%                |
| Protection class              | IP65                       |
| Weight                        | 0.22 kg                    |

## Technical data

| Part No.   |                                                                                     | Pressure setting range<br>min./max. | Nominal input value | Actual output value |
|------------|-------------------------------------------------------------------------------------|-------------------------------------|---------------------|---------------------|
|            |                                                                                     |                                     | Min./max.           | Min./max.           |
| R414007364 |  | 0.5 ... 6 bar                       | 0 ... 10 V          | 0 ... 10 V          |
| R414007369 |  | 0.5 ... 6 bar                       | 4 ... 20 mA         | 4 ... 20 mA         |
| R414007375 |  | 0.5 ... 10 bar                      | 0 ... 10 V          | 0 ... 10 V          |
| R414007380 |  | 0.5 ... 10 bar                      | 4 ... 20 mA         | 4 ... 20 mA         |
| R414007365 |  | 0.5 ... 6 bar                       | 0 ... 10 V          | 0 ... 10 V          |
| R414007370 |  | 0.5 ... 6 bar                       | 4 ... 20 mA         | 4 ... 20 mA         |
| R414007376 |  | 0.5 ... 10 bar                      | 0 ... 10 V          | 0 ... 10 V          |
| R414007381 |  | 0.5 ... 10 bar                      | 4 ... 20 mA         | 4 ... 20 mA         |
| R414007354 |  | 0.5 ... 10 bar                      | 0 ... 10 V          | 0 ... 10 V          |
| R414007358 |  | 0.5 ... 10 bar                      | 4 ... 20 mA         | 4 ... 20 mA         |

| Part No.   | Max. power consumption | Repetitive precision | Hysteresis |    |
|------------|------------------------|----------------------|------------|----|
|            | mA                     |                      |            |    |
| R414007364 | 220 mA                 | 0.04 bar             | 0.05 bar   | 1) |
| R414007369 | 220 mA                 | 0.04 bar             | 0.05 bar   | 1) |
| R414007375 | 220 mA                 | 0.04 bar             | 0.05 bar   | 1) |
| R414007380 | 220 mA                 | 0.04 bar             | 0.05 bar   | 1) |
| R414007365 | 160 mA                 | 0.04 bar             | 0.05 bar   | 2) |
| R414007370 | 160 mA                 | 0.04 bar             | 0.05 bar   | 2) |
| R414007376 | 160 mA                 | 0.04 bar             | 0.05 bar   | 2) |
| R414007381 | 160 mA                 | 0.04 bar             | 0.05 bar   | 2) |
| R414007354 | 160 mA                 | 0.18 bar             | 0.2 bar    | 2) |
| R414007358 | 160 mA                 | 0.18 bar             | 0.2 bar    | 2) |

1) Power outage: operating line exhaust, See diagrams for flow characteristic curve

2) Power outage: maintain pressure, See diagrams for flow characteristic curve

# Technical information

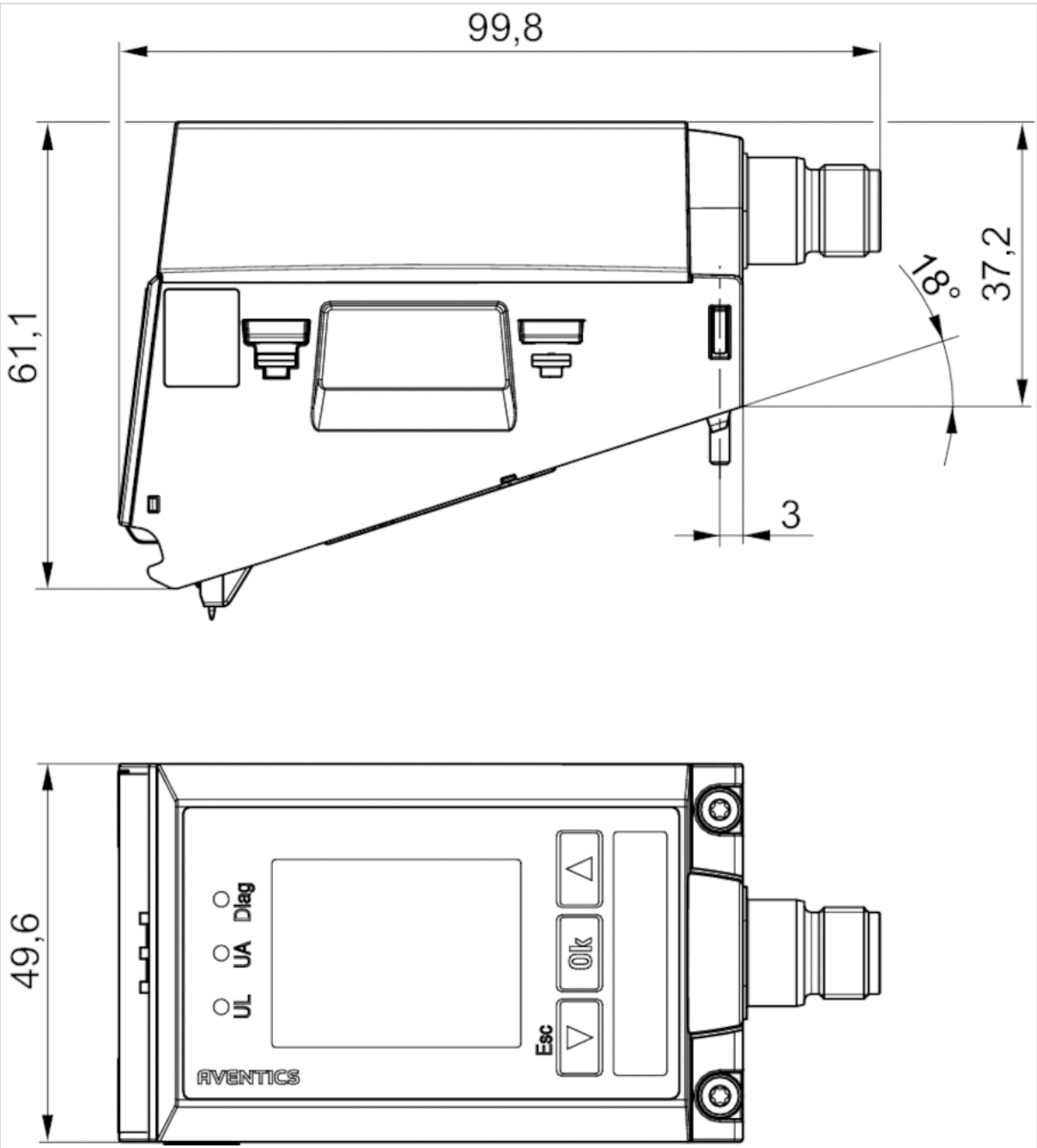
The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!  
The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .  
The oil content of compressed air must remain constant during the life cycle.  
Use only the approved oils from AVENTICS. Further information can be found in the “Technical information” document (available in the MediaCentre).

# Technical information

| Material |                          |
|----------|--------------------------|
| Housing  | Polyarylamide            |
| Seals    | Nitrile butadiene rubber |

Dimensions

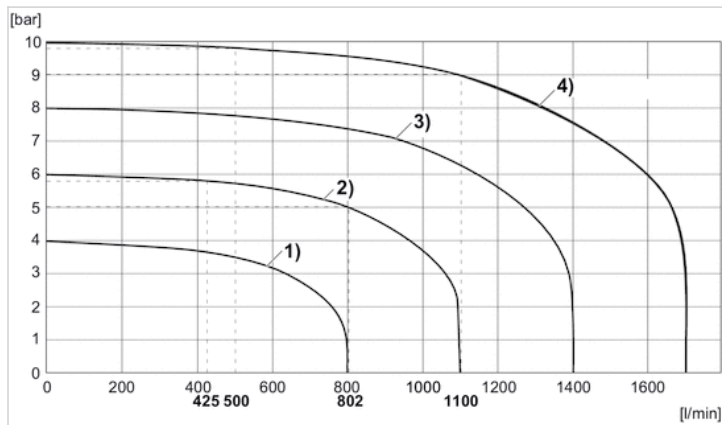
Dimensions



Port for plug M12x1

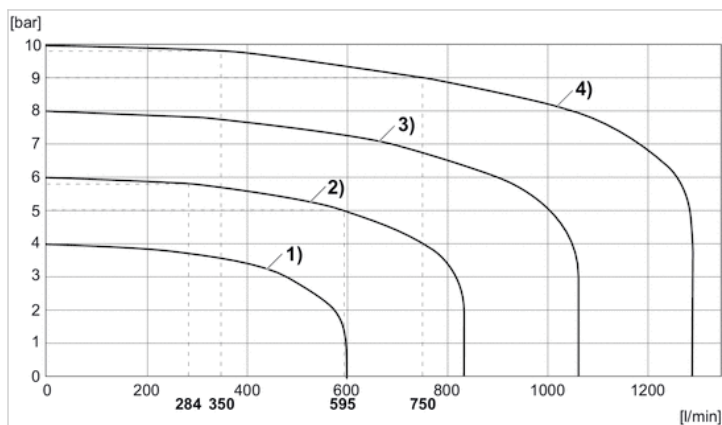
## Diagrams

### Flow characteristic curve, Pressure zone control



- 1)  $P_v = 5$  bar , controlled: 4 bar
- 2)  $P_v = 7$  bar , controlled: 6 bar
- 3)  $P_v = 9$  bar , controlled: 8 bar
- 4)  $P_v = 11$  bar , controlled: 10 bar

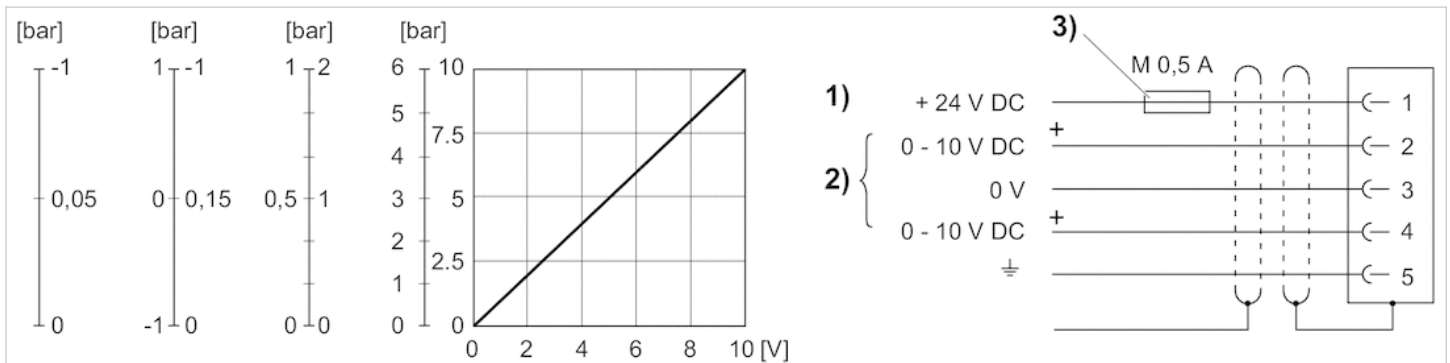
### Flow characteristic curve, Single pressure control



- 1)  $P_v = 5$  bar , controlled: 4 bar
- 2)  $P_v = 7$  bar , controlled: 6 bar
- 3)  $P_v = 9$  bar , controlled: 8 bar
- 4)  $P_v = 11$  bar , controlled: 10 bar

## Circuit diagram

Fig. 2, Characteristic and pin assignment for voltage control with actual output value



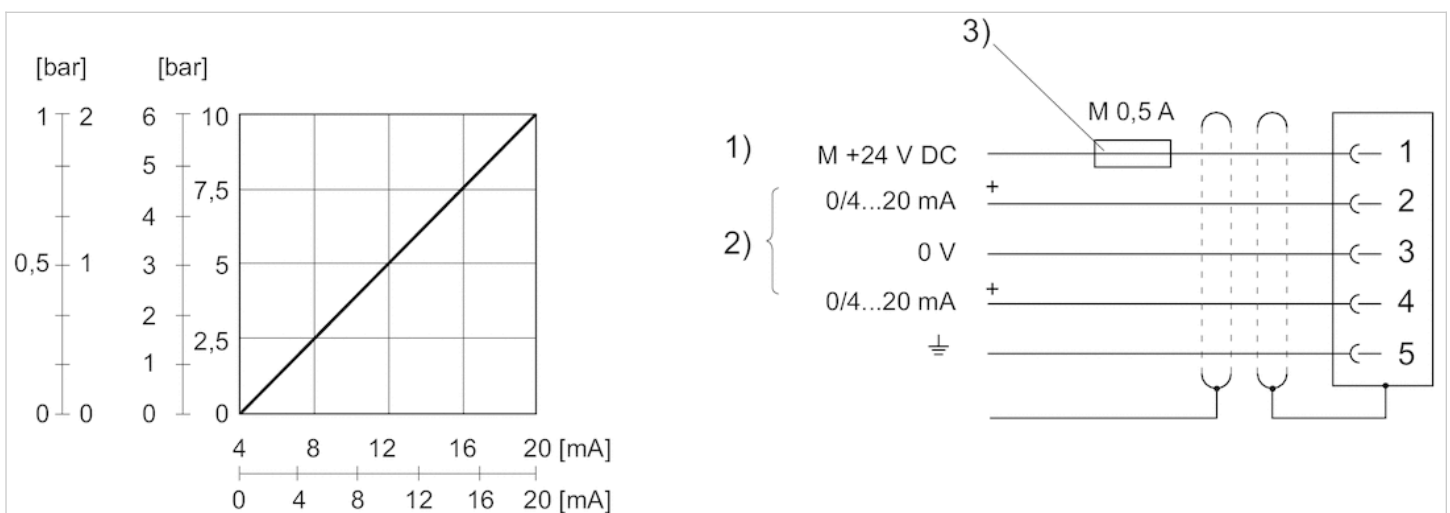
1) Supply voltage 2) Actual value (pin 4) and nominal value (pin 2) are related to 0 V.

Min. load resistance of nominal value output = 1 k $\Omega$ .

3) The operating voltage must be protected by an external M 0.5 A fuse.

Connect the plug via a shielded cable to ensure EMC.

## Characteristic and pin assignment for current control with actual output value



1) power supply

2) Actual value (pin 4) and nominal value (pin 2) are related to 0 V (pin 3).

Nominal input value (ohmic load 100  $\Omega$ ), actual output value: external ohmic load 300  $\Omega$ . If the power supply is switched off, the nominal input value is high-ohmic.

3) The power supply must be protected by an external M 0.5 A fuse.

Connect the plug via a shielded cable to ensure EMC.

# E/P pressure regulator, Series AV03-EP

- For multipole control, Display: LED
- Electr. connection M12, 5-pin, A-coded
- With collective pilot air exhaust



|                               |                            |
|-------------------------------|----------------------------|
| Version                       | Piloted pressure regulator |
| Mounting orientation          | Any                        |
| Working pressure max          | 11 bar                     |
| Ambient temperature min./max. | -10 ... 60 °C              |
| Medium temperature min./max.  | -10 ... 60 °C              |
| Medium                        | Compressed air             |
| Max. particle size            | 40 µm                      |
| Oil content of compressed air | 0 ... 5 mg/m³              |
| DC operating voltage          | 24 V                       |
| Voltage tolerance DC          | -20% / +30%                |
| Protection class              | IP65                       |
| Weight                        | 0.21 kg                    |

## Technical data

| Part No.   |                                                                                     | Pressure setting range<br>min./max. | Nominal input value | Actual output value |
|------------|-------------------------------------------------------------------------------------|-------------------------------------|---------------------|---------------------|
|            |                                                                                     |                                     | Min./max.           | Min./max.           |
| R414007361 |  | 0.5 ... 6 bar                       | 0 ... 10 V          | 0 ... 10 V          |
| R414007366 |  | 0.5 ... 6 bar                       | 4 ... 20 mA         | 4 ... 20 mA         |
| R414007372 |  | 0.5 ... 10 bar                      | 0 ... 10 V          | 0 ... 10 V          |
| R414007377 |  | 0.5 ... 10 bar                      | 4 ... 20 mA         | 4 ... 20 mA         |
| R414007362 |  | 0.5 ... 6 bar                       | 0 ... 10 V          | 0 ... 10 V          |
| R414007367 |  | 0.5 ... 6 bar                       | 4 ... 20 mA         | 4 ... 20 mA         |
| R414007373 |  | 0.5 ... 10 bar                      | 0 ... 10 V          | 0 ... 10 V          |
| R414007378 |  | 0.5 ... 10 bar                      | 4 ... 20 mA         | 4 ... 20 mA         |
| R414007352 |  | 0.5 ... 10 bar                      | 0 ... 10 V          | 0 ... 10 V          |
| R414007356 |  | 0.5 ... 10 bar                      | 4 ... 20 mA         | 4 ... 20 mA         |

| Part No.   | Max. power consumption | Repetitive precision | Hysteresis |    |
|------------|------------------------|----------------------|------------|----|
|            | mA                     |                      |            |    |
| R414007361 | 180 mA                 | 0.04 bar             | 0.05 bar   | 1) |
| R414007366 | 180 mA                 | 0.04 bar             | 0.05 bar   | 1) |
| R414007372 | 180 mA                 | 0.04 bar             | 0.05 bar   | 1) |
| R414007377 | 180 mA                 | 0.04 bar             | 0.05 bar   | 1) |
| R414007362 | 120 mA                 | 0.04 bar             | 0.05 bar   | 2) |
| R414007367 | 120 mA                 | 0.04 bar             | 0.05 bar   | 2) |
| R414007373 | 120 mA                 | 0.04 bar             | 0.05 bar   | 2) |
| R414007378 | 120 mA                 | 0.04 bar             | 0.05 bar   | 2) |
| R414007352 | 120 mA                 | 0.18 bar             | 0.2 bar    | 2) |
| R414007356 | 120 mA                 | 0.18 bar             | 0.2 bar    | 2) |

1) Power outage: operating line exhaust, See diagrams for flow characteristic curve

2) Power outage: maintain pressure, See diagrams for flow characteristic curve

# Technical information

The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!  
The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .  
The oil content of compressed air must remain constant during the life cycle.  
Use only the approved oils from AVENTICS. Further information can be found in the “Technical information” document (available in the MediaCentre).

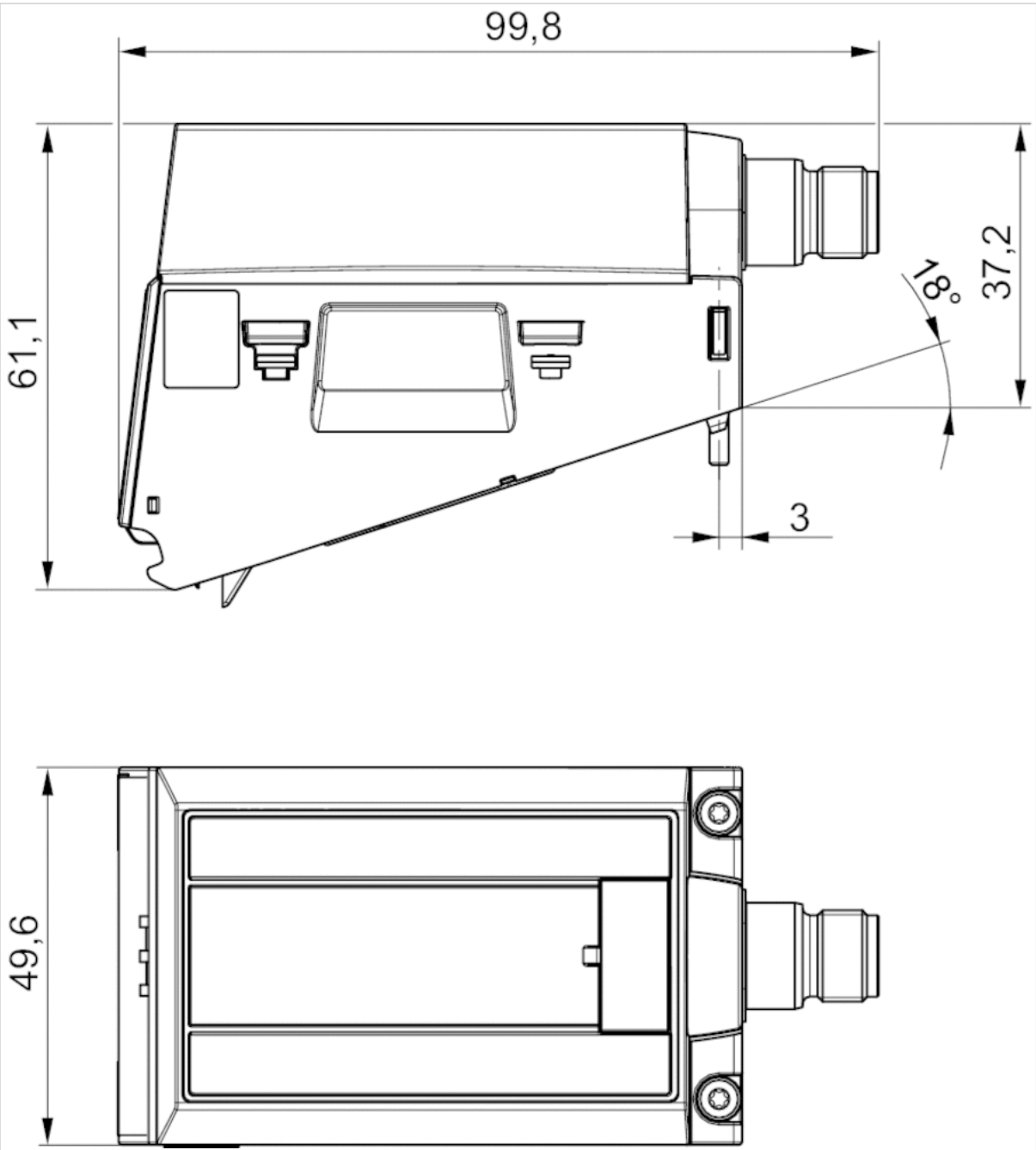
# Technical information

| Material |                          |
|----------|--------------------------|
| Housing  | Polyarylamide            |
| Seals    | Nitrile butadiene rubber |



Dimensions

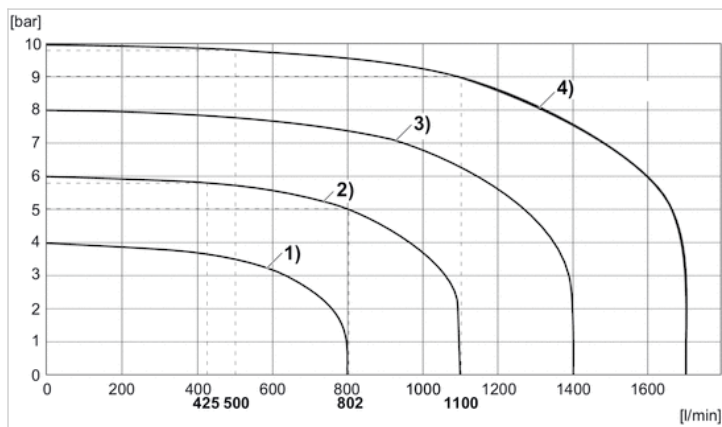
Dimensions



Port for plug M12x1

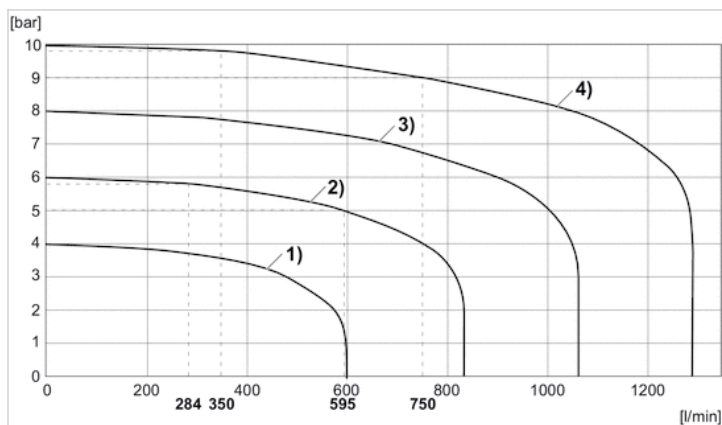
## Diagrams

### Flow characteristic curve, Pressure zone control



- 1)  $P_v = 5$  bar , controlled: 4 bar
- 2)  $P_v = 7$  bar , controlled: 6 bar
- 3)  $P_v = 9$  bar , controlled: 8 bar
- 4)  $P_v = 11$  bar , controlled: 10 bar

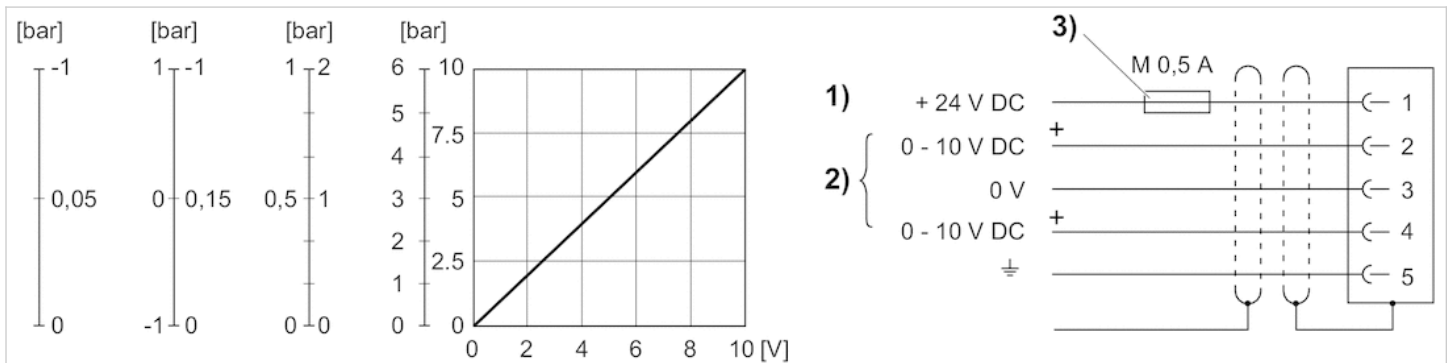
### Flow characteristic curve, Single pressure control



- 1)  $P_v = 5$  bar , controlled: 4 bar
- 2)  $P_v = 7$  bar , controlled: 6 bar
- 3)  $P_v = 9$  bar , controlled: 8 bar
- 4)  $P_v = 11$  bar , controlled: 10 bar

## Circuit diagram

Fig. 2, Characteristic and pin assignment for voltage control with actual output value



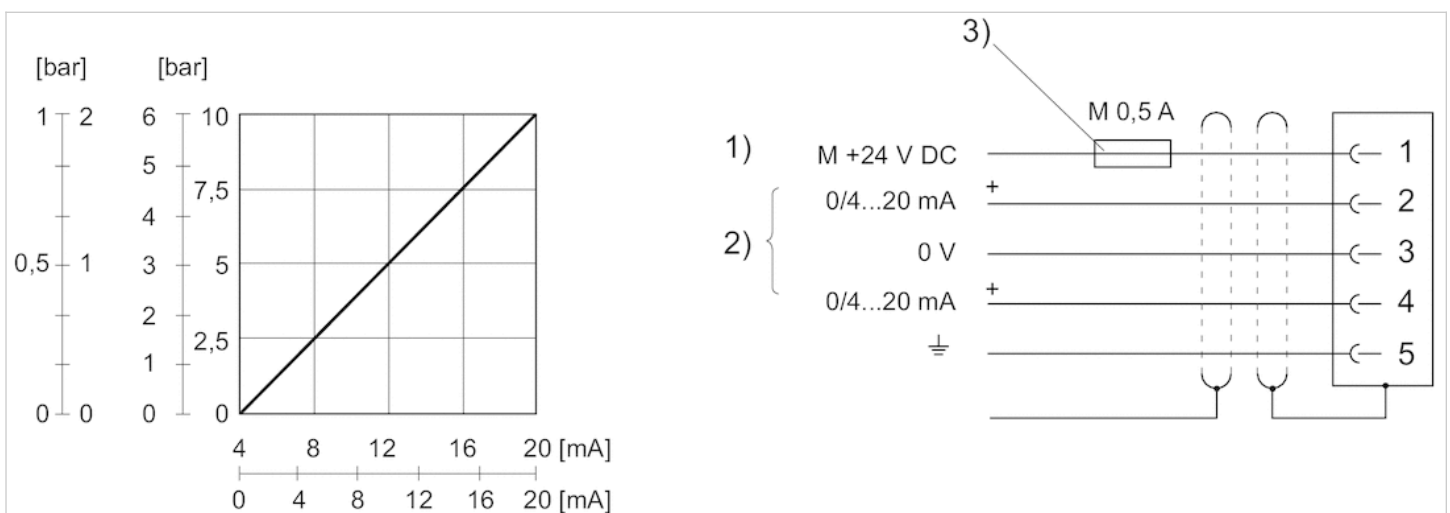
1) Supply voltage 2) Actual value (pin 4) and nominal value (pin 2) are related to 0 V.

Min. load resistance of nominal value output = 1 k $\Omega$ .

3) The operating voltage must be protected by an external M 0.5 A fuse.

Connect the plug via a shielded cable to ensure EMC.

## Characteristic and pin assignment for current control with actual output value



1) power supply

2) Actual value (pin 4) and nominal value (pin 2) are related to 0 V (pin 3).

Nominal input value (ohmic load 100  $\Omega$ ), actual output value: external ohmic load 300  $\Omega$ . If the power supply is switched off, the nominal input value is high-ohmic.

3) The power supply must be protected by an external M 0.5 A fuse.

Connect the plug via a shielded cable to ensure EMC.

# E/P pressure regulator, Series AV03-EP

- For fieldbus connection, Display: display
- with directional pilot air exhaust



|                               |                            |
|-------------------------------|----------------------------|
| Version                       | Piloted pressure regulator |
| Mounting orientation          | Any                        |
| Working pressure max          | 11 bar                     |
| Ambient temperature min./max. | -10 ... 60 °C              |
| Medium temperature min./max.  | -10 ... 60 °C              |
| Medium                        | Compressed air             |
| Max. particle size            | 40 µm                      |
| Oil content of compressed air | 0 ... 5 mg/m <sup>3</sup>  |
| DC operating voltage          | 24 V                       |
| Voltage tolerance DC          | -20% / +30%                |
| Protection class              | IP65                       |
| Weight                        | 0.21 kg                    |

## Technical data

| Part No.   |                                                                                     | Pressure setting range<br>min./max. | Max. power consumption | Repetitive<br>precision |
|------------|-------------------------------------------------------------------------------------|-------------------------------------|------------------------|-------------------------|
|            |                                                                                     |                                     | mA                     |                         |
| R414007915 |  | 0.5 ... 10 bar                      | 220 mA                 | 0.04 bar                |
| R414007916 |  | 0.5 ... 10 bar                      | 160 mA                 | 0.04 bar                |
| R414007360 |  | 0.5 ... 10 bar                      | 160 mA                 | 0.18 bar                |

| Part No.   | Hysteresis |    |
|------------|------------|----|
| R414007915 | 0.05 bar   | 1) |
| R414007916 | 0.05 bar   | 2) |
| R414007360 | 0.2 bar    | 2) |

1) Power outage: operating line exhaust, See diagrams for flow characteristic curve

2) Power outage: maintain pressure, See diagrams for flow characteristic curve

## Technical information

The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

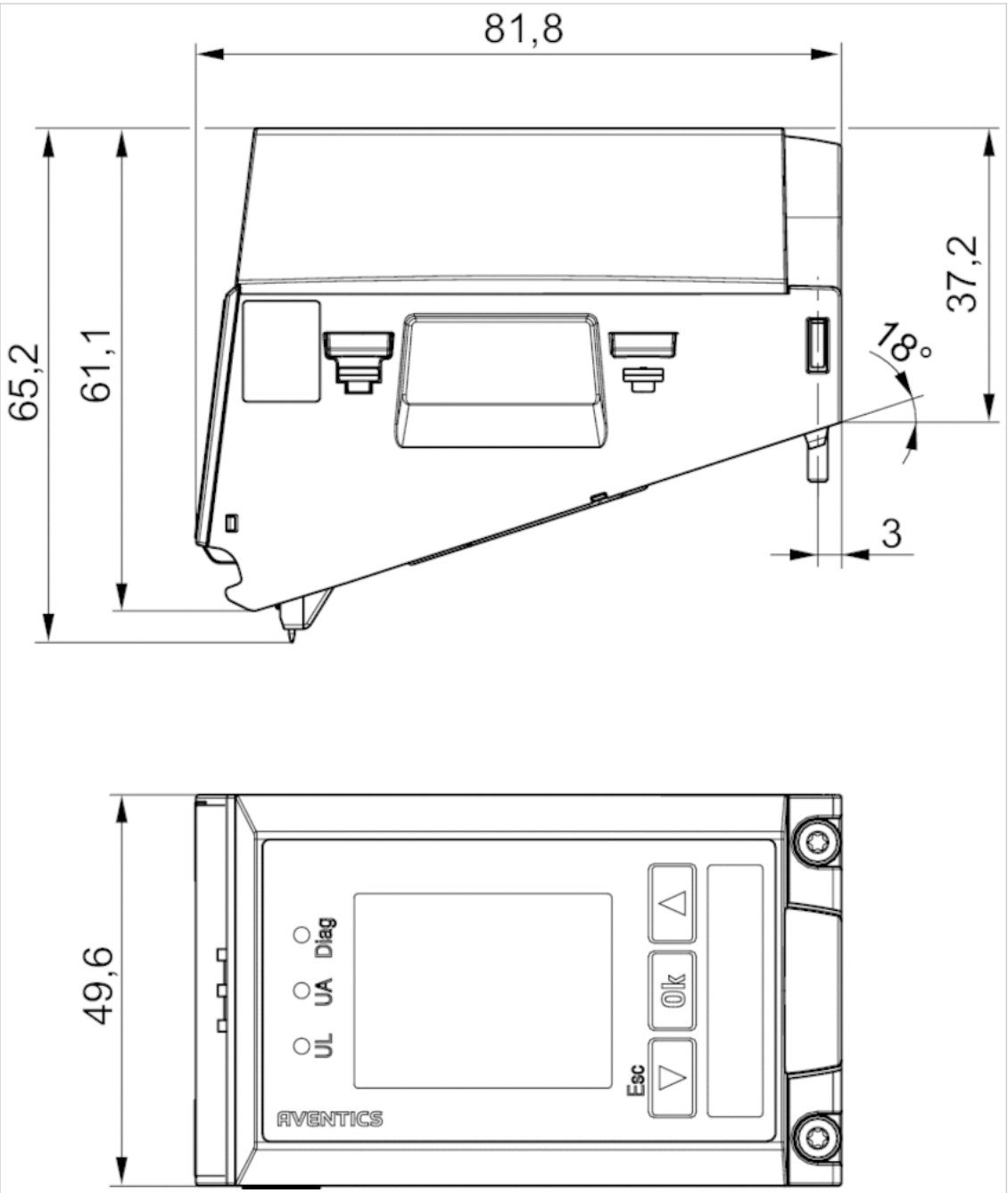
Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in the MediaCentre).

## Technical information

| Material |                          |
|----------|--------------------------|
| Housing  | Polyarylamide            |
| Seals    | Nitrile butadiene rubber |

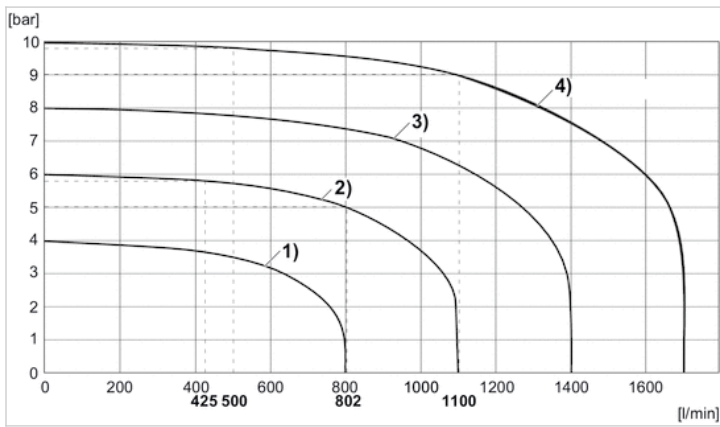
Dimensions

Dimensions



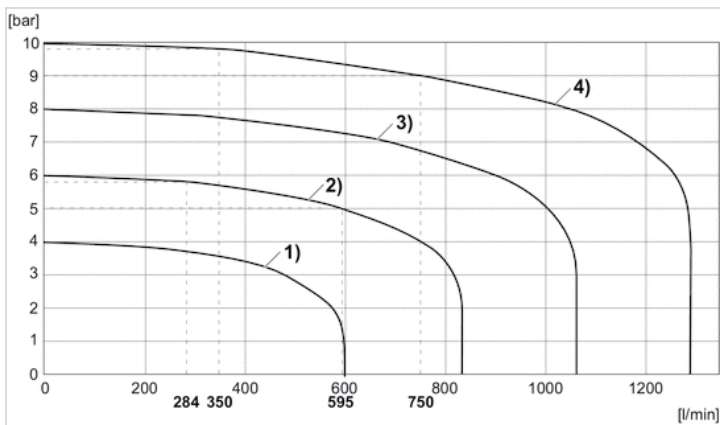
## Diagrams

### Flow characteristic curve, Pressure zone control



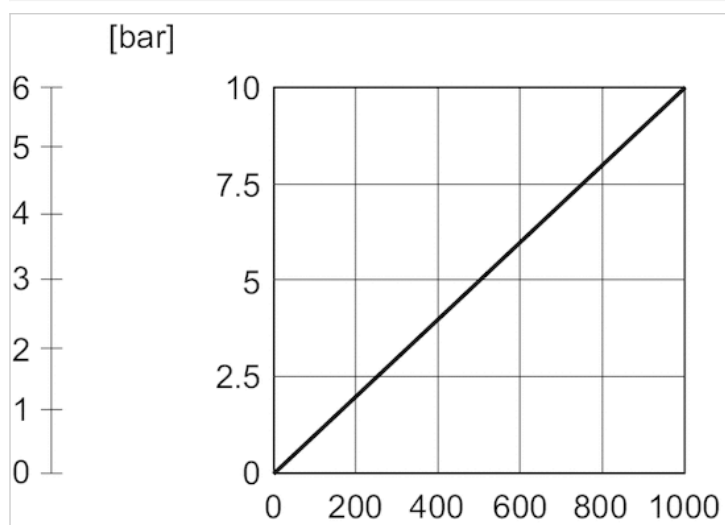
- 1)  $P_v = 5$  bar , controlled: 4 bar
- 2)  $P_v = 7$  bar , controlled: 6 bar
- 3)  $P_v = 9$  bar , controlled: 8 bar
- 4)  $P_v = 11$  bar , controlled: 10 bar

### Flow characteristic curve, Single pressure control



- 1)  $P_v = 5$  bar , controlled: 4 bar
- 2)  $P_v = 7$  bar , controlled: 6 bar
- 3)  $P_v = 9$  bar , controlled: 8 bar
- 4)  $P_v = 11$  bar , controlled: 10 bar

Characteristics, Further information can be found in the operating instructions.



The regulator features a resolution of 10 bits (bit 0 to 9) for the serial nominal value and serial actual value: The nominal value and actual value range for the 10 bar version lies in the range of 0 to 1000 at a resolution of 10 mbar.

# E/P pressure regulator, Series AV03-EP

- For fieldbus connection, Display: LED

- with directional pilot air exhaust



|                               |                            |
|-------------------------------|----------------------------|
| Version                       | Piloted pressure regulator |
| Mounting orientation          | Any                        |
| Working pressure max          | 11 bar                     |
| Ambient temperature min./max. | -10 ... 60 °C              |
| Medium temperature min./max.  | -10 ... 60 °C              |
| Medium                        | Compressed air             |
| Max. particle size            | 40 µm                      |
| Oil content of compressed air | 0 ... 5 mg/m <sup>3</sup>  |
| DC operating voltage          | 24 V                       |
| Voltage tolerance DC          | -20% / +30%                |
| Protection class              | IP65                       |
| Weight                        | 0.16 kg                    |

## Technical data

| Part No.   |                                                                                     | Pressure setting range<br>min./max. | Max. power consumption | Repetitive<br>precision |
|------------|-------------------------------------------------------------------------------------|-------------------------------------|------------------------|-------------------------|
|            |                                                                                     |                                     | mA                     |                         |
| R414007914 |  | 0.5 ... 10 bar                      | 180 mA                 | 0.04 bar                |
| R414007383 |  | 0.5 ... 10 bar                      | 120 mA                 | 0.04 bar                |
| R414007359 |  | 0.5 ... 10 bar                      | 120 mA                 | 0.18 bar                |

| Part No.   | Hysteresis |    |
|------------|------------|----|
| R414007914 | 0.05 bar   | 1) |
| R414007383 | 0.05 bar   | 2) |
| R414007359 | 0.2 bar    | 2) |

1) Power outage: operating line exhaust, See diagrams for flow characteristic curve

2) Power outage: maintain pressure, See diagrams for flow characteristic curve

## Technical information

The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in the MediaCentre).

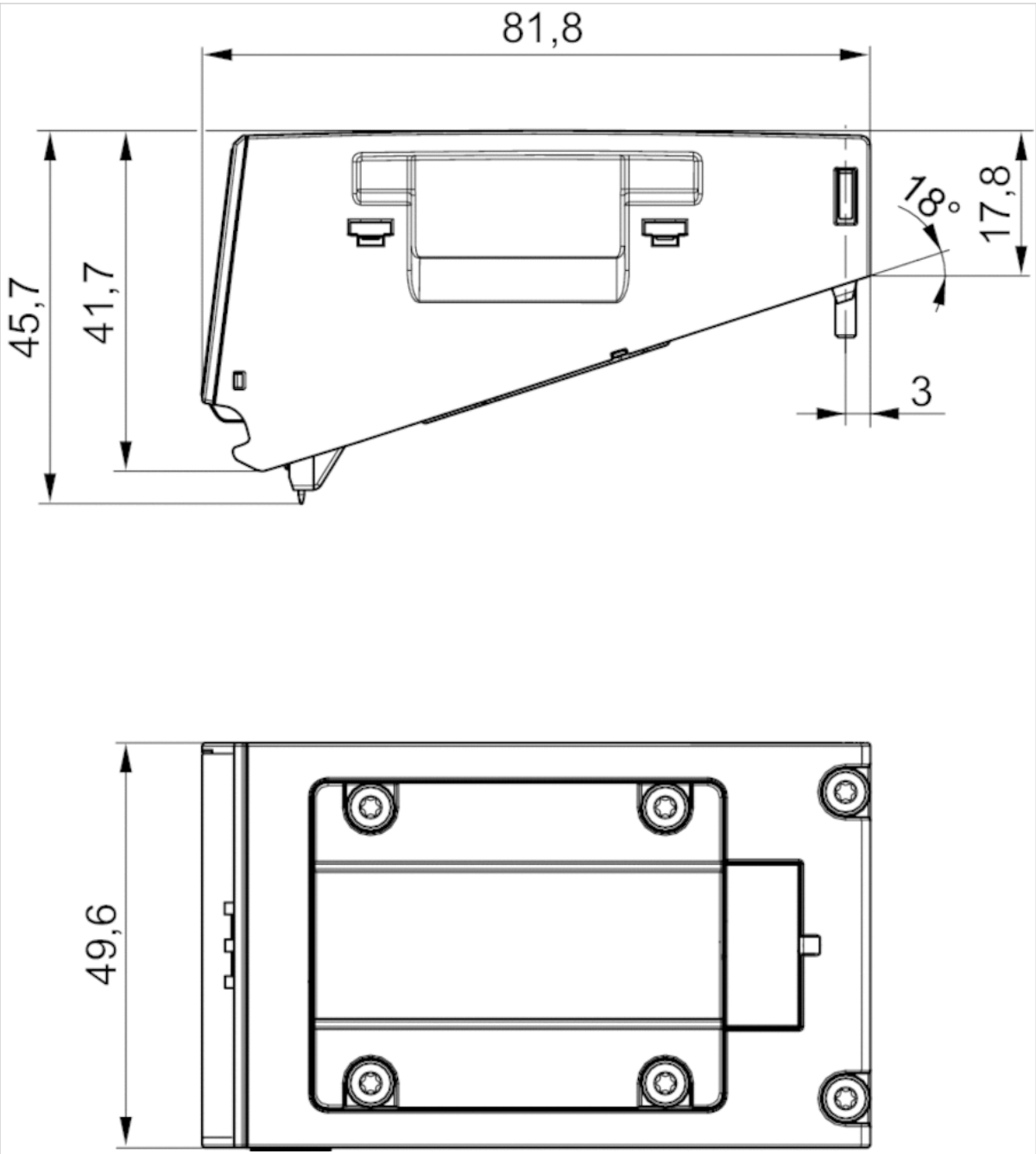
## Technical information

| Material |                          |
|----------|--------------------------|
| Housing  | Polyarylamide            |
| Seals    | Nitrile butadiene rubber |



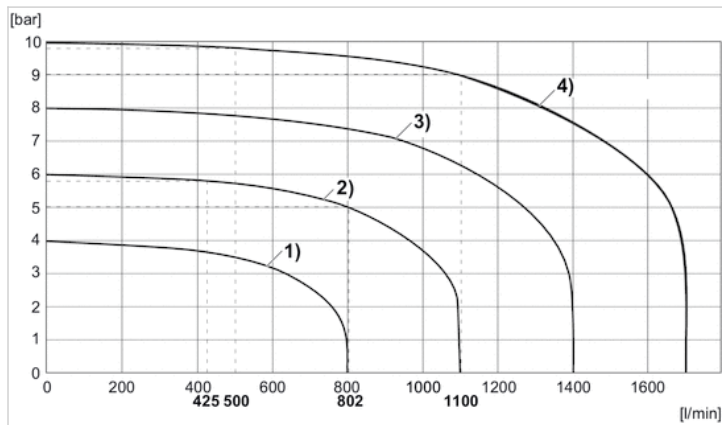
Dimensions

Dimensions



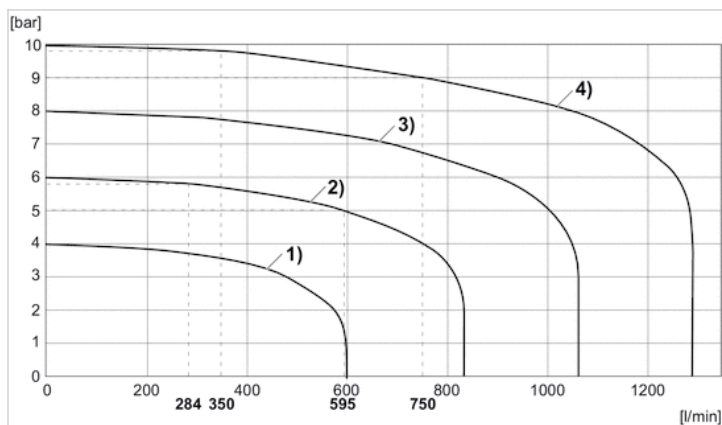
## Diagrams

### Flow characteristic curve, Pressure zone control



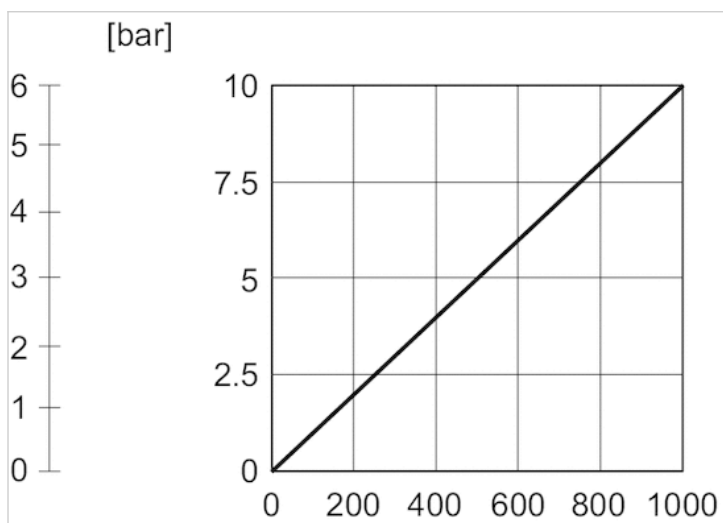
- 1)  $P_v = 5$  bar , controlled: 4 bar
- 2)  $P_v = 7$  bar , controlled: 6 bar
- 3)  $P_v = 9$  bar , controlled: 8 bar
- 4)  $P_v = 11$  bar , controlled: 10 bar

### Flow characteristic curve, Single pressure control



- 1)  $P_v = 5$  bar , controlled: 4 bar
- 2)  $P_v = 7$  bar , controlled: 6 bar
- 3)  $P_v = 9$  bar , controlled: 8 bar
- 4)  $P_v = 11$  bar , controlled: 10 bar

Characteristics, Further information can be found in the operating instructions.



The regulator features a resolution of 10 bits (bit 0 to 9) for the serial nominal value and serial actual value: The nominal value and actual value range for the 10 bar version lies in the range of 0 to 1000 at a resolution of 10 mbar.

# Bus coupler, series AES

## R412018218

### General series information Series AES

- The AVENTICS Series AES fieldbus connection can be integrated into all AVENTICS fieldbus-compatible valve systems or can also be configured as a stand-alone solution. AES connects your AVENTICS valve system to all relevant fieldbus protocols and offers the integration of I/O-modules and enables optimized decentralized wiring of sensors. The integration of the Digital Twin enables users to be IIoT ready and use the AES to solve their interoperability challenges.



### Technical data

Industry  
Industrial

Version  
Bus coupler

Fieldbus protocol  
PROFIBUS DP

E/A capable  
connection with I/O

Number of I/O connections  
512 inputs / 512 outputs

Power plug IN type  
Plug

Power plug IN size  
M12x1

Power plug IN number of pole  
4-pin

Power plug IN coding  
A-coded

Fieldbus design  
D-design

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Number of solenoid coils max.  
128

Max. number of valve positions  
64

Operational voltage electronics  
24 V DC

Electronics voltage tolerance  
-25% / +25%

Power consumption electronics  
0.1 A

Operating voltage, actuators  
24 V DC

Total current for actuators  
4 A

Protection class  
IP65

Cycle time at 256 bits  
< 1 ms

Logic/actuator voltage  
Galvanically isolated

#### Diagnosis

Short circuit

Undervoltage

I/O module extension max.

10

Generic emission standard in accordance with  
norm

EN 61000-6-4

Generic immunity standard in accordance with  
norm

EN 61000-6-2

Communication port Type

Plug

Communication port, Thread size

M12x1

Communication port, Number of poles

5-pin

Communication port, Coding

B-coded

Communication port 2

Socket

Communication port 2

M12x1

Communication port 2

5-pin

Communication port 2

B-coded

Weight

0.16 kg

## Material

Housing material

Polyamide fiber-glass reinforced

Part No.

R412018218

## Technical information

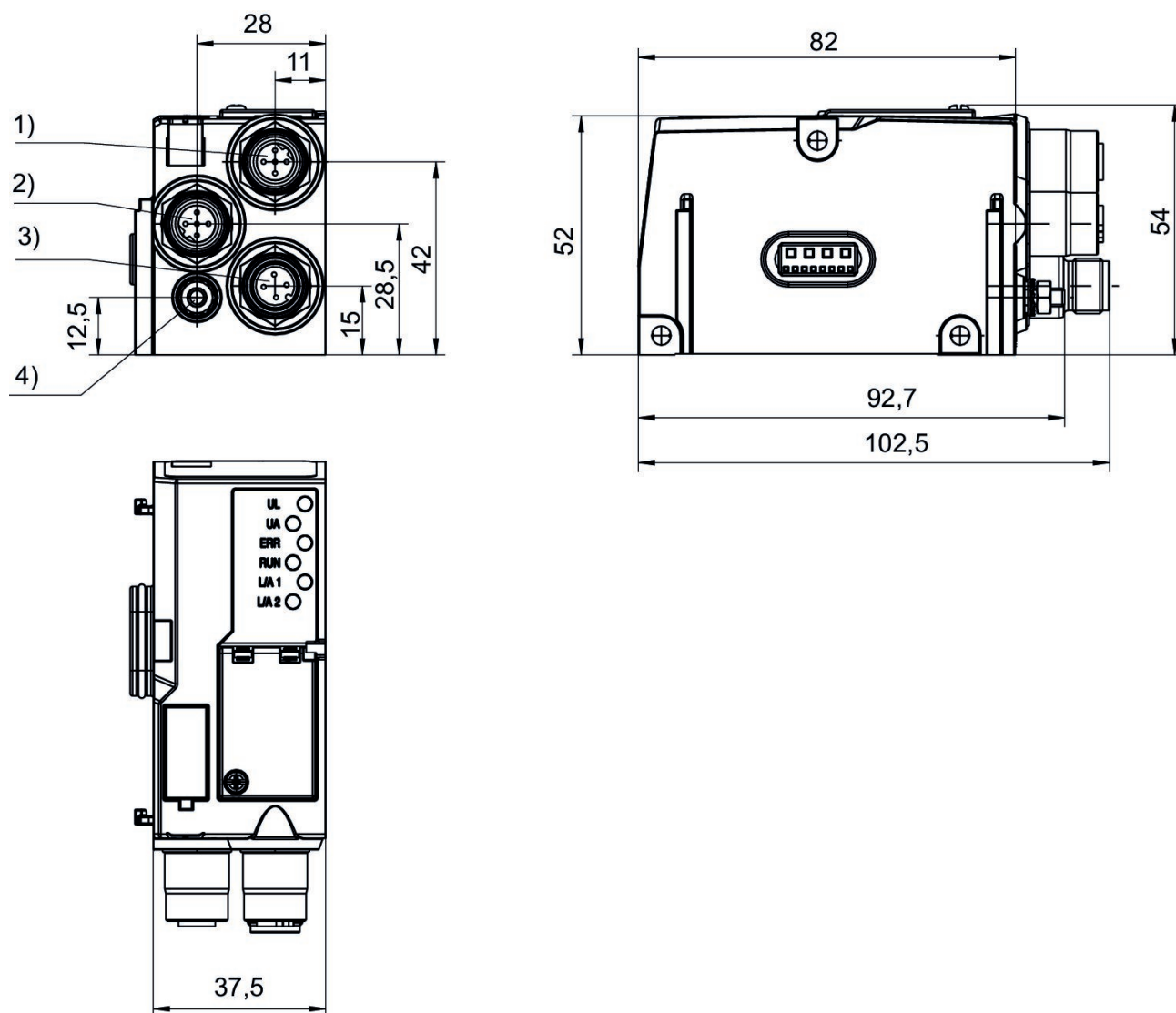
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

Voltage and short-circuit monitoring per LED.

During cyclical data transfer, the bus coupler can send 512 bits of input data to the controller and receive 512 bits of output data from the controller.

Scope of delivery: Incl. mounting screws 3x

## Dimensions



1) Fieldbus connection 2) Fieldbus connection 3) Power supply 4) Functional ground

# Bus coupler, series AES

## R412018220

### General series information Series AES

- The AVENTICS Series AES fieldbus connection can be integrated into all AVENTICS fieldbus-compatible valve systems or can also be configured as a stand-alone solution. AES connects your AVENTICS valve system to all relevant fieldbus protocols and offers the integration of I/O-modules and enables optimized decentralized wiring of sensors. The integration of the Digital Twin enables users to be IIoT ready and use the AES to solve their interoperability challenges.



### Technical data

Industry  
Industrial

Version  
Bus coupler

Fieldbus protocol  
CANopen

E/A capable  
connection with I/O

Number of I/O connections  
512 inputs / 512 outputs

Power plug IN type  
Plug

Power plug IN size  
M12x1

Power plug IN number of pole  
4-pin

Power plug IN coding  
A-coded

Fieldbus design  
D-design

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Number of solenoid coils max.  
128

Max. number of valve positions  
64

Operational voltage electronics  
24 V DC

Electronics voltage tolerance  
-25% / +25%

Power consumption electronics  
0.1 A

Operating voltage, actuators  
24 V DC

Total current for actuators  
4 A

Protection class  
IP65

Cycle time at 256 bits  
< 1 ms

Logic/actuator voltage  
Galvanically isolated

#### Diagnosis

Short circuit

Undervoltage

I/O module extension max.

10

Generic emission standard in accordance with  
norm

EN 61000-6-4

Generic immunity standard in accordance with  
norm

EN 61000-6-2

Communication port Type

Plug

Communication port, Thread size

M12x1

Communication port, Number of poles

5-pin

Communication port, Coding

A-coded

Communication port 2

Socket

Communication port 2

M12x1

Communication port 2

5-pin

Communication port 2

A-coded

Weight

0.16 kg

## Material

Housing material

Polyamide fiber-glass reinforced

Part No.

R412018220

## Technical information

You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

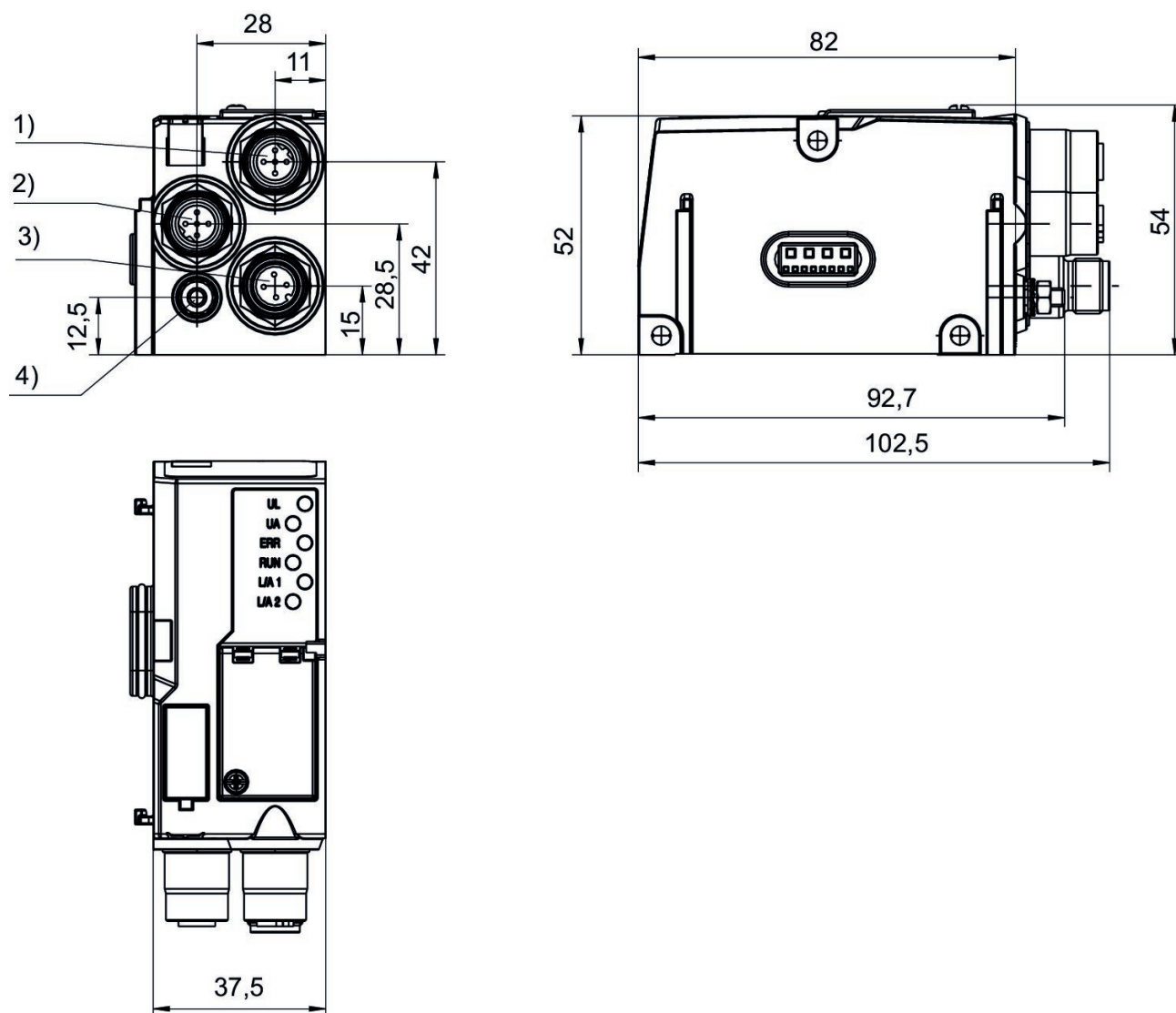
Voltage and short-circuit monitoring per LED.

During cyclical data transfer, the bus coupler can send 512 bits of input data to the controller and receive 512 bits of output data from the controller.

Scope of delivery: Incl. mounting screws 3x



## Dimensions



1) Fieldbus connection 2) Fieldbus connection 3) Power supply 4) Functional ground

# Bus coupler, series AES

## R412018221

### General series information Series AES

- The AVENTICS Series AES fieldbus connection can be integrated into all AVENTICS fieldbus-compatible valve systems or can also be configured as a stand-alone solution. AES connects your AVENTICS valve system to all relevant fieldbus protocols and offers the integration of I/O-modules and enables optimized decentralized wiring of sensors. The integration of the Digital Twin enables users to be IIoT ready and use the AES to solve their interoperability challenges.



### Technical data

Industry  
Industrial

Version  
Bus coupler

Fieldbus protocol  
DeviceNet

E/A capable  
connection with I/O

Number of I/O connections  
512 inputs / 512 outputs

Power plug IN type  
Plug

Power plug IN size  
M12x1

Power plug IN number of pole  
4-pin

Power plug IN coding  
A-coded

Fieldbus design  
D-design

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Number of solenoid coils max.  
128

Max. number of valve positions  
64

Operational voltage electronics  
24 V DC

Electronics voltage tolerance  
-25% / +25%

Power consumption electronics  
0.1 A

Operating voltage, actuators  
24 V DC

Total current for actuators  
4 A

Protection class  
IP65

Cycle time at 256 bits  
< 1 ms

Logic/actuator voltage  
Galvanically isolated

#### Diagnosis

Short circuit

Undervoltage

I/O module extension max.

10

Generic emission standard in accordance with  
norm

EN 61000-6-4

Generic immunity standard in accordance with  
norm

EN 61000-6-2

Communication port Type

Plug

Communication port, Thread size

M12x1

Communication port, Number of poles

5-pin

Communication port, Coding

A-coded

Communication port 2

Socket

Communication port 2

M12x1

Communication port 2

5-pin

Communication port 2

A-coded

Weight

0.16 kg

## Material

Housing material

Polyamide fiber-glass reinforced

Part No.

R412018221

## Technical information

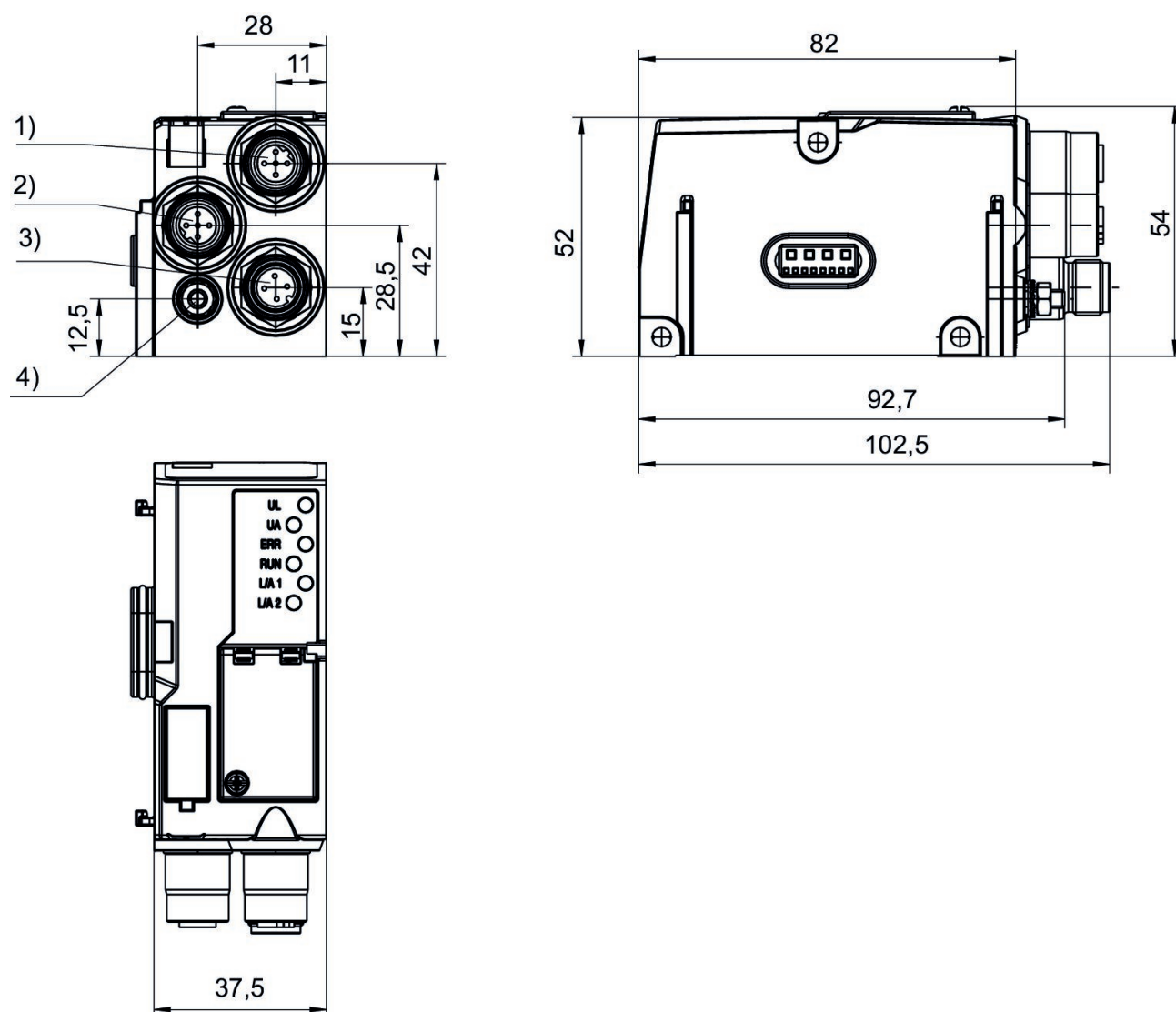
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

Voltage and short-circuit monitoring per LED.

During cyclical data transfer, the bus coupler can send 512 bits of input data to the controller and receive 512 bits of output data from the controller.

Scope of delivery: Incl. mounting screws 3x

## Dimensions



1) Fieldbus connection 2) Fieldbus connection 3) Power supply 4) Functional ground

# Bus coupler, series AES

## R412088222

### General series information Series AES

- The AVENTICS Series AES fieldbus connection can be integrated into all AVENTICS fieldbus-compatible valve systems or can also be configured as a stand-alone solution. AES connects your AVENTICS valve system to all relevant fieldbus protocols and offers the integration of I/O-modules and enables optimized decentralized wiring of sensors. The integration of the Digital Twin enables users to be IIoT ready and use the AES to solve their interoperability challenges.



### Technical data

Industry  
Industrial

Version  
Bus coupler

Type  
Generation 2  
Note: supports DLR

Fieldbus protocol  
EtherNet/IP

E/A capable  
connection with I/O

Number of I/O connections  
512 inputs / 512 outputs

Power plug IN type  
Plug

Power plug IN size  
M12x1

Power plug IN number of pole  
4-pin

Power plug IN coding  
A-coded

Fieldbus design  
D-design

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Number of solenoid coils max.  
128

Max. number of valve positions  
64

Operational voltage electronics  
24 V DC

Electronics voltage tolerance  
-25% / +25%

Power consumption electronics  
0.1 A

Operating voltage, actuators  
24 V DC

Total current for actuators  
4 A

Protection class  
IP65

Cycle time at 256 bits  
< 1 ms

Logic/actuator voltage  
Galvanically isolated

Diagnosis  
System error  
Undervoltage

I/O module extension max.  
10

Generic emission standard in accordance with  
norm  
EN 61000-6-4

Generic immunity standard in accordance with  
norm  
EN 61000-6-2

Communication port Type  
Socket

Communication port, Thread size  
M12x1

Communication port, Number of poles  
4-pin

Communication port, Coding  
D-coded

Communication port 2  
Socket

Communication port 2  
M12x1

Communication port 2  
4-pin

Communication port 2  
D-coded

Weight  
0.175 kg

## Material

Housing material  
Polyamide fiber-glass reinforced

Part No.  
R412088222

## Technical information

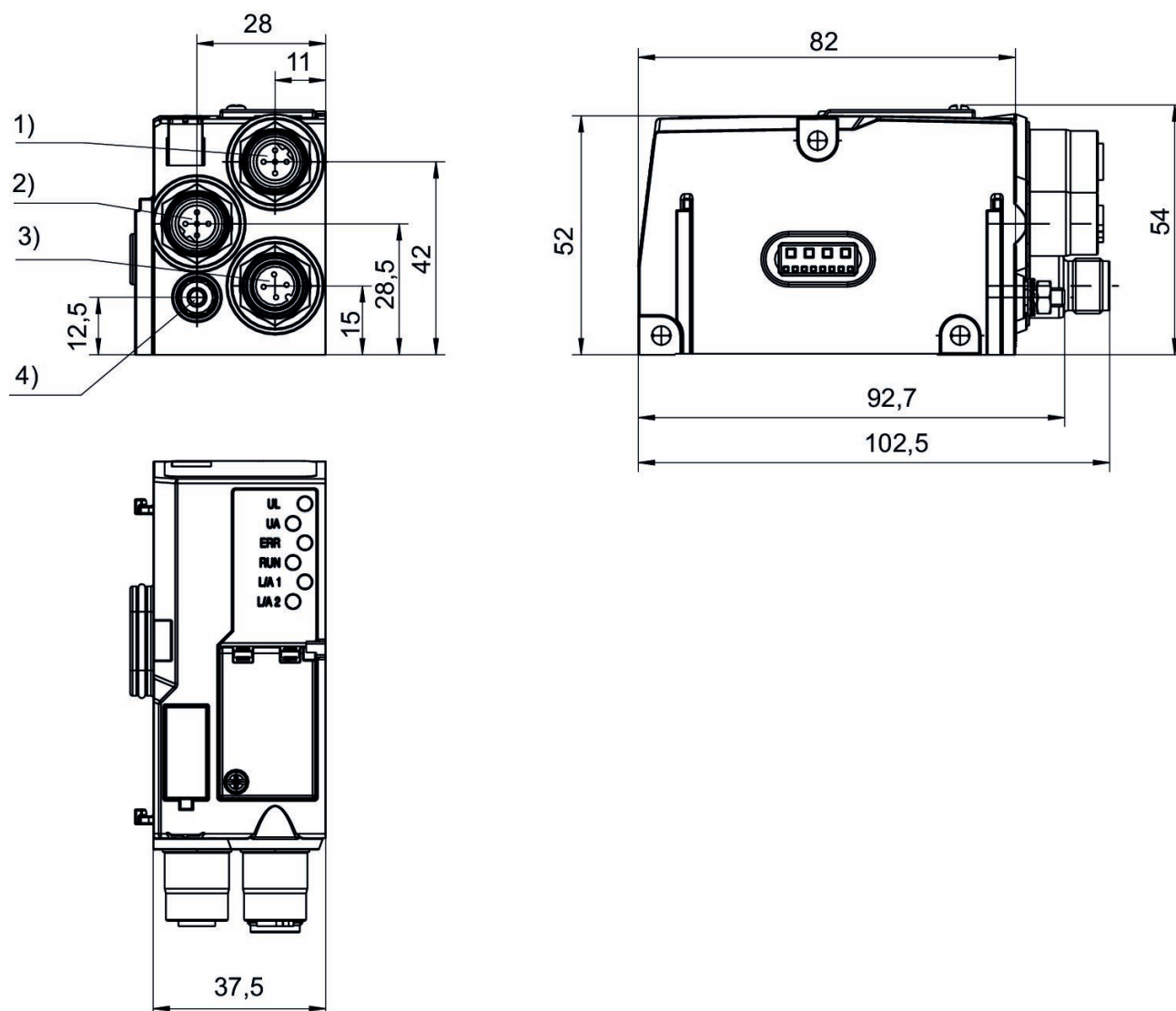
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

Voltage and short-circuit monitoring per LED.

During cyclical data transfer, the bus coupler can send 512 bits of input data to the controller and receive 512 bits of output data from the controller.

Scope of delivery: Incl. mounting screws 3x

## Dimensions



1) Fieldbus connection 2) Fieldbus connection 3) Power supply 4) Functional ground

# Bus coupler, series AES

## R412018222

### General series information Series AES

- The AVENTICS Series AES fieldbus connection can be integrated into all AVENTICS fieldbus-compatible valve systems or can also be configured as a stand-alone solution. AES connects your AVENTICS valve system to all relevant fieldbus protocols and offers the integration of I/O-modules and enables optimized decentralized wiring of sensors. The integration of the Digital Twin enables users to be IIoT ready and use the AES to solve their interoperability challenges.



### Technical data

Industry  
Industrial

Version  
Bus coupler

Note  
Do not use in new constructions!

Fieldbus protocol  
EtherNet/IP

E/A capable  
connection with I/O

Number of I/O connections  
512 inputs / 512 outputs

Power plug IN type  
Plug

Power plug IN size  
M12x1

Power plug IN number of pole  
4-pin

Power plug IN coding  
A-coded

Fieldbus design  
D-design

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Number of solenoid coils max.  
128

Max. number of valve positions  
64

Operational voltage electronics  
24 V DC

Electronics voltage tolerance  
-25% / +25%

Power consumption electronics  
0.1 A

Operating voltage, actuators  
24 V DC

Total current for actuators  
4 A

Protection class  
IP65

Cycle time at 256 bits  
< 1 ms



Logic/actuator voltage  
Galvanically isolated

Diagnosis  
System error  
Undervoltage

I/O module extension max.  
10

Generic emission standard in accordance with  
norm  
EN 61000-6-4

Generic immunity standard in accordance with  
norm  
EN 61000-6-2

Communication port Type  
Socket

Communication port, Thread size  
M12x1

Communication port, Number of poles  
4-pin

Communication port, Coding  
D-coded

Communication port 2  
Socket

Communication port 2  
M12x1

Communication port 2  
4-pin

Communication port 2  
D-coded

Weight  
0.175 kg

## Material

Housing material  
Polyamide fiber-glass reinforced

Part No.  
R412018222

## Technical information

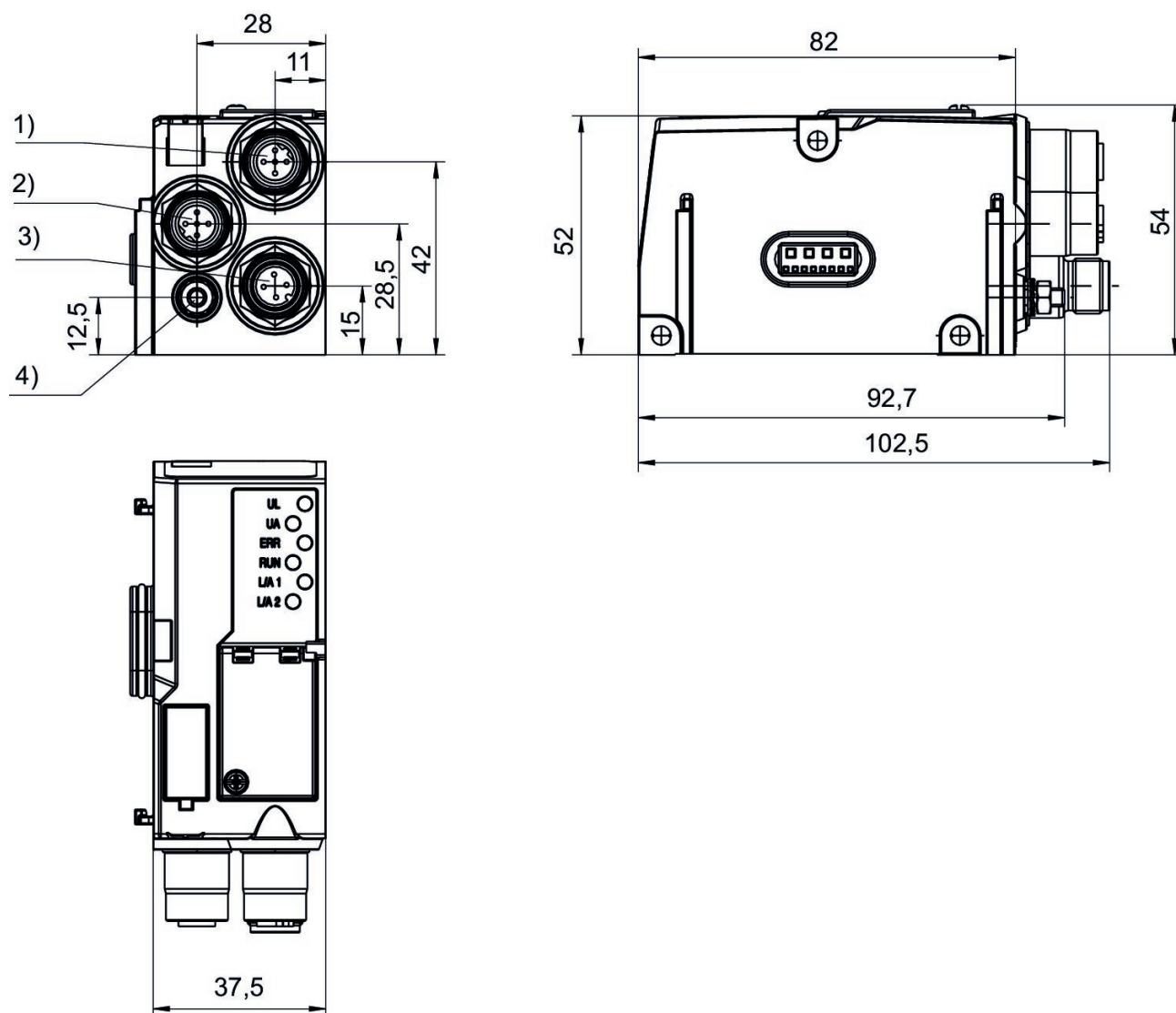
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

Voltage and short-circuit monitoring per LED.

During cyclical data transfer, the bus coupler can send 512 bits of input data to the controller and receive 512 bits of output data from the controller.

Scope of delivery: Incl. mounting screws 3x

## Dimensions



1) Fieldbus connection 2) Fieldbus connection 3) Power supply 4) Functional ground

# Bus coupler, series AES

## R412088223

### General series information Series AES

- The AVENTICS Series AES fieldbus connection can be integrated into all AVENTICS fieldbus-compatible valve systems or can also be configured as a stand-alone solution. AES connects your AVENTICS valve system to all relevant fieldbus protocols and offers the integration of I/O-modules and enables optimized decentralized wiring of sensors. The integration of the Digital Twin enables users to be IIoT ready and use the AES to solve their interoperability challenges.



### Technical data

Industry  
Industrial

Version  
Bus coupler

Type  
Generation 2  
Note: supports MRP and IRT (RT\_CLASS 3)

Fieldbus protocol  
PROFINET IO

E/A capable  
connection with I/O

Number of I/O connections  
512 inputs / 512 outputs

Power plug IN type  
Plug

Power plug IN size  
M12x1

Power plug IN number of pole  
4-pin

Power plug IN coding  
A-coded

Fieldbus design  
D-design

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Number of solenoid coils max.  
128

Max. number of valve positions  
64

Operational voltage electronics  
24 V DC

Electronics voltage tolerance  
-25% / +25%

Power consumption electronics  
0.1 A

Operating voltage, actuators  
24 V DC

Total current for actuators  
4 A

Protection class  
IP65

Cycle time at 256 bits  
< 1 ms

Logic/actuator voltage

Galvanically isolated

Diagnosis

System error

Undervoltage

I/O module extension max.

10

Generic emission standard in accordance with  
norm

EN 61000-6-4

Generic immunity standard in accordance with  
norm

EN 61000-6-2

Communication port Type

Socket

Communication port, Thread size

M12x1

Communication port, Number of poles

4-pin

Communication port, Coding

D-coded

Communication port 2

Socket

Communication port 2

M12x1

Communication port 2

4-pin

Communication port 2

D-coded

Weight

0.175 kg

## Material

Housing material

Polyamide fiber-glass reinforced

Part No.

R412088223

## Technical information

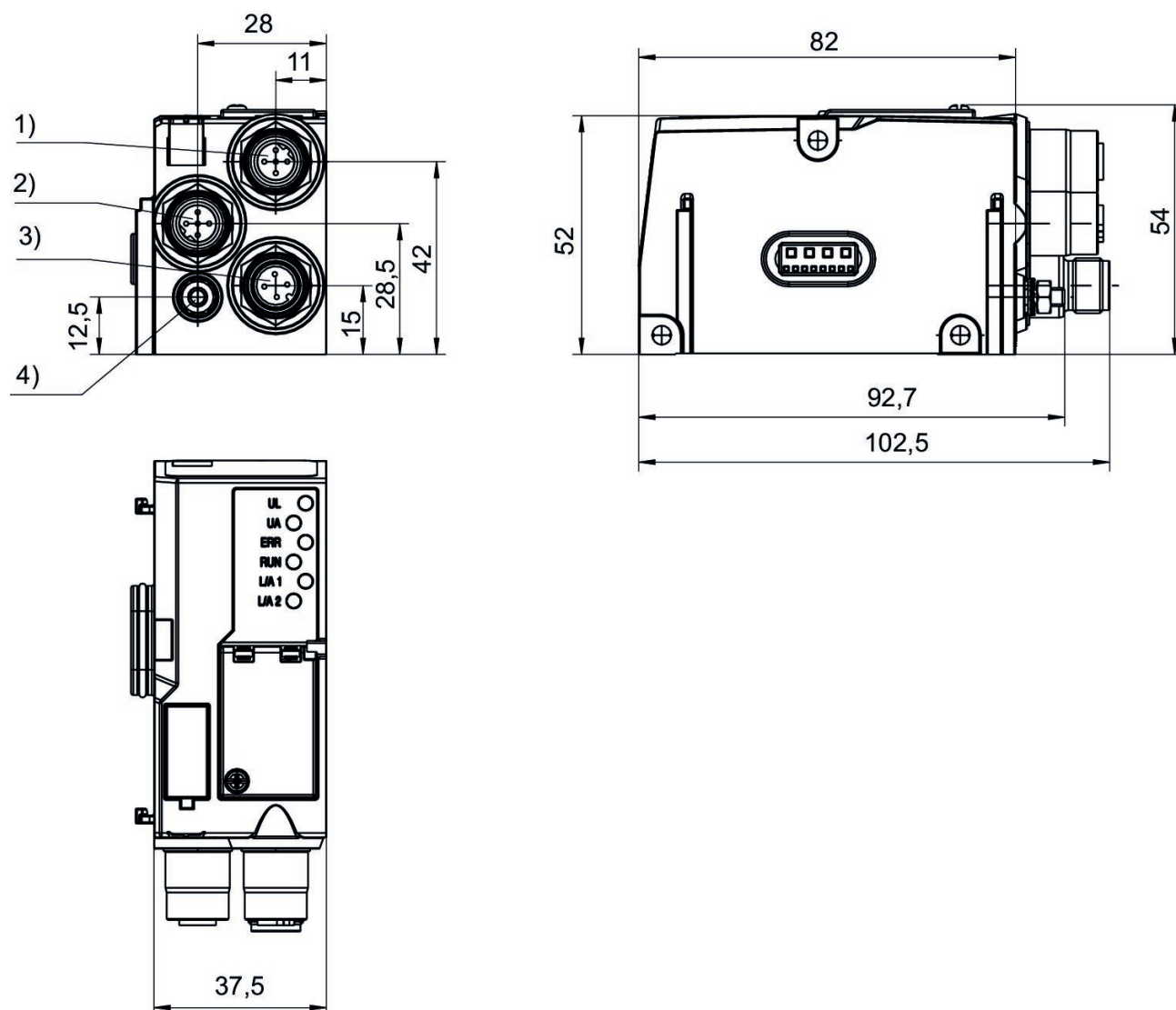
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

Voltage and short-circuit monitoring per LED.

During cyclical data transfer, the bus coupler can send 512 bits of input data to the controller and receive 512 bits of output data from the controller.

Scope of delivery: Incl. mounting screws 3x

## Dimensions



1) Fieldbus connection 2) Fieldbus connection 3) Power supply 4) Functional ground

# Bus coupler, series AES

## R412018223

### General series information Series AES

- The AVENTICS Series AES fieldbus connection can be integrated into all AVENTICS fieldbus-compatible valve systems or can also be configured as a stand-alone solution. AES connects your AVENTICS valve system to all relevant fieldbus protocols and offers the integration of I/O-modules and enables optimized decentralized wiring of sensors. The integration of the Digital Twin enables users to be IIoT ready and use the AES to solve their interoperability challenges.



### Technical data

Industry  
Industrial

Version  
Bus coupler

Note  
Do not use in new constructions!

Fieldbus protocol  
PROFINET IO

E/A capable  
connection with I/O

Number of I/O connections  
512 inputs / 512 outputs

Power plug IN type  
Plug

Power plug IN size  
M12x1

Power plug IN number of pole  
4-pin

Power plug IN coding  
A-coded

Fieldbus design  
D-design

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Number of solenoid coils max.  
128

Max. number of valve positions  
64

Operational voltage electronics  
24 V DC

Electronics voltage tolerance  
-25% / +25%

Power consumption electronics  
0.1 A

Operating voltage, actuators  
24 V DC

Total current for actuators  
4 A

Protection class  
IP65

Cycle time at 256 bits  
< 1 ms

Logic/actuator voltage  
Galvanically isolated

Diagnosis  
System error  
Undervoltage

I/O module extension max.  
10

Generic emission standard in accordance with  
norm  
EN 61000-6-4

Generic immunity standard in accordance with  
norm  
EN 61000-6-2

Communication port Type  
Socket

Communication port, Thread size  
M12x1

Communication port, Number of poles  
4-pin

Communication port, Coding  
D-coded

Communication port 2  
Socket

Communication port 2  
M12x1

Communication port 2  
4-pin

Communication port 2  
D-coded

Weight  
0.175 kg

## Material

Housing material  
Polyamide fiber-glass reinforced

Part No.  
R412018223

## Technical information

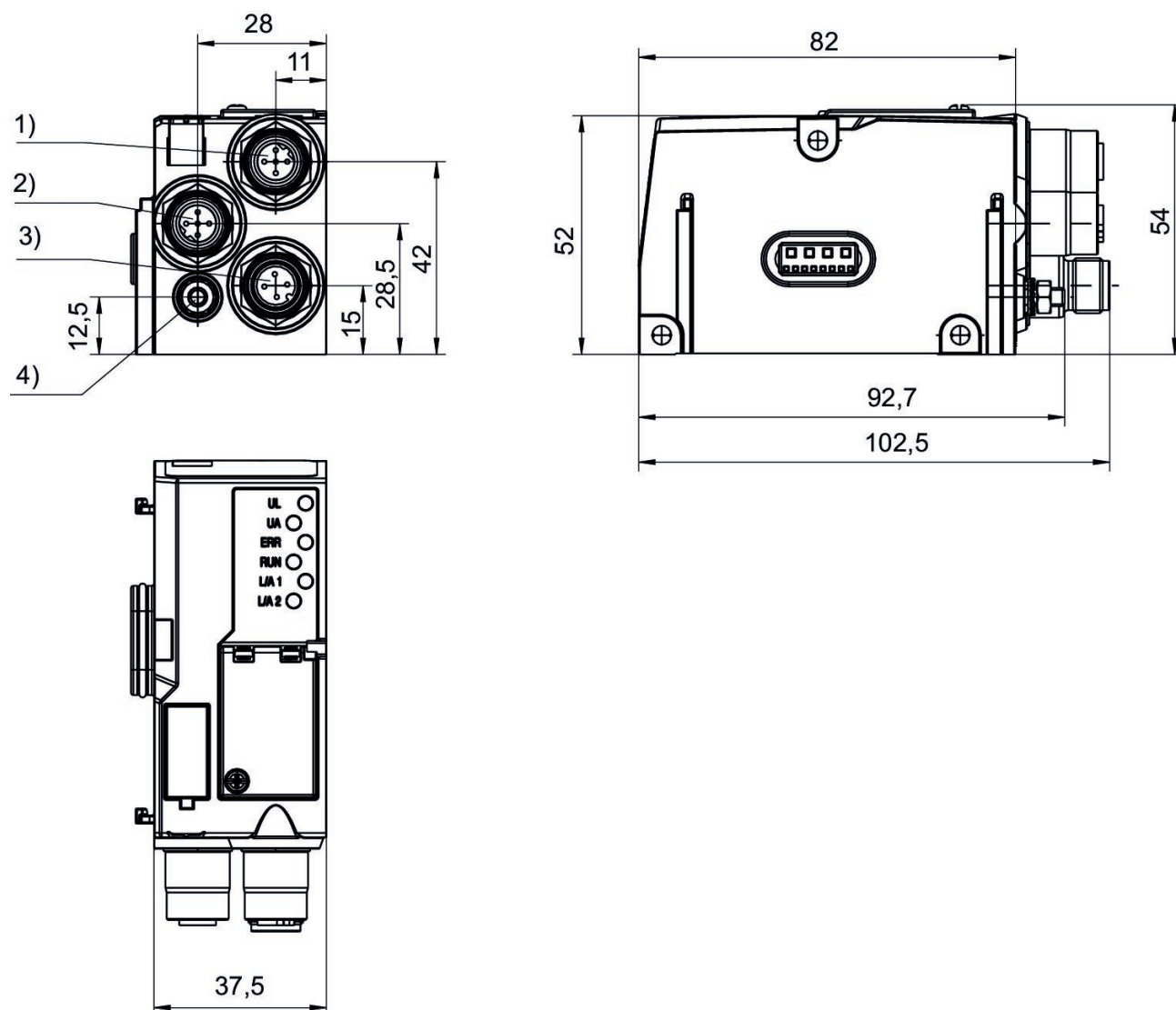
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

Voltage and short-circuit monitoring per LED.

During cyclical data transfer, the bus coupler can send 512 bits of input data to the controller and receive 512 bits of output data from the controller.

Scope of delivery: Incl. mounting screws 3x

## Dimensions



1) Fieldbus connection 2) Fieldbus connection 3) Power supply 4) Functional ground



# Bus coupler, series AES

## R412088225

### General series information Series AES

- The AVENTICS Series AES fieldbus connection can be integrated into all AVENTICS fieldbus-compatible valve systems or can also be configured as a stand-alone solution. AES connects your AVENTICS valve system to all relevant fieldbus protocols and offers the integration of I/O-modules and enables optimized decentralized wiring of sensors. The integration of the Digital Twin enables users to be IIoT ready and use the AES to solve their interoperability challenges.



### Technical data

Industry  
Industrial

Version  
Bus coupler

Type  
Generation 2

Fieldbus protocol  
EtherCAT

E/A capable  
connection with I/O

Number of I/O connections  
512 inputs / 512 outputs

Power plug IN type  
Plug

Power plug IN size  
M12x1

Power plug IN number of pole  
4-pin

Power plug IN coding  
A-coded

Fieldbus design  
D-design

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Number of solenoid coils max.  
128

Max. number of valve positions  
64

Operational voltage electronics  
24 V DC

Electronics voltage tolerance  
-25% / +25%

Power consumption electronics  
0.1 A

Operating voltage, actuators  
24 V DC

Total current for actuators  
4 A

Protection class  
IP65

Cycle time at 256 bits  
< 1 ms

Logic/actuator voltage

Galvanically isolated

Diagnosis

System error

Undervoltage

I/O module extension max.

10

Generic emission standard in accordance with  
norm

EN 61000-6-4

Generic immunity standard in accordance with  
norm

EN 61000-6-2

Communication port Type

Socket

Communication port, Thread size

M12x1

Communication port, Number of poles

4-pin

Communication port, Coding

D-coded

Communication port 2

Socket

Communication port 2

M12x1

Communication port 2

4-pin

Communication port 2

D-coded

Weight

0.175 kg

## Material

Housing material

Polyamide fiber-glass reinforced

Part No.

R412088225

## Technical information

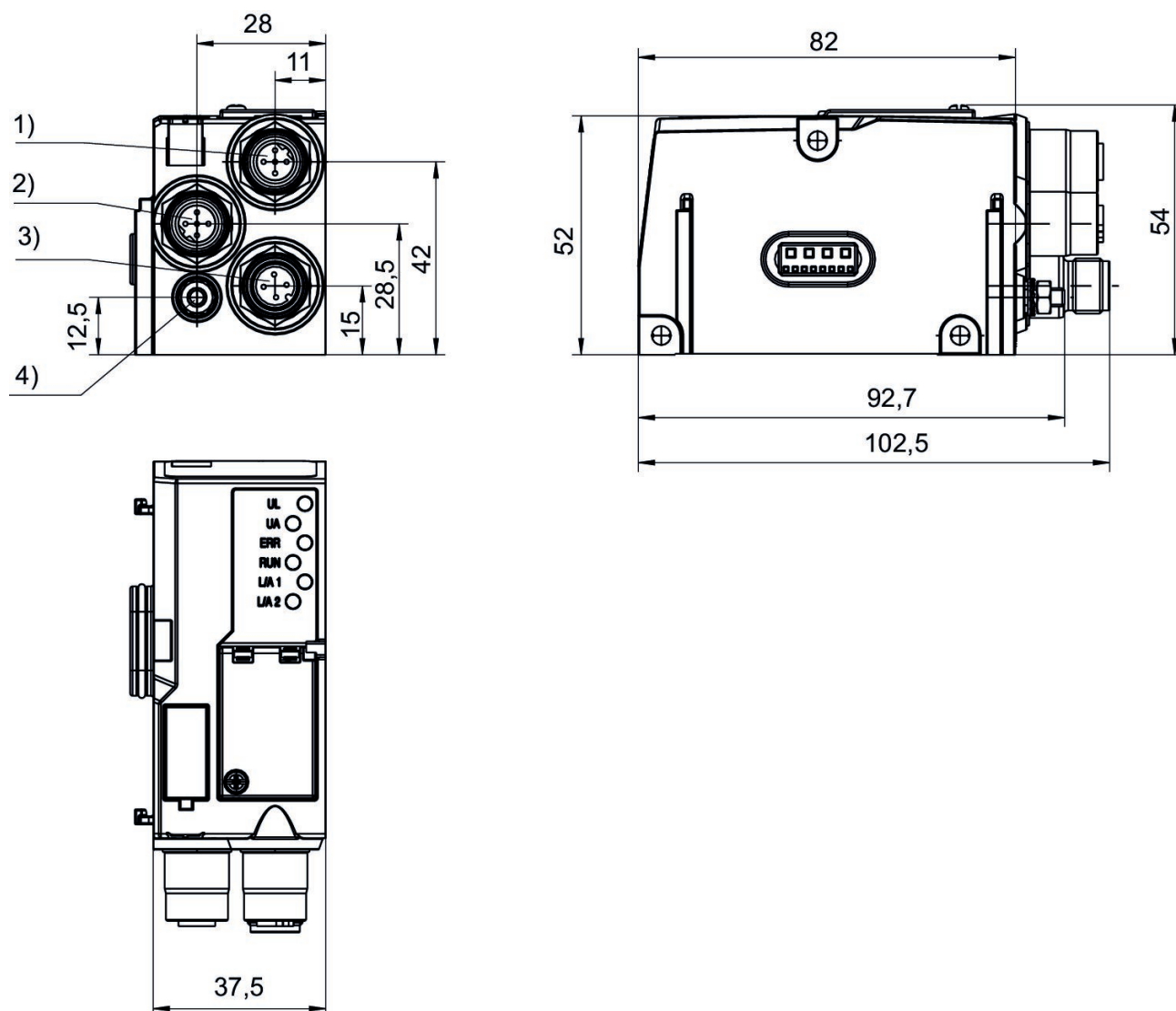
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

Voltage and short-circuit monitoring per LED.

During cyclical data transfer, the bus coupler can send 512 bits of input data to the controller and receive 512 bits of output data from the controller.

Scope of delivery: Incl. mounting screws 3x

## Dimensions



1) Fieldbus connection 2) Fieldbus connection 3) Power supply 4) Functional ground

# Bus coupler, series AES

## R412018225

### General series information Series AES

- The AVENTICS Series AES fieldbus connection can be integrated into all AVENTICS fieldbus-compatible valve systems or can also be configured as a stand-alone solution. AES connects your AVENTICS valve system to all relevant fieldbus protocols and offers the integration of I/O-modules and enables optimized decentralized wiring of sensors. The integration of the Digital Twin enables users to be IIoT ready and use the AES to solve their interoperability challenges.



### Technical data

Industry  
Industrial

Version  
Bus coupler

Note  
Do not use in new constructions!

Fieldbus protocol  
EtherCAT

E/A capable  
connection with I/O

Number of I/O connections  
512 inputs / 512 outputs

Power plug IN type  
Plug

Power plug IN size  
M12x1

Power plug IN number of pole  
4-pin

Power plug IN coding  
A-coded

Fieldbus design  
D-design

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Number of solenoid coils max.  
128

Max. number of valve positions  
64

Operational voltage electronics  
24 V DC

Electronics voltage tolerance  
-25% / +25%

Power consumption electronics  
0.1 A

Operating voltage, actuators  
24 V DC

Total current for actuators  
4 A

Protection class  
IP65

Cycle time at 256 bits  
< 1 ms

|                                                                      |                                              |
|----------------------------------------------------------------------|----------------------------------------------|
| Logic/actuator voltage<br>Galvanically isolated                      | Communication port, Thread size<br>M12x1     |
| Diagnosis<br>System error<br>Undervoltage                            | Communication port, Number of poles<br>4-pin |
| I/O module extension max.<br>10                                      | Communication port, Coding<br>D-coded        |
| Generic emission standard in accordance with<br>norm<br>EN 61000-6-4 | Communication port 2<br>Socket               |
| Generic immunity standard in accordance with<br>norm<br>EN 61000-6-2 | Communication port 2<br>M12x1                |
| Communication port Type<br>Socket                                    | Communication port 2<br>4-pin                |
|                                                                      | Communication port 2<br>D-coded              |
|                                                                      | Weight<br>0.175 kg                           |

## Material

Housing material  
Polyamide fiber-glass reinforced

Part No.  
R412018225

## Technical information

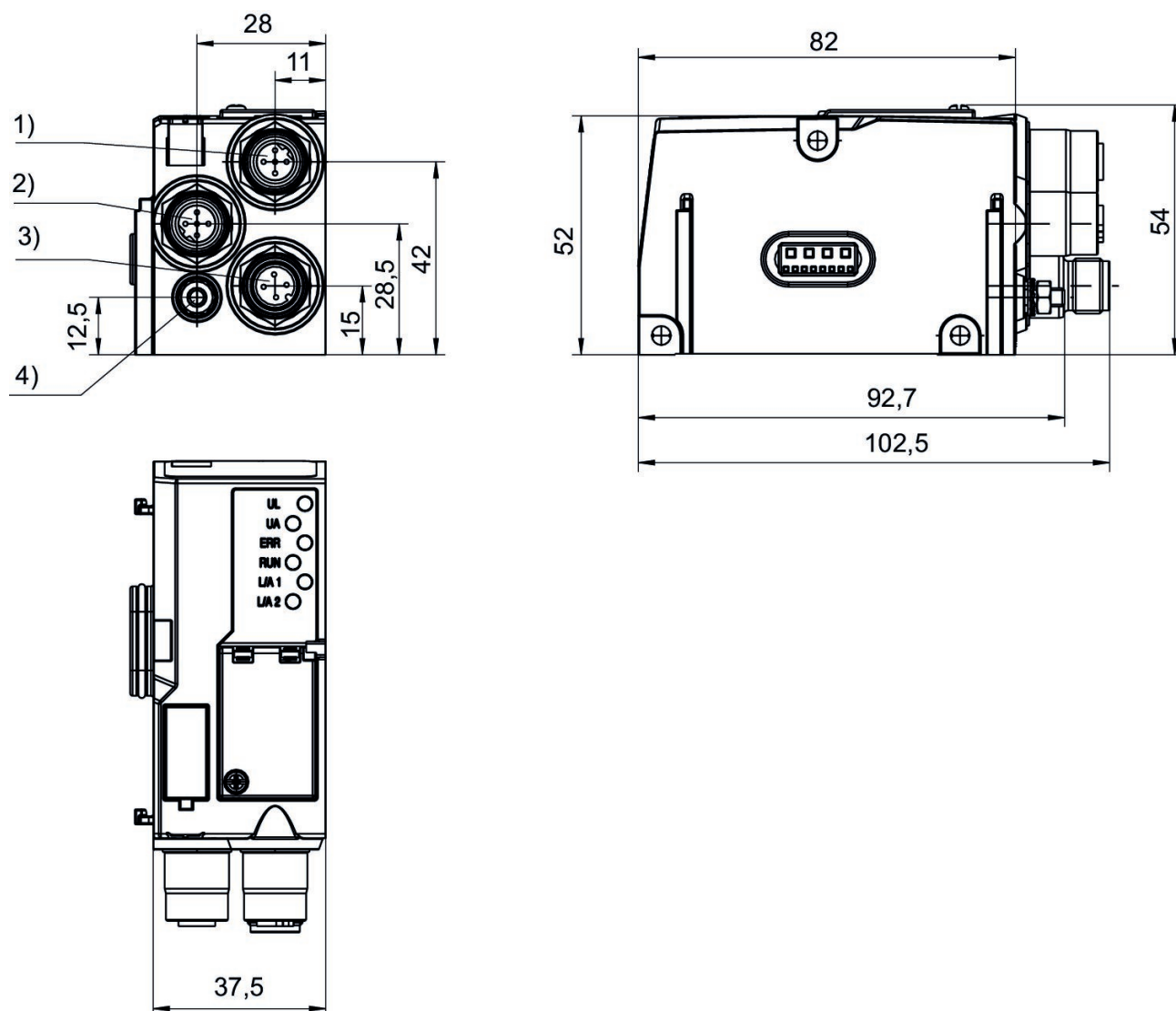
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

Voltage and short-circuit monitoring per LED.

During cyclical data transfer, the bus coupler can send 512 bits of input data to the controller and receive 512 bits of output data from the controller.

Scope of delivery: Incl. mounting screws 3x

## Dimensions



1) Fieldbus connection 2) Fieldbus connection 3) Power supply 4) Functional ground

# Bus coupler, series AES

## R412088226

### General series information Series AES

- The AVENTICS Series AES fieldbus connection can be integrated into all AVENTICS fieldbus-compatible valve systems or can also be configured as a stand-alone solution. AES connects your AVENTICS valve system to all relevant fieldbus protocols and offers the integration of I/O-modules and enables optimized decentralized wiring of sensors. The integration of the Digital Twin enables users to be IIoT ready and use the AES to solve their interoperability challenges.



### Technical data

Industry  
Industrial

Version  
Bus coupler

Type  
Generation 2

Fieldbus protocol  
POWERLINK

E/A capable  
connection with I/O

Number of I/O connections  
512 inputs / 512 outputs

Power plug IN type  
Plug

Power plug IN size  
M12x1

Power plug IN number of pole  
4-pin

Power plug IN coding  
A-coded

Fieldbus design  
D-design

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Number of solenoid coils max.  
128

Max. number of valve positions  
64

Operational voltage electronics  
24 V DC

Electronics voltage tolerance  
-25% / +25%

Power consumption electronics  
0.1 A

Operating voltage, actuators  
24 V DC

Total current for actuators  
4 A

Protection class  
IP65

Cycle time at 256 bits  
< 1 ms

|                                                                      |                                              |
|----------------------------------------------------------------------|----------------------------------------------|
| Logic/actuator voltage<br>Galvanically isolated                      | Communication port, Thread size<br>M12x1     |
| Diagnosis<br>System error<br>Undervoltage                            | Communication port, Number of poles<br>4-pin |
| I/O module extension max.<br>10                                      | Communication port, Coding<br>D-coded        |
| Generic emission standard in accordance with<br>norm<br>EN 61000-6-4 | Communication port 2<br>Socket               |
| Generic immunity standard in accordance with<br>norm<br>EN 61000-6-2 | Communication port 2<br>M12x1                |
| Communication port Type<br>Socket                                    | Communication port 2<br>4-pin                |
|                                                                      | Communication port 2<br>D-coded              |
|                                                                      | Weight<br>0.175 kg                           |

## Material

Housing material  
Polyamide fiber-glass reinforced

Part No.  
R412088226

## Technical information

You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

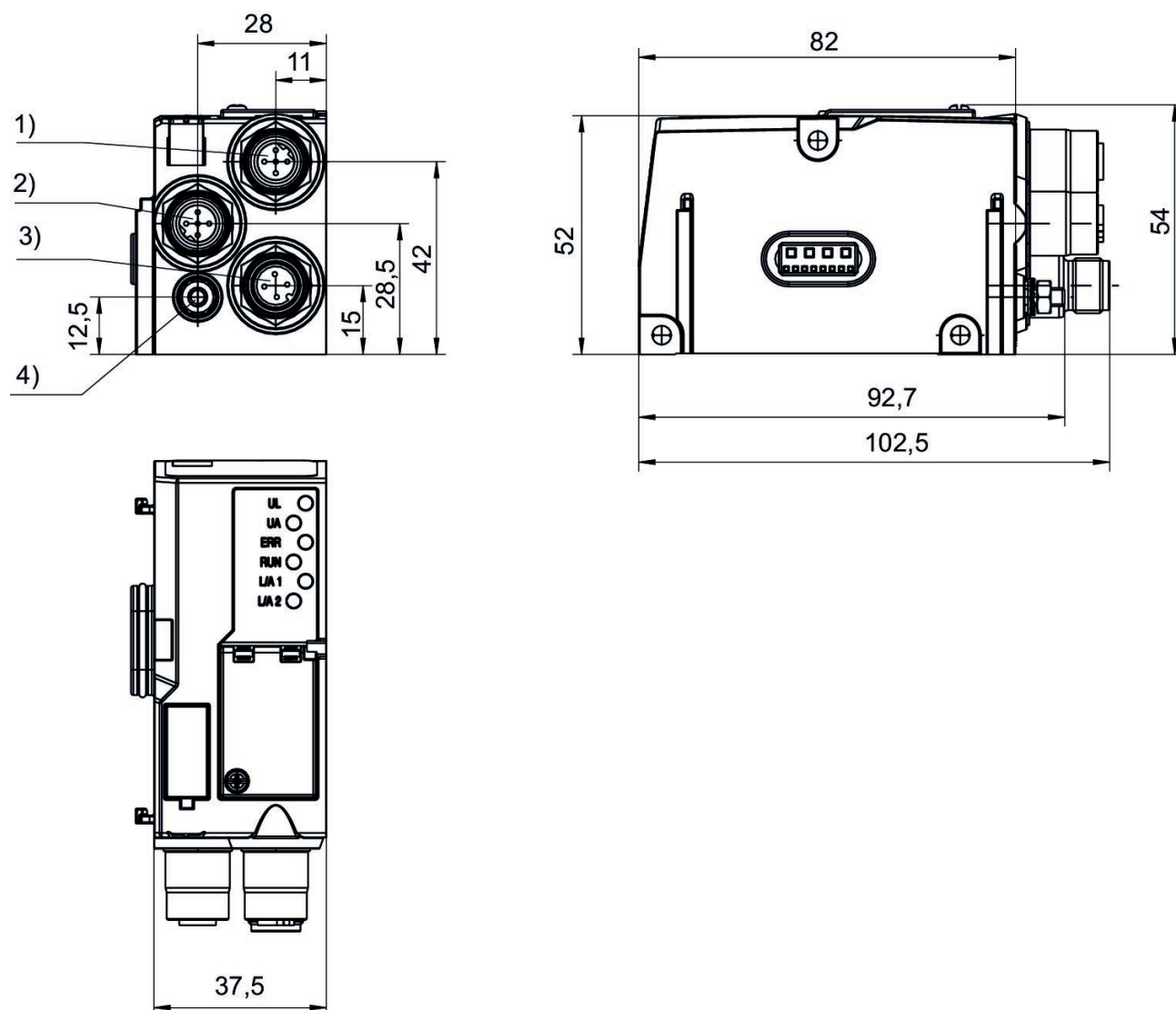
Voltage and short-circuit monitoring per LED.

During cyclical data transfer, the bus coupler can send 512 bits of input data to the controller and receive 512 bits of output data from the controller.

Scope of delivery: Incl. mounting screws 3x



## Dimensions



1) Fieldbus connection 2) Fieldbus connection 3) Power supply 4) Functional ground

# Bus coupler, series AES

## R412018226

### General series information Series AES

- The AVENTICS Series AES fieldbus connection can be integrated into all AVENTICS fieldbus-compatible valve systems or can also be configured as a stand-alone solution. AES connects your AVENTICS valve system to all relevant fieldbus protocols and offers the integration of I/O-modules and enables optimized decentralized wiring of sensors. The integration of the Digital Twin enables users to be IIoT ready and use the AES to solve their interoperability challenges.



### Technical data

Industry  
Industrial

Version  
Bus coupler

Note  
Do not use in new constructions!

Fieldbus protocol  
POWERLINK

E/A capable  
connection with I/O

Number of I/O connections  
512 inputs / 512 outputs

Power plug IN type  
Plug

Power plug IN size  
M12x1

Power plug IN number of pole  
4-pin

Power plug IN coding  
A-coded

Fieldbus design  
D-design

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Number of solenoid coils max.  
128

Max. number of valve positions  
64

Operational voltage electronics  
24 V DC

Electronics voltage tolerance  
-25% / +25%

Power consumption electronics  
0.1 A

Operating voltage, actuators  
24 V DC

Total current for actuators  
4 A

Protection class  
IP65

Cycle time at 256 bits  
< 1 ms

Logic/actuator voltage  
Galvanically isolated

Diagnosis  
System error  
Undervoltage

I/O module extension max.  
10

Generic emission standard in accordance with  
norm  
EN 61000-6-4

Generic immunity standard in accordance with  
norm  
EN 61000-6-2

Communication port Type  
Socket

Communication port, Thread size  
M12x1

Communication port, Number of poles  
4-pin

Communication port, Coding  
D-coded

Communication port 2  
Socket

Communication port 2  
M12x1

Communication port 2  
4-pin

Communication port 2  
D-coded

Weight  
0.175 kg

## Material

Housing material  
Polyamide fiber-glass reinforced

Part No.  
R412018226

## Technical information

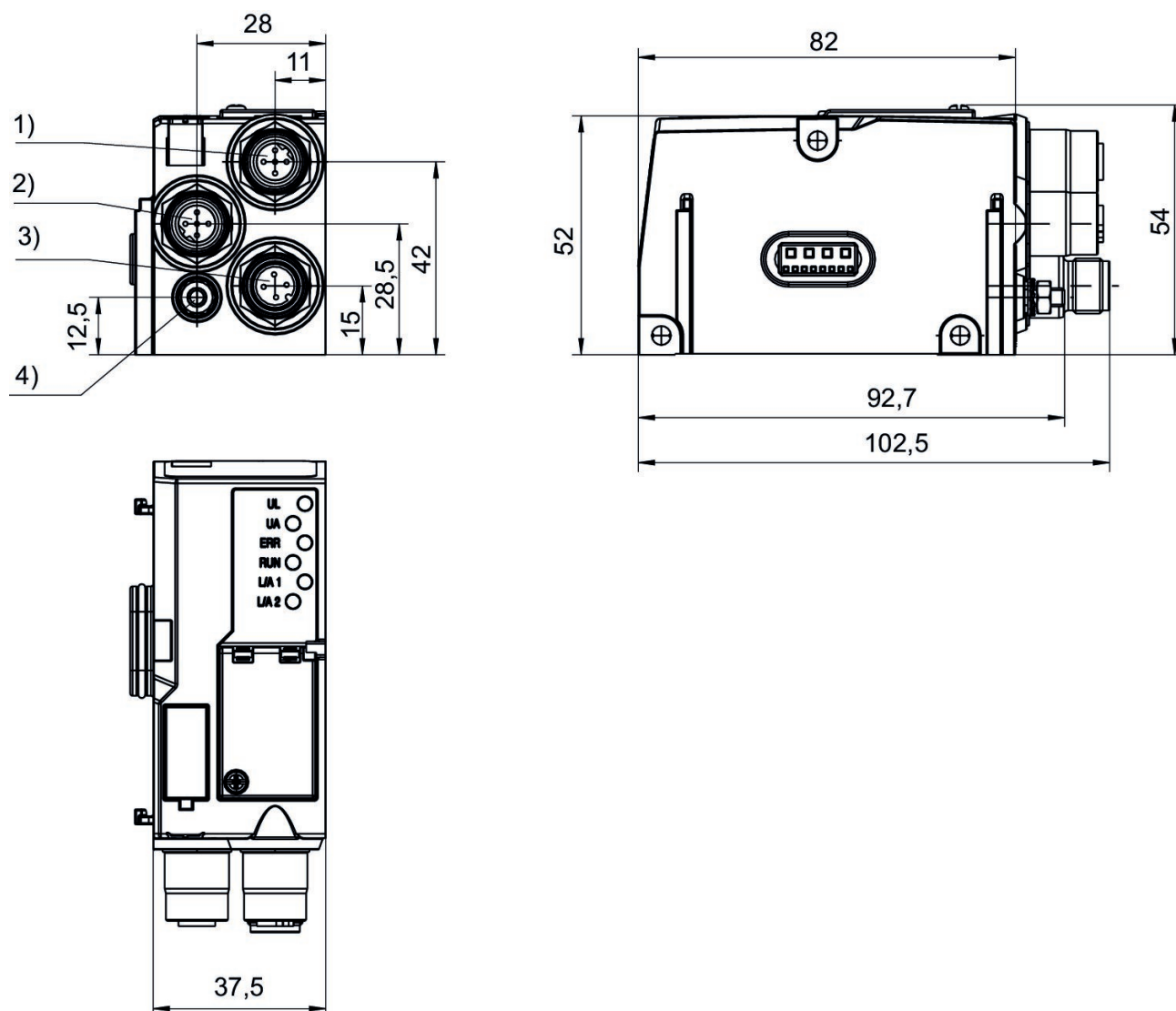
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

Voltage and short-circuit monitoring per LED.

During cyclical data transfer, the bus coupler can send 512 bits of input data to the controller and receive 512 bits of output data from the controller.

Scope of delivery: Incl. mounting screws 3x

## Dimensions



1) Fieldbus connection 2) Fieldbus connection 3) Power supply 4) Functional ground

# Bus coupler, series AES

## R412088227

### General series information Series AES

- The AVENTICS Series AES fieldbus connection can be integrated into all AVENTICS fieldbus-compatible valve systems or can also be configured as a stand-alone solution. AES connects your AVENTICS valve system to all relevant fieldbus protocols and offers the integration of I/O-modules and enables optimized decentralized wiring of sensors. The integration of the Digital Twin enables users to be IIoT ready and use the AES to solve their interoperability challenges.



### Technical data

Industry  
Industrial

Version  
Bus coupler

Type  
Generation 2

Fieldbus protocol  
MODBUS TCP

E/A capable  
connection with I/O

Number of I/O connections  
512 inputs / 512 outputs

Power plug IN type  
Plug

Power plug IN size  
M12x1

Power plug IN number of pole  
4-pin

Power plug IN coding  
A-coded

Fieldbus design  
D-design

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Number of solenoid coils max.  
128

Max. number of valve positions  
64

Operational voltage electronics  
24 V DC

Electronics voltage tolerance  
-25% / +25%

Power consumption electronics  
0.1 A

Operating voltage, actuators  
24 V DC

Total current for actuators  
4 A

Protection class  
IP65

Cycle time at 256 bits  
< 1 ms

Logic/actuator voltage  
Galvanically isolated

Diagnosis  
System error  
Undervoltage

I/O module extension max.  
10

Generic emission standard in accordance with  
norm  
EN 61000-6-4

Generic immunity standard in accordance with  
norm  
EN 61000-6-2

Communication port Type  
Socket

Communication port, Thread size  
M12x1

Communication port, Number of poles  
4-pin

Communication port, Coding  
D-coded

Communication port 2  
Socket

Communication port 2  
M12x1

Communication port 2  
4-pin

Communication port 2  
D-coded

Weight  
0.175 kg

## Material

Housing material  
Polyamide fiber-glass reinforced

Part No.  
R412088227

## Technical information

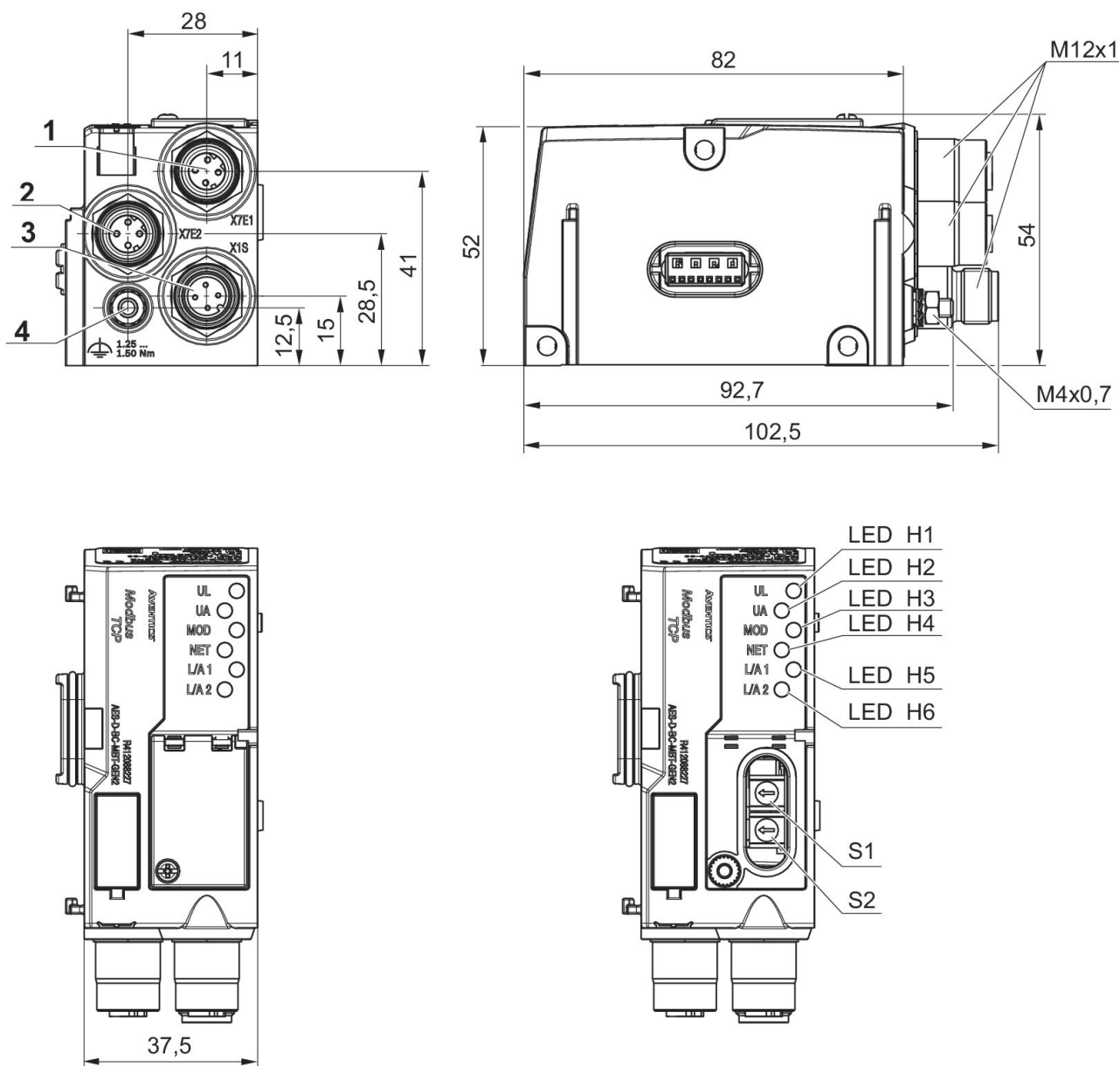
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

Voltage and short-circuit monitoring per LED.

During cyclical data transfer, the bus coupler can send 512 bits of input data to the controller and receive 512 bits of output data from the controller.

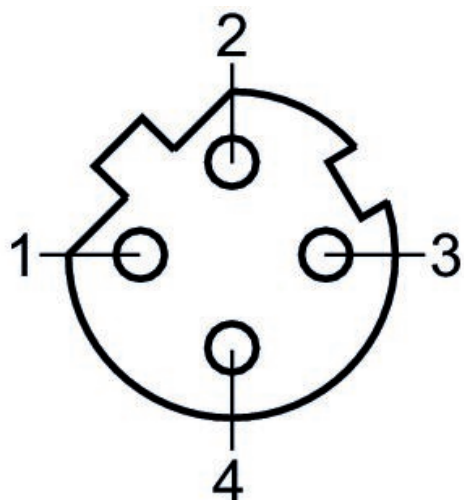
Scope of delivery: Incl. mounting screws 3x

## Dimensions

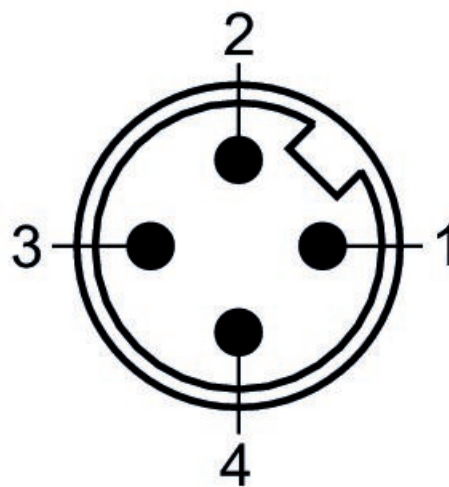


1) Fieldbus connection 2) Fieldbus connection 3) Power supply 4) Functional ground

### Pin assignment, socket



### Plug pin assignment





# I/O modules, series AES

## R412018269

### General series information Series AES

- The AVENTICS Series AES fieldbus connection can be integrated into all AVENTICS fieldbus-compatible valve systems or can also be configured as a stand-alone solution. AES connects your AVENTICS valve system to all relevant fieldbus protocols and offers the integration of I/O-modules and enables optimized decentralized wiring of sensors. The integration of the Digital Twin enables users to be IIoT ready and use the AES to solve their interoperability challenges.



### Technical data

Industry  
Industrial

Version  
I/O modules

Type  
8DIDO8M8

Note  
Combination module

E/A capable  
connection with I/O

I/O module version  
digital inputs/outputs

Number of I/O connections  
8 inputs / 8 outputs

Power plug IN type  
Internal

Signal connection E/A type  
Socket

Signal connection E/A thread size  
M8x1

Signal connection E/A number of poles  
3-pin

Filter time  
3 ms

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Operational voltage electronics  
24 V DC

Electronics voltage tolerance  
-25% / +25%

Max. current per channel  
0.5 A

Total current for actuators  
4 A

Protection class  
IP65

Total current of sensors max.  
1 A

Logic/actuator voltage  
Galvanically isolated

Diagnosis  
Short circuit  
Undervoltage

|                                                                      |                                                                      |
|----------------------------------------------------------------------|----------------------------------------------------------------------|
| Number of inputs<br>8                                                | Generic immunity standard in accordance with<br>norm<br>EN 61000-6-2 |
| Number of outputs<br>8                                               | Weight<br>0.11 kg                                                    |
| Generic emission standard in accordance with<br>norm<br>EN 61000-6-4 |                                                                      |

## Material

Housing material  
Polyamide fiber-glass reinforced

Part No.  
R412018269

## Technical information

You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

The total current of all outputs (including valves) must not exceed 4 A in the overall system.

Voltage and short-circuit monitoring per LED.

Delivery contents: incl. 2 spring clamp elements and seal

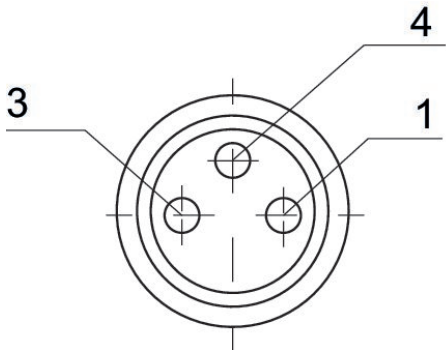
Function specification for fieldbus configuration.



Pin assignments

PNP

3-pin



| Pin | Input module | Output module |
|-----|--------------|---------------|
| 1   | 24 V DC      | -             |
| 3   | 0 V DC       | 0 V DC        |
| 4   | Input signal | Output signal |

# I/O modules, series AES

## R412018233

### General series information Series AES

- The AVENTICS Series AES fieldbus connection can be integrated into all AVENTICS fieldbus-compatible valve systems or can also be configured as a stand-alone solution. AES connects your AVENTICS valve system to all relevant fieldbus protocols and offers the integration of I/O-modules and enables optimized decentralized wiring of sensors. The integration of the Digital Twin enables users to be IIoT ready and use the AES to solve their interoperability challenges.



### Technical data

Industry  
Industrial

Version  
I/O modules

Type  
8DI8M8

E/A capable  
connection with I/O

I/O module version  
digital inputs

Number of I/O connections  
8 inputs

Power plug IN type  
Internal

Signal connection E/A type  
Socket

Signal connection E/A thread size  
M8x1

Signal connection E/A number of poles  
3-pin

Filter time  
3 ms

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Operational voltage electronics  
24 V DC

Electronics voltage tolerance  
-25% / +25%

Max. current per channel  
0.5 A

Protection class  
IP65

Total current of sensors max.  
1 A

Diagnosis  
Short circuit  
Undervoltage

Number of inputs  
8

Generic emission standard in accordance with  
norm  
EN 61000-6-4

Generic immunity standard in accordance with  
norm  
EN 61000-6-2

Weight  
0.11 kg

## Material

Housing material  
Polyamide fiber-glass reinforced

Part No.  
R412018233

## Technical information

You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

The total current of all outputs (including valves) must not exceed 4 A in the overall system.

Voltage and short-circuit monitoring per LED.

Delivery contents: incl. 2 spring clamp elements and seal

The technical drawing illustrates the X2000-8 power supply unit from two perspectives:

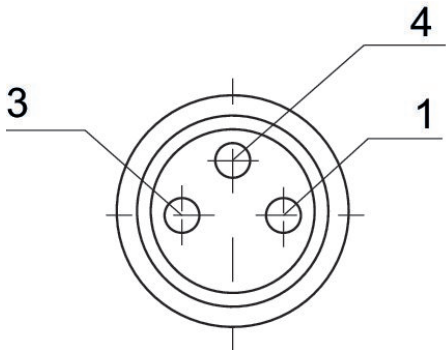
- Top View (Left):** Shows the overall width of 99,2 mm and depth of 50 mm. The main body has a width of 37,5 mm and a depth of 25 mm. A mounting tab on the left is 12,5 mm wide.
- Front View (Right):** Shows the height profile and connector layout. The total height is 99,2 mm, with a main body height of 90,6 mm and a base height of 82 mm. The distance between the bottom of the main body and the first connector row is 11 mm. There are seven rows of connectors, each spaced 18,8 mm apart. The bottom-most section has a height of 14,6 mm. The connector labels include X211 through X218, and X219 through X226. An M8x1 screw hole is indicated at the top center. The output voltage is specified as 0V and UL.



Pin assignments

PNP

3-pin



| Pin | Input module | Output module |
|-----|--------------|---------------|
| 1   | 24 V DC      | -             |
| 3   | 0 V DC       | 0 V DC        |
| 4   | Input signal | Output signal |



# I/O modules, series AES

## R412018248

### General series information Series AES

- The AVENTICS Series AES fieldbus connection can be integrated into all AVENTICS fieldbus-compatible valve systems or can also be configured as a stand-alone solution. AES connects your AVENTICS valve system to all relevant fieldbus protocols and offers the integration of I/O-modules and enables optimized decentralized wiring of sensors. The integration of the Digital Twin enables users to be IIoT ready and use the AES to solve their interoperability challenges.



### Technical data

Industry  
Industrial

Version  
I/O modules

Type  
8DO8M8

E/A capable  
connection with I/O

I/O module version  
digital outputs

Number of I/O connections  
8 outputs

Power plug IN type  
Internal

Signal connection E/A type  
Socket

Signal connection E/A thread size  
M8x1

Signal connection E/A number of poles  
3-pin

Filter time  
3 ms

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Operational voltage electronics  
24 V DC

Electronics voltage tolerance  
-25% / +25%

Max. current per channel  
0.5 A

Total current for actuators  
4 A

Protection class  
IP65

Total current of sensors max.  
1 A

Logic/actuator voltage  
Galvanically isolated

Diagnosis  
Short circuit  
Undervoltage

Number of outputs  
8

Generic emission standard in accordance with  
norm  
EN 61000-6-4

Generic immunity standard in accordance with  
norm  
EN 61000-6-2  
Weight  
0.11 kg

## Material

Housing material  
Polyamide fiber-glass reinforced

Part No.  
R412018248

## Technical information

You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

The total current of all outputs (including valves) must not exceed 4 A in the overall system.

Voltage and short-circuit monitoring per LED.

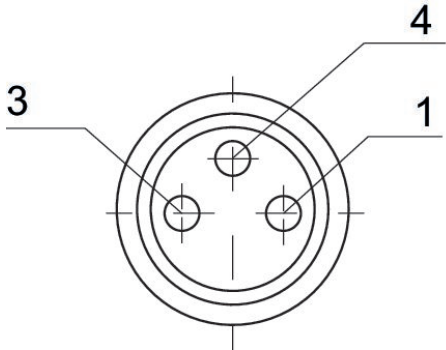
Delivery contents: incl. 2 spring clamp elements and seal

1) Retaining bracket (optional)  
Pin assignment M8x1 (3-pin)

Pin assignments

PNP

3-pin



| Pin | Input module | Output module |
|-----|--------------|---------------|
| 1   | 24 V DC      | -             |
| 3   | 0 V DC       | 0 V DC        |
| 4   | Input signal | Output signal |

# I/O modules, Series AES

## R412018234

### General series information Series AES

- The AVENTICS Series AES fieldbus connection can be integrated into all AVENTICS fieldbus-compatible valve systems or can also be configured as a stand-alone solution. AES connects your AVENTICS valve system to all relevant fieldbus protocols and offers the integration of I/O-modules and enables optimized decentralized wiring of sensors. The integration of the Digital Twin enables users to be IIoT ready and use the AES to solve their interoperability challenges.



### Technical data

Industry  
Industrial

Version  
I/O modules

Type  
16DI8M8

E/A capable  
connection with I/O

I/O module version  
digital inputs

Number of I/O connections  
16 inputs

Power plug IN type  
Internal

Signal connection E/A type  
Socket

Signal connection E/A thread size  
M8x1

Signal connection E/A number of poles  
4-pin

Filter time  
3 ms

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Operational voltage electronics  
24 V DC

Electronics voltage tolerance  
-25% / +25%

Max. current per channel  
0.5 A

Protection class  
IP65

Total current of sensors max.  
1 A

Diagnosis  
Short circuit  
Undervoltage

Generic emission standard in accordance with  
norm  
EN 61000-6-4

Generic immunity standard in accordance with  
norm  
EN 61000-6-2

Weight  
0.11 kg

## Material

Housing material  
Polyamide fiber-glass reinforced

Part No.  
R412018234

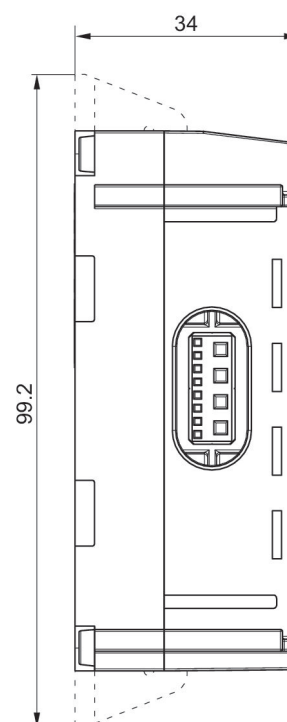
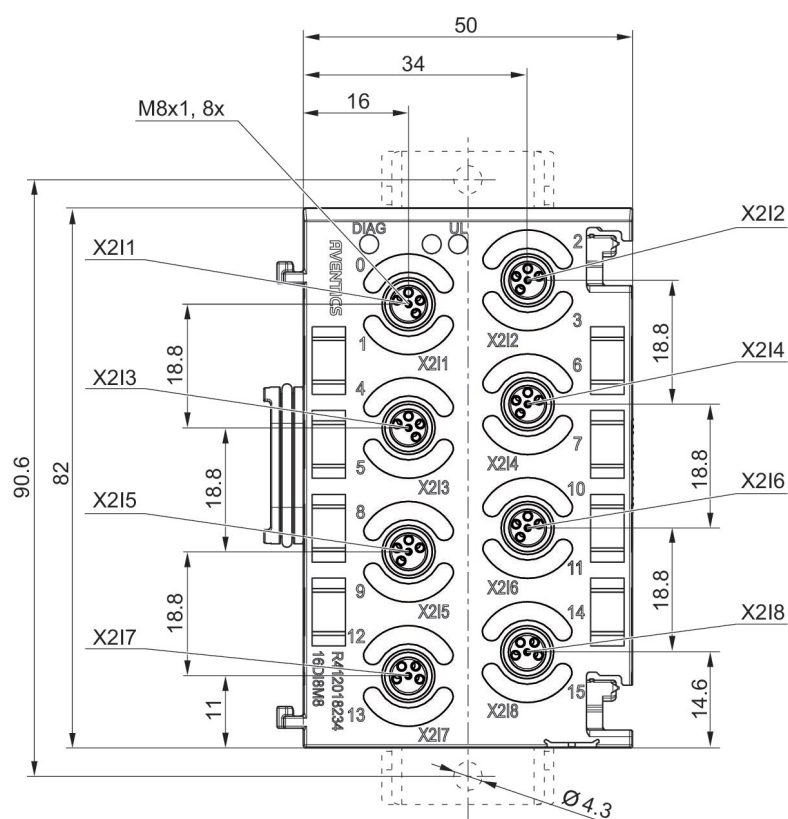
## Technical information

You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

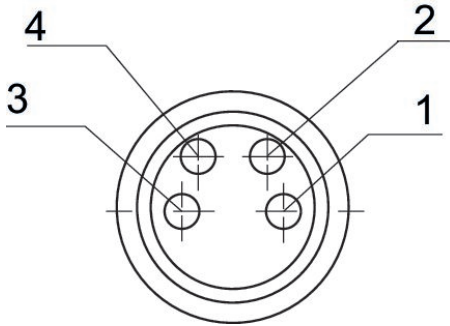
The total current of all outputs (including valves) must not exceed 4 A in the overall system.

Voltage and short-circuit monitoring per LED.

Delivery contents: incl. 2 spring clamp elements and seal



Pin assignments  
X211-X218  
4-pin



PNP

| Pin | Input module                        |
|-----|-------------------------------------|
| 1   | 24 V DC sensor voltage              |
| 2   | Input signal (most significant bit) |
| 3   | 0 V DC sensor voltage               |
| 4   | Input signal (lower order bit)      |



# I/O modules, series AES

## R412018235

### General series information Series AES

- The AVENTICS Series AES fieldbus connection can be integrated into all AVENTICS fieldbus-compatible valve systems or can also be configured as a stand-alone solution. AES connects your AVENTICS valve system to all relevant fieldbus protocols and offers the integration of I/O-modules and enables optimized decentralized wiring of sensors. The integration of the Digital Twin enables users to be IIoT ready and use the AES to solve their interoperability challenges.



### Technical data

Industry  
Industrial

Version  
I/O modules

Type  
8DI4M12

E/A capable  
connection with I/O

I/O module version  
digital inputs

Number of I/O connections  
8 inputs

Power plug IN type  
Internal

Signal connection E/A type  
Socket

Signal connection E/A thread size  
M12x1

Signal connection E/A number of poles  
5-pin

Filter time  
3 ms

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Operational voltage electronics  
24 V DC

Electronics voltage tolerance  
-25% / +25%

Max. current per channel  
0.5 A

Power supply for actuators  
8x0,5 A

Protection class  
IP65

Total current of sensors max.  
1 A

Diagnosis  
Short circuit

Generic emission standard in accordance with  
norm  
EN 61000-6-4

Generic immunity standard in accordance with  
norm  
EN 61000-6-2

Weight  
0.11 kg

## Material

Housing material  
Polyamide fiber-glass reinforced

Part No.  
R412018235

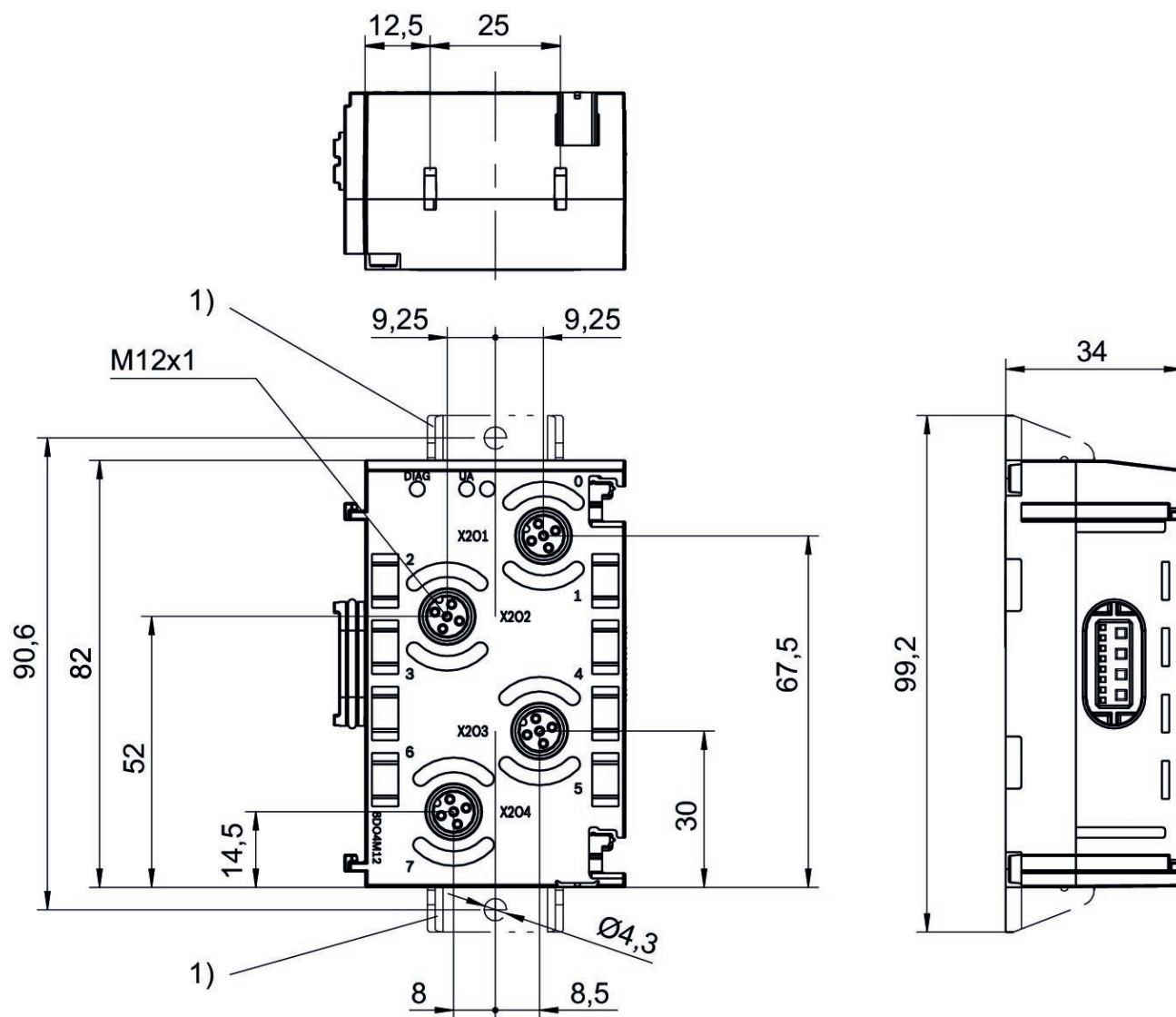
## Technical information

You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

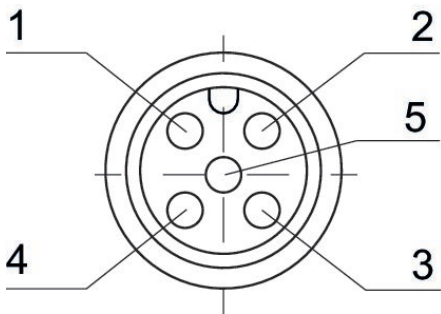
The total current of all outputs (including valves) must not exceed 4 A in the overall system.

Voltage and short-circuit monitoring per LED.

Delivery contents: incl. 2 spring clamp elements and seal



Pin assignments  
PNP



| Pin | Input module       | Output module       |
|-----|--------------------|---------------------|
| 1   | 24 V DC            | -                   |
| 2   | Input signal [X+1] | Output signal [X+1] |
| 3   | 0 V DC             | 0 V DC              |
| 4   | Input signal [X]   | Output signal [X]   |
| 5   | -                  | -                   |

X = bit value

# I/O modules, series AES

## R412018250

### General series information Series AES

- The AVENTICS Series AES fieldbus connection can be integrated into all AVENTICS fieldbus-compatible valve systems or can also be configured as a stand-alone solution. AES connects your AVENTICS valve system to all relevant fieldbus protocols and offers the integration of I/O-modules and enables optimized decentralized wiring of sensors. The integration of the Digital Twin enables users to be IIoT ready and use the AES to solve their interoperability challenges.



### Technical data

Industry  
Industrial

Version  
I/O modules

Type  
8DO4M12

E/A capable  
connection with I/O

I/O module version  
digital outputs

Number of I/O connections  
8 outputs

Power plug IN type  
Internal

Signal connection E/A type  
Socket

Signal connection E/A thread size  
M12x1

Signal connection E/A number of poles  
5-pin

Filter time  
3 ms

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Operational voltage electronics  
24 V DC

Electronics voltage tolerance  
-25% / +25%

Max. current per channel  
0.5 A

Power supply for actuators  
8x0,5 A

Total current for actuators  
4 A

Protection class  
IP65

Total current of sensors max.  
1 A

Logic/actuator voltage  
Galvanically isolated

Diagnosis  
Short circuit

Generic emission standard in accordance with  
norm  
EN 61000-6-4

Generic immunity standard in accordance with  
norm  
EN 61000-6-2  
Weight  
0.11 kg

## Material

Housing material  
Polyamide fiber-glass reinforced

Part No.  
R412018250

## Technical information

You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

The total current of all outputs (including valves) must not exceed 4 A in the overall system.

Voltage and short-circuit monitoring per LED.

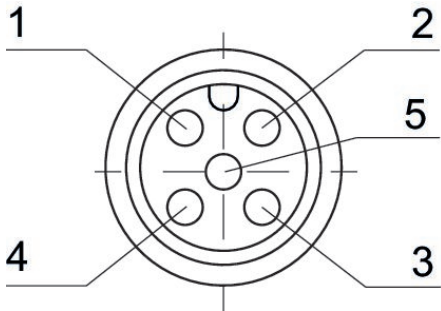
Delivery contents: incl. 2 spring clamp elements and seal

[illegible]

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1) Retaining bracket (optional)

Pin assignments  
PNP



| Pin | Input module       | Output module       |
|-----|--------------------|---------------------|
| 1   | 24 V DC            | -                   |
| 2   | Input signal [X+1] | Output signal [X+1] |
| 3   | 0 V DC             | 0 V DC              |
| 4   | Input signal [X]   | Output signal [X]   |
| 5   | -                  | -                   |

X = bit value



# I/O modules, series AES

## R412018270

### General series information Series AES

- The AVENTICS Series AES fieldbus connection can be integrated into all AVENTICS fieldbus-compatible valve systems or can also be configured as a stand-alone solution. AES connects your AVENTICS valve system to all relevant fieldbus protocols and offers the integration of I/O-modules and enables optimized decentralized wiring of sensors. The integration of the Digital Twin enables users to be IIoT ready and use the AES to solve their interoperability challenges.



### Technical data

Industry  
Industrial

Version  
I/O modules

Type  
8DIDO4M12

Note  
Combination module

E/A capable  
connection with I/O

I/O module version  
digital inputs/outputs

Number of I/O connections  
8 inputs / 8 outputs

Power plug IN type  
Internal

Signal connection E/A type  
Socket

Signal connection E/A thread size  
M12x1

Signal connection E/A number of poles  
5-pin

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Operational voltage electronics  
24 V DC

Electronics voltage tolerance  
-25% / +25%

Max. current per channel  
0.5 A

Power supply for actuators  
8x0,5 A

Total current for actuators  
4 A

Protection class  
IP65

Total current of sensors max.  
1 A

Logic/actuator voltage  
Galvanically isolated

Diagnosis  
Short circuit

Generic emission standard in accordance with  
norm  
EN 61000-6-4

Generic immunity standard in accordance with  
norm  
EN 61000-6-2  
Weight  
0.11 kg

## Material

Housing material  
Polyamide fiber-glass reinforced

Part No.  
R412018270

## Technical information

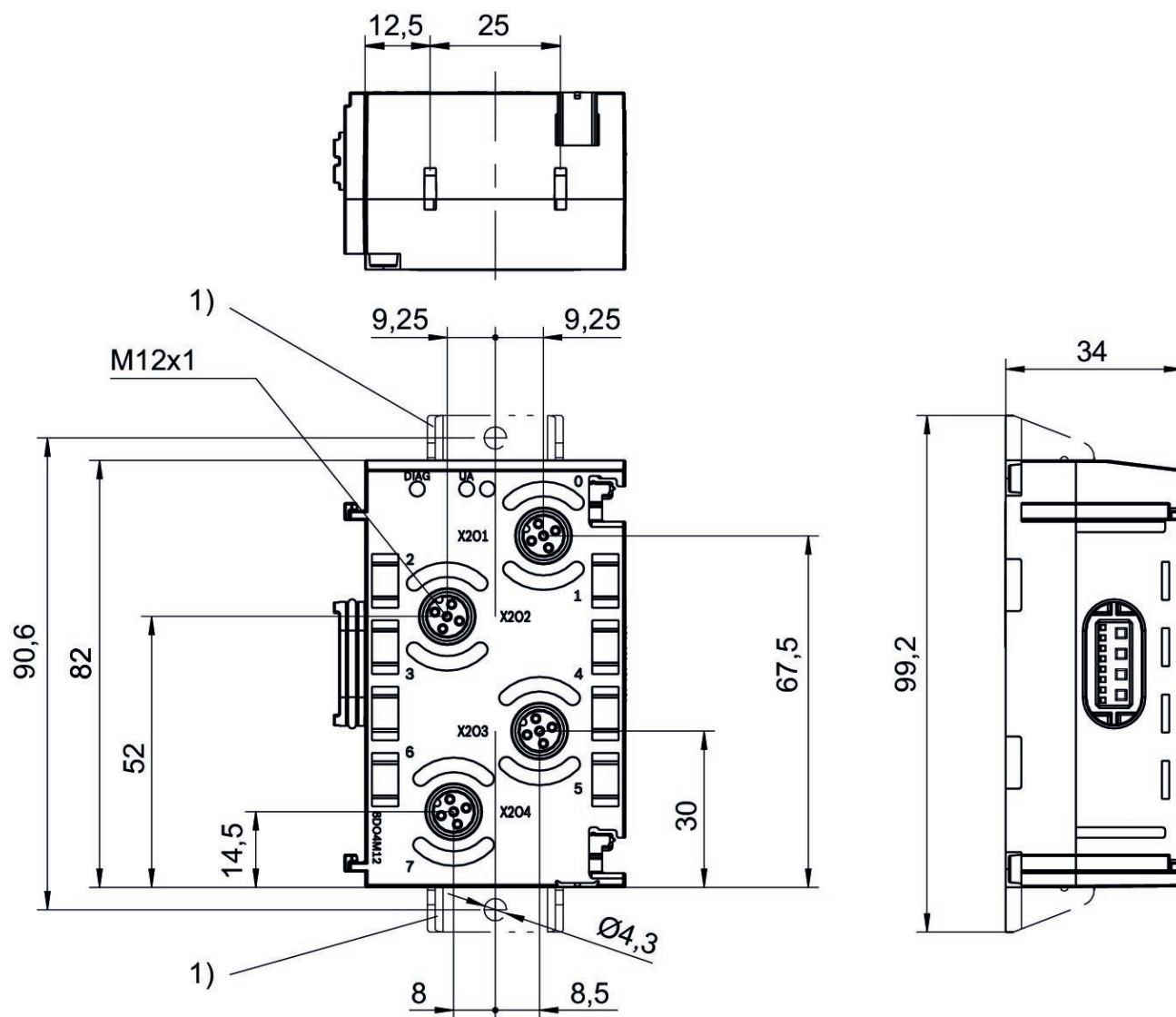
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

The total current of all outputs (including valves) must not exceed 4 A in the overall system.

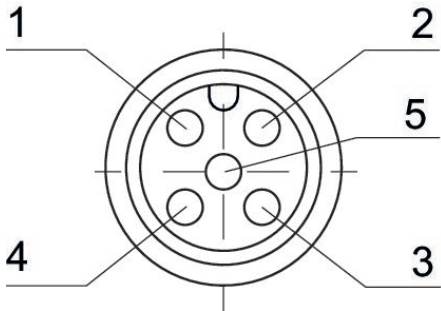
Voltage and short-circuit monitoring per LED.

Delivery contents: incl. 2 spring clamp elements and seal

Function specification for fieldbus configuration.



Pin assignments  
PNP



| Pin | Input module       | Output module       |
|-----|--------------------|---------------------|
| 1   | 24 V DC            | -                   |
| 2   | Input signal [X+1] | Output signal [X+1] |
| 3   | 0 V DC             | 0 V DC              |
| 4   | Input signal [X]   | Output signal [X]   |
| 5   | -                  | -                   |

X = bit value

# I/O modules, series AES

## R412018243

### General series information Series AES

- The AVENTICS Series AES fieldbus connection can be integrated into all AVENTICS fieldbus-compatible valve systems or can also be configured as a stand-alone solution. AES connects your AVENTICS valve system to all relevant fieldbus protocols and offers the integration of I/O-modules and enables optimized decentralized wiring of sensors. The integration of the Digital Twin enables users to be IIoT ready and use the AES to solve their interoperability challenges.



### Technical data

Industry  
Industrial

Version  
I/O modules

Type  
16DI4M12

E/A capable  
connection with I/O

I/O module version  
digital inputs

Number of I/O connections  
16 inputs

Power plug IN type  
Internal

Signal connection E/A type  
Socket

Signal connection E/A thread size  
M12x1

Signal connection E/A number of poles  
8-pin

Filter time  
3 ms

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Operational voltage electronics  
24 V DC

Electronics voltage tolerance  
-10% / +10%

Max. current per channel  
0.5 A

Protection class  
IP65

Total current of sensors max.  
1 A

Diagnosis  
Short circuit

Generic emission standard in accordance with  
norm  
EN 61000-6-4

Generic immunity standard in accordance with  
norm  
EN 61000-6-2

Weight  
0.11 kg

## Material

Housing material  
Polyamide fiber-glass reinforced

Part No.  
R412018243

## Technical information

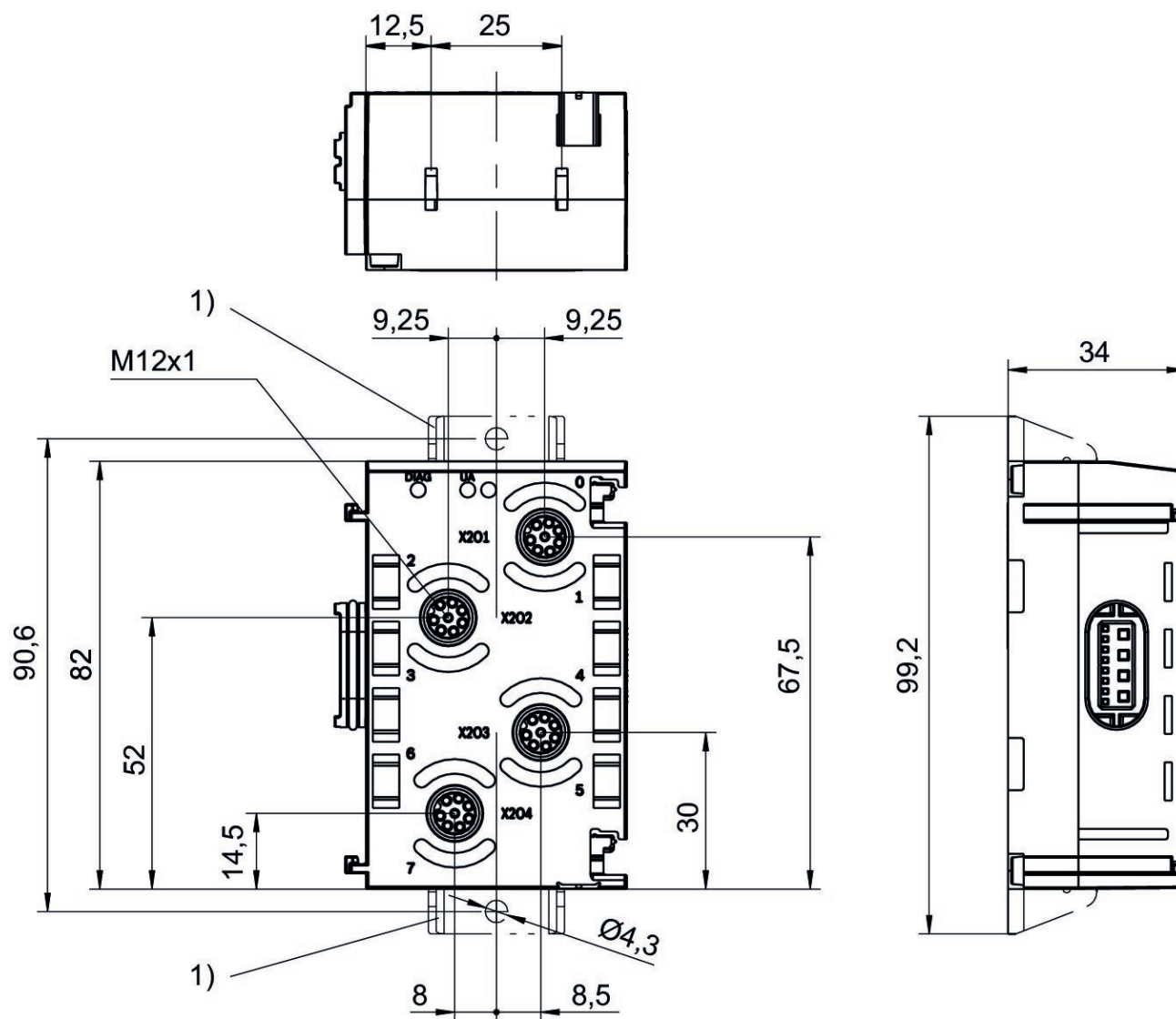
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

The total current of all outputs (including valves) must not exceed 4 A in the overall system.

Voltage and short-circuit monitoring per LED.

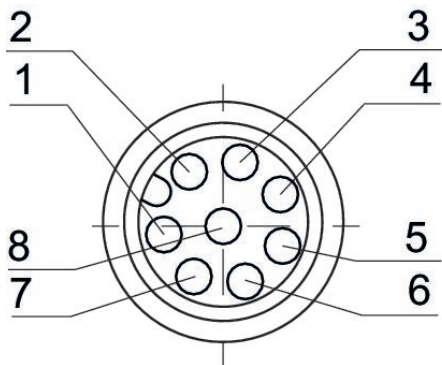
Delivery contents: incl. 2 spring clamp elements and seal

## Dimensions



1) Retaining bracket (optional)

Pin assignments  
PNP



| Pin           | Input module       | Output module               |
|---------------|--------------------|-----------------------------|
| 1             | Input signal [X]   | Output signal 24 V DC [X]   |
| 2             | Input signal [X+1] | Output signal 24 V DC [X+1] |
| 3             | Input signal [X+2] | Output signal 24 V DC [X+2] |
| 4             | Input signal [X+3] | Output signal 24 V DC [X+3] |
| 5             | 24 V DC            | -                           |
| 6             | -                  | -                           |
| 7             | 0 V DC             | 0 V DC                      |
| 8             | -                  | -                           |
| X = bit value |                    |                             |

X = bit value



# I/O modules, series AES

## R412018263

### General series information Series AES

- The AVENTICS Series AES fieldbus connection can be integrated into all AVENTICS fieldbus-compatible valve systems or can also be configured as a stand-alone solution. AES connects your AVENTICS valve system to all relevant fieldbus protocols and offers the integration of I/O-modules and enables optimized decentralized wiring of sensors. The integration of the Digital Twin enables users to be IIoT ready and use the AES to solve their interoperability challenges.



### Technical data

Industry  
Industrial

Version  
I/O modules

Type  
16DO4M12

E/A capable  
connection with I/O

I/O module version  
digital outputs

Number of I/O connections  
16 outputs

Power plug IN type  
Internal

Signal connection E/A type  
Socket

Signal connection E/A thread size  
M12x1

Signal connection E/A number of poles  
8-pin

Filter time  
3 ms

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Operational voltage electronics  
24 V DC

Electronics voltage tolerance  
-10% / +10%

Max. current per channel  
0.5 A

Total current for actuators  
4 A

Protection class  
IP65

Total current of sensors max.  
1 A

Logic/actuator voltage  
Galvanically isolated

Diagnosis  
Short circuit

Generic emission standard in accordance with  
norm  
EN 61000-6-4

Generic immunity standard in accordance with  
norm  
EN 61000-6-2  
Weight  
0.11 kg

## Material

Housing material  
Polyamide fiber-glass reinforced

Part No.  
R412018263

## Technical information

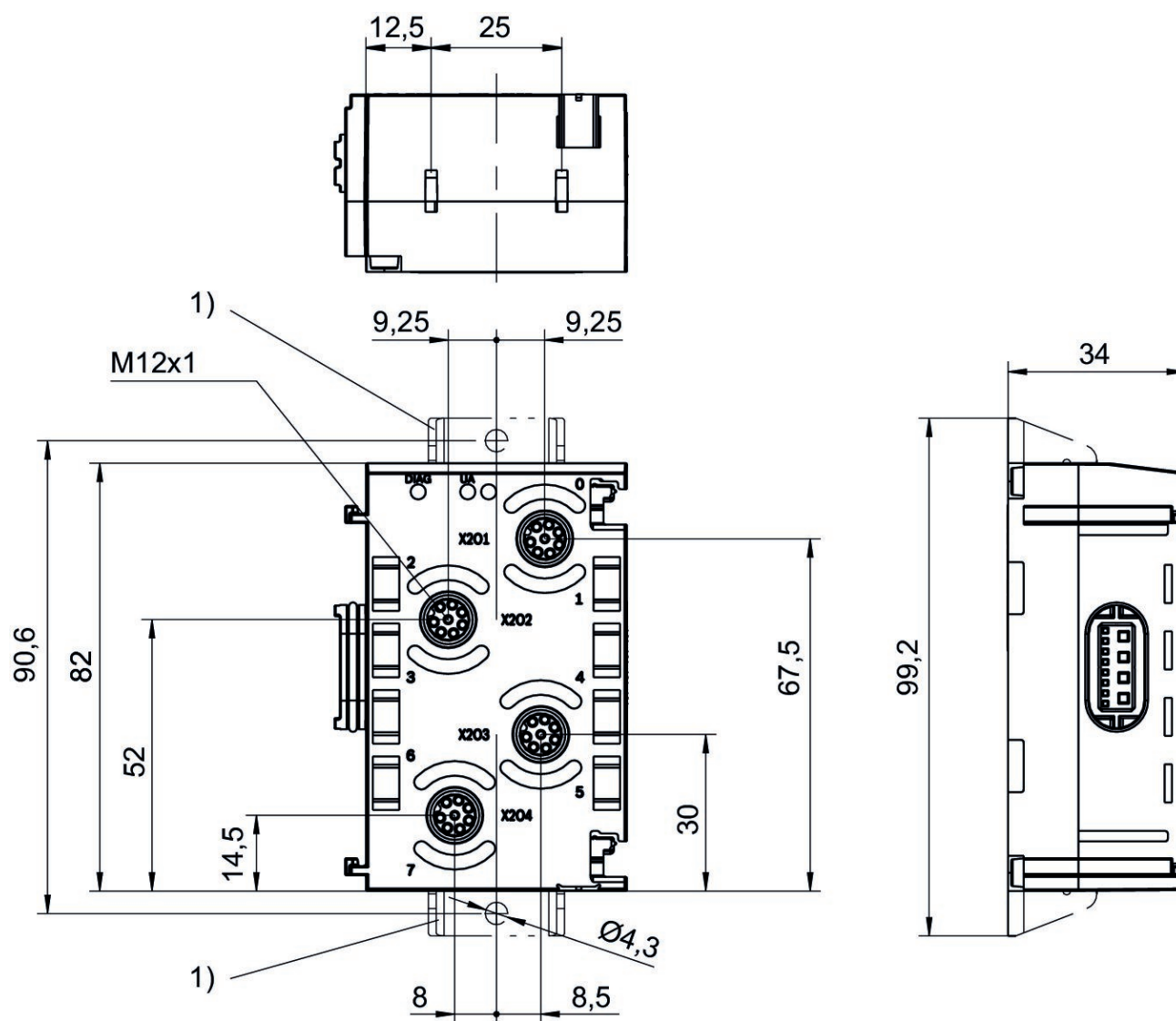
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

The total current of all outputs (including valves) must not exceed 4 A in the overall system.

Voltage and short-circuit monitoring per LED.

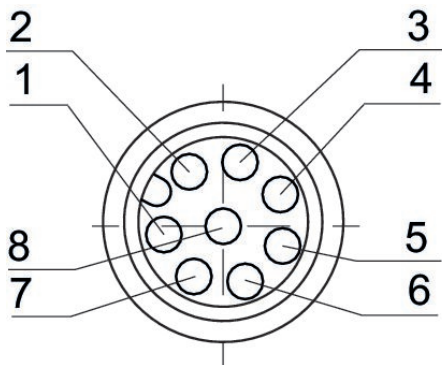
Delivery contents: incl. 2 spring clamp elements and seal

## Dimensions



1) Retaining bracket (optional)

Pin assignments  
PNP



| Pin           | Input module       | Output module               |
|---------------|--------------------|-----------------------------|
| 1             | Input signal [X]   | Output signal 24 V DC [X]   |
| 2             | Input signal [X+1] | Output signal 24 V DC [X+1] |
| 3             | Input signal [X+2] | Output signal 24 V DC [X+2] |
| 4             | Input signal [X+3] | Output signal 24 V DC [X+3] |
| 5             | 24 V DC            | -                           |
| 6             | -                  | -                           |
| 7             | 0 V DC             | 0 V DC                      |
| 8             | -                  | -                           |
| X = bit value |                    |                             |

X = bit value

# I/O modules, series AES

## R412018254

### General series information Series AES

- The AVENTICS Series AES fieldbus connection can be integrated into all AVENTICS fieldbus-compatible valve systems or can also be configured as a stand-alone solution. AES connects your AVENTICS valve system to all relevant fieldbus protocols and offers the integration of I/O-modules and enables optimized decentralized wiring of sensors. The integration of the Digital Twin enables users to be IIoT ready and use the AES to solve their interoperability challenges.



### Technical data

Industry  
Industrial

Version  
I/O modules

Type  
24DO1DSUB25

E/A capable  
connection with I/O

I/O module version  
digital outputs

Number of I/O connections  
24 outputs

Power plug IN type  
Internal

Signal connection E/A type  
Socket

Signal connection E/A thread size  
D-Sub

Signal connection E/A number of poles  
25-pin

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Operational voltage electronics  
24 V DC

Max. current per channel  
0.5 A

Total current for actuators  
4 A

Protection class  
IP65

Logic/actuator voltage  
Galvanically isolated

Diagnosis  
Short circuit  
Undervoltage

Generic emission standard in accordance with  
norm  
EN 61000-6-4

Generic immunity standard in accordance with  
norm  
EN 61000-6-2

Weight  
0.115 kg

## Material

Housing material  
Polyamide fiber-glass reinforced

Part No.  
R412018254

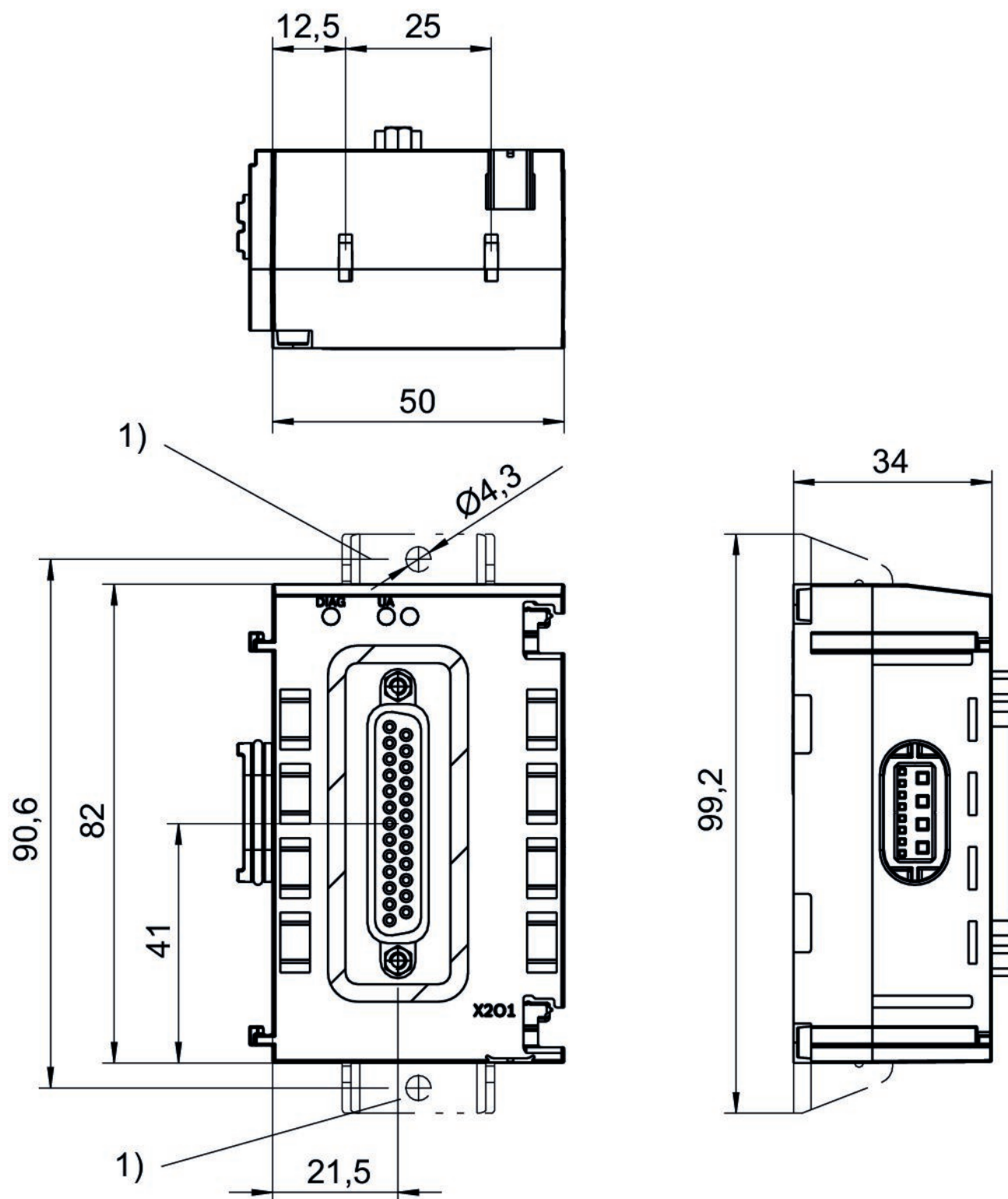
## Technical information

You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

Voltage and short-circuit monitoring per LED.

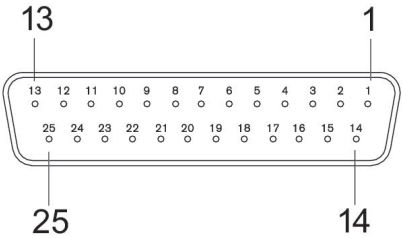
Delivery contents: incl. 2 spring clamp elements and seal

## Dimensions



1) Retaining bracket (optional)

PIN assignment and cable colors  
cable identification as per DIN 47100



Socket

| Pin | Output module |
|-----|---------------|
| 1   | [X]           |
| 2   | [X+0.1]       |
| 3   | [X+0.2]       |
| 4   | [X+0.3]       |
| 5   | [X+0.4]       |
| 6   | [X+0.5]       |
| 7   | [X+0.6]       |
| 8   | [X+0.7]       |
| 9   | [X+1]         |
| 10  | [X+1.1]       |
| 11  | [X+1.2]       |
| 12  | [X+1.3]       |
| 13  | [X+1.4]       |
| 14  | [X+1.5]       |
| 15  | [X+1.6]       |
| 16  | [X+1.7]       |
| 17  | [X+2.0]       |
| 18  | [X+2.1]       |
| 19  | [X+2.2]       |
| 20  | [X+2.3]       |
| 21  | [X+2.4]       |
| 22  | [X+2.5]       |
| 23  | [X+2.6]       |
| 24  | [X+2.7]       |
| 25  | 0 V DC        |

X = bit value

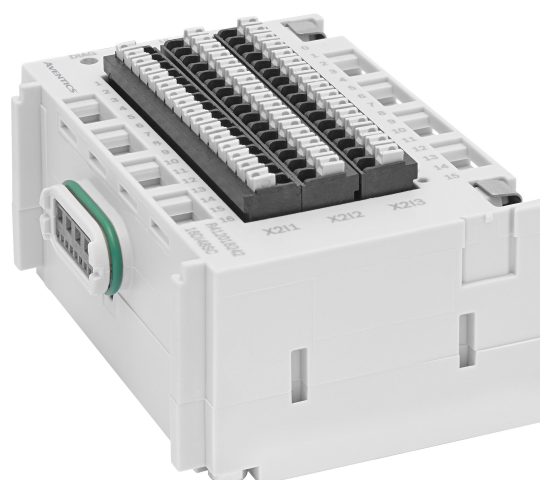


# I/O modules, series AES

## R412018242

### General series information Series AES

- The AVENTICS Series AES fieldbus connection can be integrated into all AVENTICS fieldbus-compatible valve systems or can also be configured as a stand-alone solution. AES connects your AVENTICS valve system to all relevant fieldbus protocols and offers the integration of I/O-modules and enables optimized decentralized wiring of sensors. The integration of the Digital Twin enables users to be IIoT ready and use the AES to solve their interoperability challenges.



### Technical data

Industry  
Industrial

Version  
I/O modules

Type  
16DI48SC

E/A capable  
connection with I/O

I/O module version  
digital inputs

Number of I/O connections  
16 inputs

Power plug IN type  
Internal

Signal connection E/A type  
Spring clamp connections

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Operational voltage electronics  
24 V DC

Electronics voltage tolerance  
-25% / +25%

Max. current per channel  
0.5 A

Protection class  
IP20

Total current of sensors max.  
1 A

Diagnosis  
Short circuit

Generic emission standard in accordance with  
norm  
EN 61000-6-4

Generic immunity standard in accordance with  
norm  
EN 61000-6-2

Weight  
0.115 kg

### Material

Housing material  
Polyamide fiber-glass reinforced

Part No.  
R412018242

## Technical information

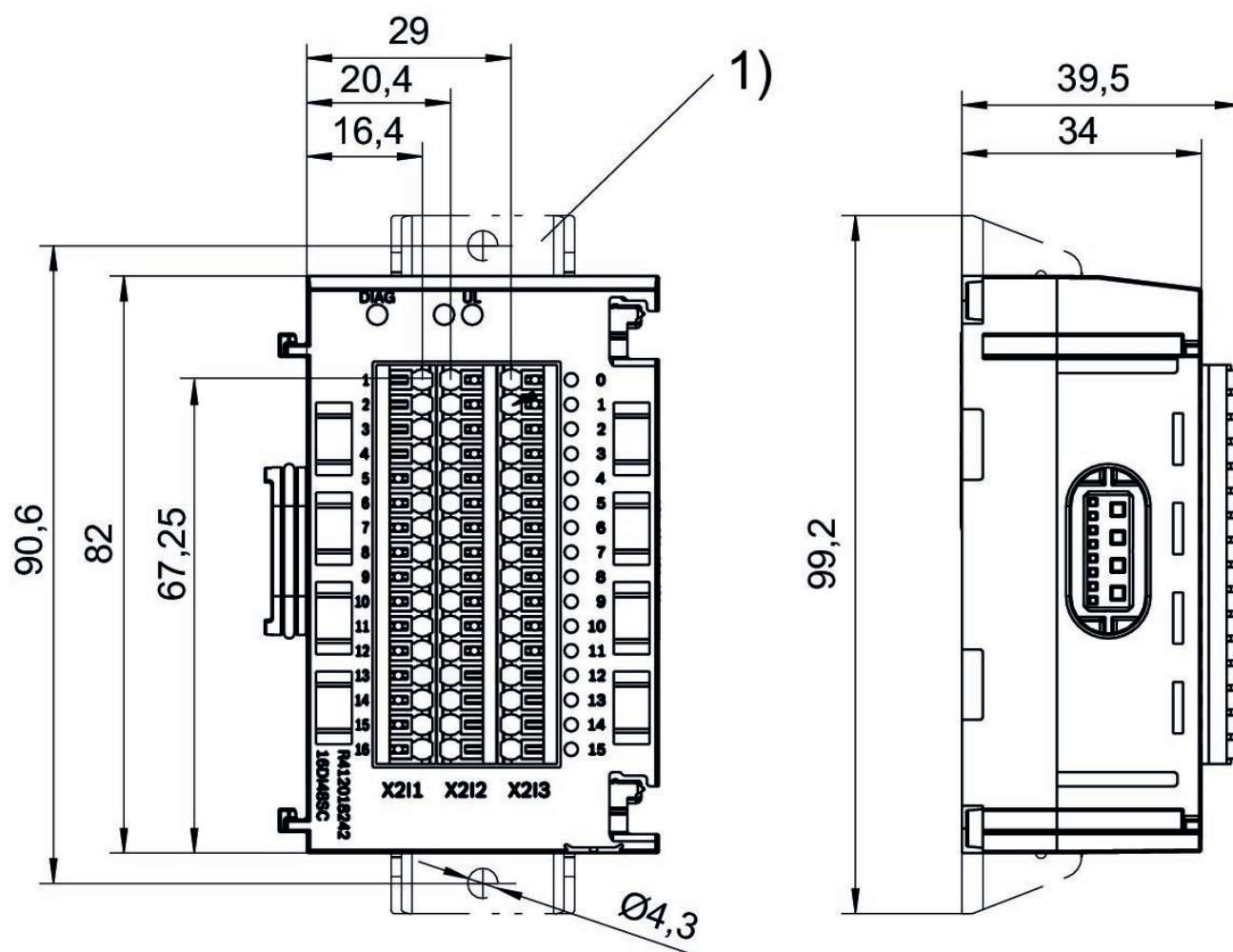
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

Voltage and short-circuit monitoring per LED.

The clamp area for stranded wires is between 0.2 and 1.5 mm<sup>2</sup>.

Delivery contents: incl. 2 spring clamp elements and seal

Technical drawing of a mechanical part, likely a bracket or support. The drawing shows a side view with a total width of 50. The width is divided into two sections: 12,5 on the left and 25 on the right. The part features a central vertical slot and a smaller slot on the right side. The drawing is a black and white line drawing.



---

1) Retaining bracket (optional)

| Port | Contact | Function Input signal |
|------|---------|-----------------------|
| X2I1 | 1       | 24 V DC bit 0.0       |
|      | 2       | 24 V DC bit 0.1       |
|      | 3       | 24 V DC bit 0.2       |
|      | 4       | 24 V DC bit 0.3       |
|      | 5       | 24 V DC bit 0.4       |
|      | 6       | 24 V DC bit 0.5       |
|      | 7       | 24 V DC bit 0.6       |
|      | 8       | 24 V DC bit 0.7       |
|      | 9       | 24 V DC bit 1.0       |
|      | 10      | 24 V DC bit 1.1       |
|      | 11      | 24 V DC bit 1.2       |
|      | 12      | 24 V DC bit 1.3       |
|      | 13      | 24 V DC bit 1.4       |
|      | 14      | 24 V DC bit 1.5       |
|      | 15      | 24 V DC bit 1.6       |
|      | 16      | 24 V DC bit 1.7       |
| X2I2 | 1-16    | 24 V DC               |
| X2I3 | 1-16    | 0 V DC                |

# Power module Series AES

## R412018267

### General series information Series AES

- The AVENTICS Series AES fieldbus connection can be integrated into all AVENTICS fieldbus-compatible valve systems or can also be configured as a stand-alone solution. AES connects your AVENTICS valve system to all relevant fieldbus protocols and offers the integration of I/O-modules and enables optimized decentralized wiring of sensors. The integration of the Digital Twin enables users to be IIoT ready and use the AES to solve their interoperability challenges.



### Technical data

Industry  
Industrial

Version  
Power module

E/A capable  
connection with I/O

Power plug IN type  
Plug

Power plug IN size  
M12x1

Power plug IN number of pole  
4-pin

Power plug OUT type  
Socket

Power plug OUT size  
M12x1

Power plug OUT number of pole  
4-pin

Power supply direction UA  
left

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Operational voltage electronics  
24 V DC

Electronics voltage tolerance  
-20% / +20%

Operating voltage, actuators  
24 V DC

Actuator voltage tolerance  
-10% / +10%

Total current for actuators  
4 A

Protection class  
IP65

Total current of sensors max.  
4 A

Generic emission standard in accordance with  
norm  
EN 61000-6-4

Generic immunity standard in accordance with  
norm  
EN 61000-6-2

Weight  
0.15 kg

## Material

Housing material  
Polyamide fiber-glass reinforced

Part No.  
R412018267

## Technical information

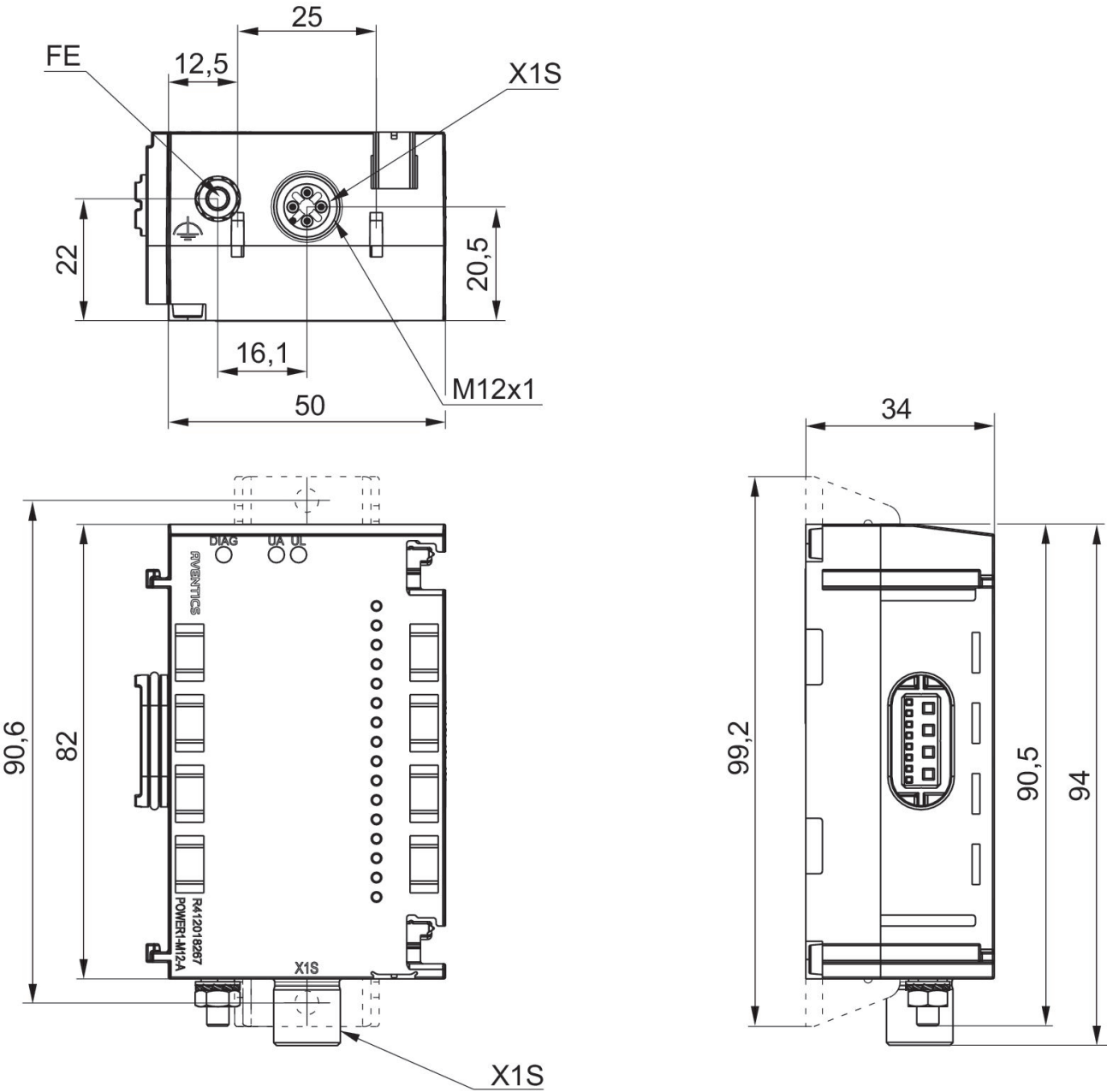
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

UL: Logic voltage (power supply for electronic components and sensors)

UA: Actuator voltage (power supply for valves and outputs)

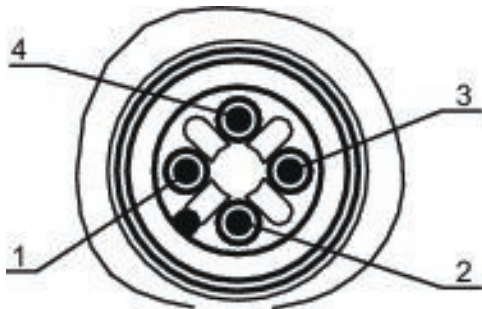
The supply voltage is galvanically isolated from the right-hand module.

Dimensions



Port 1, X1S

Pin assignments  
PNP



| Pin | R412018267 (UA)                 | R412018267 (UL)                 |
|-----|---------------------------------|---------------------------------|
| 1   | -                               | 24 V DC power supply (UL) input |
| 2   | 24 V DC power supply (UA) input | -                               |
| 3   | -                               | 0 V DC (UL)                     |
| 4   | 0 V DC (UA)                     | -                               |



# Power module Series AES

## R412018268

### General series information Series AES

- The AVENTICS Series AES fieldbus connection can be integrated into all AVENTICS fieldbus-compatible valve systems or can also be configured as a stand-alone solution. AES connects your AVENTICS valve system to all relevant fieldbus protocols and offers the integration of I/O-modules and enables optimized decentralized wiring of sensors. The integration of the Digital Twin enables users to be IIoT ready and use the AES to solve their interoperability challenges.



### Technical data

Industry  
Industrial

Version  
Power module

E/A capable  
connection with I/O

Power plug IN type  
Plug

Power plug IN size  
M12x1

Power plug IN number of pole  
4-pin

Power plug OUT type  
Socket

Power plug OUT size  
M12x1

Power plug OUT number of pole  
4-pin

Power supply direction UL  
left

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Operational voltage electronics  
24 V DC

Electronics voltage tolerance  
-20% / +20%

Operating voltage, actuators  
24 V DC

Actuator voltage tolerance  
-10% / +10%

Total current for actuators  
4 A

Protection class  
IP65

Total current of sensors max.  
4 A

Generic emission standard in accordance with  
norm  
EN 61000-6-4

Generic immunity standard in accordance with  
norm  
EN 61000-6-2

Weight  
0.15 kg

## Material

Housing material  
Polyamide fiber-glass reinforced

Part No.  
R412018268

## Technical information

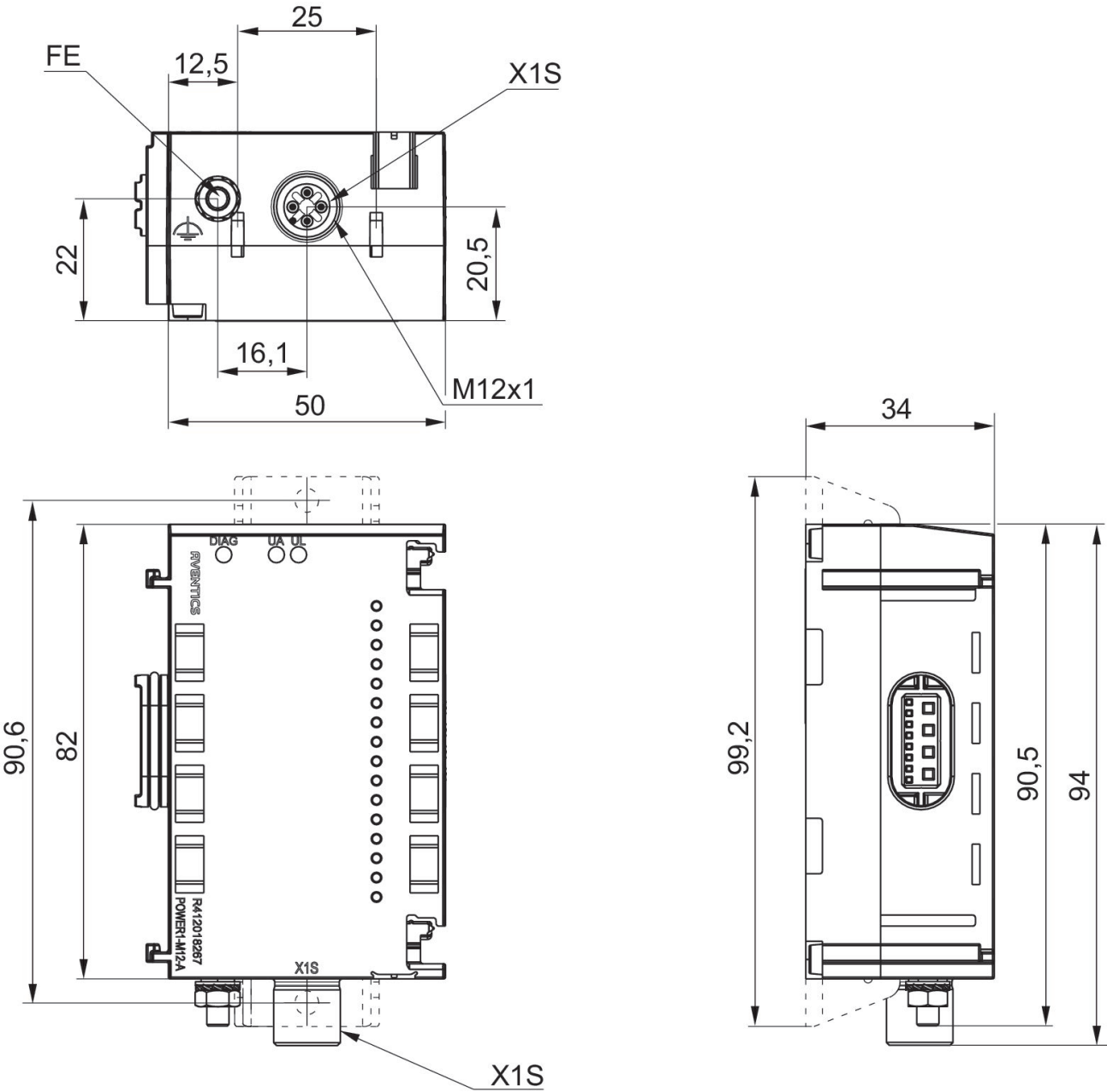
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

UL: Logic voltage (power supply for electronic components and sensors)

UA: Actuator voltage (power supply for valves and outputs)

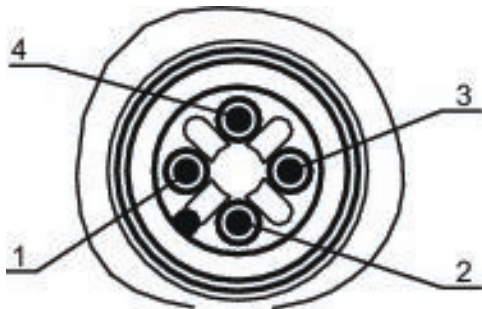
The supply voltage is galvanically isolated from the right-hand module.

Dimensions



Port 1, X1S

Pin assignments  
PNP



| Pin | R412018267 (UA)                 | R412018267 (UL)                 |
|-----|---------------------------------|---------------------------------|
| 1   | -                               | 24 V DC power supply (UL) input |
| 2   | 24 V DC power supply (UA) input | -                               |
| 3   | -                               | 0 V DC (UL)                     |
| 4   | 0 V DC (UA)                     | -                               |

# I/O modules, series AES

## R412018277

### General series information Series AES

- The AVENTICS Series AES fieldbus connection can be integrated into all AVENTICS fieldbus-compatible valve systems or can also be configured as a stand-alone solution. AES connects your AVENTICS valve system to all relevant fieldbus protocols and offers the integration of I/O-modules and enables optimized decentralized wiring of sensors. The integration of the Digital Twin enables users to be IIoT ready and use the AES to solve their interoperability challenges.



### Technical data

Industry  
Industrial

Version  
I/O modules

Type  
2AI2M12-E

E/A capable  
connection with I/O

I/O module version  
analog inputs/outputs

Number of I/O connections  
2 inputs

Power plug IN type  
Internal

Signal connection E/A type  
Socket

Signal connection E/A thread size  
M12x1

Signal connection E/A number of poles  
5-pin

Signal connection E/A coding  
A-coded

#### Analog inputs

0 - 10 V /  $\pm 10$  V  
2 - 10 V /  $\pm 10$  V  
0 - 20 mA /  $\pm 20$  mA  
4 - 20 mA /  $\pm 20$  mA

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Operational voltage electronics  
24 V DC

Max. current per channel  
0.5 A

Protection class  
IP65

Diagnosis  
Short circuit  
Undervoltage

Number of inputs  
2

Generic emission standard in accordance with  
norm  
EN 61000-6-4

Generic immunity standard in accordance with  
norm  
EN 61000-6-2

Weight  
0.11 kg

## Material

Housing material  
Polyamide fiber-glass reinforced

Part No.  
R412018277

## Technical information

You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

The total current of all outputs (including valves) must not exceed 4 A in the overall system.

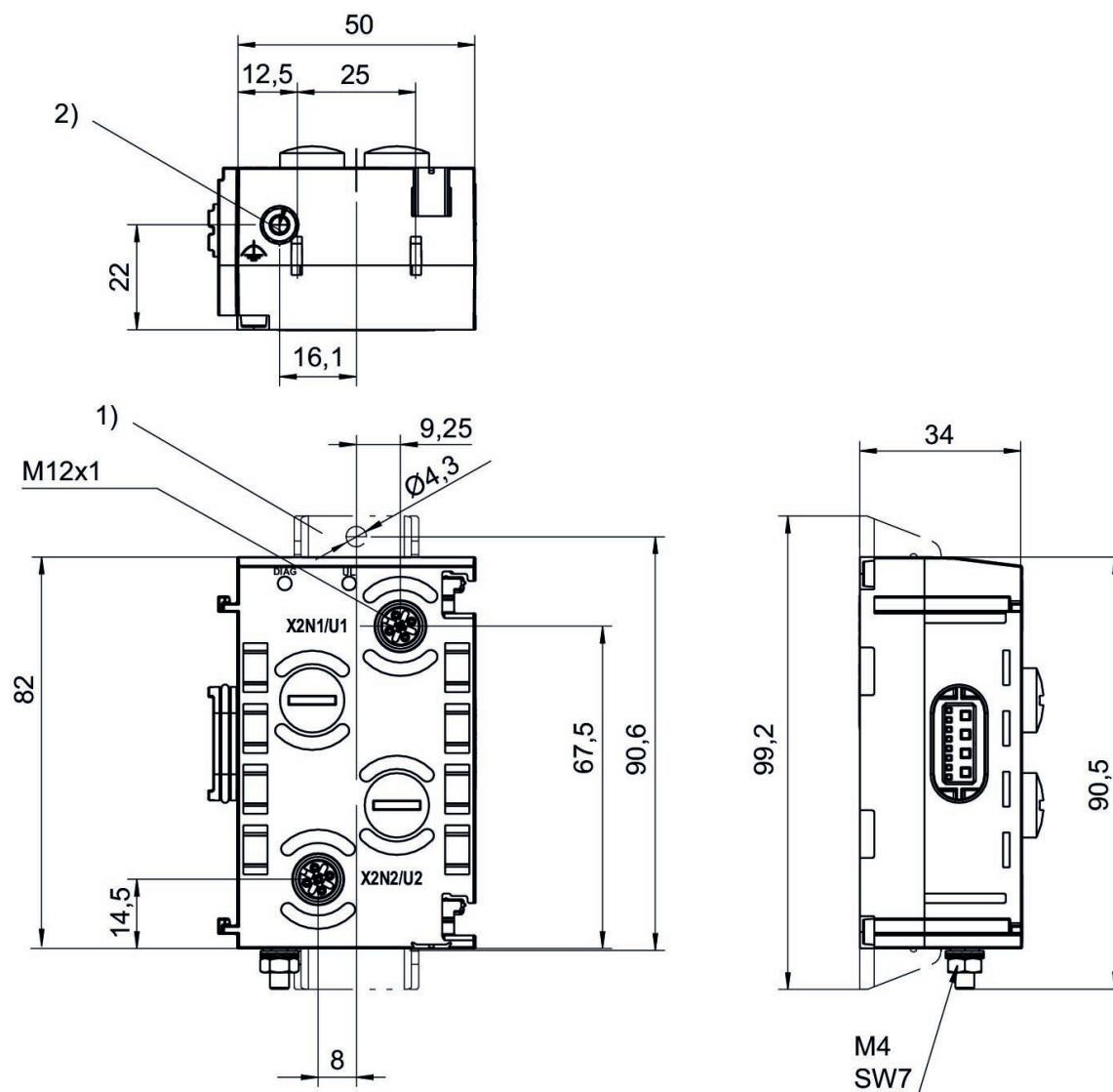
Voltage and short-circuit monitoring per LED.

The input channels have an input resistance of 120 ohms in the current range and 100 kilohms in the voltage range.

The output channels can drive a maximum ohmic load of 450 ohms in the current range. The minimum resistance in the voltage range is 1 kilohm.

Delivery contents: incl. 2 spring clamp elements and seal  
freely selectable signals, configurable

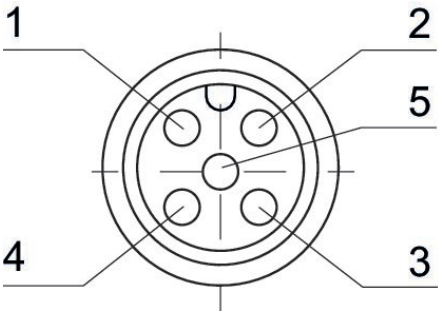
## Dimensions



- 1) Retaining bracket (optional)  
2) Ground

## Pin assignments

## Socket (female)



| Pin | Socket (female) X2N1 - X2N2<br>2AI2M12-E                                                   | Socket (female) X2U1 - X2U4<br>4AI4M12-E           | Socket (female) X2U1 - X2U2<br>2AO2M12-E          |
|-----|--------------------------------------------------------------------------------------------|----------------------------------------------------|---------------------------------------------------|
| 1   | 24 V DC                                                                                    | 24 V DC                                            | not assigned                                      |
| 2   | Input signal (differential input, positive signal)                                         | Input signal (differential input, positive signal) | Output signal                                     |
| 3   | 0 V DC                                                                                     | 0 V DC                                             | 0 V DC                                            |
| 4   | Input signal (differential input, negative signal, or connected externally to 0 V (pin 3)) | Input signal (0 V, connected to pin 3 internally)  | not assigned                                      |
| 5   | Shield, connected internally with ground screw 2)                                          | Shield, connected internally with ground screw 2)  | Shield, connected internally with ground screw 2) |



# I/O modules, series AES

## R412018278

### General series information Series AES

- The AVENTICS Series AES fieldbus connection can be integrated into all AVENTICS fieldbus-compatible valve systems or can also be configured as a stand-alone solution. AES connects your AVENTICS valve system to all relevant fieldbus protocols and offers the integration of I/O-modules and enables optimized decentralized wiring of sensors. The integration of the Digital Twin enables users to be IIoT ready and use the AES to solve their interoperability challenges.



### Technical data

Industry  
Industrial

Version  
I/O modules

Type  
4AI4M12-E

E/A capable  
connection with I/O

I/O module version  
analog inputs/outputs

Number of I/O connections  
4 inputs

Power plug IN type  
Internal

Signal connection E/A type  
Socket

Signal connection E/A thread size  
M12x1

Signal connection E/A number of poles  
5-pin

Signal connection E/A coding  
A-coded

#### Analog inputs

0 ... 10 V  
2 - 10 V  
0 ... 20 mA  
4 ... 20 mA

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Operational voltage electronics  
24 V DC

Max. current per channel  
0.5 A

Protection class  
IP65

Diagnosis  
Short circuit  
Undervoltage

Number of inputs  
4

Generic emission standard in accordance with  
norm  
EN 61000-6-4

Generic immunity standard in accordance with  
norm  
EN 61000-6-2

Weight  
0.11 kg

## Material

Housing material  
Polyamide fiber-glass reinforced

Part No.  
R412018278

## Technical information

You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

The total current of all outputs (including valves) must not exceed 4 A in the overall system.

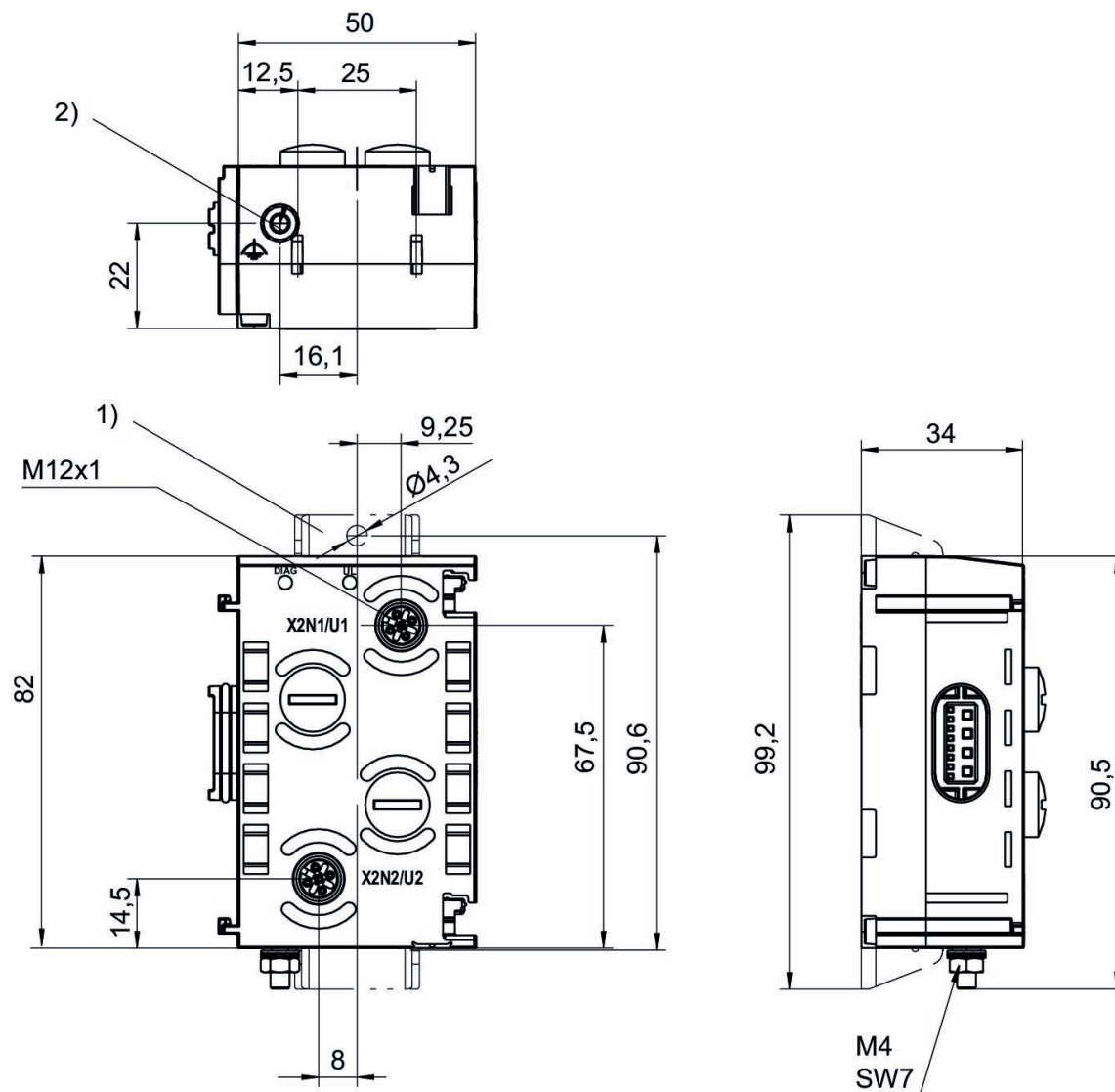
Voltage and short-circuit monitoring per LED.

The input channels have an input resistance of 120 ohms in the current range and 100 kilohms in the voltage range.

The output channels can drive a maximum ohmic load of 450 ohms in the current range. The minimum resistance in the voltage range is 1 kilohm.

The input circuit uses an 8-bit conversion.

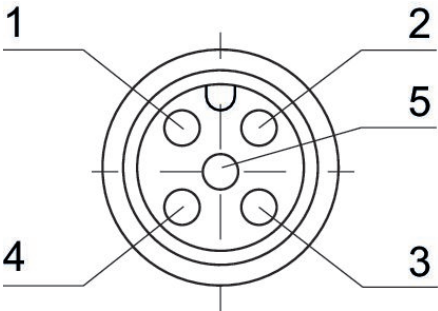
## Dimensions



- 1) Retaining bracket (optional)  
2) Ground

## Pin assignments

## Socket (female)



| Pin | Socket (female) X2N1 - X2N2<br>2AI2M12-E                                                   | Socket (female) X2U1 - X2U4<br>4AI4M12-E           | Socket (female) X2U1 - X2U2<br>2AO2M12-E          |
|-----|--------------------------------------------------------------------------------------------|----------------------------------------------------|---------------------------------------------------|
| 1   | 24 V DC                                                                                    | 24 V DC                                            | not assigned                                      |
| 2   | Input signal (differential input, positive signal)                                         | Input signal (differential input, positive signal) | Output signal                                     |
| 3   | 0 V DC                                                                                     | 0 V DC                                             | 0 V DC                                            |
| 4   | Input signal (differential input, negative signal, or connected externally to 0 V (pin 3)) | Input signal (0 V, connected to pin 3 internally)  | not assigned                                      |
| 5   | Shield, connected internally with ground screw 2)                                          | Shield, connected internally with ground screw 2)  | Shield, connected internally with ground screw 2) |

# I/O modules, series AES

## R412018281

### General series information Series AES

- The AVENTICS Series AES fieldbus connection can be integrated into all AVENTICS fieldbus-compatible valve systems or can also be configured as a stand-alone solution. AES connects your AVENTICS valve system to all relevant fieldbus protocols and offers the integration of I/O-modules and enables optimized decentralized wiring of sensors. The integration of the Digital Twin enables users to be IIoT ready and use the AES to solve their interoperability challenges.



### Technical data

Industry  
Industrial

Version  
I/O modules

Type  
2AO2M12-E

E/A capable  
connection with I/O

I/O module version  
analog inputs/outputs

Number of I/O connections  
2 outputs

Power plug IN type  
Internal

Signal connection E/A type  
Socket

Signal connection E/A thread size  
M12x1

Signal connection E/A number of poles  
5-pin

Signal connection E/A coding  
A-coded

#### Analog outputs

0 - 10 V /  $\pm 10$  V

0 ... 20 mA

4 ... 20 mA

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Operational voltage electronics  
24 V DC

Max. current per channel  
0.5 A

Total current for actuators  
4 A

Protection class  
IP65

Logic/actuator voltage  
Galvanically isolated

Diagnosis  
Short circuit  
Undervoltage

Number of outputs  
2

Generic emission standard in accordance with  
norm  
EN 61000-6-4

Generic immunity standard in accordance with  
norm  
EN 61000-6-2  
Weight  
0.11 kg

## Material

Housing material  
Polyamide fiber-glass reinforced

Part No.  
R412018281

## Technical information

You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

The total current of all outputs (including valves) must not exceed 4 A in the overall system.

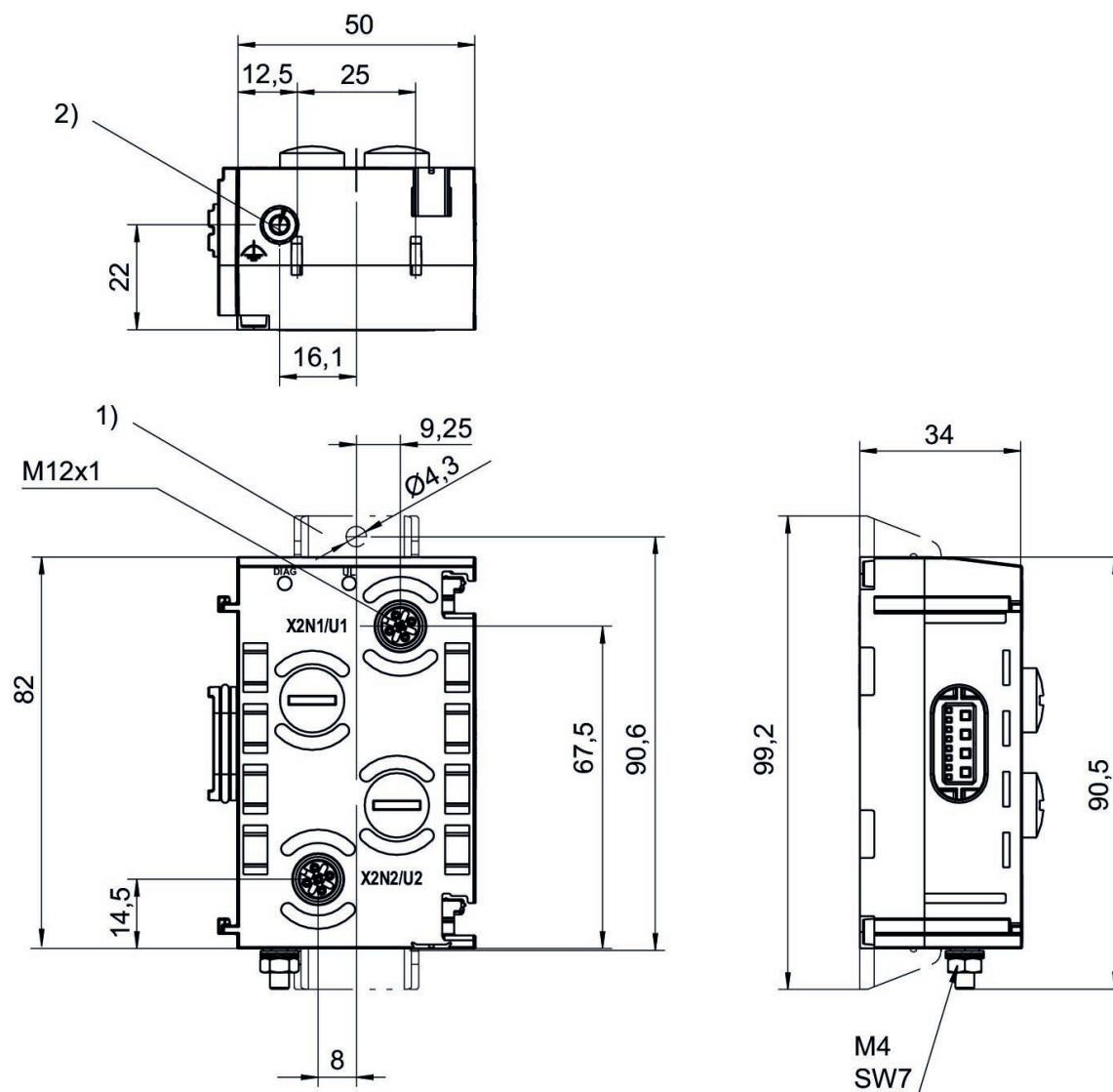
Voltage and short-circuit monitoring per LED.

The input channels have an input resistance of 120 ohms in the current range and 100 kilohms in the voltage range.

The output channels can drive a maximum ohmic load of 450 ohms in the current range. The minimum resistance in the voltage range is 1 kilohm.

Delivery contents: incl. 2 spring clamp elements and seal  
freely selectable signals, configurable

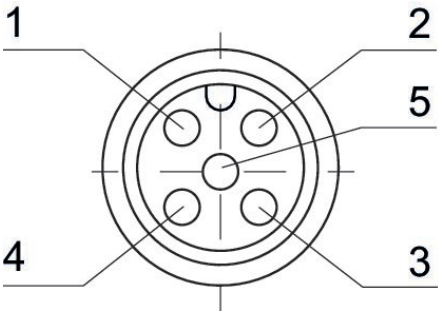
## Dimensions



1) Retaining bracket (optional)  
2) Ground

## Pin assignments

## Socket (female)



| Pin | Socket (female) X2N1 - X2N2<br>2AI2M12-E                                                   | Socket (female) X2U1 - X2U4<br>4AI4M12-E           | Socket (female) X2U1 - X2U2<br>2AO2M12-E          |
|-----|--------------------------------------------------------------------------------------------|----------------------------------------------------|---------------------------------------------------|
| 1   | 24 V DC                                                                                    | 24 V DC                                            | not assigned                                      |
| 2   | Input signal (differential input, positive signal)                                         | Input signal (differential input, positive signal) | Output signal                                     |
| 3   | 0 V DC                                                                                     | 0 V DC                                             | 0 V DC                                            |
| 4   | Input signal (differential input, negative signal, or connected externally to 0 V (pin 3)) | Input signal (0 V, connected to pin 3 internally)  | not assigned                                      |
| 5   | Shield, connected internally with ground screw 2)                                          | Shield, connected internally with ground screw 2)  | Shield, connected internally with ground screw 2) |



# I/O modules, series AES

## R412018287

### General series information Series AES

- The AVENTICS Series AES fieldbus connection can be integrated into all AVENTICS fieldbus-compatible valve systems or can also be configured as a stand-alone solution. AES connects your AVENTICS valve system to all relevant fieldbus protocols and offers the integration of I/O-modules and enables optimized decentralized wiring of sensors. The integration of the Digital Twin enables users to be IIoT ready and use the AES to solve their interoperability challenges.



### Technical data

Industry  
Industrial

Version  
I/O modules

Type  
2AI2AO2M12-AE

E/A capable  
connection with I/O

I/O module version  
analog inputs/outputs

Number of I/O connections  
2 inputs / 2 outputs

Power plug IN type  
Plug

Power plug IN size  
M12x1

Power plug IN number of pole  
4-pin

Signal connection E/A type  
Socket

Signal connection E/A thread size  
M12x1

Signal connection E/A number of poles  
5-pin

Signal connection E/A coding  
A-coded

Number of inputs  
2

Number of outputs  
2

Analog inputs  
0 - 10 V /  $\pm 10$  V  
2 - 10 V /  $\pm 10$  V  
0 - 20 mA /  $\pm 20$  mA  
4 - 20 mA /  $\pm 20$  mA

Analog outputs  
0 - 10 V /  $\pm 10$  V  
0 ... 20 mA  
4 ... 20 mA

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Operational voltage electronics  
24 V DC

|                                                 |                                                                      |
|-------------------------------------------------|----------------------------------------------------------------------|
| Max. current per channel<br>1.2 A               | Generic emission standard in accordance with<br>norm<br>EN 61000-6-4 |
| Protection class<br>IP65                        | Generic immunity standard in accordance with<br>norm<br>EN 61000-6-2 |
| Logic/actuator voltage<br>Galvanically isolated | Weight<br>0.11 kg                                                    |
| Diagnosis<br>Short circuit<br>Undervoltage      |                                                                      |

## Material

Housing material  
Polyamide fiber-glass reinforced

Part No.  
R412018287

## Technical information

You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

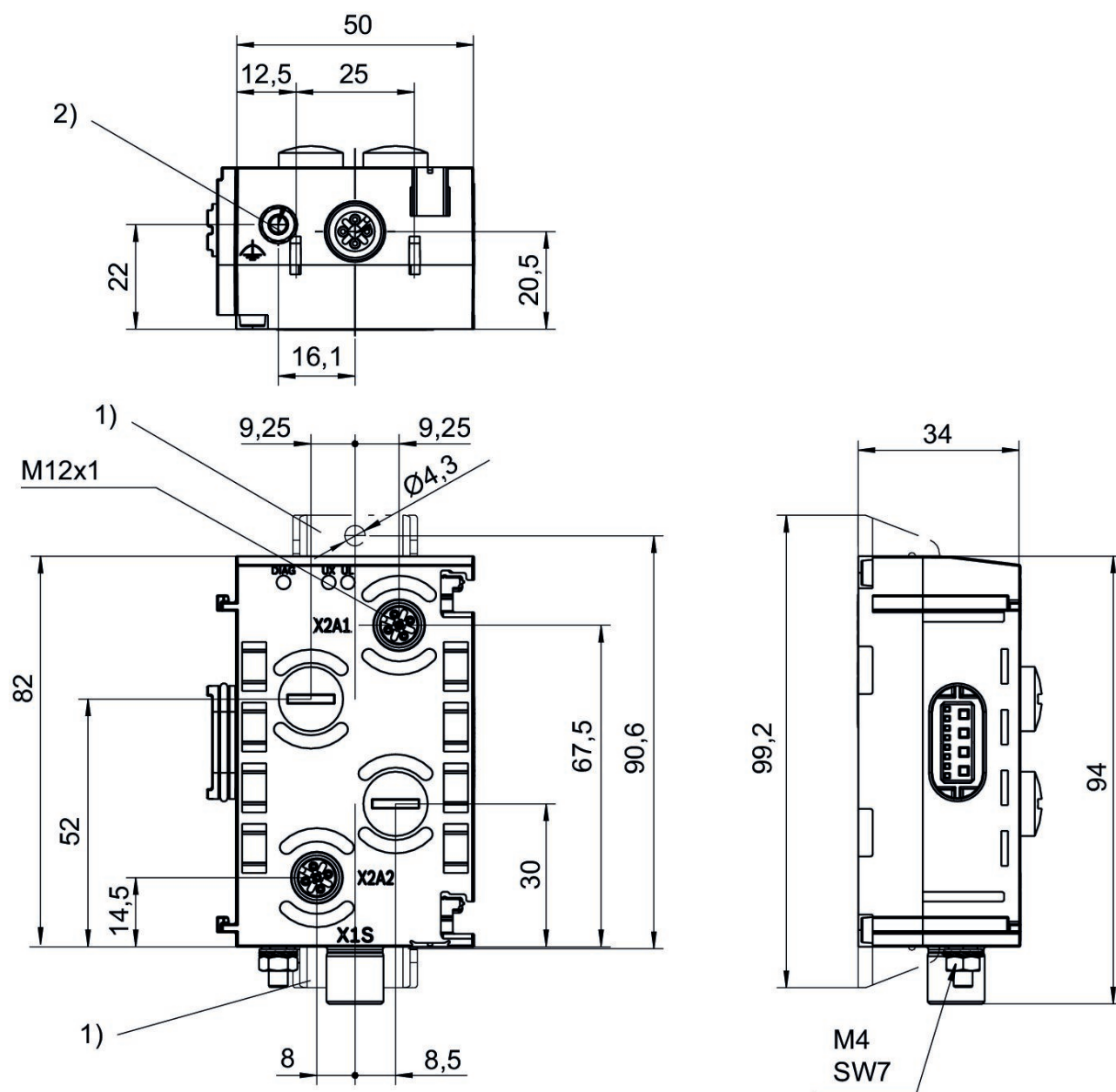
The total current of all outputs (including valves) must not exceed 4 A in the overall system.

Suitable for direct connection of an electropneumatic pressure regulator from the ED series.

Delivery contents: incl. 2 spring clamp elements and seal

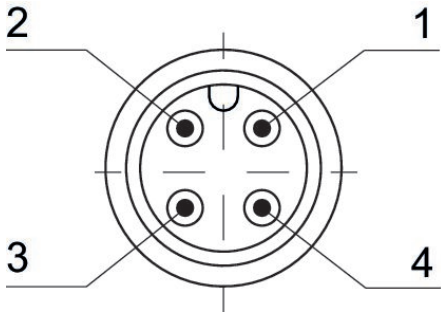
freely selectable signals, configurable

## Dimensions

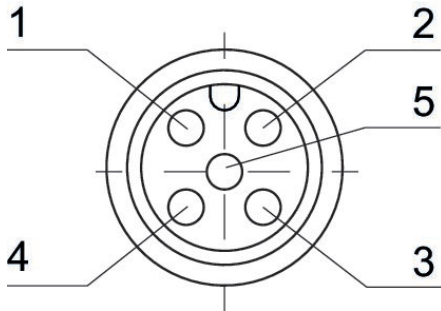


- 1) Retaining bracket (optional)  
2) Ground

Plug (male)



Pin assignments  
Socket (female)



| Pin | Socket (female) X2A1<br>- X2A2                            | Plug (male) X1S |
|-----|-----------------------------------------------------------|-----------------|
| 1   | 24 V DC                                                   | -               |
| 2   | Output signal                                             | 24 V DC         |
| 3   | 0 V DC                                                    | -               |
| 4   | Input signal                                              | 0 V DC          |
| 5   | Shield, connected in-<br>ternally with ground<br>screw 2) | -               |

# I/O modules, series AES

## R412018293

### General series information Series AES

- The AVENTICS Series AES fieldbus connection can be integrated into all AVENTICS fieldbus-compatible valve systems or can also be configured as a stand-alone solution. AES connects your AVENTICS valve system to all relevant fieldbus protocols and offers the integration of I/O-modules and enables optimized decentralized wiring of sensors. The integration of the Digital Twin enables users to be IIoT ready and use the AES to solve their interoperability challenges.



### Technical data

Industry  
Industrial

Version  
I/O modules

Type  
2AI2AO2M12-C

Note  
control module M12x1, 5-pin / with external power supply /  
control of E/P pressure regulators / position control /  
superordinate control

E/A capable  
connection with I/O

I/O module version  
analog inputs/outputs

Number of I/O connections  
2 inputs / 2 outputs

Power plug IN type  
Plug

Power plug IN size  
M12x1

Power plug IN number of pole  
4-pin

Signal connection E/A type  
Socket

Signal connection E/A thread size  
M12x1

Signal connection E/A number of poles  
5-pin

Signal connection E/A coding  
A-coded

Analog inputs  
0 - 10 V /  $\pm 10$  V  
2 - 10 V /  $\pm 10$  V  
0 - 20 mA /  $\pm 20$  mA  
4 - 20 mA /  $\pm 20$  mA

Analog outputs  
0 - 10 V /  $\pm 10$  V  
0 ... 20 mA  
4 ... 20 mA

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Operational voltage electronics  
24 V DC

Total current for actuators  
4 A

Protection class  
IP65

Logic/actuator voltage  
Galvanically isolated

Diagnosis  
Short circuit  
Undervoltage

Generic emission standard in accordance with  
norm

EN 61000-6-4

Generic immunity standard in accordance with  
norm

EN 61000-6-2

Weight  
0.11 kg

## Material

Housing material  
Polyamide fiber-glass reinforced

Part No.  
R412018293

## Technical information

Information on the assignment scheme and control parameters can be found in the operating instructions. Or, contact your nearest AVENTICS sales office.

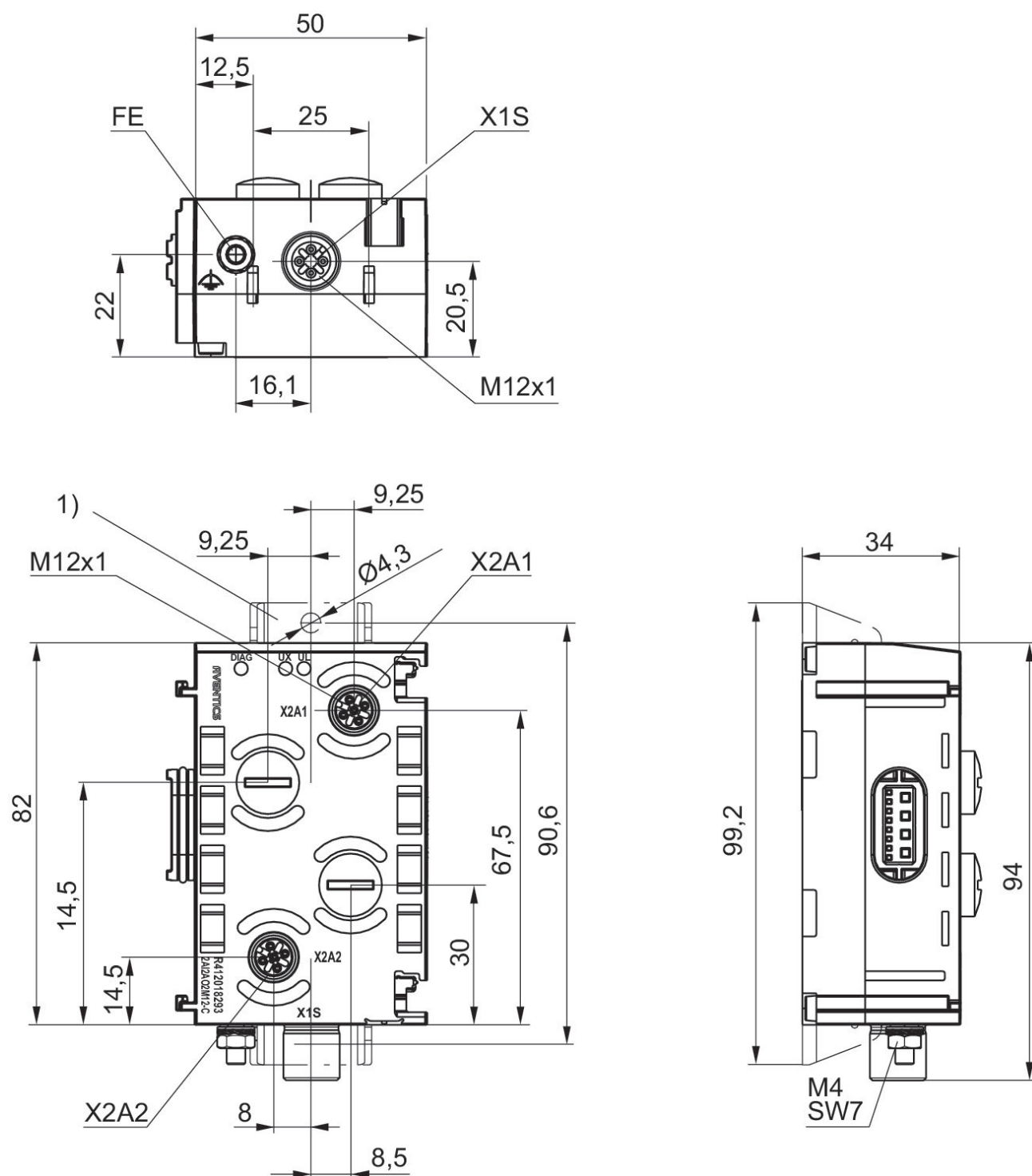
The total current of all outputs (including valves) must not exceed 4 A in the overall system.

After direct connection to an electropneumatic pressure regulator suitable for controlling positions or superior control circuits.

Suitable for direct connection of an electropneumatic pressure regulator from the ED series.

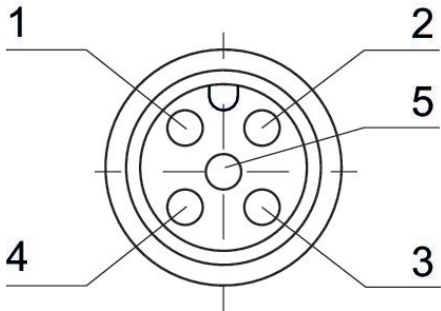
Delivery contents: incl. 2 spring clamp elements and seal  
freely selectable signals, configurable

## Dimensions



1) Retaining bracket (optional)

Pin assignments  
Socket (female)



| Pin | Socket (female) X2A1<br>- X2A2                     | Plug (male) X1S |
|-----|----------------------------------------------------|-----------------|
| 1   | 24 V DC                                            | -               |
| 2   | Output signal                                      | 24 V DC         |
| 3   | 0 V DC                                             | -               |
| 4   | Input signal                                       | 0 V DC          |
| 5   | Shield, connected in-ternally with ground screw 2) | -               |



# I/O modules, series AES

## R412018252

### General series information Series AES

- The AVENTICS Series AES fieldbus connection can be integrated into all AVENTICS fieldbus-compatible valve systems or can also be configured as a stand-alone solution. AES connects your AVENTICS valve system to all relevant fieldbus protocols and offers the integration of I/O-modules and enables optimized decentralized wiring of sensors. The integration of the Digital Twin enables users to be IIoT ready and use the AES to solve their interoperability challenges.



### Technical data

Industry  
Industrial

Version  
I/O modules

Type  
16DO32SC

E/A capable  
connection with I/O

I/O module version  
digital outputs

Number of I/O connections  
16 outputs

Power plug IN type  
Internal

Signal connection E/A type  
Spring clamp connections

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Operational voltage electronics  
24 V DC

Electronics voltage tolerance  
-25% / +25%

Max. current per channel  
0.5 A

Total current for actuators  
4 A

Protection class  
IP20

Logic/actuator voltage  
Galvanically isolated

Diagnosis  
Short circuit

Generic emission standard in accordance with  
norm

EN 61000-6-4

Generic immunity standard in accordance with  
norm

EN 61000-6-2

Weight  
0.115 kg

### Material

Housing material  
Polyamide fiber-glass reinforced

Part No.  
R412018252

## Technical information

You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

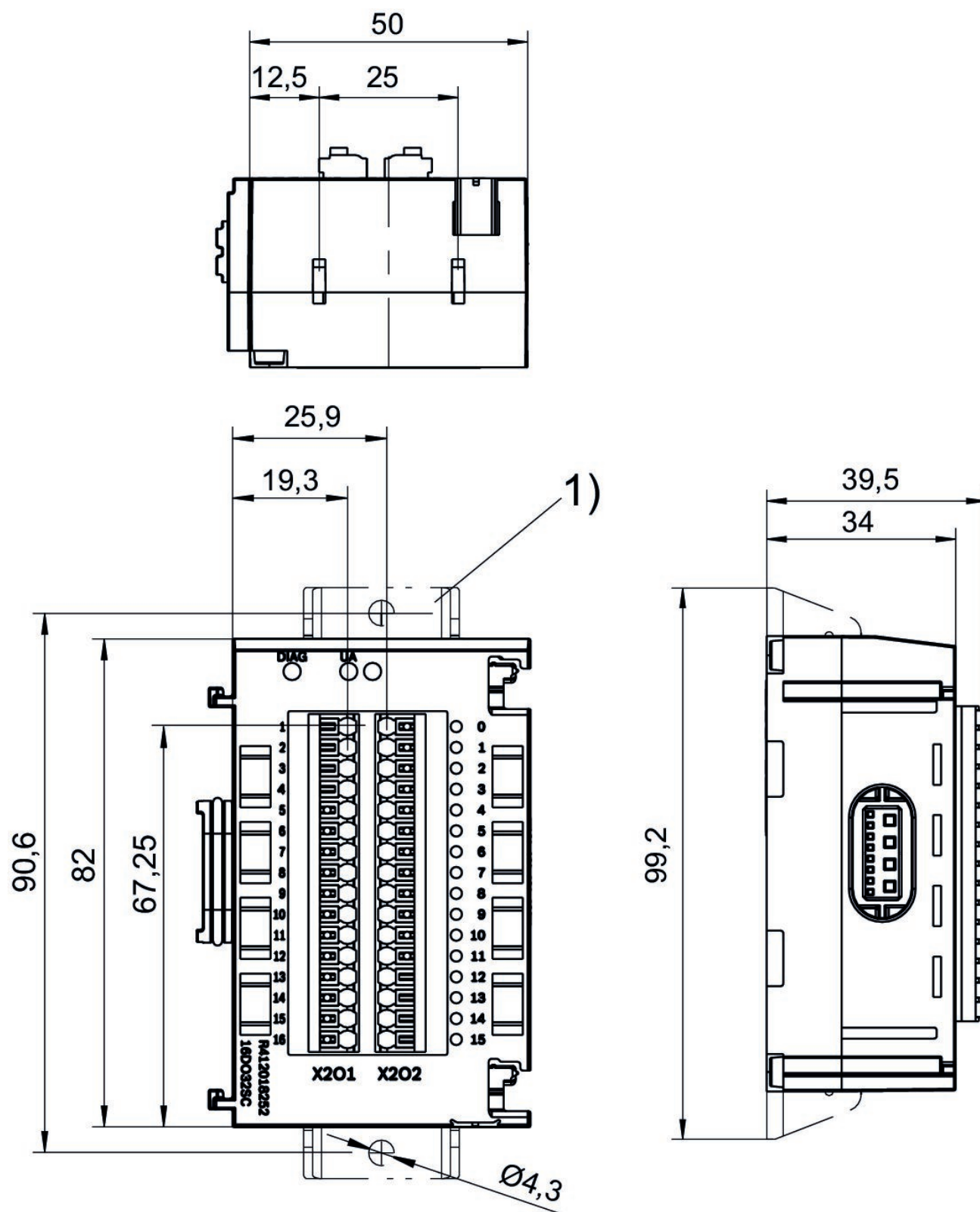
The total current of all outputs (including valves) must not exceed 4 A in the overall system.

Voltage and short-circuit monitoring per LED.

The clamp area for stranded wires is between 0.2 and 1.5 mm<sup>2</sup>.

Delivery contents: incl. 2 spring clamp elements and seal

## Dimensions



1) Retaining bracket (optional)

| Port | Contact                          | Function                         |
|------|----------------------------------|----------------------------------|
| X201 | 1                                | Output signal 24 V<br>DC bit 0.0 |
| 2    | Output signal 24 V<br>DC bit 0.1 |                                  |
| 3    | Output signal 24 V<br>DC bit 0.2 |                                  |
| 4    | Output signal 24 V<br>DC bit 0.3 |                                  |
| 5    | Output signal 24 V<br>DC bit 0.4 |                                  |
| 6    | Output signal 24 V<br>DC bit 0.5 |                                  |
| 7    | Output signal 24 V<br>DC bit 0.6 |                                  |
| 8    | Output signal 24 V<br>DC bit 0.7 |                                  |
| 9    | Output signal 24 V<br>DC bit 1.0 |                                  |
| 10   | Output signal 24 V<br>DC bit 1.1 |                                  |
| 11   | Output signal 24 V<br>DC bit 1.2 |                                  |
| 12   | Output signal 24 V<br>DC bit 1.3 |                                  |
| 13   | Output signal 24 V<br>DC bit 1.4 |                                  |
| 14   | Output signal 24 V<br>DC bit 1.5 |                                  |
| 15   | Output signal 24 V<br>DC bit 1.6 |                                  |
| 16   | Output signal 24 V<br>DC bit 1.7 |                                  |

# I/O modules, series AES

## R412018291

### General series information



### Technical data

Industry  
Industrial

Version  
I/O modules

Type  
4P4D4

port pneumatic  
D4

Note  
Pressure measurement module with 4 compressed air connection

E/A capable  
connection with I/O

I/O module version  
analog inputs

Number of I/O connections  
4 inputs

Power plug IN type  
Internal

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Working pressure max  
10 bar

Measurement min.  
0 bar

Measurement max.  
10 bar

Protection class  
IP65

Generic emission standard in accordance with  
norm  
EN 61000-6-4

Generic immunity standard in accordance with  
norm  
EN 61000-6-2

Weight  
0.115 kg

### Material

Housing material  
Polyamide fiber-glass reinforced

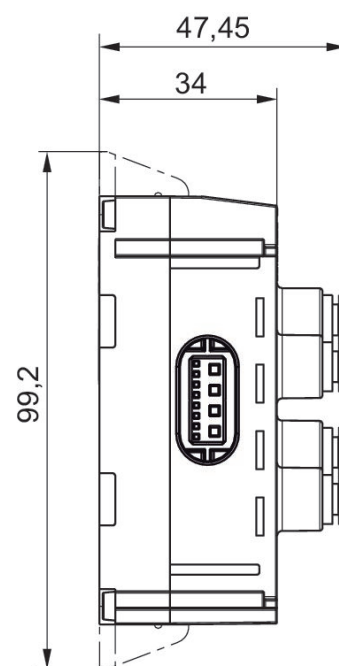
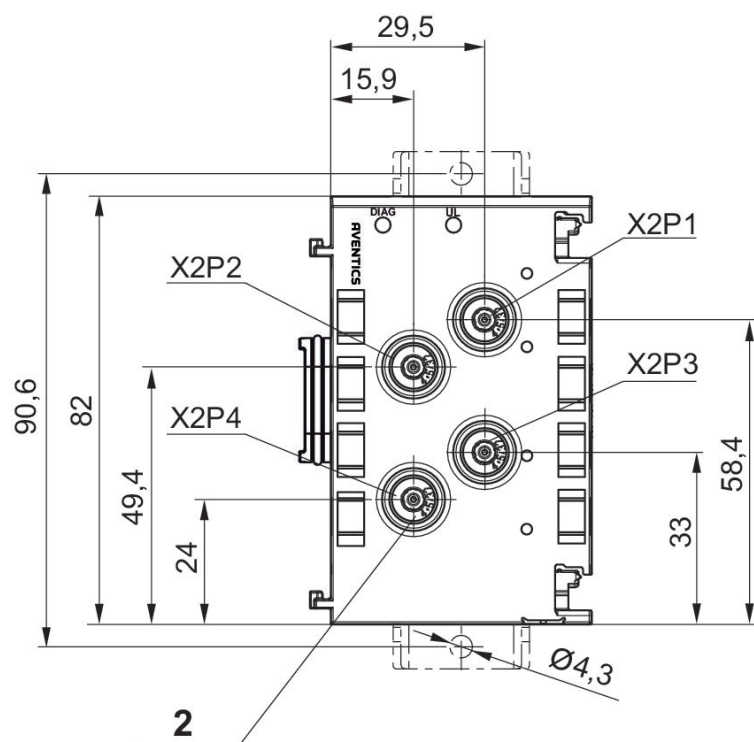
Part No.  
R412018291

## Technical information

When using polyurethane tubing, we recommend using additional stiffener sleeves.

For push-in fittings, only use plug accessories made of plastic (polyamide) from our catalog.

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .



- 1) Retaining bracket (optional)
- 2) Blanking plug included in scope of delivery

# I/O modules, series AES

## R412018292

### General series information



### Technical data

Industry  
Industrial

Version  
I/O modules

Type  
4VP4D4

port pneumatic  
D4

Note  
Pressure measurement module with 4 compressed air connection

E/A capable  
connection with I/O

I/O module version  
analog inputs

Number of I/O connections  
4 inputs

Power plug IN type  
Internal

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Working pressure max  
1 bar

Measurement min.  
-1 bar

Measurement max.  
1 bar

Protection class  
IP65

Generic emission standard in accordance with  
norm  
EN 61000-6-4

Generic immunity standard in accordance with  
norm  
EN 61000-6-2

Weight  
0.115 kg

### Material



Housing material  
Polyamide fiber-glass reinforced

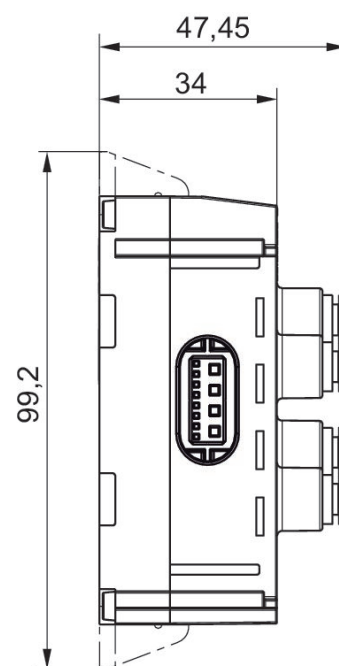
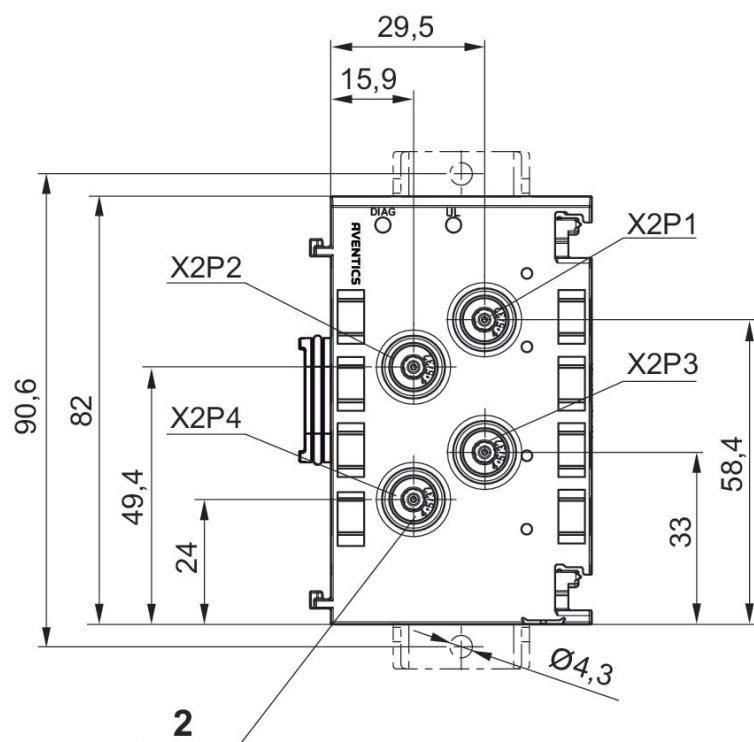
Part No.  
R412018292

## Technical information

When using polyurethane tubing, we recommend using additional stiffener sleeves.

For push-in fittings, only use plug accessories made of plastic (polyamide) from our catalog.

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

[illegible]

- 1) Retaining bracket (optional)
- 2) Blanking plug included in scope of delivery

# Power module Series AES

## R412018272

### General series information Series AES

- The AVENTICS Series AES fieldbus connection can be integrated into all AVENTICS fieldbus-compatible valve systems or can also be configured as a stand-alone solution. AES connects your AVENTICS valve system to all relevant fieldbus protocols and offers the integration of I/O-modules and enables optimized decentralized wiring of sensors. The integration of the Digital Twin enables users to be IIoT ready and use the AES to solve their interoperability challenges.



### Technical data

Industry  
Industrial

Version  
Power module

E/A capable  
connection with I/O

Power plug IN type  
Plug

Power plug IN size  
7/8"-16UNF

Power plug IN number of pole  
5-pin

Power plug OUT type  
Socket

Power plug OUT size  
7/8"-16UNF

Power plug OUT number of pole  
5-pin

Power supply direction UA/UL  
left, right

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Operational voltage electronics  
24 V DC

Electronics voltage tolerance  
-20% / +20%

Operating voltage, actuators  
24 V DC

Actuator voltage tolerance  
-10% / +10%

Total current for actuators  
4 A

Protection class  
IP65

Total current of sensors max.  
4 A

Generic emission standard in accordance with  
norm  
EN 61000-6-4

Generic immunity standard in accordance with  
norm  
EN 61000-6-2

Weight  
0.15 kg

## Material

Housing material  
Polyamide fiber-glass reinforced

Part No.  
R412018272

## Technical information

You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

The supply voltage from X1S1 is available at X1S2 (without modification)

The total internal current (UA or UL) and consumption at X1S2 must not exceed 8A at X1S1.

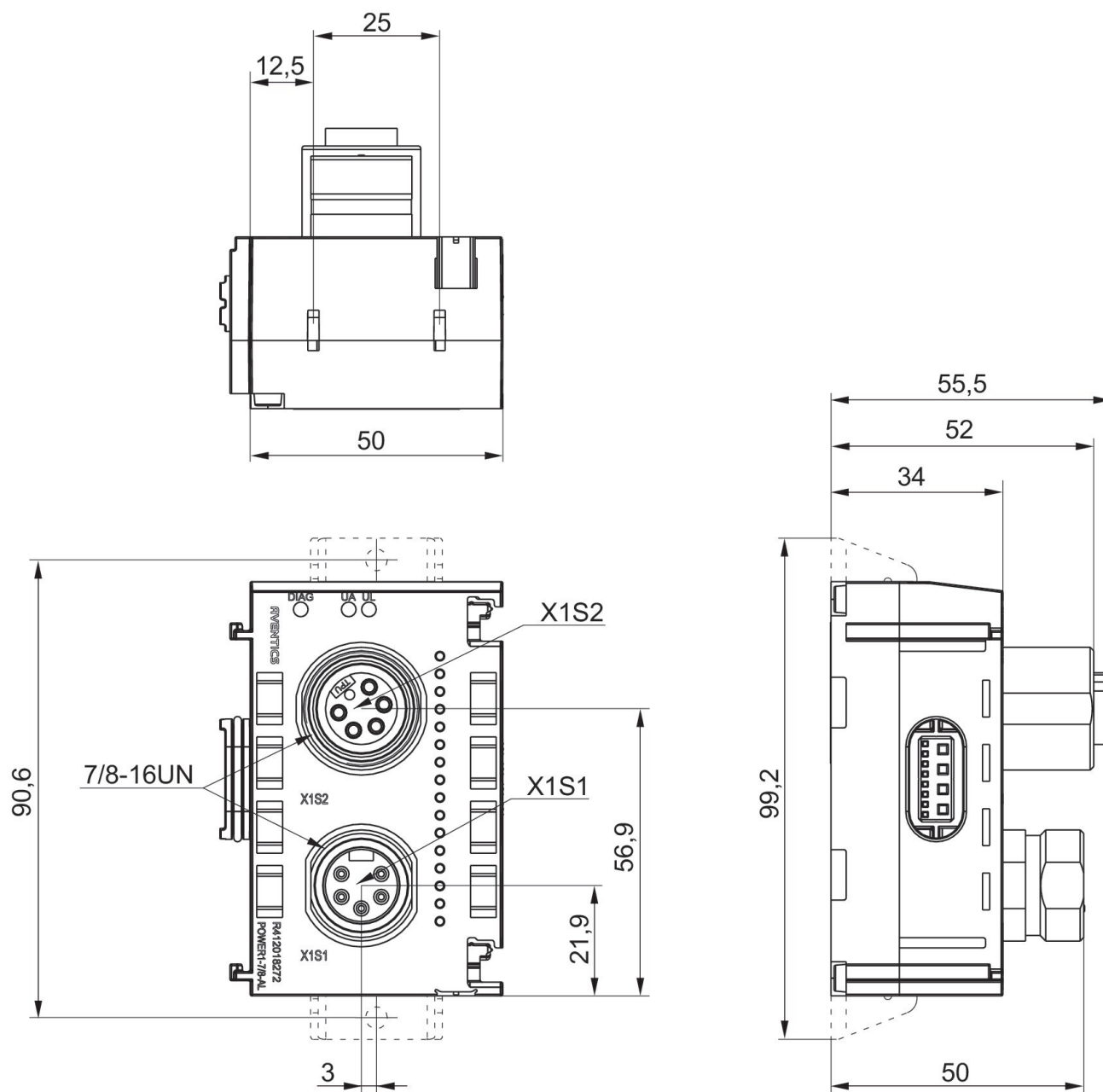
UL: Logic voltage (power supply for electronic components and sensors)

UA: Actuator voltage (power supply for valves and outputs)

If connection 2 is not used for forwarding, it must be closed with sealing cap R412024838.

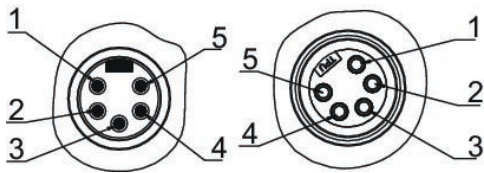
Power plug X1S on the bus coupler must be closed with sealing cap R412024837.

## Dimensions



Port 1, X1S1  
Port 2, X1S2

Pin assignments  
PNP



| Pin | Plug X1S1                       | Socket X1S2                      |
|-----|---------------------------------|----------------------------------|
| 1   | 0 V DC (UA)                     | 0 V DC (UA)                      |
| 2   | 0 V DC (UL)                     | 0 V DC (UL)                      |
| 3   | FE                              | FE                               |
| 4   | 24 V DC power supply (UL) input | 24 V DC power supply (UL) output |
| 5   | 24 V DC power supply (UA) input | 24 V DC power supply (UA) output |

# Blanking plate

- Base plate principle, multiple
- Reversed pressure supply permissible
- With collective pilot air exhaust
- for AV03



|                                       |                                       |
|---------------------------------------|---------------------------------------|
| Working pressure min./max.            | -0.9 ... 10 bar                       |
| Ambient temperature min./max.         | -10 ... 60 °C                         |
| Medium temperature min./max.          | -10 ... 60 °C                         |
| Medium                                | Compressed air                        |
| Max. particle size                    | 40 µm                                 |
| Oil content of compressed air         | 0 ... 5 mg/m <sup>3</sup>             |
| Protection class                      | IP65                                  |
| Mounting screw                        | Hexalobular socket (TORX) ISO 10664-8 |
| Tightening torque for mounting screws | 0.7 Nm                                |
| Weight                                | 0.028 kg                              |

## Technical data

| Part No.   | Type           | Delivery unit |
|------------|----------------|---------------|
| R422102462 | Blanking plate | 1 piece       |

Delivery includes sealing kit and 1x mounting screw

## Technical information

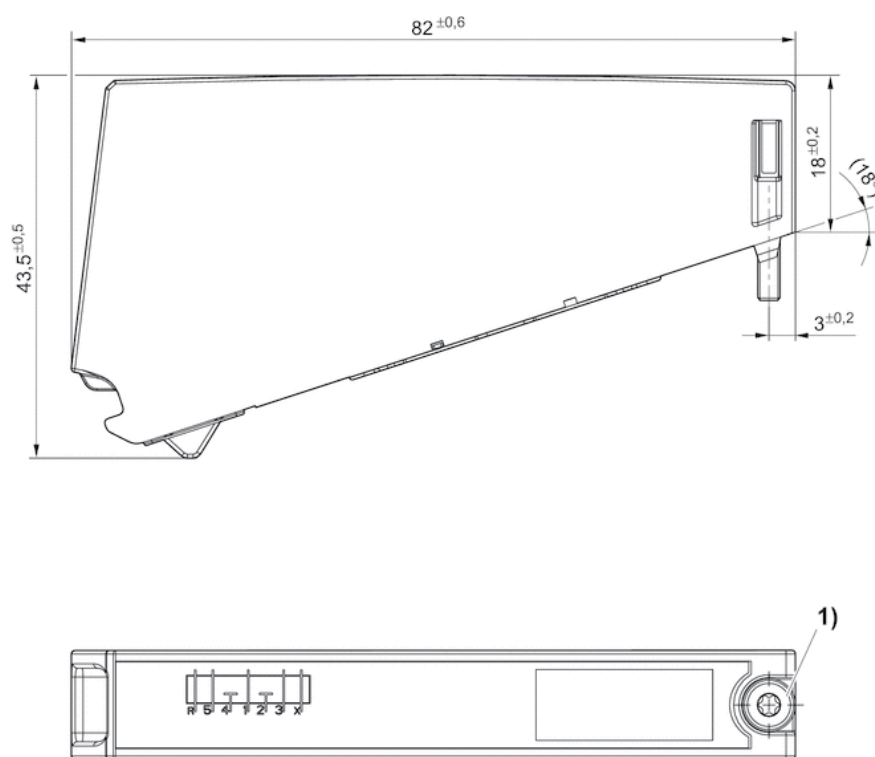
The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!  
 The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .  
 The oil content of compressed air must remain constant during the life cycle.  
 Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in the MediaCentre).

## Technical information

| Material |                                       |
|----------|---------------------------------------|
| Housing  | Polyarylamide, fiber-glass reinforced |
| Screws   | Steel, galvanized                     |

## Dimensions

### Dimensions



1) Mounting screw

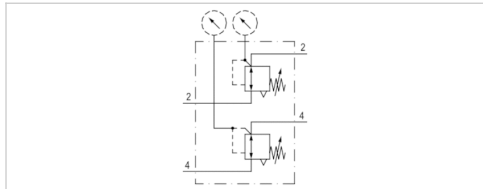


# Pressure regulator, Series AV

- push-in fitting
- Controlled port 2, 4



|                               |                |
|-------------------------------|----------------|
| Adjustment range min./max.    | 0.5 ... 10 bar |
| Ambient temperature min./max. | -10 ... 60 °C  |
| Medium temperature min./max.  | -10 ... 60 °C  |
| Medium                        | Compressed air |
| Weight                        | 0.02 kg        |



## Technical data

| Part No.   | Compressed air connection type Input | Compressed air connection Output | Repetitive precision | Controlled port |
|------------|--------------------------------------|----------------------------------|----------------------|-----------------|
| R422103084 | push-in fitting                      | Ø 6                              | ± 10 %               | 2, 4            |
| R422103085 | push-in fitting                      | Ø 8                              | ± 10 %               | 2, 4            |
| R422103086 | push-in fitting                      | Ø 1/4"                           | ± 10 %               | 2, 4            |

Order pressure gauge separately

## Technical information

Kit for stacking assembly of up to 6 regulators: R422103090

Mounting bracket (2x) for mounting to the mounting plate: R422103091

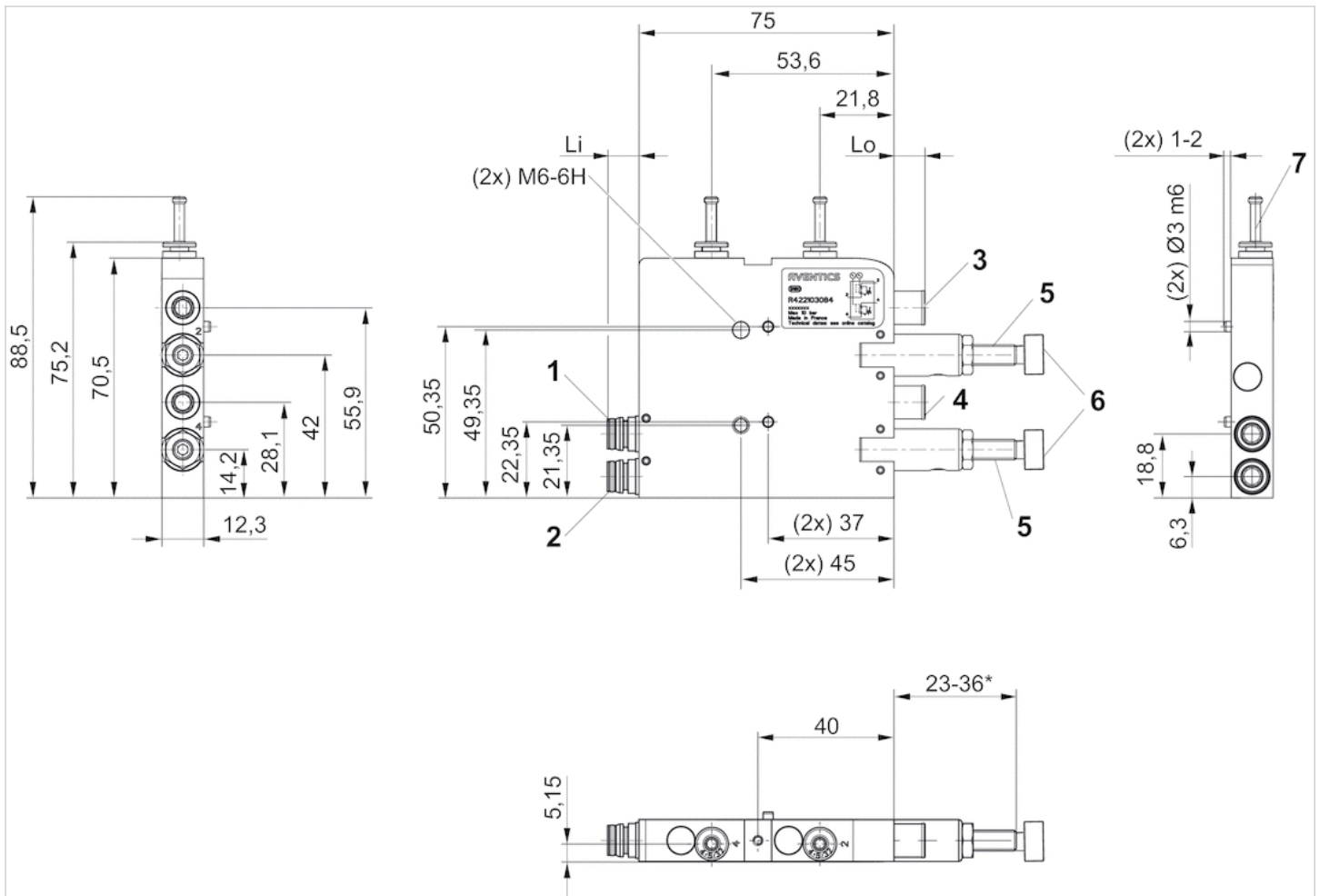
For 2 or more AV pressure regulators assembled into blocks with pressure gauges, use of push-in fitting R412005046 is recommended for every second pressure gauge

## Technical information

| Material |                                |
|----------|--------------------------------|
| Housing  | Aluminum                       |
| Seals    | Acrylonitrile butadiene rubber |

## Dimensions

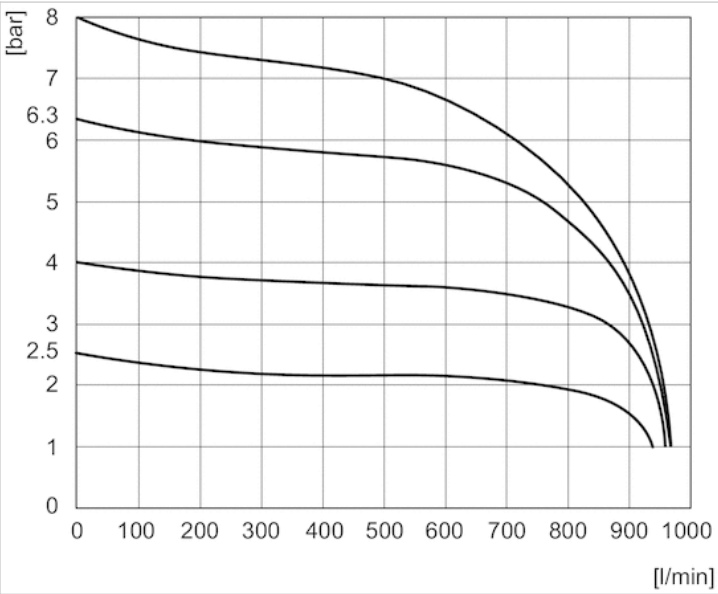
### Dimensions



- 1) Connection 2, valve side
- 2) Connection 4, valve side
- 3) Operating line 2
- 4) Operating line 4
- 5) adjustment screw, Port 2
- 6) Adjustment screw, connection 4
- 7) blanking plug\*) Stroke

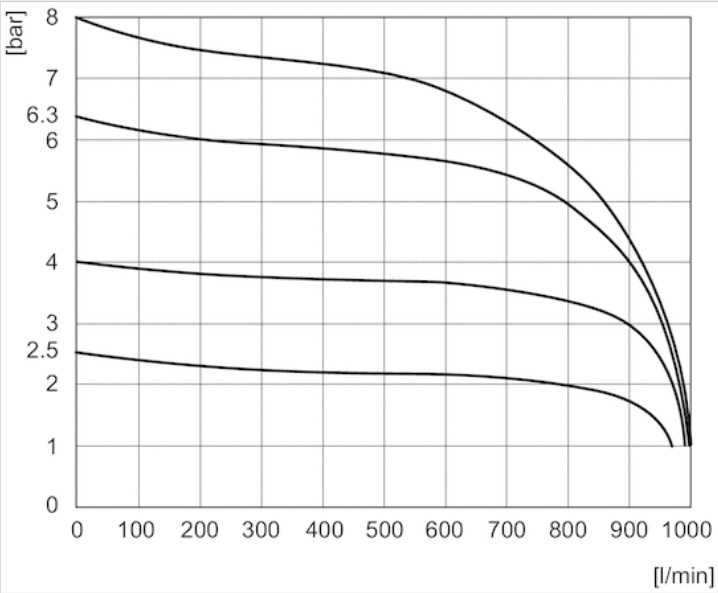
# Diagrams

## Flow diagram, Port 2



Pv = 9 bar

## Flow diagram, Port 4



Pv = 9 bar

# Pressure regulator, Series AV

- push-in fitting
- Controlled port 2 4



|                               |                |
|-------------------------------|----------------|
| Adjustment range min./max.    | 0.5 ... 10 bar |
| Ambient temperature min./max. | -10 ... 60 °C  |
| Medium temperature min./max.  | -10 ... 60 °C  |
| Medium                        | Compressed air |
| Weight                        | 0.2 kg         |

## Technical data

| Part No.   |                                                                                     | Compressed air connection type Input | Compressed air connection Output | Repetitive precision |
|------------|-------------------------------------------------------------------------------------|--------------------------------------|----------------------------------|----------------------|
| R422003560 |  | push-in fitting                      | Ø 8                              | ± 10 %               |
| R422003561 |  | push-in fitting                      | Ø 6                              | ± 10 %               |
| R422003568 |  | push-in fitting                      | Ø 8                              | ± 10 %               |
| R422003569 |  | push-in fitting                      | Ø 6                              | ± 10 %               |

| Part No.   | Controlled port |
|------------|-----------------|
| R422003560 | 2               |
| R422003561 | 2               |
| R422003568 | 4               |
| R422003569 | 4               |

Order pressure gauge separately

## Technical information

Pneumatic connection to base plate valves, suitable for all sizes in the AV03 and AV05 series

Mounting bracket (2x) for mounting to the mounting plate: R422103091

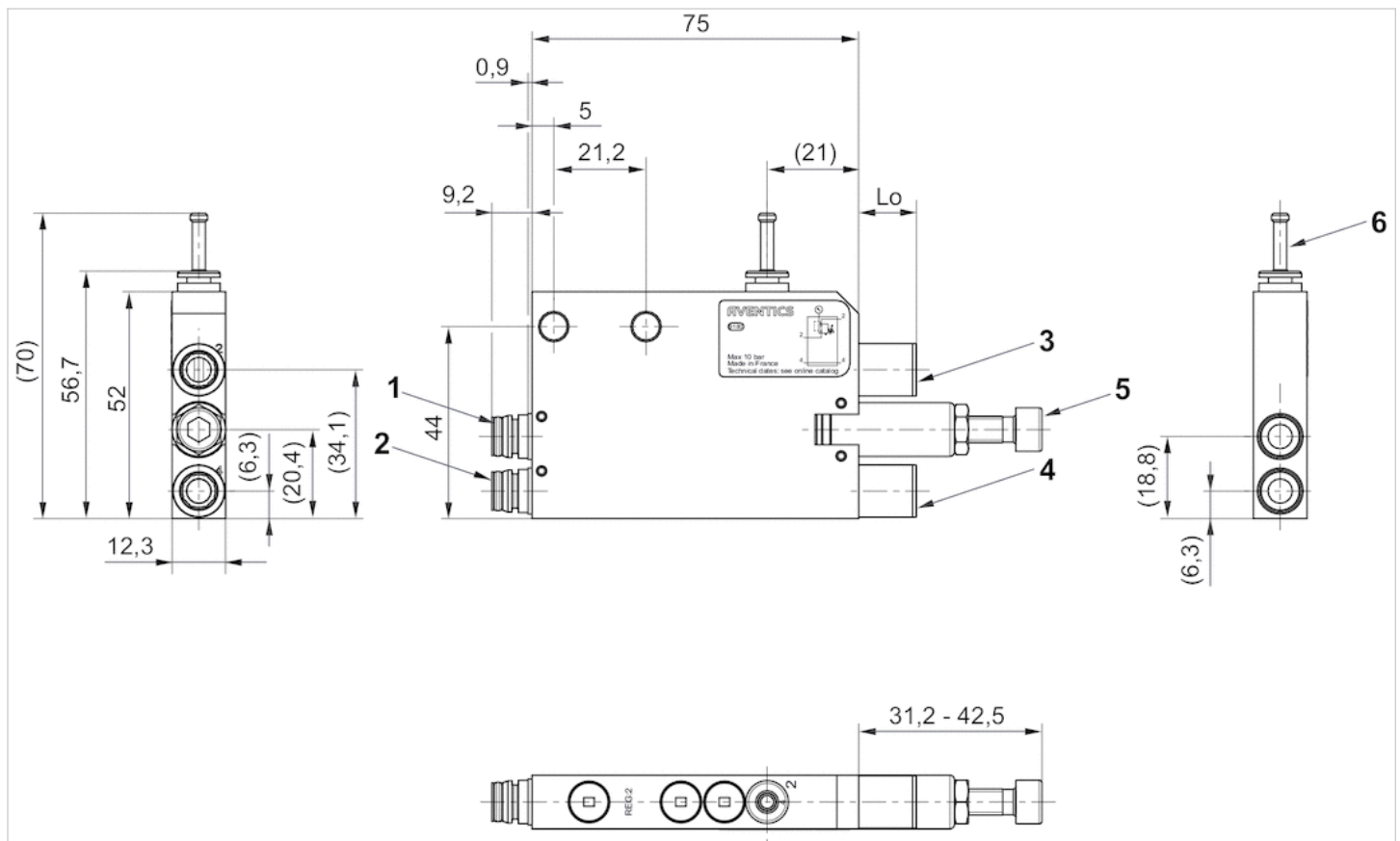
For 2 or more AV pressure regulators assembled into blocks with pressure gauges, use of push-in fitting R412005046 is recommended for every second pressure gauge

## Technical information

| Material |                                |
|----------|--------------------------------|
| Housing  | Aluminum                       |
| Seals    | Acrylonitrile butadiene rubber |

## Dimensions

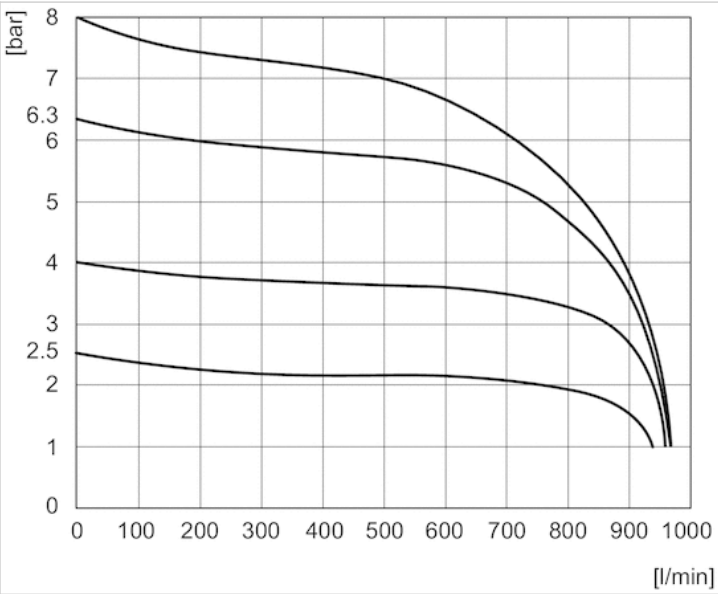
### Dimensions



- 1) Connection 2, valve side
- 2) Connection 4, valve side
- 3) Operating line 2
- 4) Operating line 4
- 5) adjustment screw, Port 2, 4
- 6) plugs

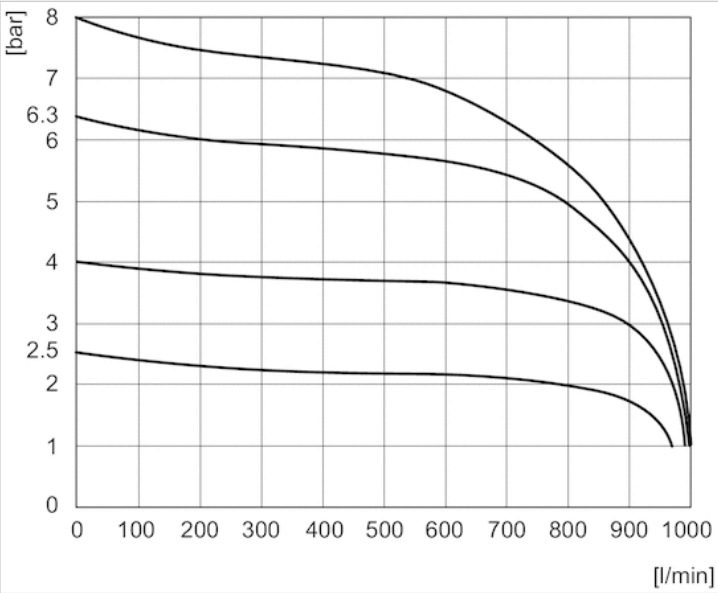
# Diagrams

## Flow diagram, Port 2



Pv = 9 bar

## Flow diagram, Port 4



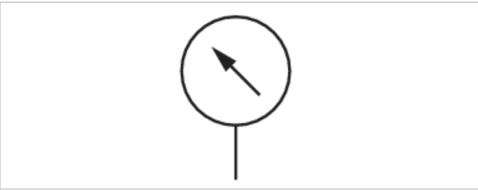
Pv = 9 bar

# Pressure gauge, Series PG1-ROB

- Back port
- Background color Black
- Scale color White
- Viewing window Polystyrene
- Units MPa



|                            |                               |
|----------------------------|-------------------------------|
| Version                    | Bourdon tube pressure gauge   |
| Medium                     | Compressed air Compressed air |
| Main scale unit (outside)  | MPa                           |
| Main scale color (outside) | White                         |
| Background color           | Black                         |
| Pointer color              | Red                           |
| Weight                     | 0.01 kg                       |



## Technical data

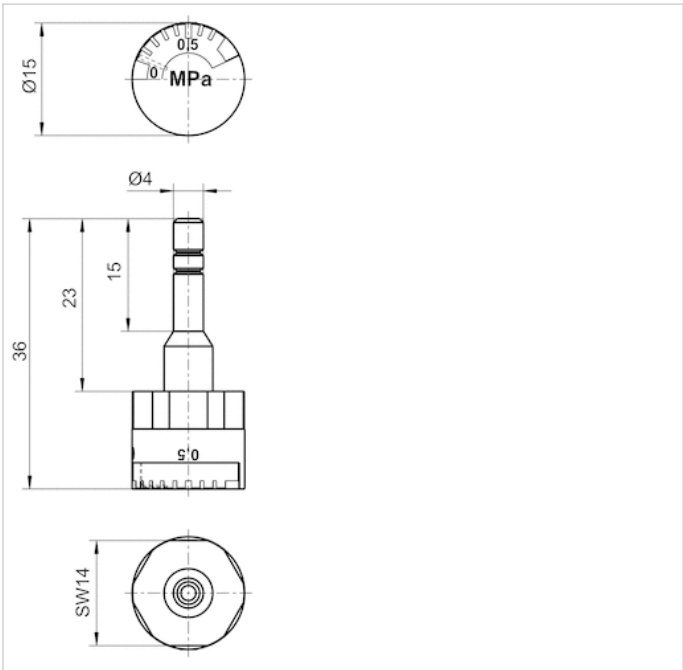
| Part No.   | Compressed air connection | Nominal diameter | Range of application | Display range |
|------------|---------------------------|------------------|----------------------|---------------|
| R412009413 | Ø 4                       | 15 mm            | 0 ... 10 bar         | 0 ... 10 bar  |

## Technical information

| Material       |                                 |
|----------------|---------------------------------|
| Housing        | Acrylonitrile butadiene styrene |
| Thread         | Brass                           |
| Viewing window | Polystyrene                     |
| Seal           | Polytetrafluorethylene          |

Dimensions

Dimensions in mm





## Series QR1-S-RVW Mini

- Angled plug-in connector
- pin bushing
- Ø 4
- push-in fitting
- Ø 4
- QR1-S-RVW



|                               |                  |
|-------------------------------|------------------|
| Working pressure min./max.    | -0.95 ... 10 bar |
| Ambient temperature min./max. | 0 ... 60 °C      |
| Weight per piece              | 0.002 kg         |

### Technical data

| Part No.   | Port G | Port D | Delivery unit |
|------------|--------|--------|---------------|
| R412005046 | Ø 4    | Ø 4    | 10 piece      |

### Technical information

The series QR1 (plastic) and QR2 (metal) can not be combined

For use with 2 or more AV pressure regulators assembled into blocks with pressure gauges.

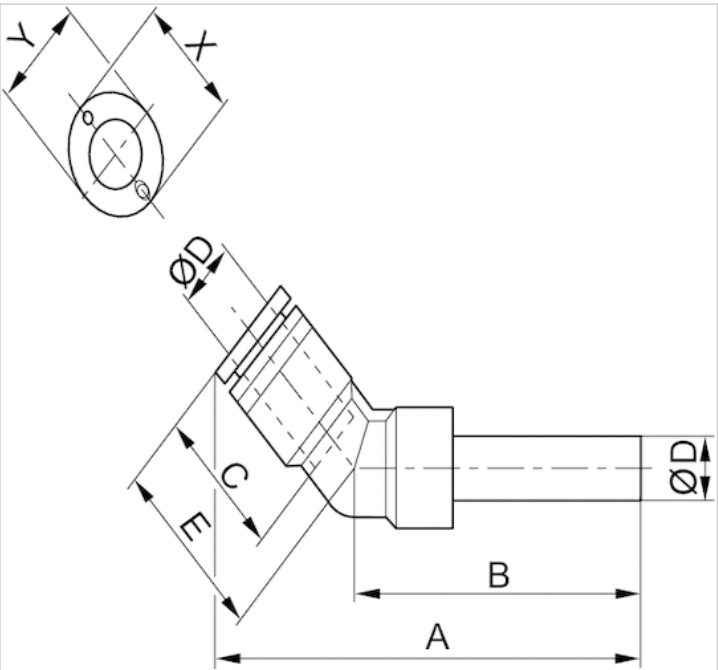
For 2 or more AV pressure regulators assembled into blocks with pressure gauges, use of push-in fitting R412005046 is recommended for every second pressure gauge

For further information about assembling and tolerances of adaptable tubing can be found in the "Technical information" document (available in the MediaCentre).

### Technical information

| Material            |                                    |
|---------------------|------------------------------------|
| Material            | nickel-plated                      |
| Housing             | Polybutyleneterephthalate          |
| Seal                | Acrylonitrile butadiene rubber     |
| Tooth lock washer   | Stainless steel                    |
| Release ring        | Polyoxymethylene                   |
| Release ring holder | Die cast zinc Brass, nickel-plated |

Dimensions



Dimensions

| Part No.   | Port D | Port G | A     | B    | C  | E    | X  | Y  |
|------------|--------|--------|-------|------|----|------|----|----|
| R412005046 | Ø 4    | Ø 4    | 56,36 | 43,6 | 16 | 18.1 | 12 | 10 |

# Throttle module

- push-in fitting

- direction of throttle 2 ► 1 direction of throttle 2 ► 1  
direction of throttle 1 ► 2



|                               |                |
|-------------------------------|----------------|
| Working pressure min./max.    | 10 bar         |
| Ambient temperature min./max. | -10 ... 60 °C  |
| Medium temperature min./max.  | -10 ... 60 °C  |
| Medium                        | Compressed air |
| Weight                        | 0.115 kg       |

## Technical data

| Part No.   |                                                                                     | Version                                                    |
|------------|-------------------------------------------------------------------------------------|------------------------------------------------------------|
| R422003311 |  | direction of throttle 2 ► 1                                |
| R422003267 |  | direction of throttle 2 ► 1                                |
| R422003666 |  | direction of throttle 2 ► 1                                |
| R422003577 |  | direction of throttle 2 ► 1<br>direction of throttle 1 ► 2 |
| R422003578 |  | direction of throttle 2 ► 1<br>direction of throttle 1 ► 2 |
| R422003667 |  | direction of throttle 2 ► 1<br>direction of throttle 1 ► 2 |

| Part No.   | Compressed air connection type Input | Compressed air connection Output | Fig.   |
|------------|--------------------------------------|----------------------------------|--------|
| R422003311 | push-in fitting                      | Ø 6                              | Fig. 1 |
| R422003267 | push-in fitting                      | Ø 8                              | Fig. 1 |
| R422003666 | push-in fitting                      | Ø 1/4"                           | Fig. 1 |
| R422003577 | push-in fitting                      | Ø 6                              | Fig. 2 |
| R422003578 | push-in fitting                      | Ø 8                              | Fig. 2 |
| R422003667 | push-in fitting                      | Ø 1/4"                           | Fig. 2 |

## Technical information

| Material |                                |
|----------|--------------------------------|
| Housing  | Aluminum                       |
| Seals    | Acrylonitrile butadiene rubber |

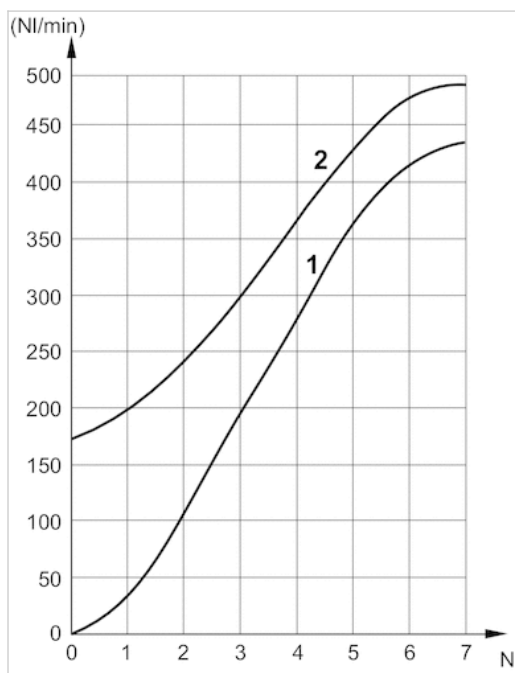
## Dimensions



| Part No.            |   | R422003311 | R422003267 | R422003666 | R422003577 | R422003578 | R422003667 |
|---------------------|---|------------|------------|------------|------------|------------|------------|
| Installation length | A | 62.2±0.5   | 66.2±0.5   | 65.2±0.5   | 62.2±0.5   | 66.2±0.5   | 65.2±0.5   |

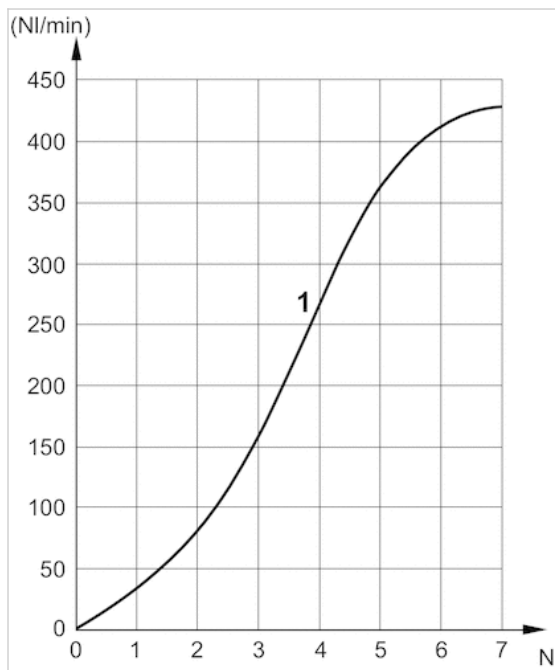
## Diagrams

Fig. 1, single solenoid



- 1) Controlled flow
- 2) Uncontrolled flow

Fig. 2, double solenoid



- 1) Controlled flow

# Accessories, Throttle module Series AV



Working pressure min./max.

-10 ... 60 bar

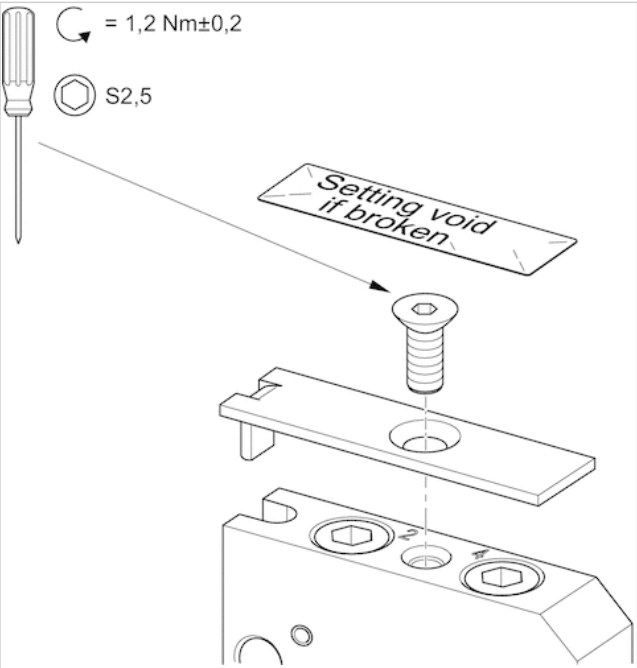
Ambient temperature min./max.

-10 ... 60 °C

## Technical data

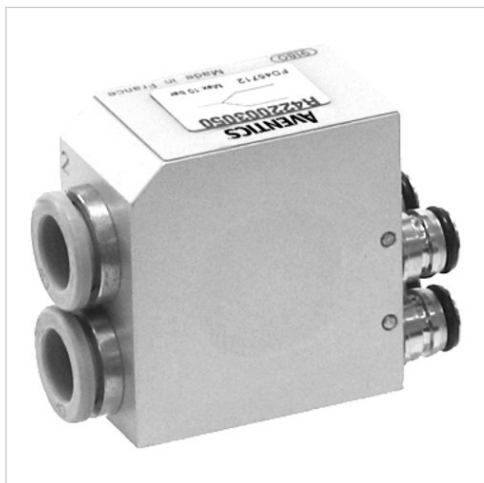
| Part No.   | Type                     | Scope of delivery            |
|------------|--------------------------|------------------------------|
| R422003595 | Tamper-proof plate kit   | 1 plate, 1 screw, 4 stickers |
| R422003596 | Tamper-proof sticker kit | 4 stickers                   |

## Dimensions



# Flow rate coupler Series AV

- For port channels 2, 4
- push-in fitting



Working pressure min./max.

-0.95 ... 10 bar

Ambient temperature min./max.

-10 ... 60 °C

Medium

Compressed air

Weight

0.115 kg

## Technical data

| Part No.   | Type     | Fig.   |
|------------|----------|--------|
| R422003050 | 2 x Ø 10 | Fig. 1 |
| R422003060 | 1 x Ø 10 | Fig. 2 |

## Technical information

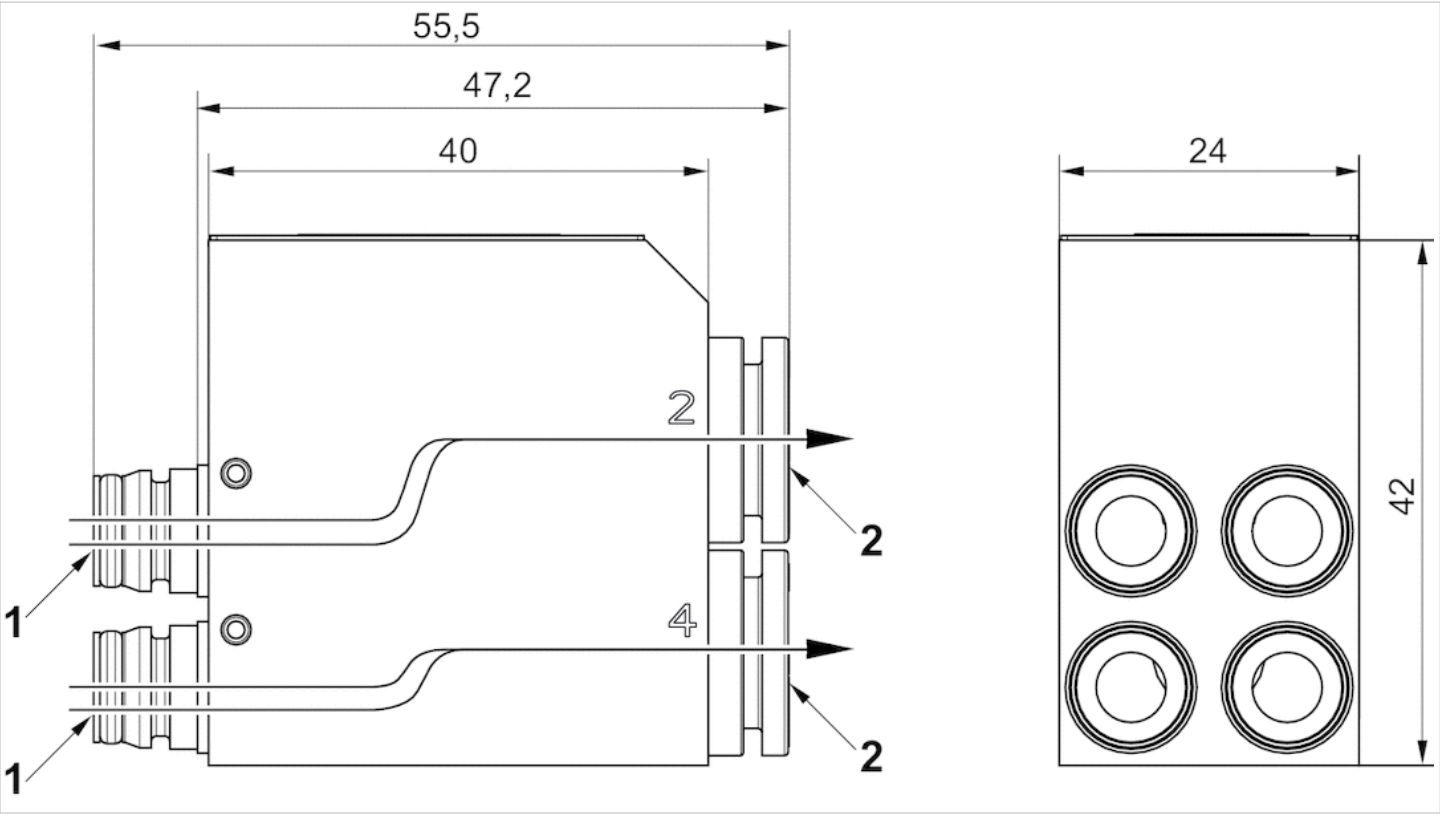
When using polyurethane tubing, we recommend using additional stiffener sleeves.  
 For push-in fittings, only use plug accessories made of plastic (polyamide) from our catalog.  
 Pneumatic connection to base plate valves, suitable for all sizes in the AV03 and AV05 series  
 Doubling of flow rate performance by connecting the working connections of two valves.  
 Both valves must be identical models and controlled electrically at the same time.

## Technical information

| Material |                |
|----------|----------------|
| Housing  | Aluminum       |
| Seals    | Nitrile rubber |

Dimensions

Fig. 1



- 1) Pneumatic connection to base plate valves, suitable for all sizes in the AV03 and AV05 series
- 2) 2 x Ø 10

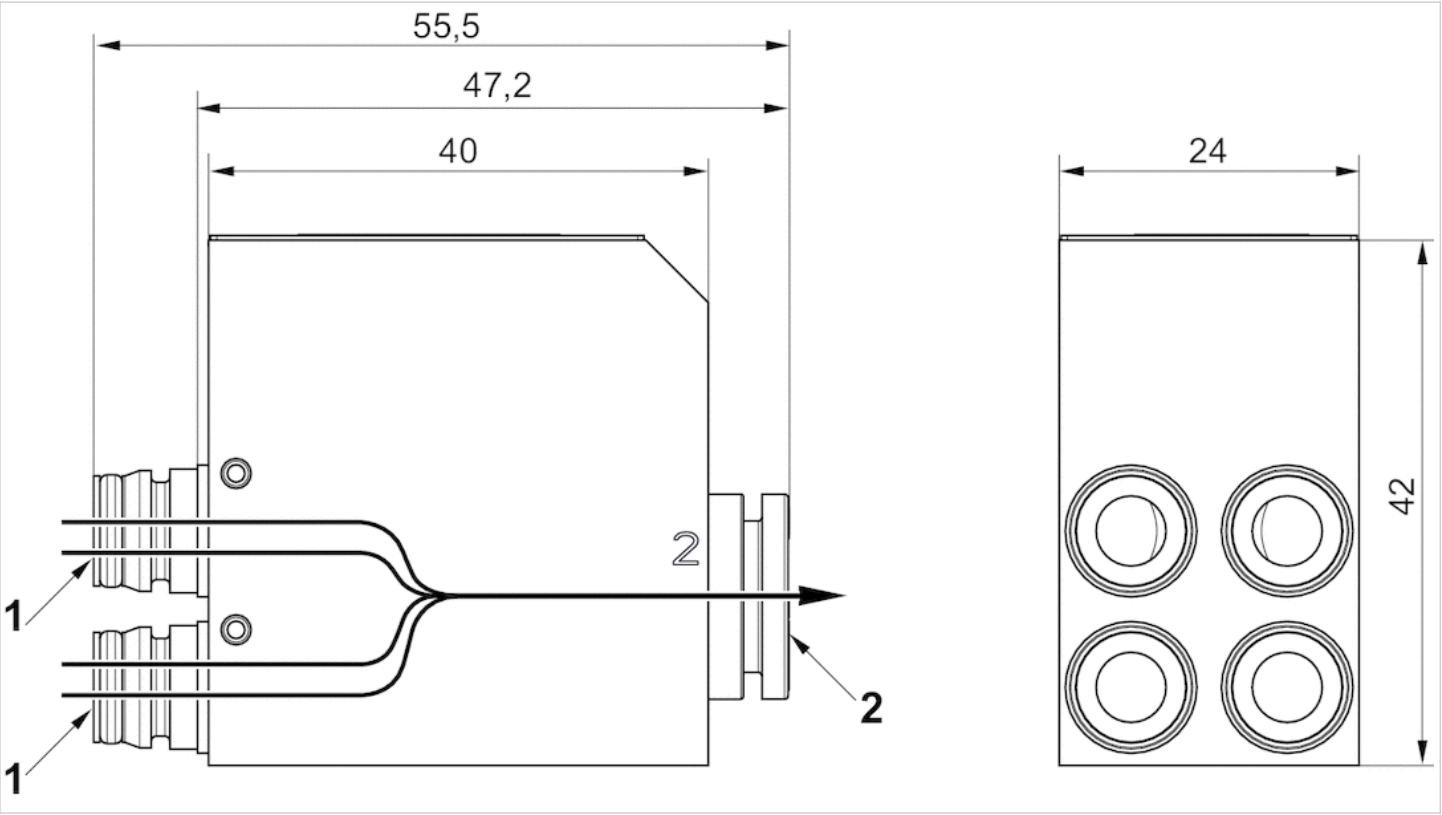
Dimensions

| Number of valves | 2    | 2    | 2     | 2    | 2    | 2     |
|------------------|------|------|-------|------|------|-------|
| Valve function   | 5/2  | 5/3  | 2x3/2 | 5/2  | 5/3  | 2x3/2 |
| Series           | AV03 | AV03 | AV03  | AV05 | AV05 | AV05  |
| Flow [l/min]     | 670  | 670  | 670   | 1100 | 1100 | 1100  |



Dimensions

Fig. 2



- 1) Pneumatic connection to base plate valves, suitable for all sizes in the AV03 and AV05 series
- 2) 1 x Ø 10

Dimensions

| Number of valves | 2     | 2     |
|------------------|-------|-------|
| Valve function   | 2x3/2 | 2x3/2 |
| Series           | AV03  | AV05  |
| Flow [l/min]     | 830   | 1400  |

# Extension kit for base plate 2x

- for series AV03



Working pressure min./max. -0.95 ... 10 bar  
 Ambient temperature min./max. -10 ... 60 °C  
 Medium Compressed air

## Technical data

| Part No.   | Type                                                        |
|------------|-------------------------------------------------------------|
| R412015422 | Base plate 2x for single solenoid valves for multipole plug |
| R412015423 | Base plate 2x for double solenoid valves for multipole plug |
| R412018088 | Base plate 2x for bus coupler                               |

| Part No.   | Scope of delivery                                                                                                                                     |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| R412015422 | Base plate (1), incl. 2 nuts (2), 2 labels (3),<br>1 seal (4), 1 retaining clip (5),<br>1 tie rod extensions (6), and<br>1 valve driver board, 2x (7) |
| R412015423 | Base plate (1), incl. 2 nuts (2), 2 labels (3),<br>1 seal (4), 1 retaining clip (5),<br>1 tie rod extensions (6), and<br>1 valve driver board, 2x (7) |
| R412018088 | Base plate (1), incl. 2 nuts (2), 2 labels (3),<br>1 seal (4), 1 retaining clip (5),<br>1 tie rod extensions (6), and<br>1 valve driver board, 2x (7) |

## Technical information

When using polyurethane tubing, we recommend using additional stiffener sleeves.

For push-in fittings, only use plug accessories made of plastic (polyamide) from our catalog.

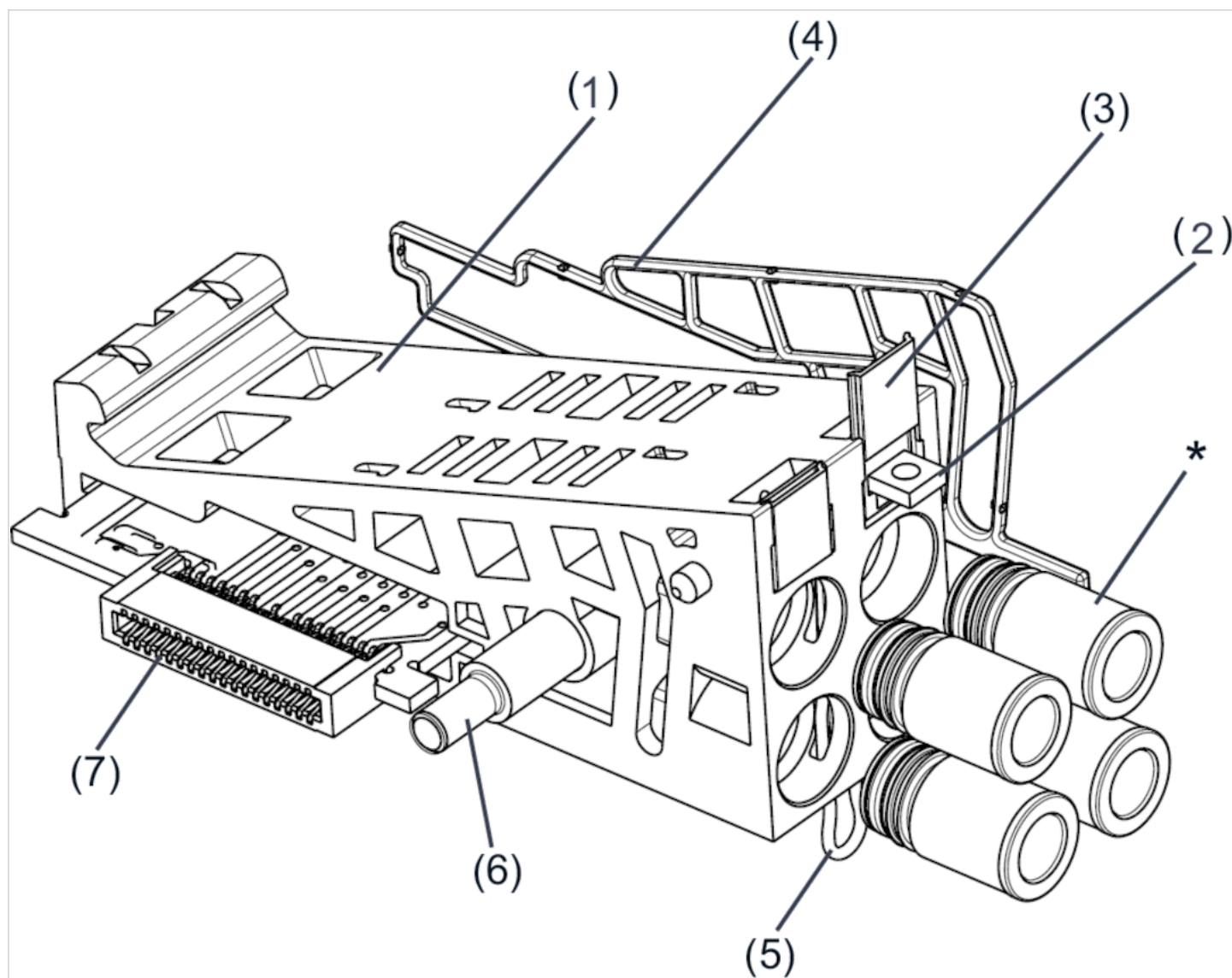
After two AV-EP or one AV-EP and 4 vales, mount a retaining bracket (R412018339) to fasten the entire unit to the mounting surface.

## Technical information

| Material |                |
|----------|----------------|
| Housing  | Polyamide      |
| Seals    | Nitrile rubber |

## Dimensions

### Overview drawing



\* Push-in fittings not included in the scope of delivery.

\* For more information on push-in fittings, see the "Push-in fittings" page for the AV series in the catalog.

# Extension kit for base plate 3x

- for series AV03



Working pressure min./max. -0.95 ... 10 bar  
 Ambient temperature min./max. -10 ... 60 °C  
 Medium Compressed air

## Technical data

| Part No.   | Type                                                        |
|------------|-------------------------------------------------------------|
| R412018378 | Base plate 3x for single solenoid valves for multipole plug |
| R412018379 | Base plate 3x for double solenoid valves for multipole plug |
| R412018380 | Base plate 3x for bus coupler                               |

| Part No.   | Scope of delivery                                                                                                                                       |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| R412018378 | Base plate (1), incl. 3 nuts (2), 3 labels (3),<br>1 seal (4), 2 retaining clips (5),<br>1 tie rod extensions (6), and<br>1 extension circuit board (7) |
| R412018379 | Base plate (1), incl. 3 nuts (2), 3 labels (3),<br>1 seal (4), 2 retaining clips (5),<br>1 tie rod extensions (6), and<br>1 extension circuit board (7) |
| R412018380 | Base plate (1), incl. 3 nuts (2), 3 labels (3),<br>1 seal (4), 2 retaining clips (5),<br>1 tie rod extensions (6), and<br>1 extension circuit board (7) |

## Technical information

When using polyurethane tubing, we recommend using additional stiffener sleeves.

For push-in fittings, only use plug accessories made of plastic (polyamide) from our catalog.

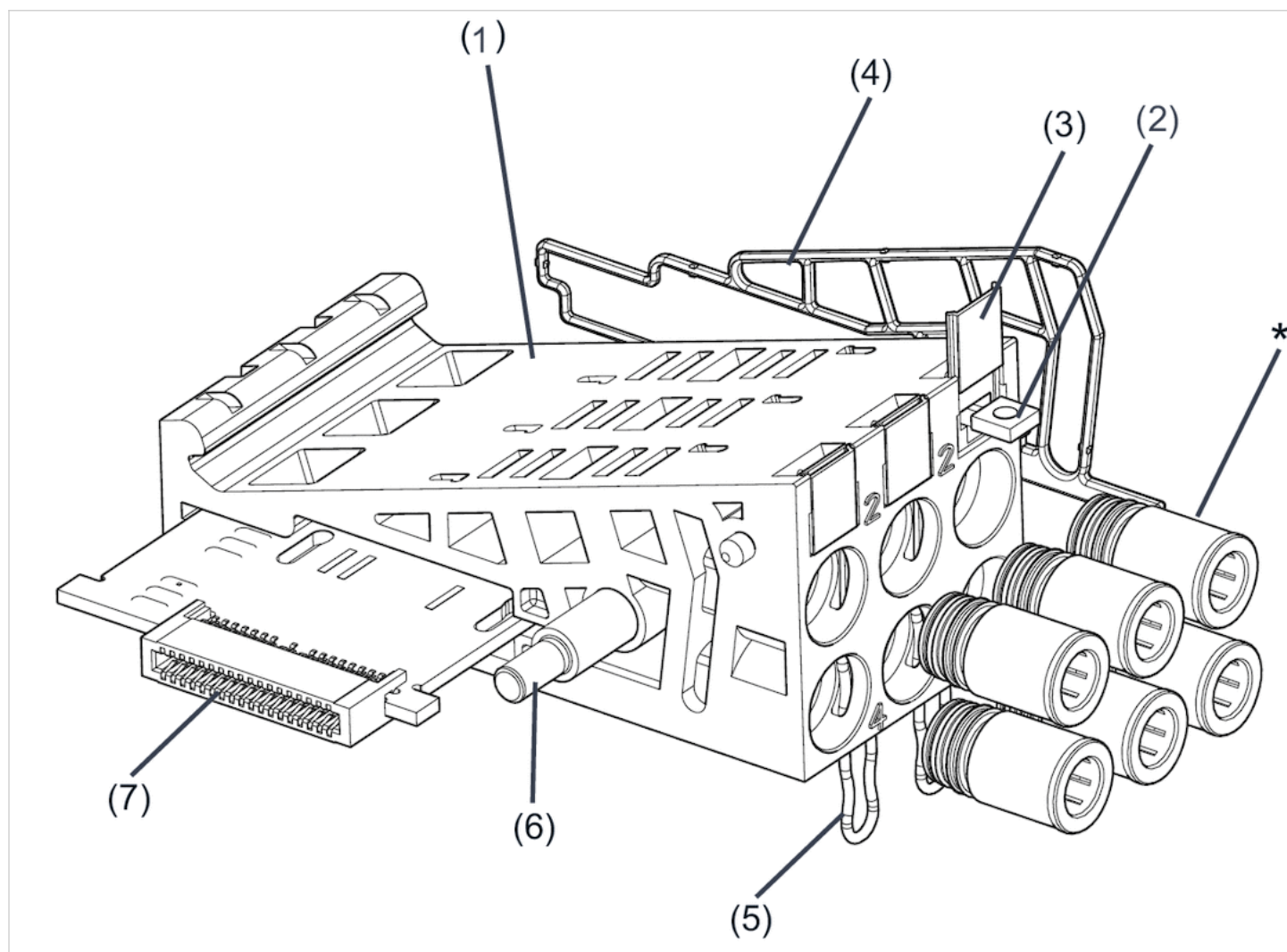
After three I/O modules or 8 valves, mount a retaining bracket (R412018339) to fasten the entire unit to the mounting surface.

## Technical information

| Material |                |
|----------|----------------|
| Housing  | Polyamide      |
| Seals    | Nitrile rubber |

## Dimensions

### Overview drawing



\* Push-in fittings not included in the scope of delivery.

\* For more information on push-in fittings, see the "Push-in fittings" page for the AV series in the catalog.

# Extension kit for base plate 4x

- for series AV03



Working pressure min./max.

-0.95 ... 10 bar

Ambient temperature min./max.

-10 ... 60 °C

Medium

Compressed air

## Technical data

| Part No.   | Type                          |
|------------|-------------------------------|
| R412018205 | Base plate 4x for bus coupler |

| Part No.   | Scope of delivery                                                                                                                                          |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| R412018205 | 2 base plates (1), incl. 4 nuts (2), 4 labels (3),<br>2 seals (4), 2 retaining clips (5),<br>1 tie rod extension (6), and<br>1 extension circuit board (7) |

## Technical information

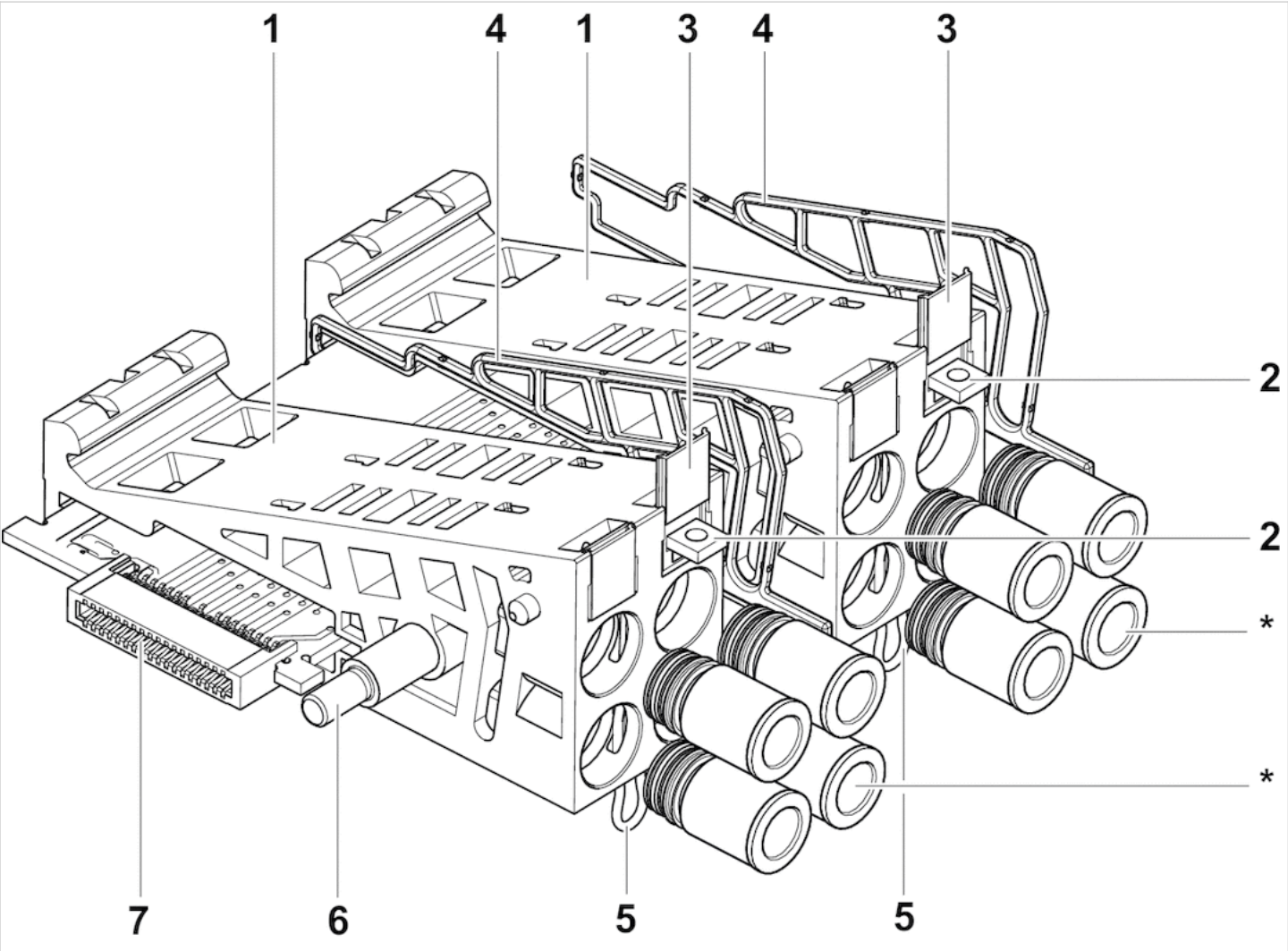
After three I/O modules or 8 valves, mount a retaining bracket (R412018339) to fasten the entire unit to the mounting surface.

## Technical information

| Material |                                  |
|----------|----------------------------------|
| Housing  | Polyamide fiber-glass reinforced |
| Seals    | Nitrile rubber                   |

Dimensions

Overview drawing



Push-in fittings not included in the scope of delivery.  
\* For more information on push-in fittings, see the “Push-in fittings” page for the AV series in the catalog.



# Extension kit for base plate

- for series AV03-BP



Working pressure min./max. -10 ... 60 bar  
Ambient temperature min./max. -10 ... 60 °C

## Technical data

| Part No.   | Type                                                        |
|------------|-------------------------------------------------------------|
| R412026452 | Base plate 2x for double solenoid valves for fieldbus       |
| R412026453 | Base plate 4x for double solenoid valves for fieldbus       |
| R412026454 | Base plate 2x for double solenoid valves for multipole plug |
| R412026455 | Base plate 2x for single solenoid valves for multipole plug |

| Part No.   | Scope of delivery                                                                                                                        | Fig.   |
|------------|------------------------------------------------------------------------------------------------------------------------------------------|--------|
| R412026452 | 1 base plate (1) incl. 2 labels (2), 1 seal (3), 2 nuts (4), 2 tie rod extensions (5), 2 labels (6), and 1 extension circuit board (7)   | Fig. 1 |
| R412026453 | 2 base plates (1) incl. 4 labels (2), 2 seals (3), 4 nuts (4), 4 tie rod extensions (5), 4 labels (6), and 1 extension circuit board (7) | Fig. 2 |
| R412026454 | 1 base plate (1) incl. 2 labels (2), 1 seal (3), 2 nuts (4), 2 tie rod extensions (5), 2 labels (6), and 1 extension circuit board (7)   | Fig. 1 |
| R412026455 | 1 base plates (1) incl. 2 labels (2), 1 seals (3), 2 nuts (4), 2 tie rod extensions (5), 2 labels (6), and 1 extension circuit board (7) | Fig. 1 |

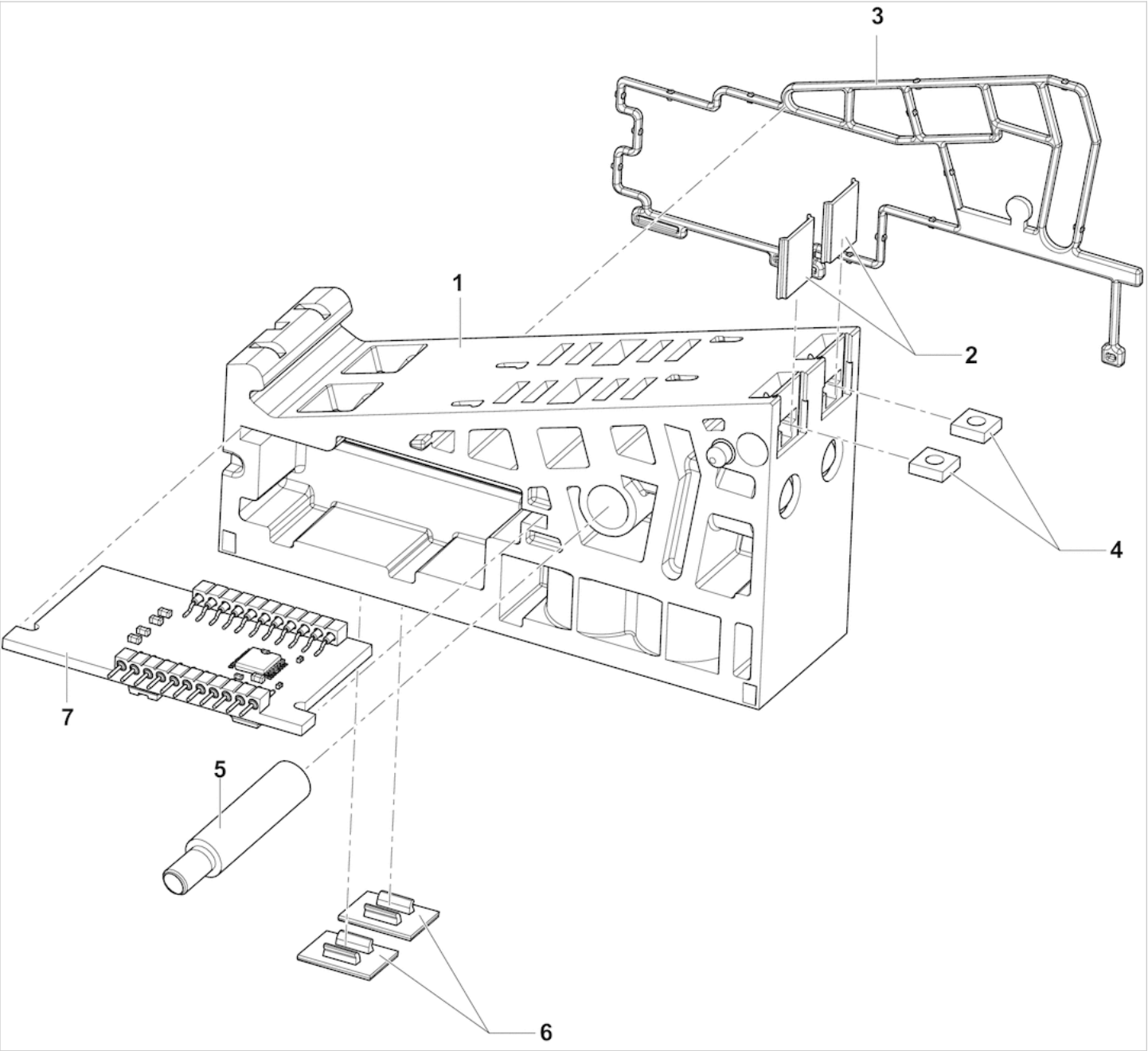
## Technical information

| Material |                                  |
|----------|----------------------------------|
| Housing  | Polyamide fiber-glass reinforced |
| Seals    | Nitrile butadiene rubber         |

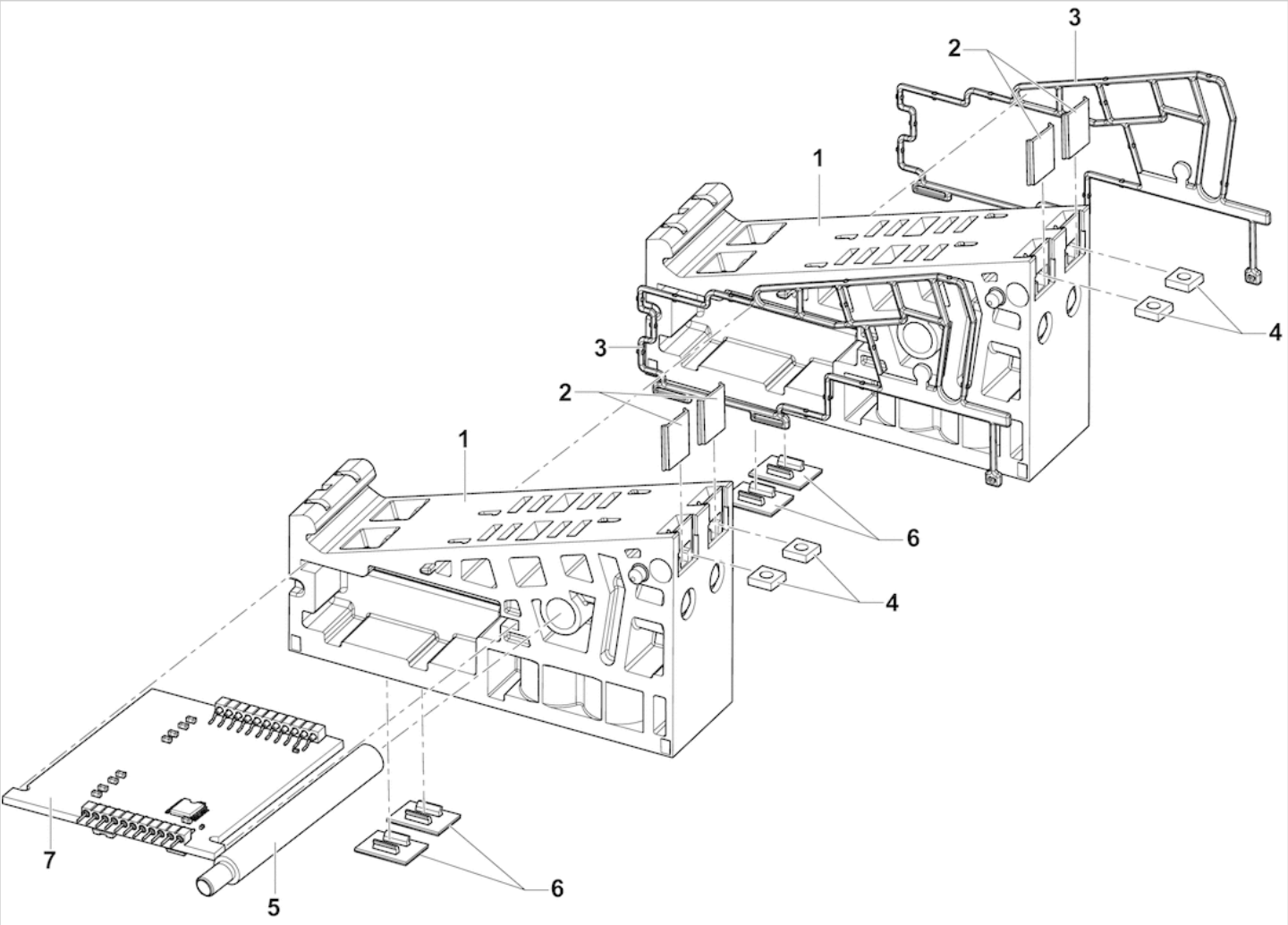


Dimensions

Dimensions, Fig. 1



Dimensions, Fig. 2



# Extension kit for base plate

- for series AV03-EP



Working pressure min./max.

0 ... 11 bar

Ambient temperature min./max.

-10 ... 60 °C

Medium

Compressed air

## Technical data

| Part No.   | Type                                                            |
|------------|-----------------------------------------------------------------|
| R414007343 | Base plate for single pressure control for multipole connection |
| R414007344 | Base plate for pressure zone control for multipole connection   |
| R414007533 | Base plate for single pressure control for fieldbus connection  |
| R414007534 | Base plate for pressure zone control for fieldbus connection    |

| Part No.   | Scope of delivery                                                                                                                                      |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| R414007343 | Base plate (1), incl. 2 nuts (2), 2 labels (3),<br>1 seal (4), 1 retaining clip (5),<br>1 tie rod extensions (6), and<br>1 extension circuit board (7) |
| R414007344 | Base plate (1), incl. 2 nuts (2), 2 labels (3),<br>1 seal (4), 1 retaining clip (5),<br>1 tie rod extensions (6), and<br>1 extension circuit board (7) |
| R414007533 | Base plate (1), incl. 2 nuts (2), 2 labels (3),<br>1 seal (4), 1 retaining clip (5),<br>1 tie rod extensions (6), and<br>1 extension circuit board (7) |
| R414007534 | Base plate (1), incl. 2 nuts (2), 2 labels (3),<br>1 seal (4), 1 retaining clip (5),<br>1 tie rod extensions (6), and<br>1 extension circuit board (7) |

## Technical information

Depending on the selected base plate, you can either use the pressure regulator as a pressure zone control or single pressure control.

When using polyurethane tubing, we recommend using additional stiffener sleeves.

For push-in fittings, only use plug accessories made of plastic (polyamide) from our catalog.

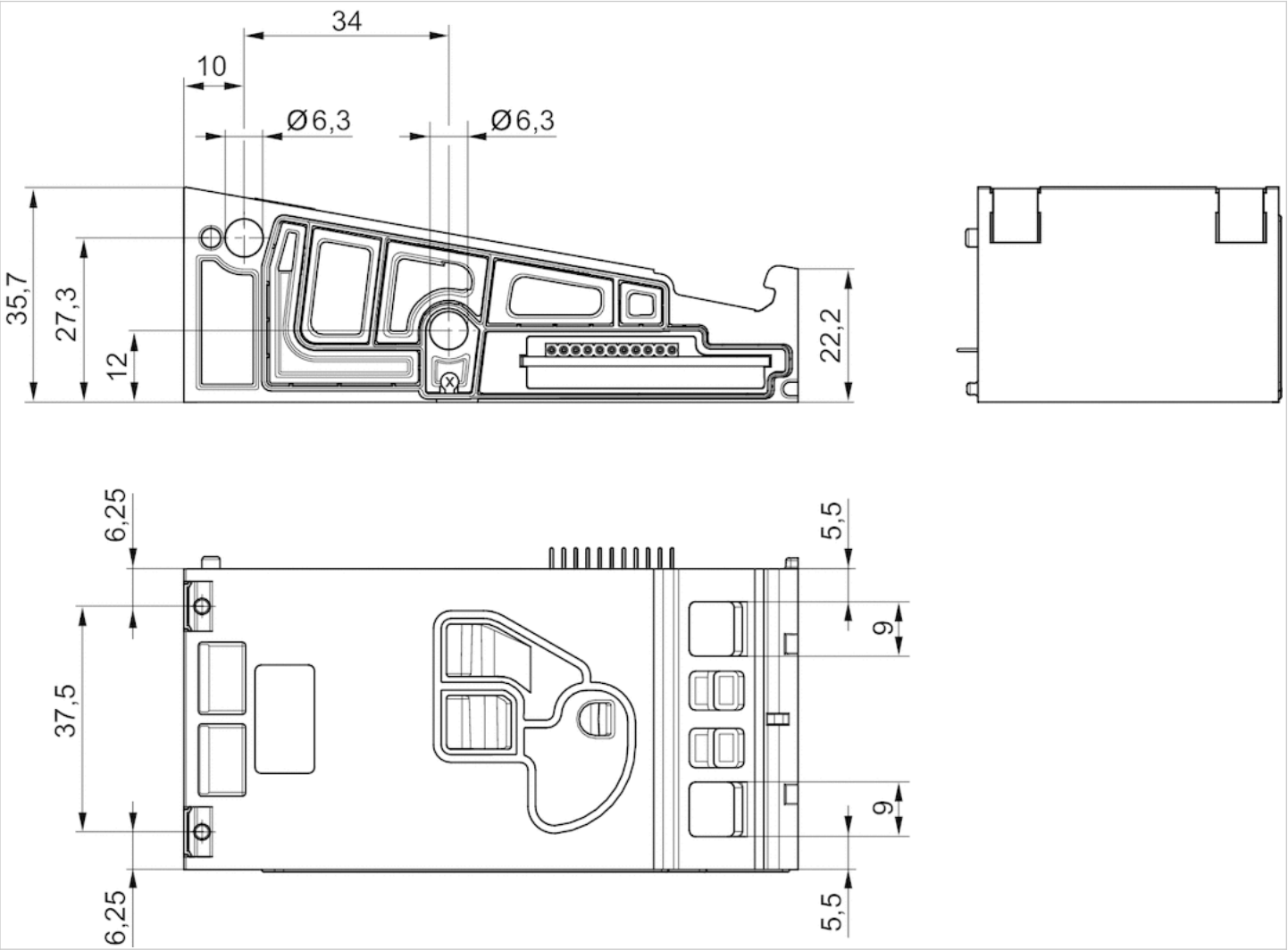
After three I/O modules or 8 valves, mount a retaining bracket (R412018339) to fasten the entire unit to the mounting surface.

Technical information

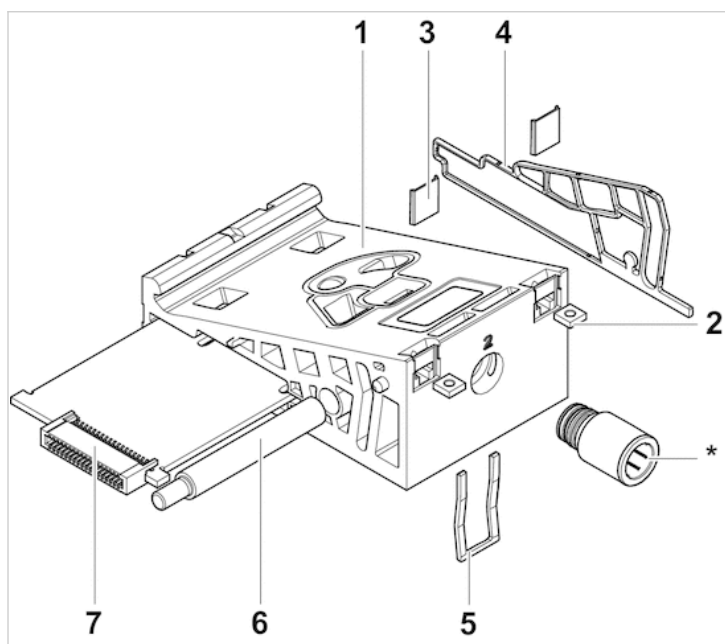
| Material |                          |
|----------|--------------------------|
| Housing  | Polyamide                |
| Seals    | Nitrile butadiene rubber |

Dimensions

Dimensions



## Overview drawing

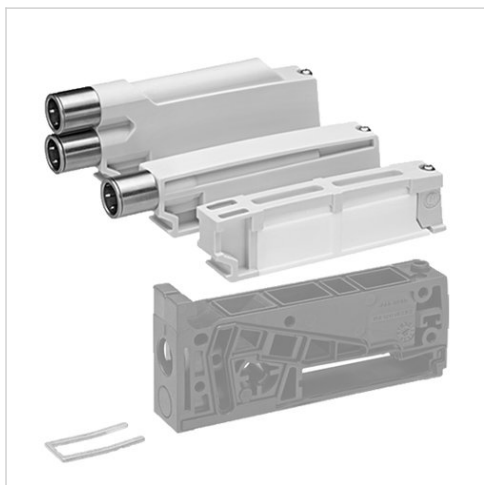


\* Push-in fittings not included in the scope of delivery.

\* For more information on push-in fittings, see the "Push-in fittings" page for the AV series in the catalog.

# Extension kit, exhaust module for supply plate

- for series AV03



|                               |                           |
|-------------------------------|---------------------------|
| Working pressure min./max.    | -0.95 ... 10 bar          |
| Ambient temperature min./max. | -10 ... 60 °C             |
| Max. particle size            | 40 µm                     |
| Oil content of compressed air | 0 ... 5 mg/m <sup>3</sup> |

## Technical data

| Part No.   | Type                                                   |
|------------|--------------------------------------------------------|
| R412018331 | Exhaust module 3, 5, and R with flat silencer          |
| R412018332 | Exhaust module with combined collected exhaust 3 and 5 |
| R412018333 | Exhaust module with separate collected exhaust 3 and 5 |

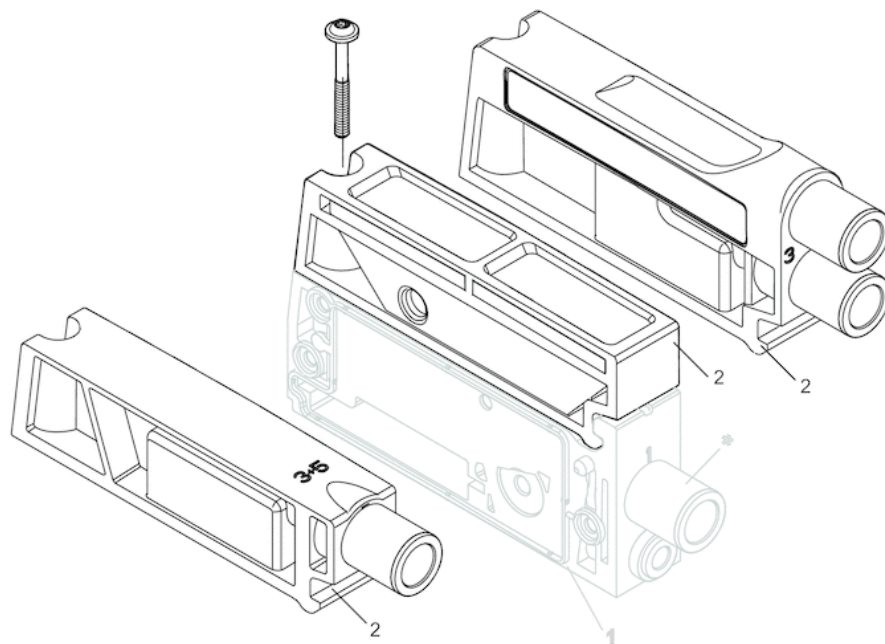
| Part No.   | Scope of delivery                                              |
|------------|----------------------------------------------------------------|
| R412018331 | Exhaust module, including 1 seal, 1 mounting screw             |
| R412018332 | Exhaust module, incl. 1 mounting screw, push-in fitting Ø 8 mm |
| R412018333 | Exhaust module, incl. 1 mounting screw, push-in fitting Ø 8 mm |

## Technical information

When using polyurethane tubing, we recommend using additional stiffener sleeves.  
For push-in fittings, only use plug accessories made of plastic (polyamide) from our catalog.

## Dimensions

### Overview drawing



2) Exhaust module

# Extension kit, supply plate with switch-off voltage monitoring

- for series AV03



|                               |                  |
|-------------------------------|------------------|
| Working pressure min./max.    | -0.95 ... 10 bar |
| Ambient temperature min./max. | -10 ... 60 °C    |
| Medium                        | Compressed air   |
| Max. particle size            | 40 µm            |
| Oil content of compressed air | 0 ... 5 mg/m³    |

## Technical data

| Part No.   |                                                                                     | Valve system version | Position |
|------------|-------------------------------------------------------------------------------------|----------------------|----------|
| R412025065 |  | Fieldbus             | 1        |
| R412025066 |                                                                                     | Fieldbus             | 1        |
| R412025067 |                                                                                     | Fieldbus             | 1        |
| R412025068 |                                                                                     | Fieldbus             | 1        |
| R412025069 |                                                                                     | Fieldbus             | 1        |
| R412025070 |                                                                                     | Fieldbus             | 1        |

| Part No.   | Type                                                                                       |
|------------|--------------------------------------------------------------------------------------------|
| R412025065 | Supply plate, connection 1, internal pilot, separate pressure zones in channels 1/3/5/X    |
| R412025066 | Supply plate, connection 1, X, external pilot, separate pressure zones in channels 1/3/5/X |
| R412025067 | Supply plate, connection 1, no pressure zones                                              |
| R412025068 | Supply plate, connection 1, separate pressure zones in channels 1/3/5                      |
| R412025069 | Supply plate, connection 1, separate pressure zone in channel 1                            |
| R412025070 | Supply plate, connection 1, separate pressure zones in channels 3/5                        |

| Part No.   | Scope of delivery                                                                                                              | Fig.   |
|------------|--------------------------------------------------------------------------------------------------------------------------------|--------|
| R412025065 | Base plate, incl. 1 nut,<br>2 seals,<br>1 retaining clip,<br>1 screw,<br>1 tie rod extension,<br>and 1 extension circuit board | Fig. 2 |



| Part No.   | Scope of delivery                                                                                                              | Fig.   |
|------------|--------------------------------------------------------------------------------------------------------------------------------|--------|
| R412025066 | Base plate, incl. 1 nut,<br>2 seals,<br>1 retaining clip,<br>1 screw,<br>1 tie rod extension,<br>and 1 extension circuit board | Fig. 2 |
| R412025067 | Base plate, incl. 1 nut,<br>2 seals,<br>1 retaining clip,<br>1 screw,<br>1 tie rod extension,<br>and 1 extension circuit board | Fig. 1 |
| R412025068 | Base plate, incl. 1 nut,<br>2 seals,<br>1 retaining clip,<br>1 screw,<br>1 tie rod extension,<br>and 1 extension circuit board | Fig. 1 |
| R412025069 | Base plate, incl. 1 nut,<br>2 seals,<br>1 retaining clip,<br>1 screw,<br>1 tie rod extension,<br>and 1 extension circuit board | Fig. 1 |
| R412025070 | Base plate, incl. 1 nut,<br>2 seals,<br>1 retaining clip,<br>1 screw,<br>1 tie rod extension,<br>and 1 extension circuit board | Fig. 1 |

You must order the exhaust modules separately.

## Technical information

The supply plates with switch-off voltage monitoring are equipped with electronics that monitor if the voltage falls safely below the switch-off voltage threshold. The supply plate must be positioned to the left of the valves to be monitored.

The supply plates can only be used in conjunction with an AV valve system with fieldbus connection.

When using polyurethane tubing, we recommend using additional stiffener sleeves.

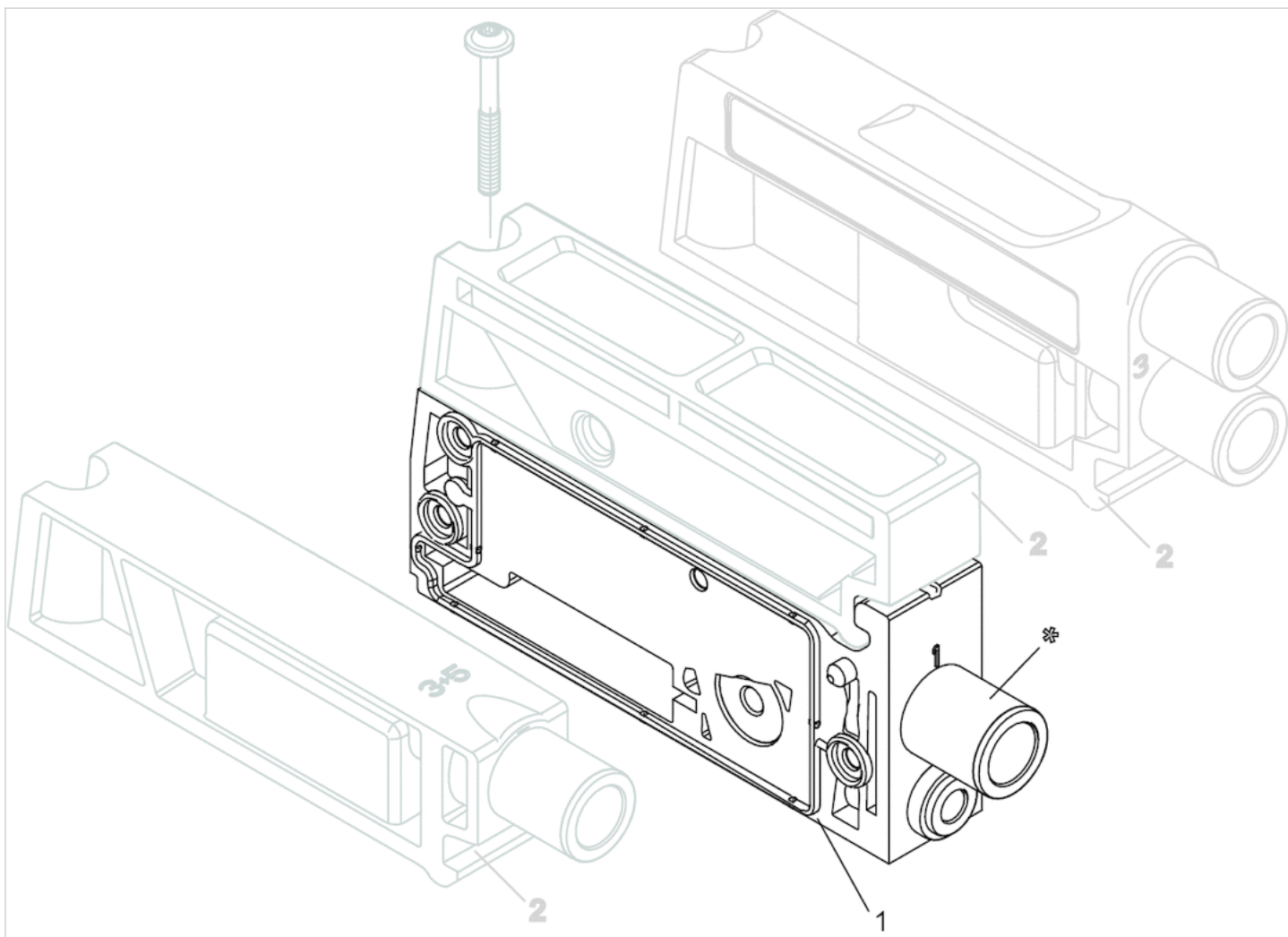
For push-in fittings, only use plug accessories made of plastic (polyamide) from our catalog.

## Technical information

| Material |                |
|----------|----------------|
| Housing  | Polyamide      |
| Seals    | Nitrile rubber |

## Dimensions

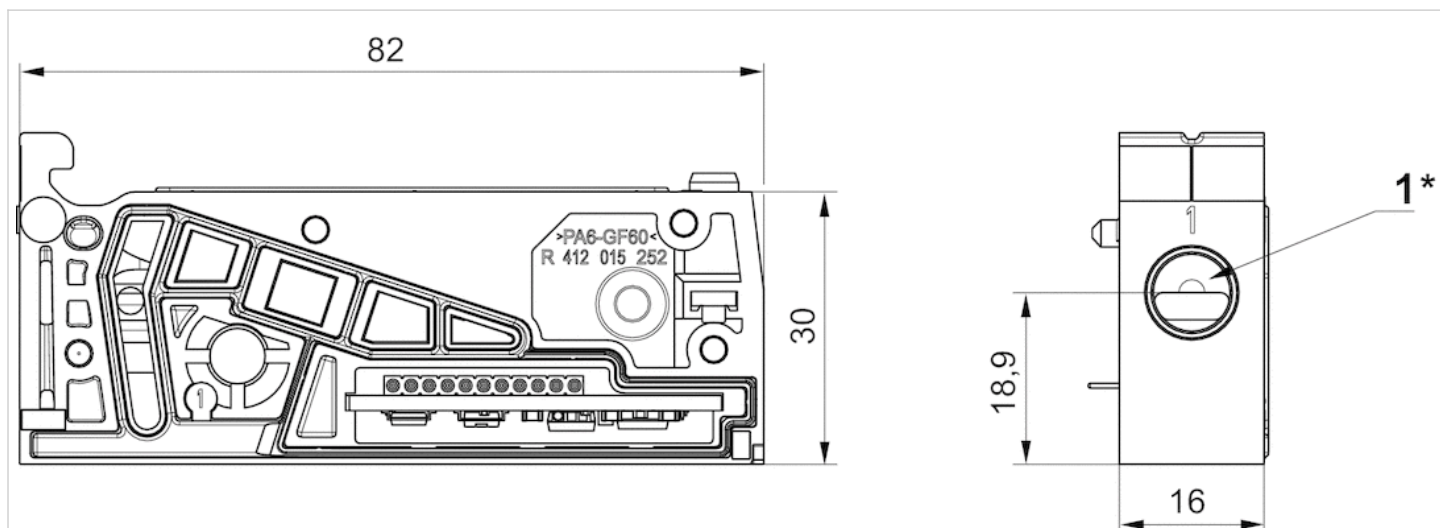
### Overview drawing



\* Position 1: Push-in fittings not included in the scope of delivery.

\* For more information on push-in fittings, see the "Push-in fittings" page for the AV series in the catalog.

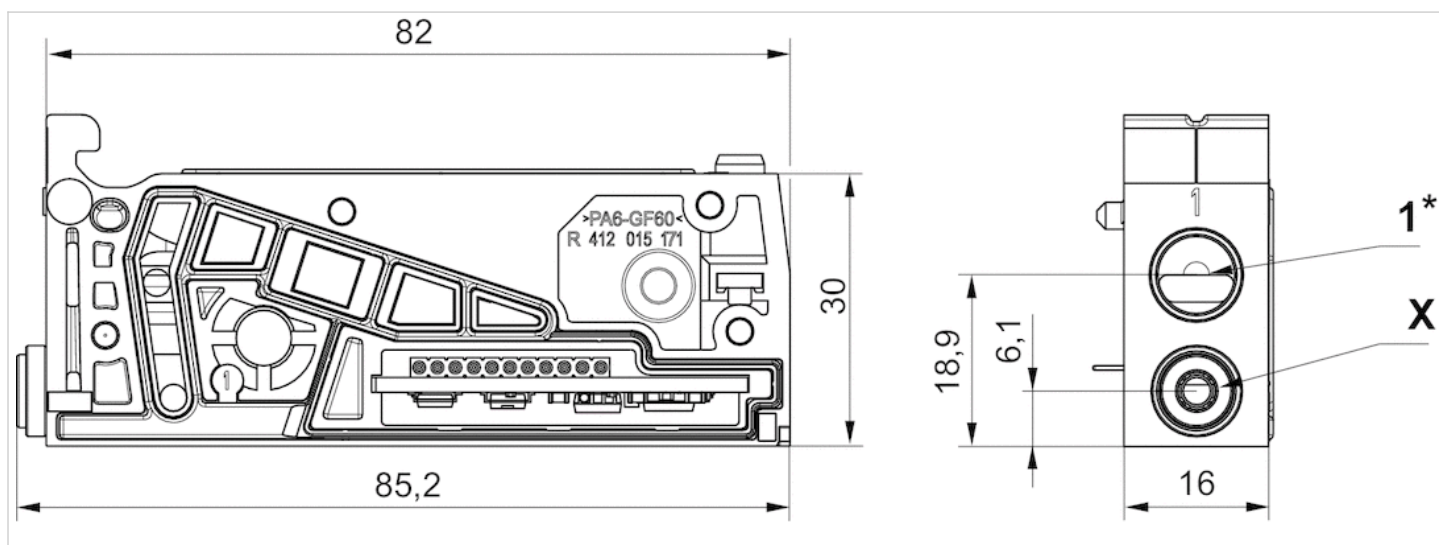
Fig. 1



1) Push-in fittings not included in the scope of delivery.

\* For more information on push-in fittings, see the "Push-in fittings" page for the AV series in the catalog.

Fig. 2



1) Push-in fittings not included in the scope of delivery.

X ) Push-in connector Ø 4 mm, straight 5/32

\* For more information on push-in fittings, see the "Push-in fittings" page for the AV series in the catalog.

# Extension kit, supply plate, left

- Only for the first air supply on the left side of the valve system!

- for series AV03



Working pressure min./max.

-0.95 ... 10 bar

Ambient temperature min./max.

-10 ... 60 °C

Medium

Compressed air

## Technical data

| Part No.   |                                                                                     | Valve system version | Position |
|------------|-------------------------------------------------------------------------------------|----------------------|----------|
| R412018347 |  | Fieldbus             | 1        |
| R412022573 |  | Multipole            | 1        |
| R412018348 |  | Fieldbus             | 1        |
| R412022574 |  | Multipole            | 1        |

| Part No.   | Type                                                                                      |
|------------|-------------------------------------------------------------------------------------------|
| R412018347 | Supply plate, connection 1, internal pilot, separate pressure zones in channels 1/3/5/X/R |
| R412022573 | Supply plate, connection 1, internal pilot, separate pressure zones in channels 1/3/5/X/R |
| R412018348 | Supply plate, connection 1, external pilot, separate pressure zones in channels 1/3/5/X/R |
| R412022574 | Supply plate, connection 1, external pilot, separate pressure zones in channels 1/3/5/X/R |

| Part No.   | Scope of delivery                                                                                                                             | Fig.   |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------|--------|
| R412018347 | Base plate, incl. 1 nut,<br>2 seals,<br>1 retaining clip,<br>1 screw,<br>1 tie rod extension, 1 tie rod nuts<br>and 1 extension circuit board | Fig. 1 |
| R412022573 | Base plate, incl. 1 nut,<br>2 seals,<br>1 retaining clip,<br>1 screw,<br>1 tie rod extension, 1 tie rod nuts<br>and 1 extension circuit board | Fig. 1 |

| Part No.   | Scope of delivery                                                                                                                             | Fig.   |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------|--------|
| R412018348 | Base plate, incl. 1 nut,<br>2 seals,<br>1 retaining clip,<br>1 screw,<br>1 tie rod extension, 1 tie rod nuts<br>and 1 extension circuit board | Fig. 2 |
| R412022574 | Base plate, incl. 1 nut,<br>2 seals,<br>1 retaining clip,<br>1 screw,<br>1 tie rod extension, 1 tie rod nuts<br>and 1 extension circuit board | Fig. 2 |

## Technical information

When using polyurethane tubing, we recommend using additional stiffener sleeves.

For push-in fittings, only use plug accessories made of plastic (polyamide) from our catalog.

The exhaust module (item 2) is not included in the scope of delivery for the supply plate (item 1). You must order the exhaust modules separately.

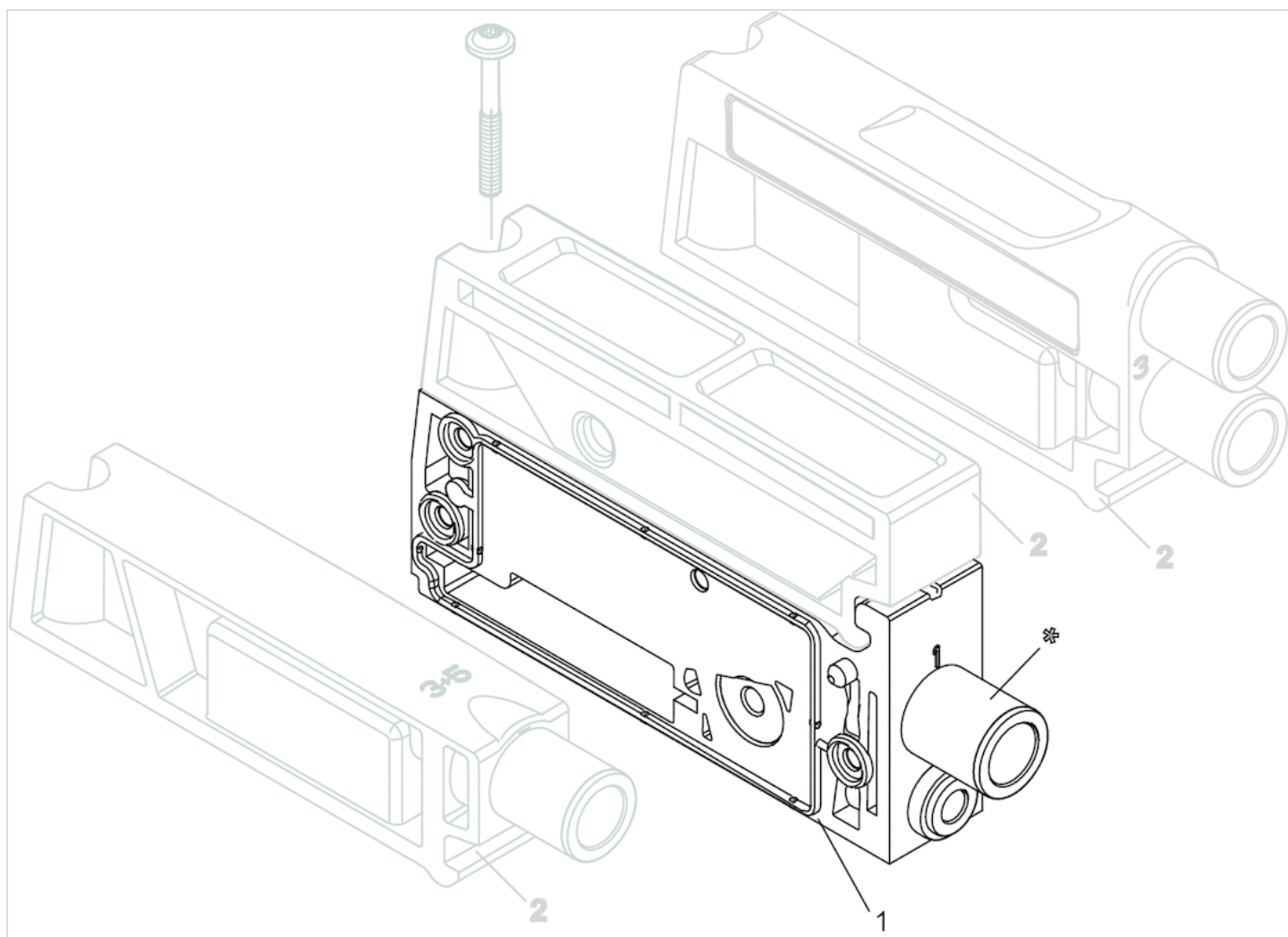
Position 1: Push-in fittings not included in the scope of delivery.

## Technical information

| Material |                |
|----------|----------------|
| Housing  | Polyamide      |
| Seals    | Nitrile rubber |

## Dimensions

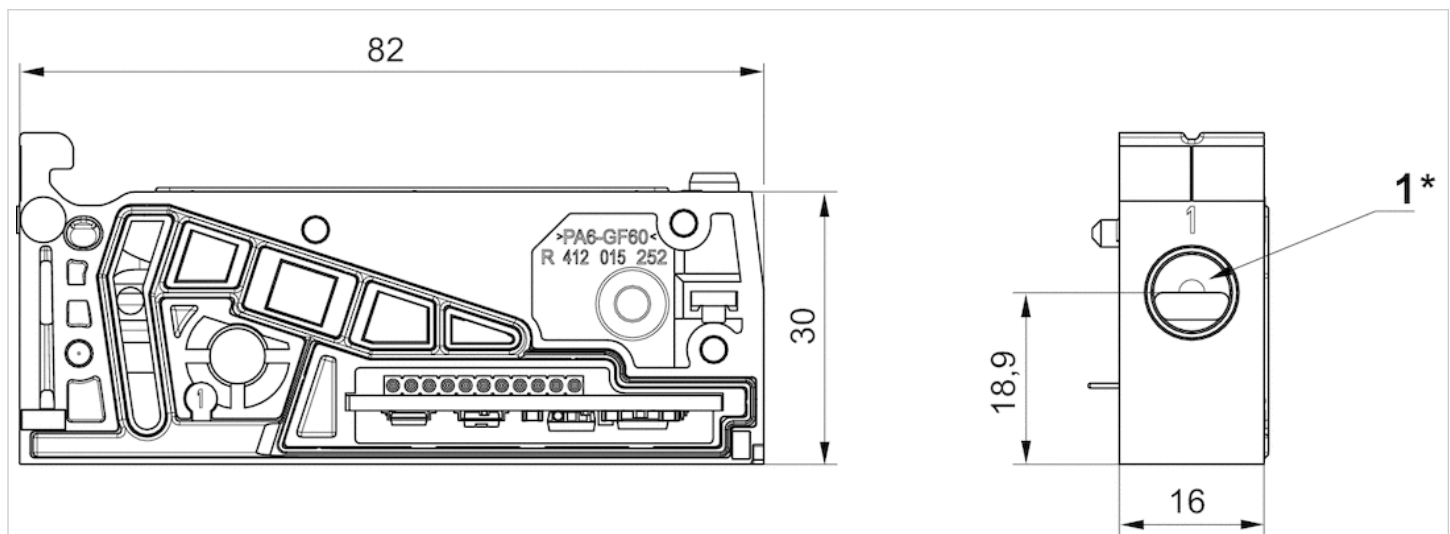
### Overview drawing



\* Position 1: Push-in fittings not included in the scope of delivery.

\* For more information on push-in fittings, see the "Push-in fittings" page for the AV series in the catalog.

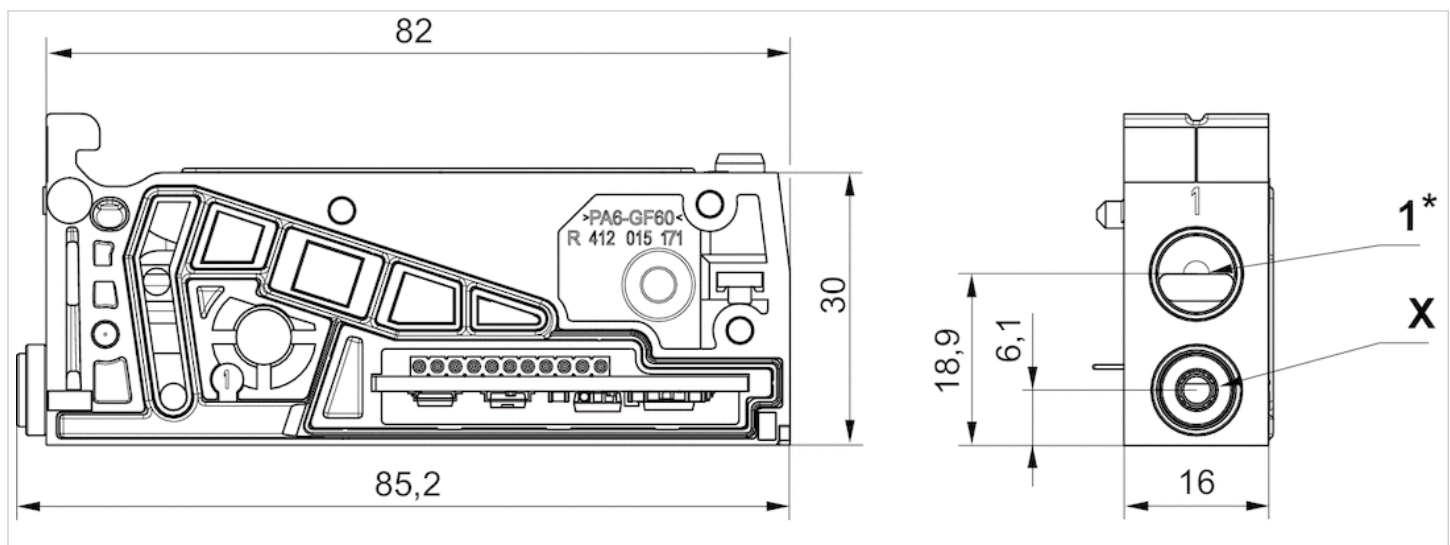
Fig. 1



1) Push-in fittings not included in the scope of delivery.

\* For more information on push-in fittings, see the "Push-in fittings" page for the AV series in the catalog.

Fig. 2



1) Push-in fittings not included in the scope of delivery.

X) Push-in connector Ø 4 mm, straight 5/32

\* For more information on push-in fittings, see the "Push-in fittings" page for the AV series in the catalog.

# Extension kit, supply plate, center

- for series AV03



Working pressure min./max.

-0.95 ... 10 bar

Ambient temperature min./max.

-10 ... 60 °C

Medium

Compressed air

## Technical data

| Part No.   |                                                                                     | Valve system version | Position |
|------------|-------------------------------------------------------------------------------------|----------------------|----------|
| R412026822 |  | Fieldbus             | 1        |
| R412026824 |  | Multipole            | 1        |
| R412026821 |  | Fieldbus             | 1        |
| R412026823 |  | Multipole            | 1        |
| R412018337 |  | Fieldbus             | 1        |
| R412022575 |  | Multipole            | 1        |
| R412018613 |  | Fieldbus             | 1        |
| R412022576 |  | Multipole            | 1        |
| R412018614 |  | Fieldbus             | 1        |
| R412022577 |  | Multipole            | 1        |
| R412018615 |  | Fieldbus             | 1        |
| R412022578 |  | Multipole            | 1        |

| Part No.   | Type                                                                                    |
|------------|-----------------------------------------------------------------------------------------|
| R412026822 | Supply plate, connection 1, internal pilot, separate pressure zones in channels 1/3/5/X |
| R412026824 | Supply plate, connection 1, internal pilot, separate pressure zones in channels 1/3/5/X |
| R412026821 | Supply plate, connection 1, external pilot, separate pressure zones in channels 1/3/5/X |
| R412026823 | Supply plate, connection 1, external pilot, separate pressure zones in channels 1/3/5/X |
| R412018337 | Supply plate, connection 1, no pressure zones                                           |
| R412022575 | Supply plate, connection 1, no pressure zones                                           |
| R412018613 | Supply plate, connection 1, separate pressure zones in channels 1/3/5                   |
| R412022576 | Supply plate, connection 1, separate pressure zones in channels 1/3/5                   |
| R412018614 | Supply plate, connection 1, separate pressure zone in channel 1                         |



| Part No.   | Type                                                                   |
|------------|------------------------------------------------------------------------|
| R412022577 | Supply plate, connection 1,<br>separate pressure zone in channel 1     |
| R412018615 | Supply plate, connection 1,<br>separate pressure zones in channels 3/5 |
| R412022578 | Supply plate, connection 1,<br>separate pressure zones in channels 3/5 |

| Part No.   | Scope of delivery                                                                                                              | Fig.   |
|------------|--------------------------------------------------------------------------------------------------------------------------------|--------|
| R412026822 | Base plate, incl. 1 nut,<br>2 seals,<br>1 retaining clip,<br>1 screw,<br>1 tie rod extension,<br>and 1 extension circuit board | Fig. 1 |
| R412026824 | Base plate, incl. 1 nut,<br>2 seals,<br>1 retaining clip,<br>1 screw,<br>1 tie rod extension,<br>and 1 extension circuit board | Fig. 1 |
| R412026821 | Base plate, incl. 1 nut,<br>2 seals,<br>1 retaining clip,<br>1 screw,<br>1 tie rod extension,<br>and 1 extension circuit board | Fig. 2 |
| R412026823 | Base plate, incl. 1 nut,<br>2 seals,<br>1 retaining clip,<br>1 screw,<br>1 tie rod extension,<br>and 1 extension circuit board | Fig. 2 |
| R412018337 | Base plate, incl. 1 nut,<br>2 seals,<br>1 retaining clip,<br>1 screw,<br>1 tie rod extension,<br>and 1 extension circuit board | Fig. 1 |
| R412022575 | Base plate, incl. 1 nut,<br>2 seals,<br>1 retaining clip,<br>1 screw,<br>1 tie rod extension,<br>and 1 extension circuit board | Fig. 1 |
| R412018613 | Base plate, incl. 1 nut,<br>2 seals,<br>1 retaining clip,<br>1 screw,<br>1 tie rod extension,<br>and 1 extension circuit board | Fig. 1 |
| R412022576 | Base plate, incl. 1 nut,<br>2 seals,<br>1 retaining clip,<br>1 screw,<br>1 tie rod extension,<br>and 1 extension circuit board | Fig. 1 |

| Part No.   | Scope of delivery                                                                                                              | Fig.   |
|------------|--------------------------------------------------------------------------------------------------------------------------------|--------|
| R412018614 | Base plate, incl. 1 nut,<br>2 seals,<br>1 retaining clip,<br>1 screw,<br>1 tie rod extension,<br>and 1 extension circuit board | Fig. 1 |
| R412022577 | Base plate, incl. 1 nut,<br>2 seals,<br>1 retaining clip,<br>1 screw,<br>1 tie rod extension,<br>and 1 extension circuit board | Fig. 1 |
| R412018615 | Base plate, incl. 1 nut,<br>2 seals,<br>1 retaining clip,<br>1 screw,<br>1 tie rod extension,<br>and 1 extension circuit board | Fig. 1 |
| R412022578 | Base plate, incl. 1 nut,<br>2 seals,<br>1 retaining clip,<br>1 screw,<br>1 tie rod extension,<br>and 1 extension circuit board | Fig. 1 |

## Technical information

When using polyurethane tubing, we recommend using additional stiffener sleeves.

For push-in fittings, only use plug accessories made of plastic (polyamide) from our catalog.

The exhaust module (item 2) is not included in the scope of delivery for the supply plate (item 1). You must order the exhaust modules separately.

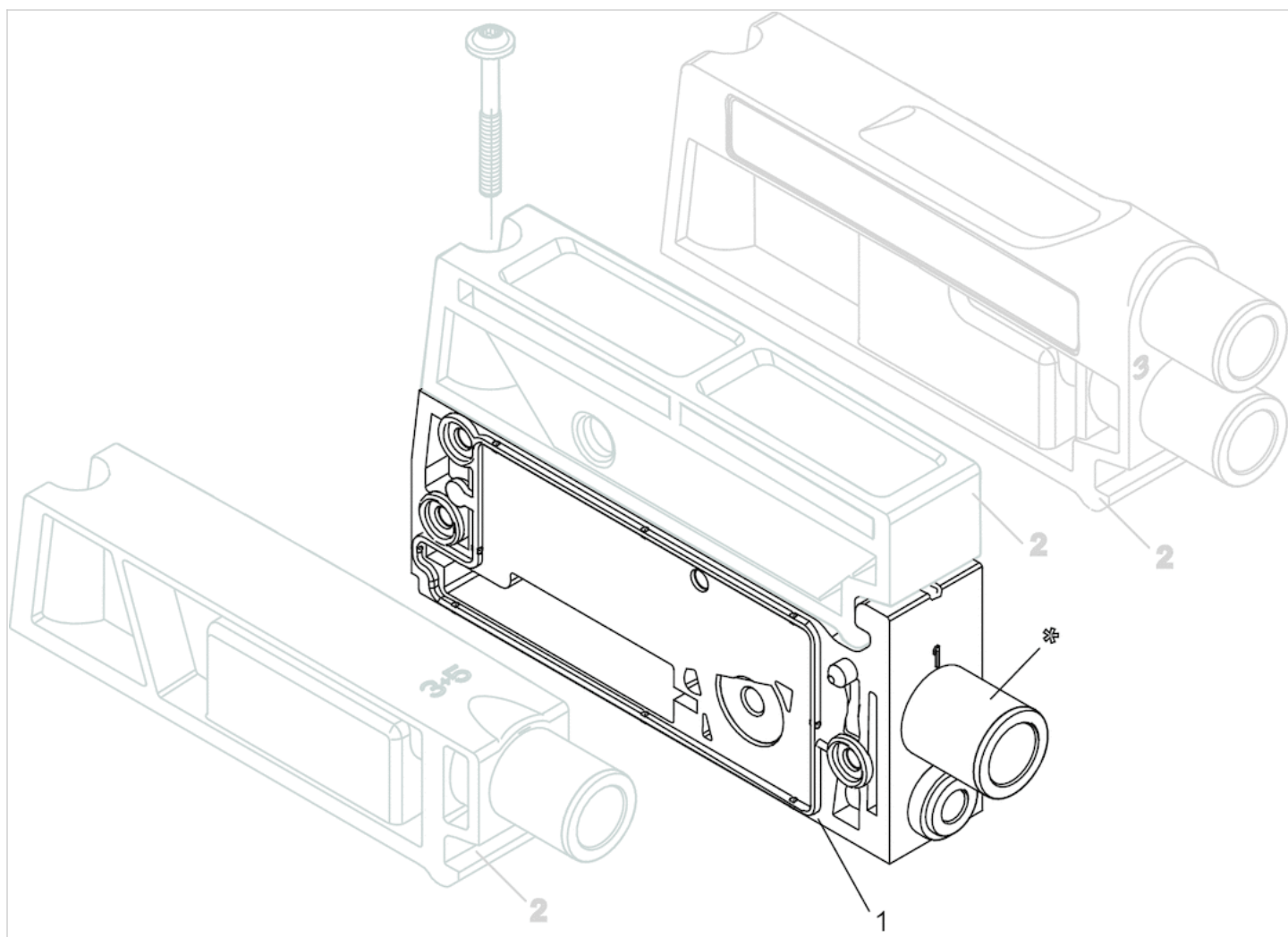
Position 1: Push-in fittings not included in the scope of delivery.

## Technical information

| Material |                |
|----------|----------------|
| Housing  | Polyamide      |
| Seals    | Nitrile rubber |

## Dimensions

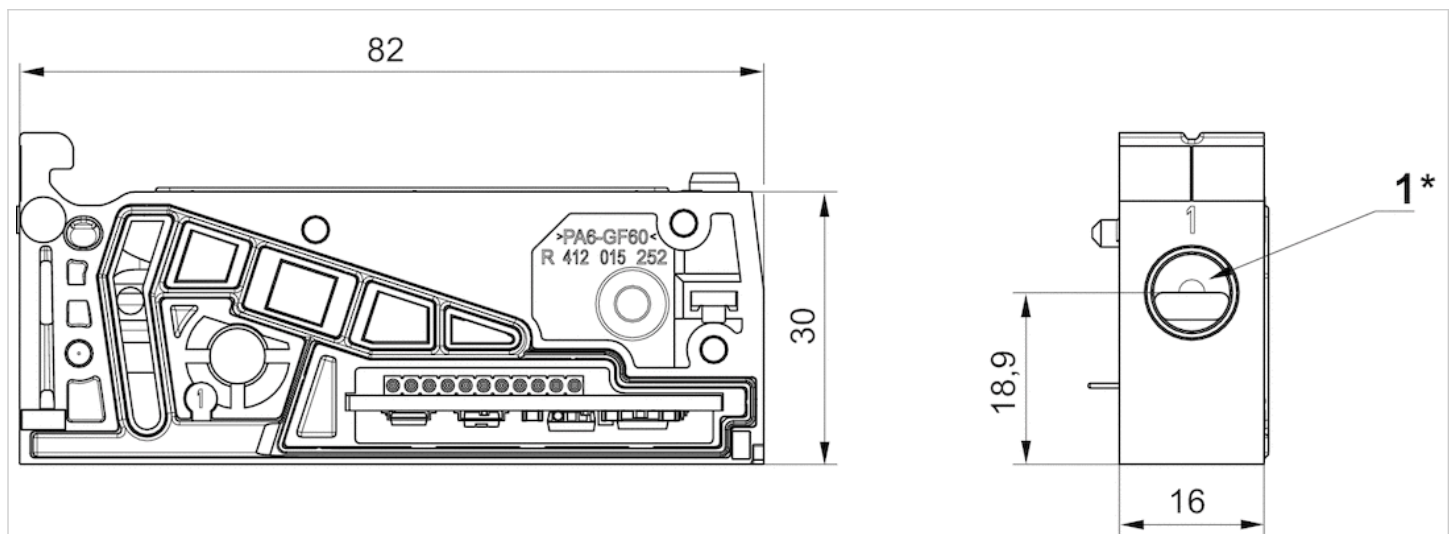
### Overview drawing



\* Position 1: Push-in fittings not included in the scope of delivery.

\* For more information on push-in fittings, see the "Push-in fittings" page for the AV series in the catalog.

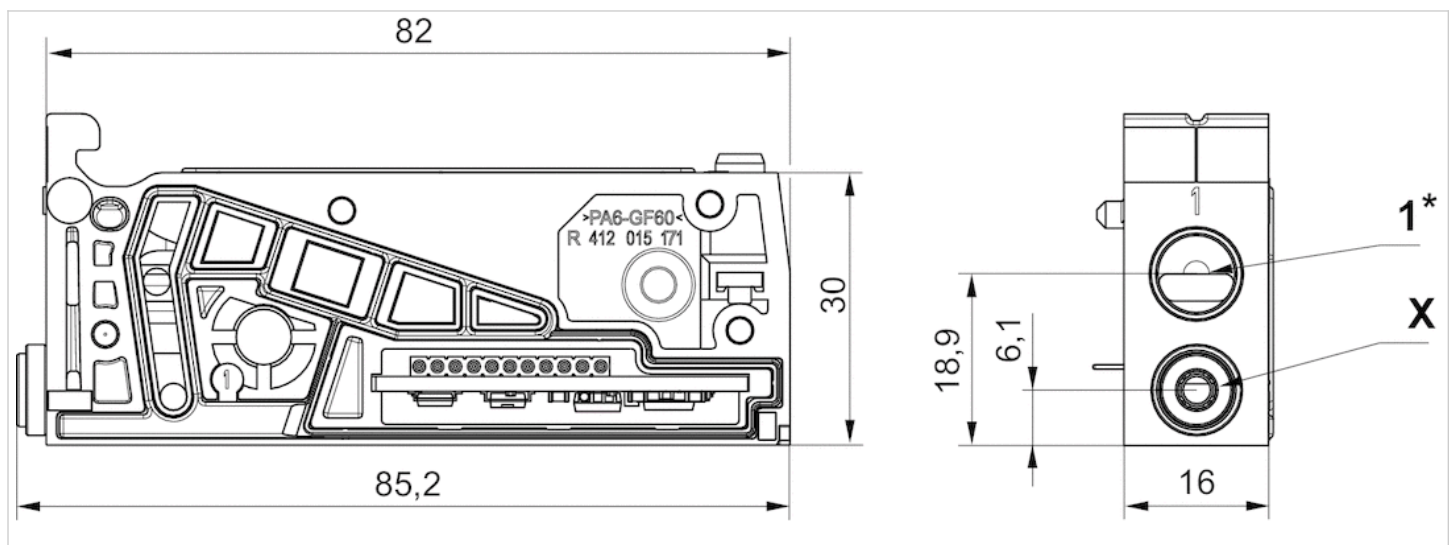
Fig. 1



1) Push-in fittings not included in the scope of delivery.

\* For more information on push-in fittings, see the "Push-in fittings" page for the AV series in the catalog.

Fig. 2



1) Push-in fittings not included in the scope of delivery.

X) Push-in connector Ø 4 mm, straight 5/32

\* For more information on push-in fittings, see the "Push-in fittings" page for the AV series in the catalog.

# Extension kit, supply plate

- for series AV03-BP



Working pressure min./max.

-0.95 ... 10 bar

Ambient temperature min./max.

-10 ... 60 °C

Medium

Compressed air

## Technical data

| Part No.   |                                                                                     | Valve system version |
|------------|-------------------------------------------------------------------------------------|----------------------|
| R412026434 |  | Fieldbus             |
| R412026438 |  | Multipole            |
| R412026435 |  | Fieldbus             |
| R412026439 |  | Multipole            |
| R412026436 |  | Fieldbus             |
| R412026440 |  | Multipole            |
| R412026437 |  | Fieldbus             |
| R412026441 |  | Multipole            |

| Part No.   | Type                                                                          |
|------------|-------------------------------------------------------------------------------|
| R412026434 | Supply plate, connection 1, 3, 5, no pressure zones                           |
| R412026438 | Supply plate, connection 1, 3, 5, no pressure zones                           |
| R412026435 | Supply plate, connection 1, 3, 5<br>separate pressure zones in channels 1/3/5 |
| R412026439 | Supply plate, connection 1, 3, 5<br>separate pressure zones in channels 1/3/5 |
| R412026436 | Supply plate, connection 1, 3, 5<br>separate pressure zones in channels 1     |
| R412026440 | Supply plate, connection 1, 3, 5<br>separate pressure zones in channels 1     |
| R412026437 | Supply plate, connection 1, 3, 5<br>separate pressure zones in channels 3/5   |
| R412026441 | Supply plate, connection 1, 3, 5<br>separate pressure zones in channels 3/5   |

| Part No.   | Scope of delivery                                                                             |
|------------|-----------------------------------------------------------------------------------------------|
| R412026434 | Supply plate (2) incl. 1 seal (1), 1 tie rod extension (3) and 2 extension circuit boards (4) |
| R412026438 | Supply plate (2) incl. 1 seal (1), 1 tie rod extension (3) and 2 extension circuit boards (4) |
| R412026435 | Supply plate (2) incl. 1 seal (1), 1 tie rod extension (3) and 2 extension circuit boards (4) |

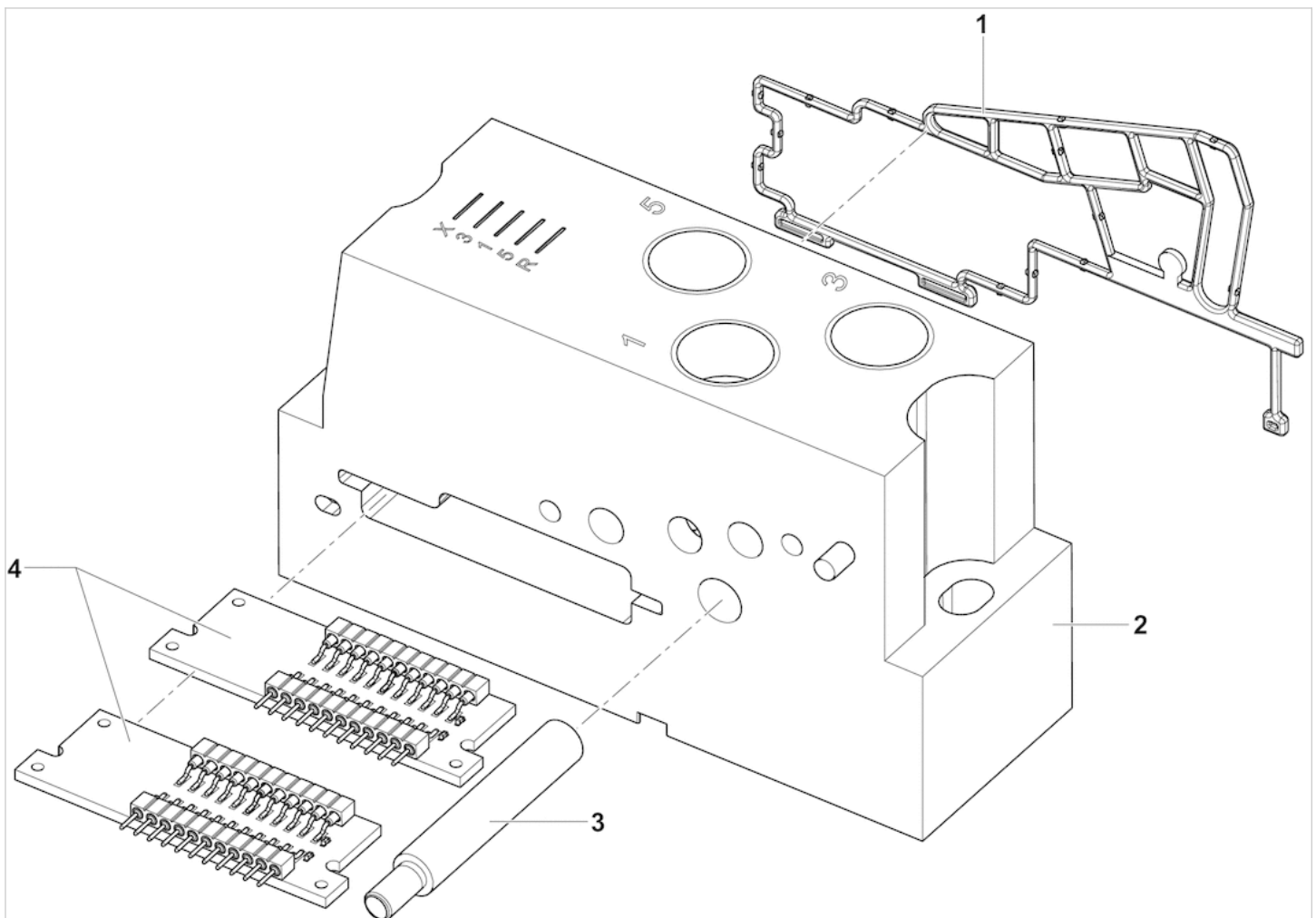
| Part No.   | Scope of delivery                                                                             |
|------------|-----------------------------------------------------------------------------------------------|
| R412026439 | Supply plate (2) incl. 1 seal (1), 1 tie rod extension (3) and 2 extension circuit boards (4) |
| R412026436 | Supply plate (2) incl. 1 seal (1), 1 tie rod extension (3) and 2 extension circuit boards (4) |
| R412026440 | Supply plate (2) incl. 1 seal (1), 1 tie rod extension (3) and 2 extension circuit boards (4) |
| R412026437 | Supply plate (2) incl. 1 seal (1), 1 tie rod extension (3) and 2 extension circuit boards (4) |
| R412026441 | Supply plate (2) incl. 1 seal (1), 1 tie rod extension (3) and 2 extension circuit boards (4) |

## Technical information

| Material |                                |
|----------|--------------------------------|
| Housing  | Aluminum                       |
| Seals    | Acrylonitrile butadiene rubber |

## Dimensions

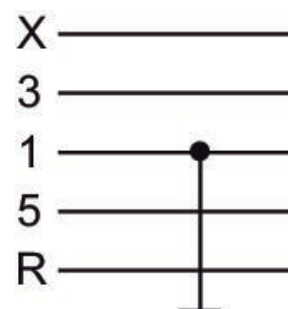
### Dimensions



- 1) Seal
- 2) Housing
- 3) Tie rod extension, 1 piece
- 4) Extension circuit board

# Extension kit, electrical supply plate

R412021748



## Technical data

Industry

Type

For series

Industrial

Assembly kit

AV03

AES

DC operating voltage

24 V

Voltage tolerance DC

-10% / +10%

Scope of delivery

Supply plate, incl. 1 seal, 1 tie rod, and 1 screw for extension

Min. ambient temperature

-10 °C

Max. ambient temperature

60 °C

Min. medium temperature

-10 °C

|                          |         |
|--------------------------|---------|
| Max. medium temperature  | 60 °C   |
| Electrical connection    | M12     |
| Electrical connection    | 4-pin   |
| Electrical connection    | A-coded |
| Max. current consumption | 2 A     |
| Protection class         | IP65    |
| Weight                   | 0.12 kg |

## Material

|                  |                       |
|------------------|-----------------------|
| Housing material | Polyamide<br>Aluminum |
| Seal material    | Nitrile rubber        |
| Part No.         | R412021748            |

## Technical information

When using polyurethane tubing, we recommend using additional stiffener sleeves.

For push-in fittings, only use plug accessories made of plastic (polyamide) from our catalog.

Please note that the supply plate may only be used in conjunction with AES series fieldbus modules.

The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!

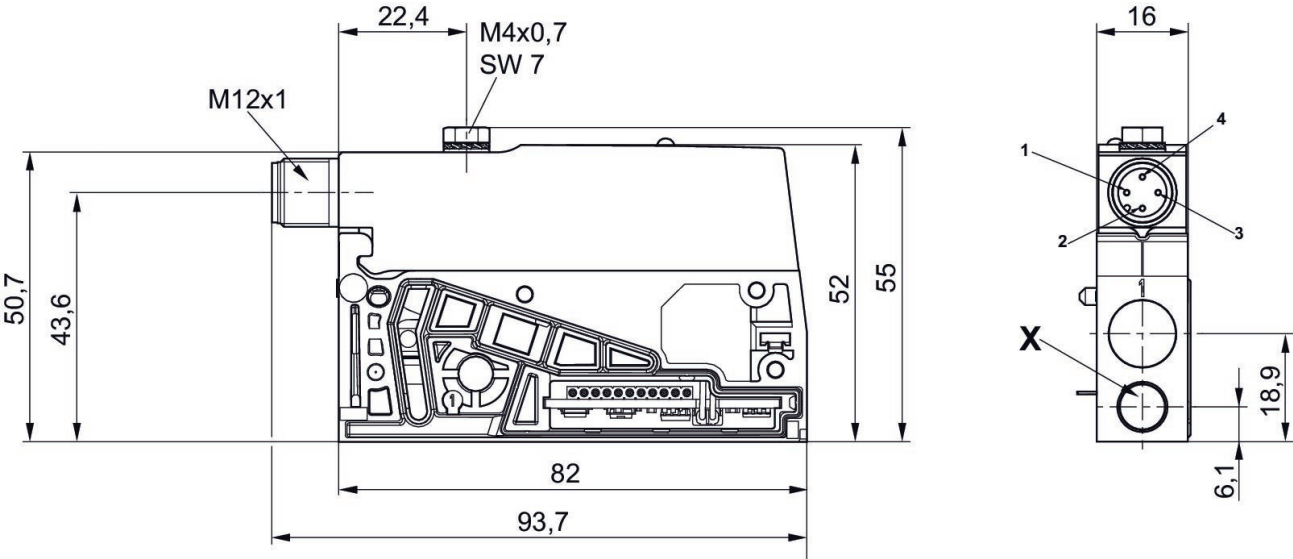
The pressure dew point must be at least 15 °C less than ambient and medium temperature and may not exceed 3 °C.

The oil content of compressed air must remain constant during the life cycle.

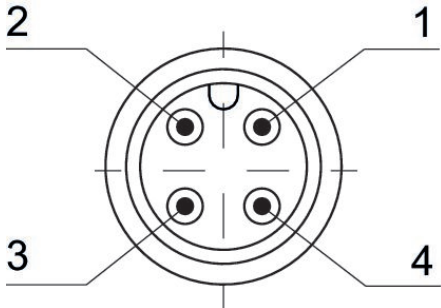
Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in <https://www.emerson.com/en-us/support>).



Dimensions



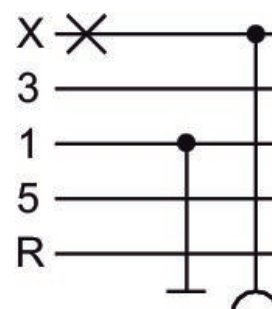
Plug (male)



| Pin | Plug X1S     |
|-----|--------------|
| 1   | not assigned |
| 2   | 24 V DC      |
| 3   | not assigned |
| 4   | 0 V DC (UA)  |

# Extension kit, electrical supply plate

R412021752



## Technical data

Industry

Type

For series

Industrial

Assembly kit

AV03

AES

DC operating voltage

24 V

Voltage tolerance DC

-10% / +10%

Scope of delivery

Supply plate, incl. 1 seal, 1 tie rod, and 1 screw for extension

Min. ambient temperature

-10 °C

Max. ambient temperature

60 °C

Min. medium temperature

-10 °C

|                          |         |
|--------------------------|---------|
| Max. medium temperature  | 60 °C   |
| Electrical connection    | M12     |
| Electrical connection    | 4-pin   |
| Electrical connection    | A-coded |
| Max. current consumption | 2 A     |
| Protection class         | IP65    |
| Weight                   | 0.12 kg |

## Material

|                  |                       |
|------------------|-----------------------|
| Housing material | Polyamide<br>Aluminum |
| Seal material    | Nitrile rubber        |
| Part No.         | R412021752            |

## Technical information

When using polyurethane tubing, we recommend using additional stiffener sleeves.

For push-in fittings, only use plug accessories made of plastic (polyamide) from our catalog.

Please note that the supply plate may only be used in conjunction with AES series fieldbus modules.

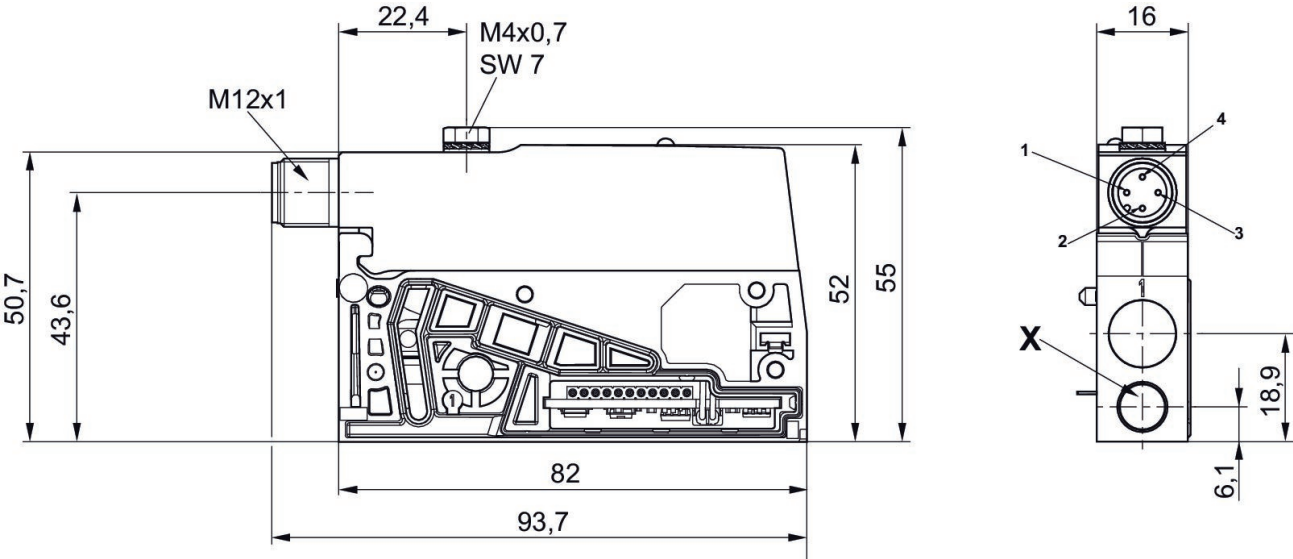
The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!

The pressure dew point must be at least 15 °C less than ambient and medium temperature and may not exceed 3 °C.

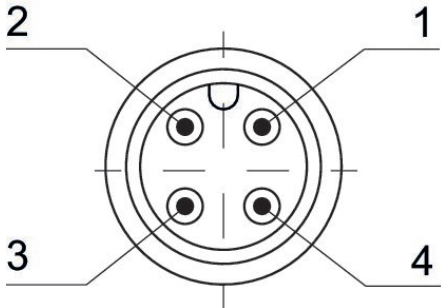
The oil content of compressed air must remain constant during the life cycle.

Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in <https://www.emerson.com/en-us/support>).

Dimensions



Plug (male)



| Pin | Plug X1S     |
|-----|--------------|
| 1   | not assigned |
| 2   | 24 V DC      |
| 3   | not assigned |
| 4   | 0 V DC (UA)  |

# Extension kit, Electrical valve control module

- for AV03



|                               |               |
|-------------------------------|---------------|
| Ambient temperature min./max. | -10 ... 60 °C |
| Medium temperature min./max.  | -10 ... 60 °C |
| Max. power consumption        | 1 A           |
| Protection class              | IP65          |
| Weight                        | 0.125 kg      |

|   |
|---|
| X |
| 3 |
| 1 |
| 5 |
| R |
|   |

## Technical data

| Part No.   | Scope of delivery                                                                                                                                                                               | Pilot connection |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| R412022742 | M12 control module (incl. base plate for 2 valve positions incl. 2 nuts, 2 labels),<br>1 tie rod extension 16 mm,<br>1 tide rod extension 25 mm,<br>1 screw,<br>1 retaining clip,<br>and 1 seal | Ø 12             |

| Part No.   | DC operating voltage |
|------------|----------------------|
| R412022742 | 24 V                 |

Push-in fittings are not included in the scope of delivery and must be ordered separately.

## Technical information

The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

Use only the approved oils from AVENTICS. Further information can be found in the “Technical information” document (available in the MediaCentre).

When using polyurethane tubing, we recommend using additional stiffener sleeves.

For push-in fittings, only use plug accessories made of plastic (polyamide) from our catalog.

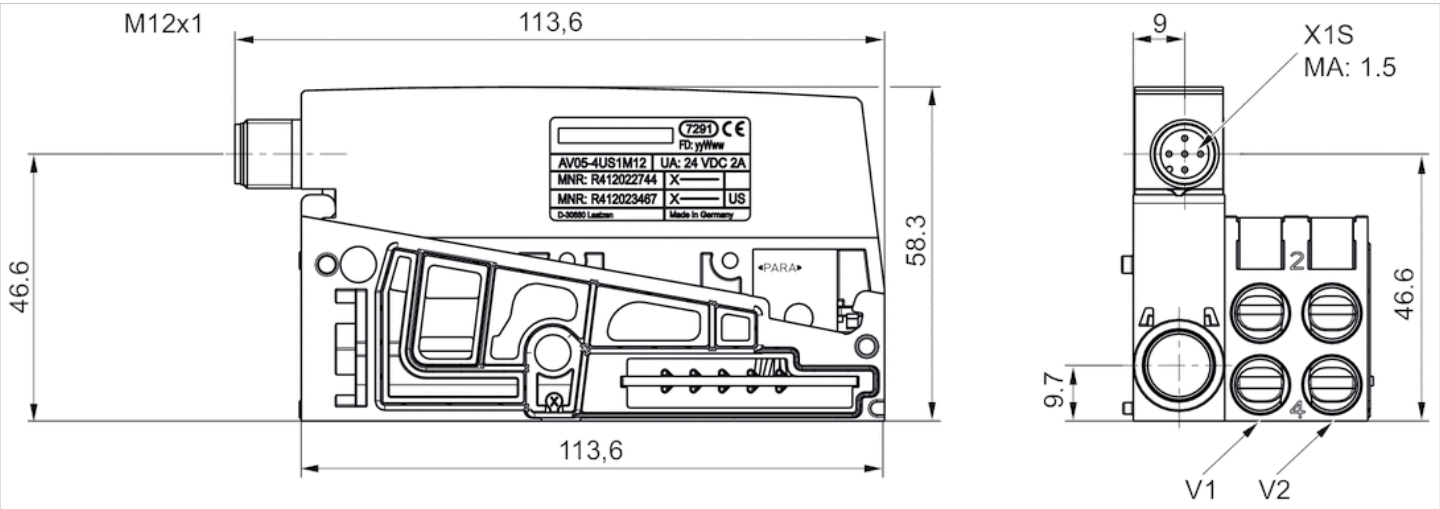
Technical information

Material

|         |                    |
|---------|--------------------|
| Housing | Polyamide Aluminum |
| Seal    | Nitrile rubber     |

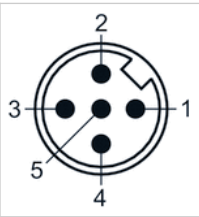
Dimensions

Dimensions



Pin assignments

Plug pin assignment

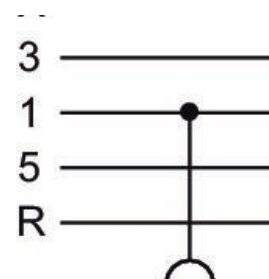


- (1) BN=brown
- (2) WH=white
- (3) BU=blue
- (4) BK=black
- (5) GY=grey

| Pin   | 1  | 2  | 3   | 4  | 5  |
|-------|----|----|-----|----|----|
| Valve | V1 | V1 | GND | V2 | V2 |
| Coil  | 14 | 12 | GND | 14 | 12 |

# Extension kit, combination plate, Series AV

## R412021780



### Technical data

Industry

Industrial

Type

Base plate

Type

Supply plate, connection 1, no pressure zones

Compressed air connection input

Ø 12

Pilot connection

Ø 12

Valve system version

Fieldbus

Scope of delivery

Combination module, right end plate AV05, screws, and seal

Working pressure min.

-0.95 bar

Working pressure max

10 bar

Min. ambient temperature

-10 °C

Max. ambient temperature

60 °C

Medium

Compressed air

### Material

Housing material

Aluminum

Seal material

Nitrile rubber

Part No.

R412021780

## Technical information

When using polyurethane tubing, we recommend using additional stiffener sleeves.

For push-in fittings, only use plug accessories made of plastic (polyamide) from our catalog.

The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!

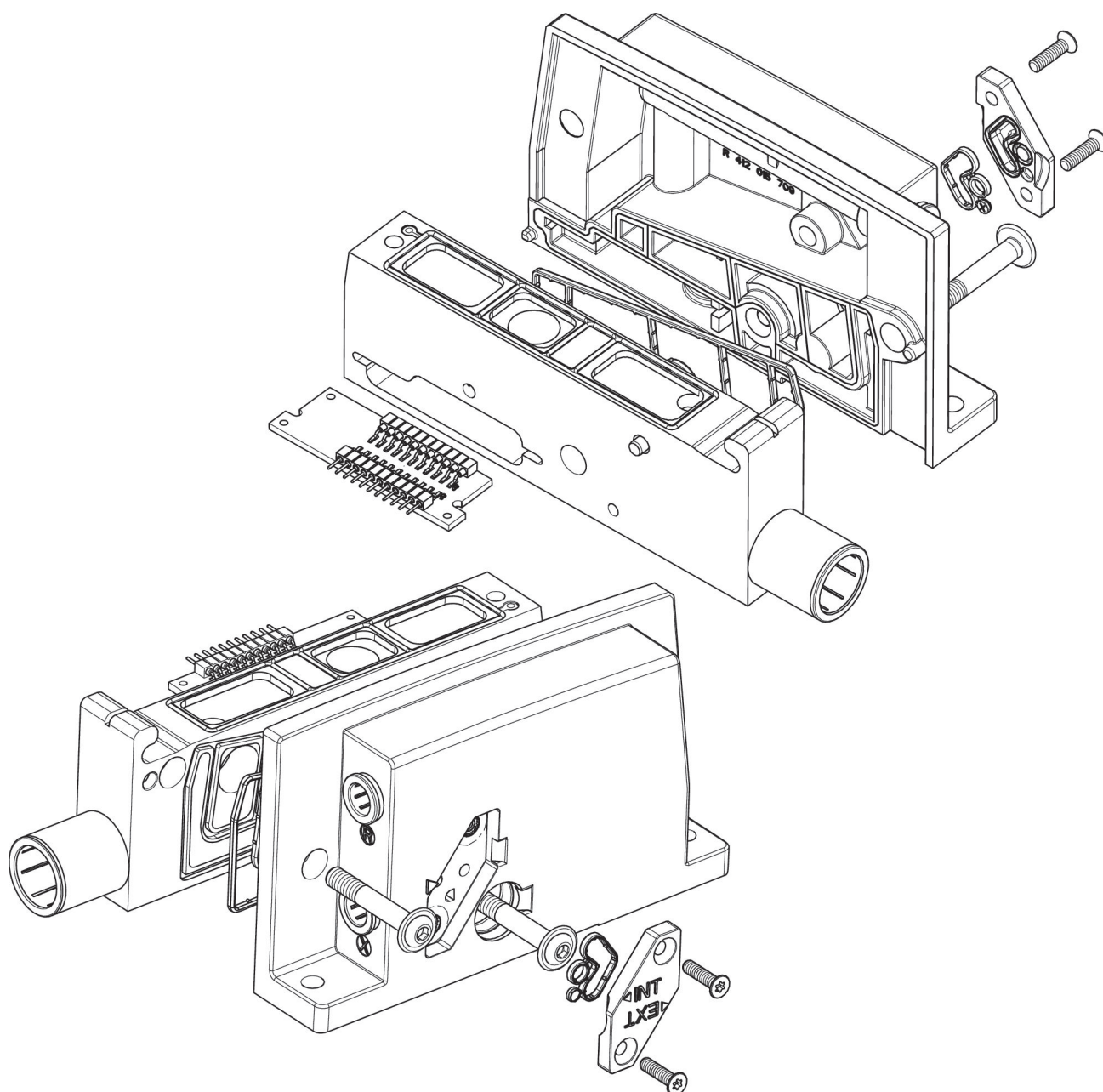
The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in <https://www.emerson.com/en-us/support>).

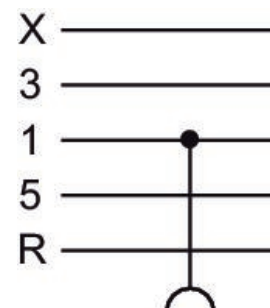
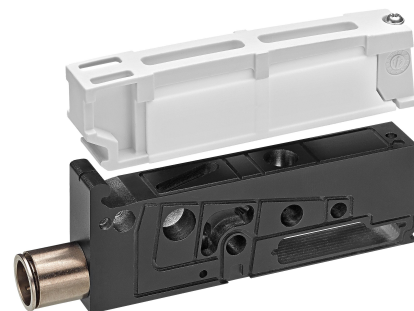


## Dimensions



# Extension kit, combination plate, Series AV

## R412022594



### Technical data

Industry  
Industrial

Type  
Base plate

Type  
Supply plate, connection 1, no pressure zones

Compressed air connection input  
Ø 3/8"

Pilot connection  
Ø 3/8"

Valve system version  
Fieldbus

Scope of delivery  
Combination module, right end plate AV05, screws, and seal

Working pressure min.  
-0.95 bar

Working pressure max  
10 bar

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Medium  
Compressed air

### Material

Housing material  
Aluminum

Seal material  
Nitrile rubber

Part No.  
R412022594

## Technical information

When using polyurethane tubing, we recommend using additional stiffener sleeves.

For push-in fittings, only use plug accessories made of plastic (polyamide) from our catalog.

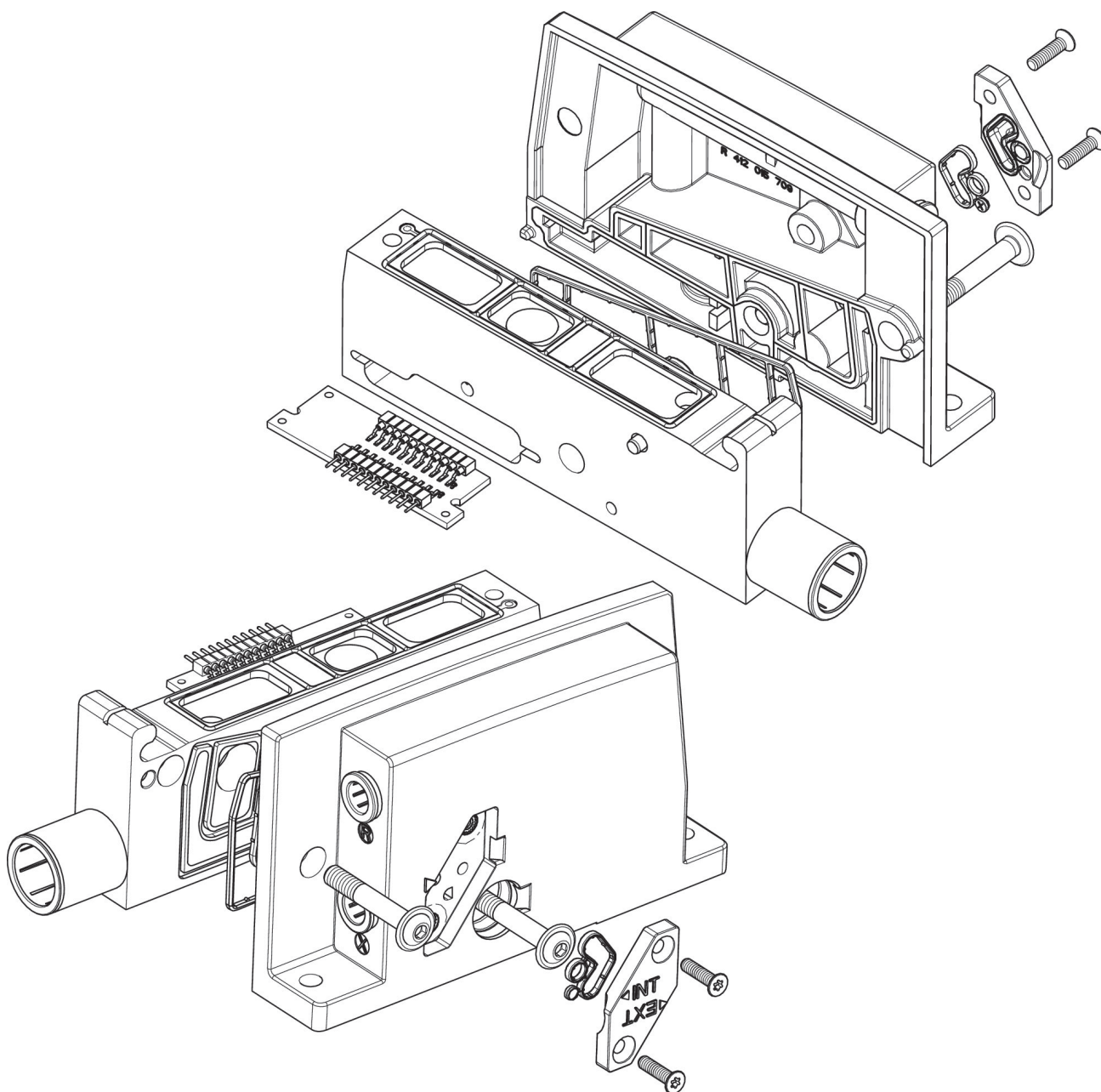
The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

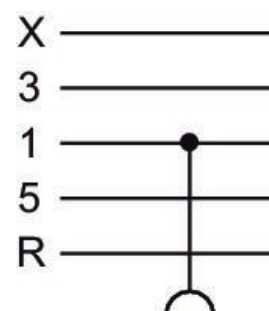
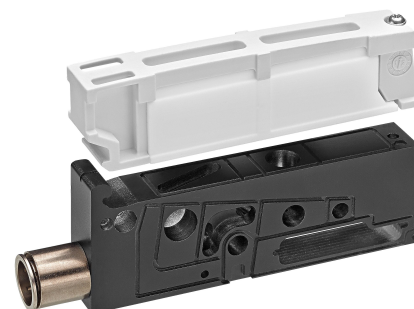
Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in <https://www.emerson.com/en-us/support>).

## Dimensions



# Extension kit, combination plate, Series AV

## R412021777



### Technical data

Industry  
Industrial

Type  
Base plate

Type  
Supply plate, connection 1, no pressure zones

Valve system version  
Multipole

Scope of delivery  
Combination module, right end plate AV05, screws, and seal

Working pressure min.  
-0.95 bar

Compressed air connection input  
Ø 12

Pilot connection  
Ø 12

Working pressure max  
10 bar

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Medium  
Compressed air

### Material

Housing material  
Aluminum

Seal material  
Nitrile rubber

Part No.  
R412021777

## Technical information

When using polyurethane tubing, we recommend using additional stiffener sleeves.

For push-in fittings, only use plug accessories made of plastic (polyamide) from our catalog.

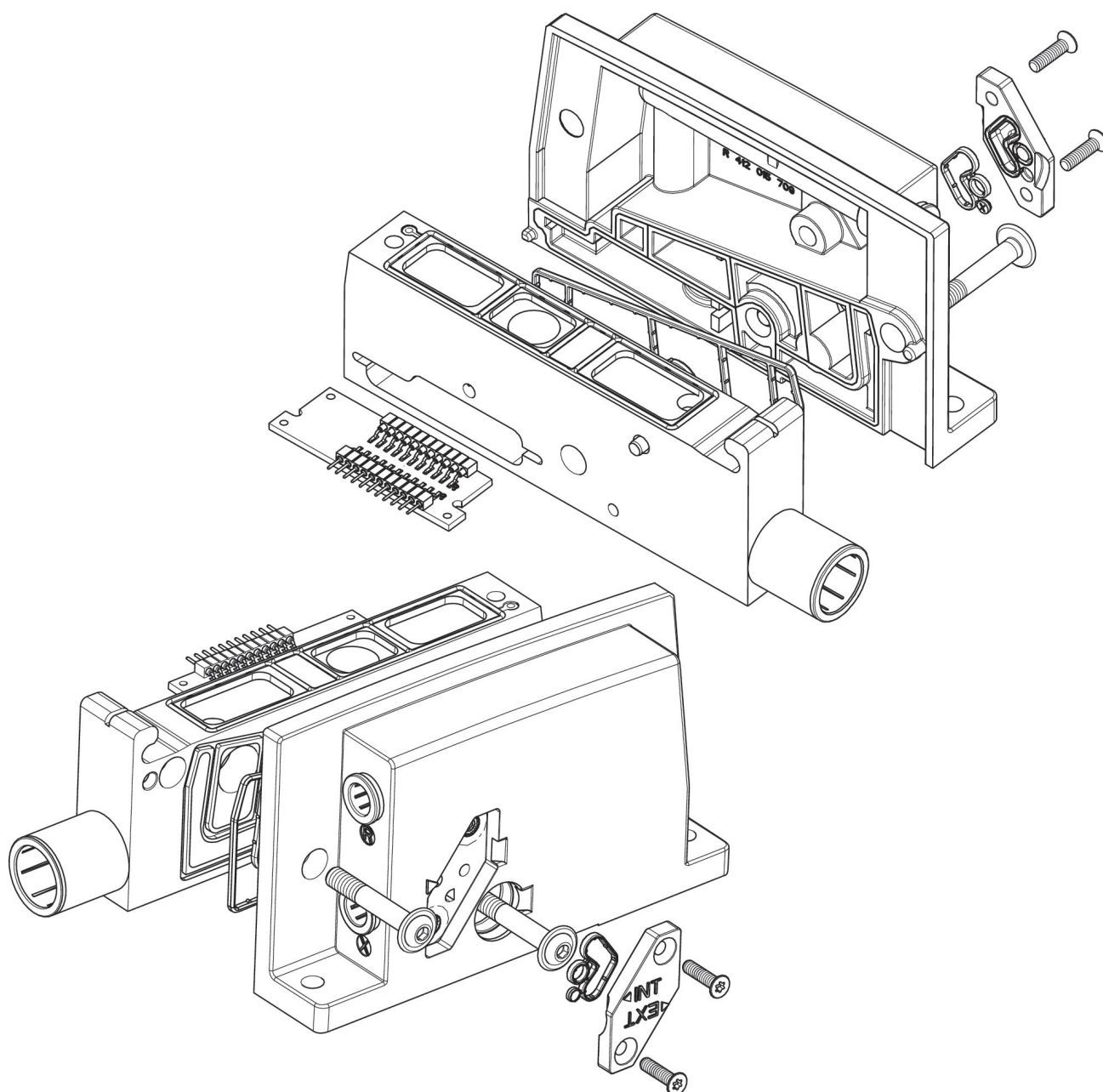
The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

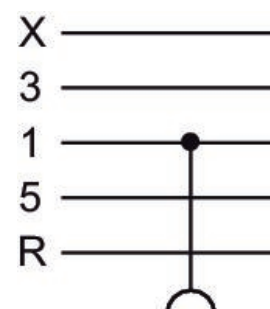
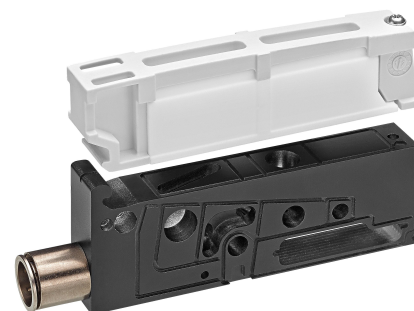
Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in <https://www.emerson.com/en-us/support>).

## Dimensions



# Extension kit, combination plate, Series AV

## R412022592



### Technical data

Industry  
Industrial

Type  
Base plate

Type  
Supply plate, connection 1, no pressure zones

Compressed air connection input  
Ø 3/8"

Pilot connection  
Ø 3/8"

Valve system version  
Multipole

Scope of delivery  
Combination module, right end plate AV05, screws, and seal

Working pressure min.  
-0.95 bar

Working pressure max  
10 bar

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Medium  
Compressed air

### Material

Housing material  
Aluminum

Seal material  
Nitrile rubber

Part No.  
R412022592



## Technical information

When using polyurethane tubing, we recommend using additional stiffener sleeves.

For push-in fittings, only use plug accessories made of plastic (polyamide) from our catalog.

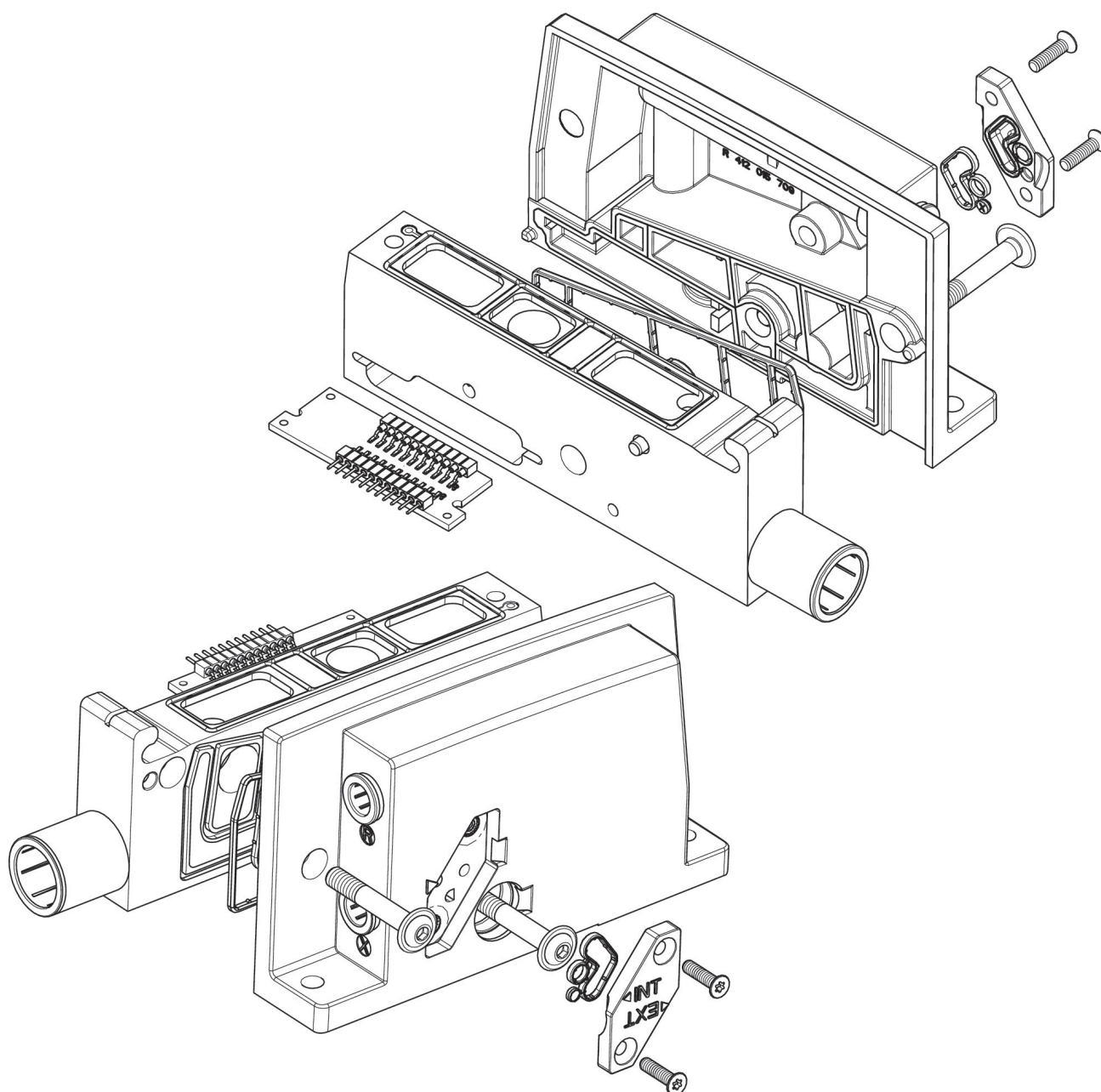
The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

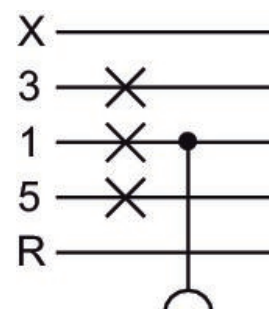
Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in <https://www.emerson.com/en-us/support>).

## Dimensions



# Extension kit, combination plate, Series AV

## R412021779



### Technical data

Industry  
Industrial

Type  
Base plate

Type  
Supply plate, connection 1, separate pressure zones in channels 1/3/5

Valve system version  
Fieldbus

Scope of delivery  
Combination module, right end plate AV05, screws, and seal

Working pressure min.  
-0.95 bar

Compressed air connection input  
Ø 12

Pilot connection  
Ø 12

Working pressure max  
10 bar

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Medium  
Compressed air

### Material

Housing material  
Aluminum

Seal material  
Nitrile rubber

Part No.  
R412021779

## Technical information

When using polyurethane tubing, we recommend using additional stiffener sleeves.

For push-in fittings, only use plug accessories made of plastic (polyamide) from our catalog.

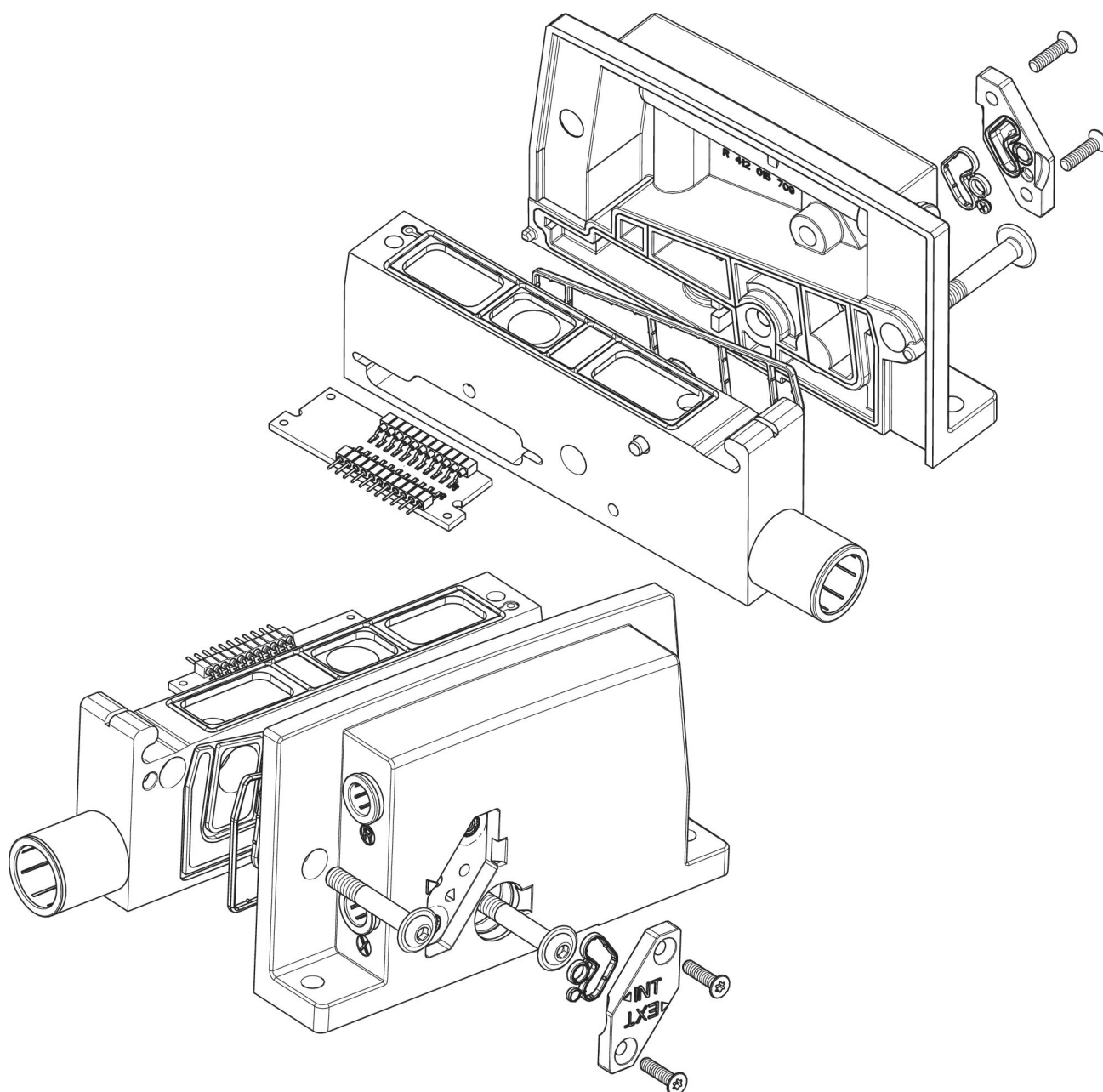
The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

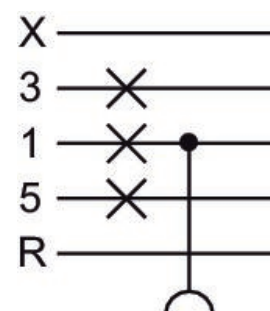
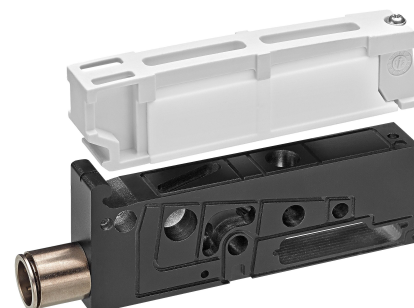
Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in <https://www.emerson.com/en-us/support>).

## Dimensions



# Extension kit, combination plate, Series AV

## R412022593



### Technical data

Industry  
Industrial

Type  
Base plate

Type  
Supply plate, connection 1, separate pressure zones in  
channels 1/3/5

Valve system version  
Fieldbus

Scope of delivery  
Combination module, right end plate AV05, screws, and  
seal

Working pressure min.  
-0.95 bar

Compressed air connection input  
Ø 3/8"

Pilot connection  
Ø 3/8"

Working pressure max  
10 bar

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Medium  
Compressed air

### Material

Housing material  
Aluminum

Seal material  
Nitrile rubber

Part No.  
R412022593

## Technical information

When using polyurethane tubing, we recommend using additional stiffener sleeves.

For push-in fittings, only use plug accessories made of plastic (polyamide) from our catalog.

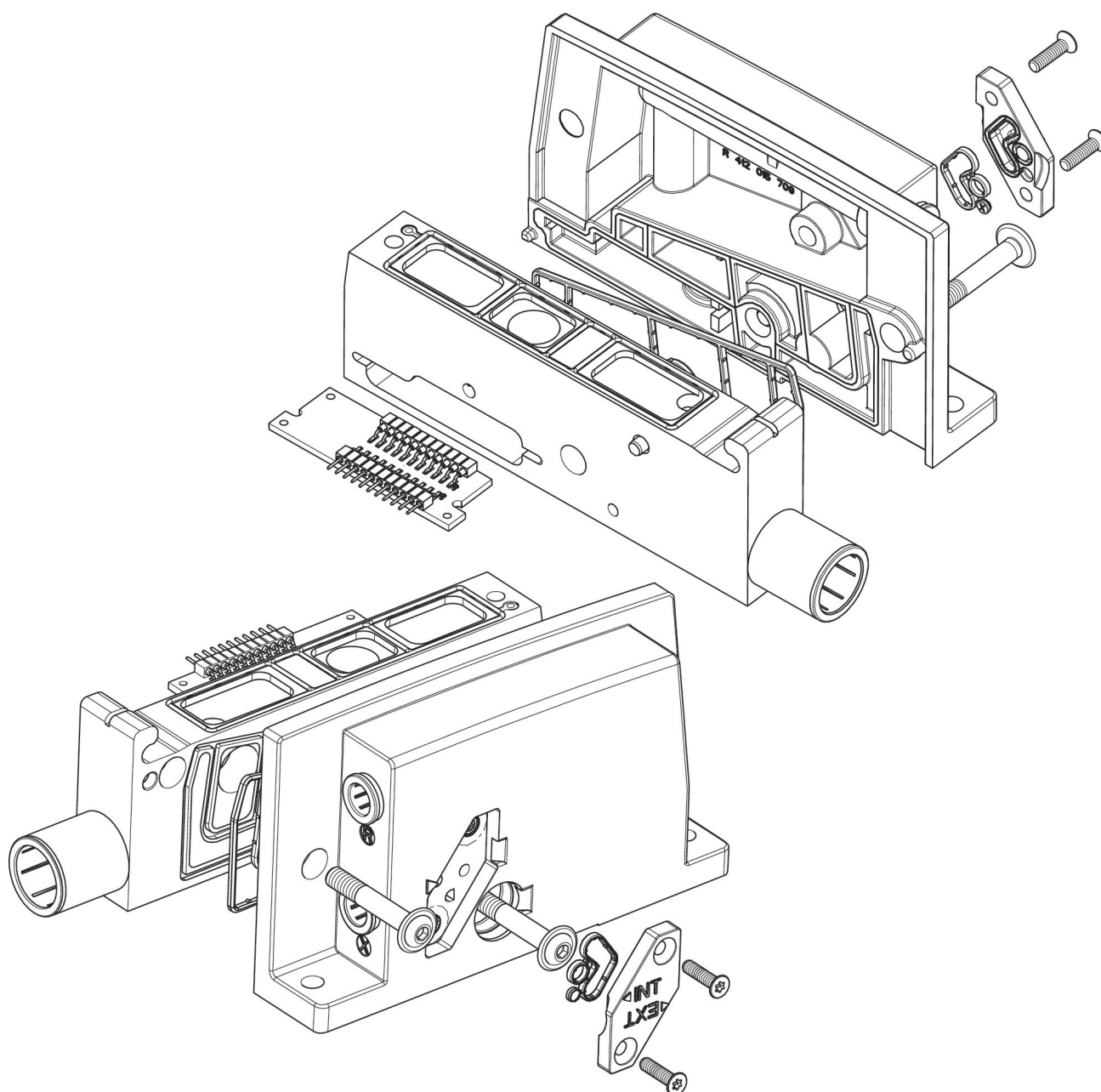
The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in <https://www.emerson.com/en-us/support>).

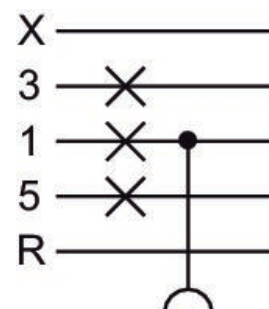
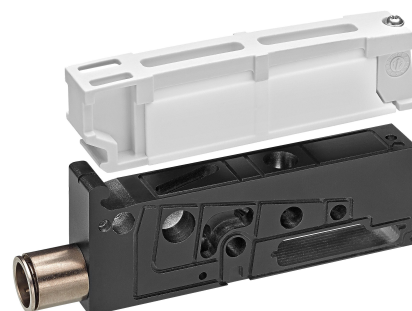
## Dimensions





# Extension kit, combination plate, Series AV

## R412021776



### Technical data

Industry  
Industrial

Type  
Base plate

Type  
Supply plate, connection 1, separate pressure zones in channels 1/3/5

Valve system version  
Multipole

Scope of delivery  
Combination module, right end plate AV05, screws, and seal

Working pressure min.  
-0.95 bar

Compressed air connection input  
Ø 12

Pilot connection  
Ø 12

Working pressure max  
10 bar

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Medium  
Compressed air

### Material

Housing material  
Aluminum

Seal material  
Nitrile rubber

Part No.  
R412021776

## Technical information

When using polyurethane tubing, we recommend using additional stiffener sleeves.

For push-in fittings, only use plug accessories made of plastic (polyamide) from our catalog.

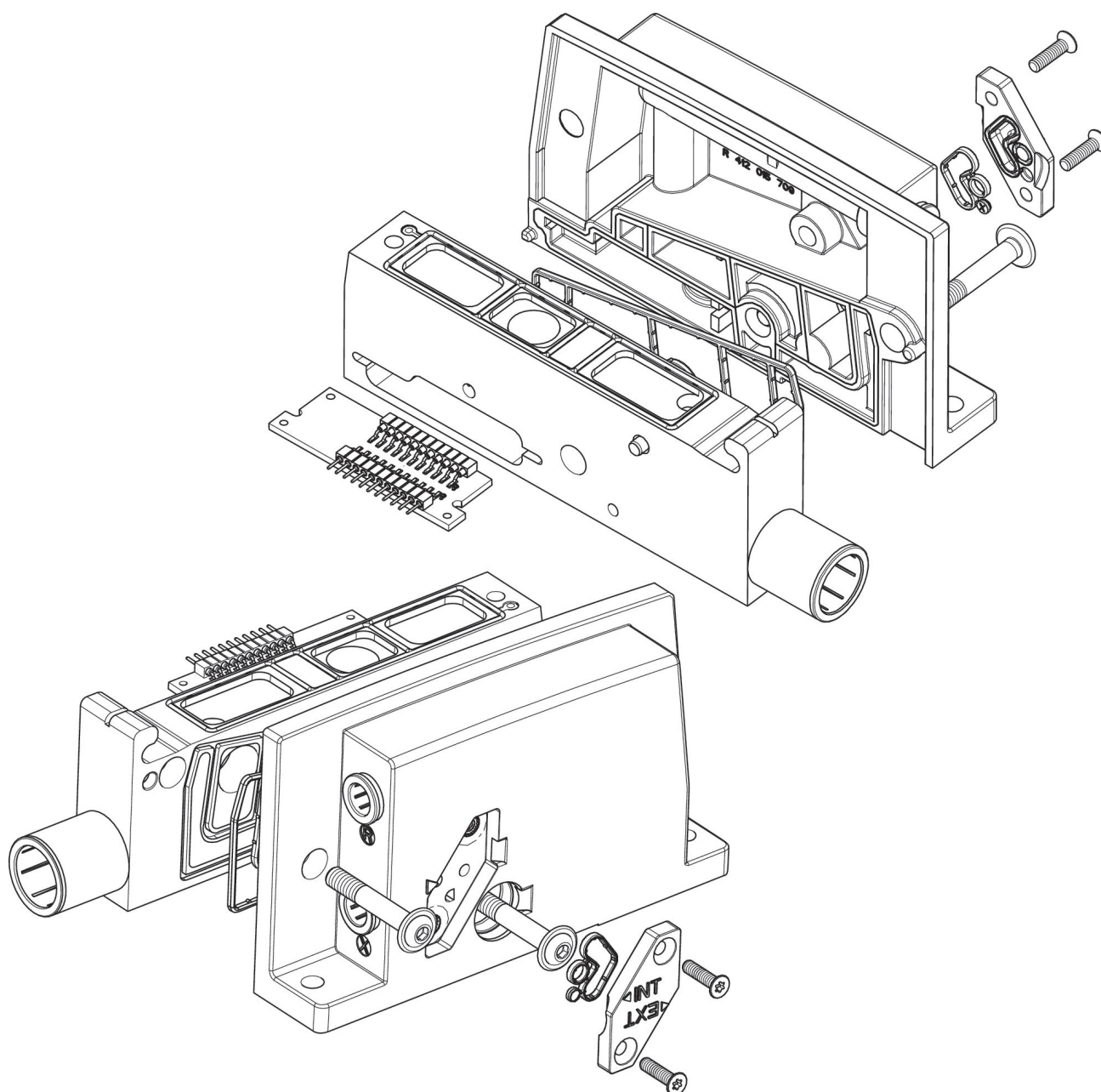
The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

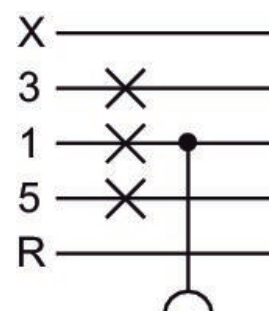
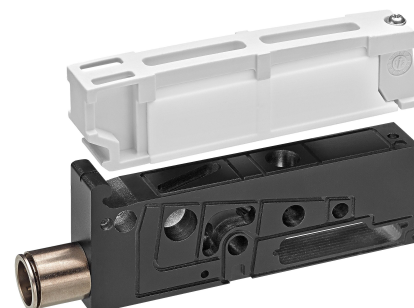
Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in <https://www.emerson.com/en-us/support>).

## Dimensions



# Extension kit, combination plate, Series AV

## R412022591



### Technical data

Industry  
Industrial

Type  
Base plate

Type  
Supply plate, connection 1, separate pressure zones in channels 1/3/5

Valve system version  
Multipole

Scope of delivery  
Combination module, right end plate AV05, screws, and seal

Working pressure min.  
-0.95 bar

Compressed air connection input  
Ø 3/8"

Pilot connection  
Ø 3/8"

Working pressure max  
10 bar

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Medium  
Compressed air

### Material

Housing material  
Aluminum

Seal material  
Nitrile rubber

Part No.  
R412022591

## Technical information

When using polyurethane tubing, we recommend using additional stiffener sleeves.

For push-in fittings, only use plug accessories made of plastic (polyamide) from our catalog.

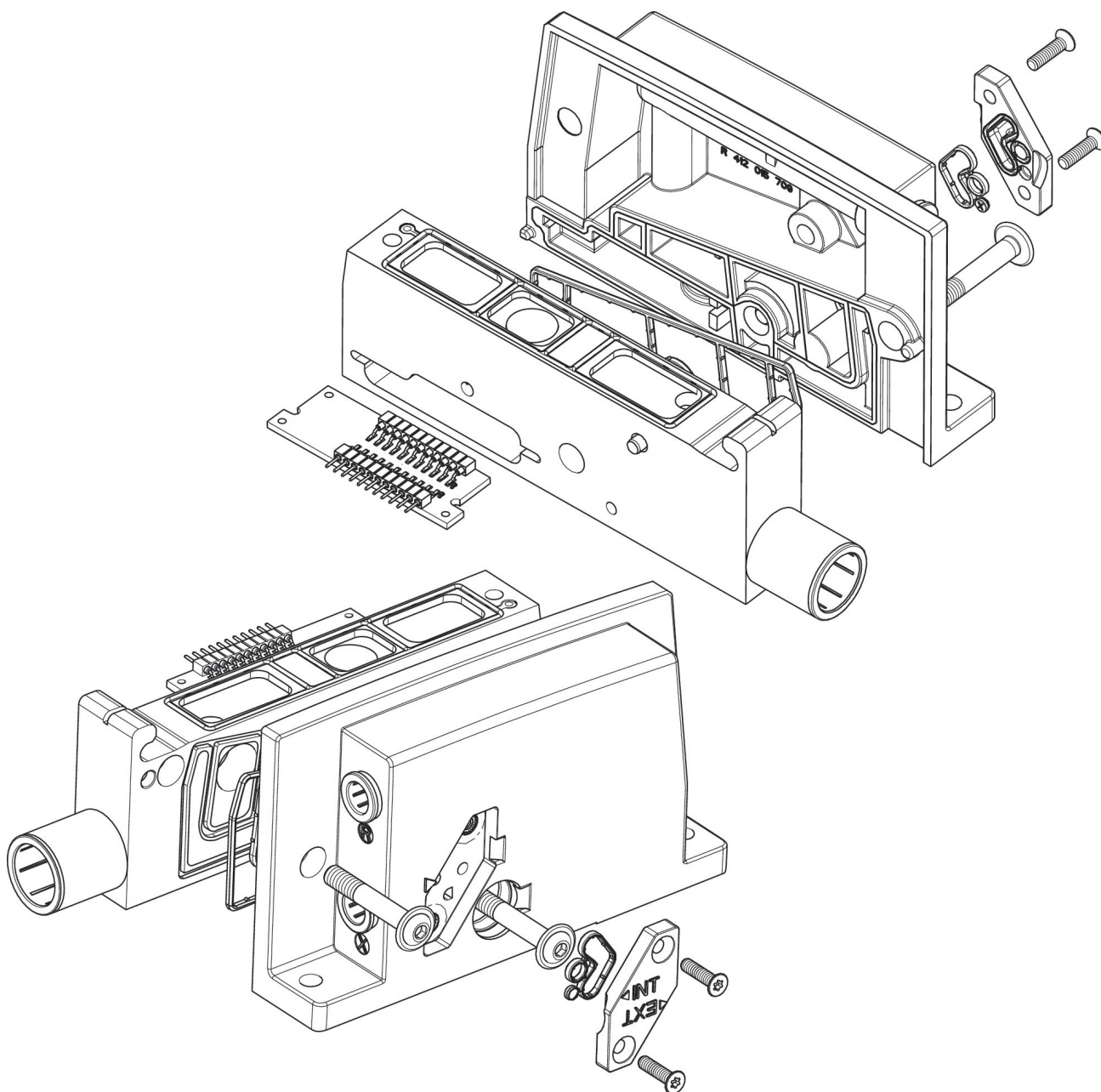
The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in <https://www.emerson.com/en-us/support>).

## Dimensions



# Extension kit, combination plate

- for series AV03, AV05, HF02-LG



Ambient temperature min./max.  
 Weight

-10 ... 60 °C  
 0.21 kg

## Technical data

| Part No.   | Valve system version | Type       | Scope of delivery          | Scope of delivery |
|------------|----------------------|------------|----------------------------|-------------------|
| R422004007 | Fieldbus             | 32 outputs | Includes screws and seals. | 1 piece           |
| R422004056 | Multipole            | 30 outputs | Includes screws and seals. | 1 piece           |

## Technical information

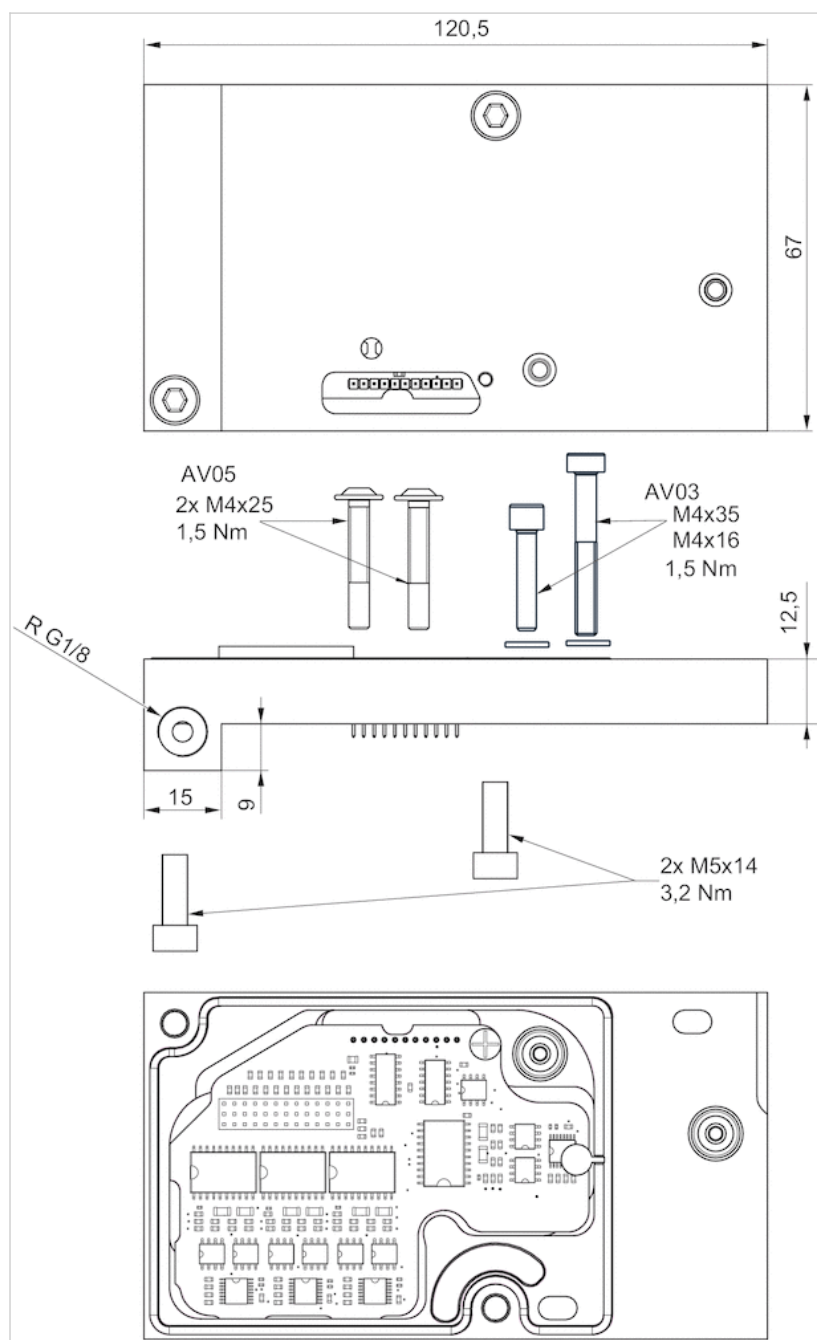
The multipole combination plate can transmit up to 30 signals and is suitable for use with AV variants with 25-pin D-Sub plug as well as 44-pin D-Sub plug.

Connection R must not be closed! Closing connection R leads to faulty switching of the AV valves. Further information can be found in the operating instructions (R412018150).

## Technical information

| Material |                |
|----------|----------------|
| Housing  | Aluminum       |
| Seals    | Nitrile rubber |

## Dimensions





# End plate right

- for AV03



Ambient temperature min./max. -10 ... 50 °C

Medium temperature min./max. -10 ... 50 °C

Weight 0.08 kg

## Technical data

| Part No.   | Compressed air connection<br>Pilot control exhaust<br>[R] | Delivery unit | Fig.   |
|------------|-----------------------------------------------------------|---------------|--------|
| R412018349 | Ø 4                                                       | 1 piece       | Fig. 1 |
| R412018350 | -                                                         | 1 piece       | Fig. 2 |

## Technical information

The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in the MediaCentre).

When using polyurethane tubing, we recommend using additional stiffener sleeves.

For push-in fittings, only use plug accessories made of plastic (polyamide) from our catalog.

## Technical information

| Material |          |
|----------|----------|
| Housing  | Aluminum |
| Screws   | Steel    |

Dimensions

Fig. 1

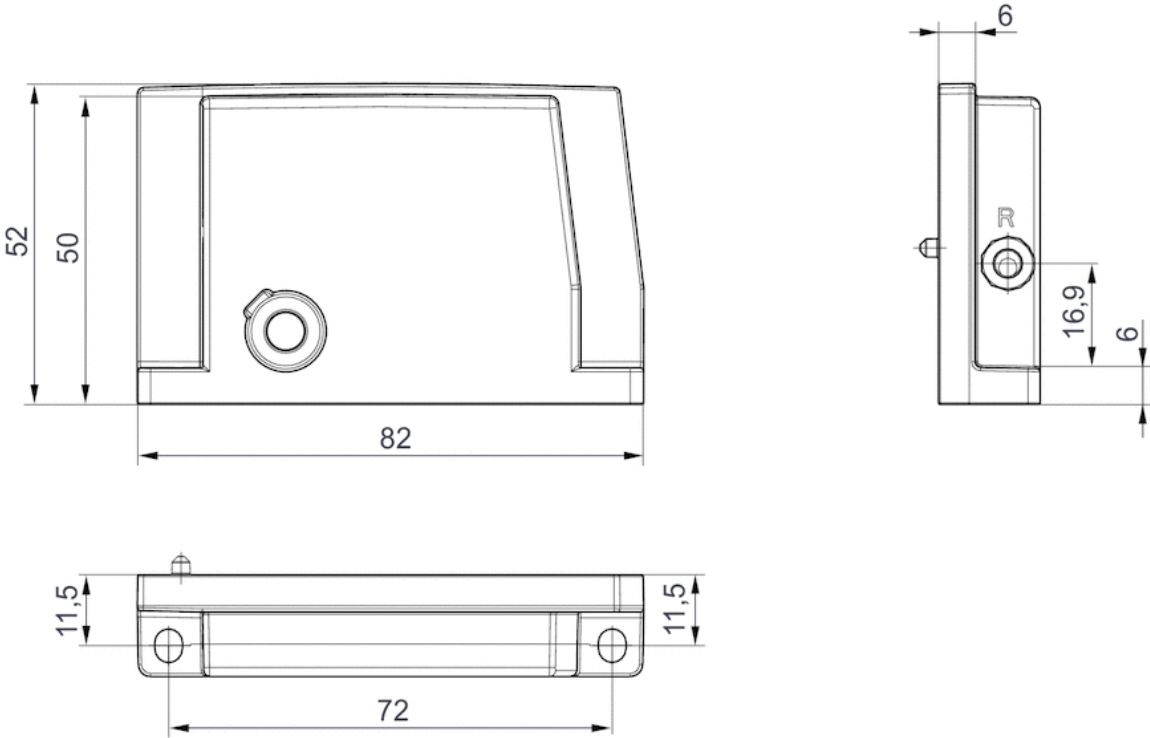
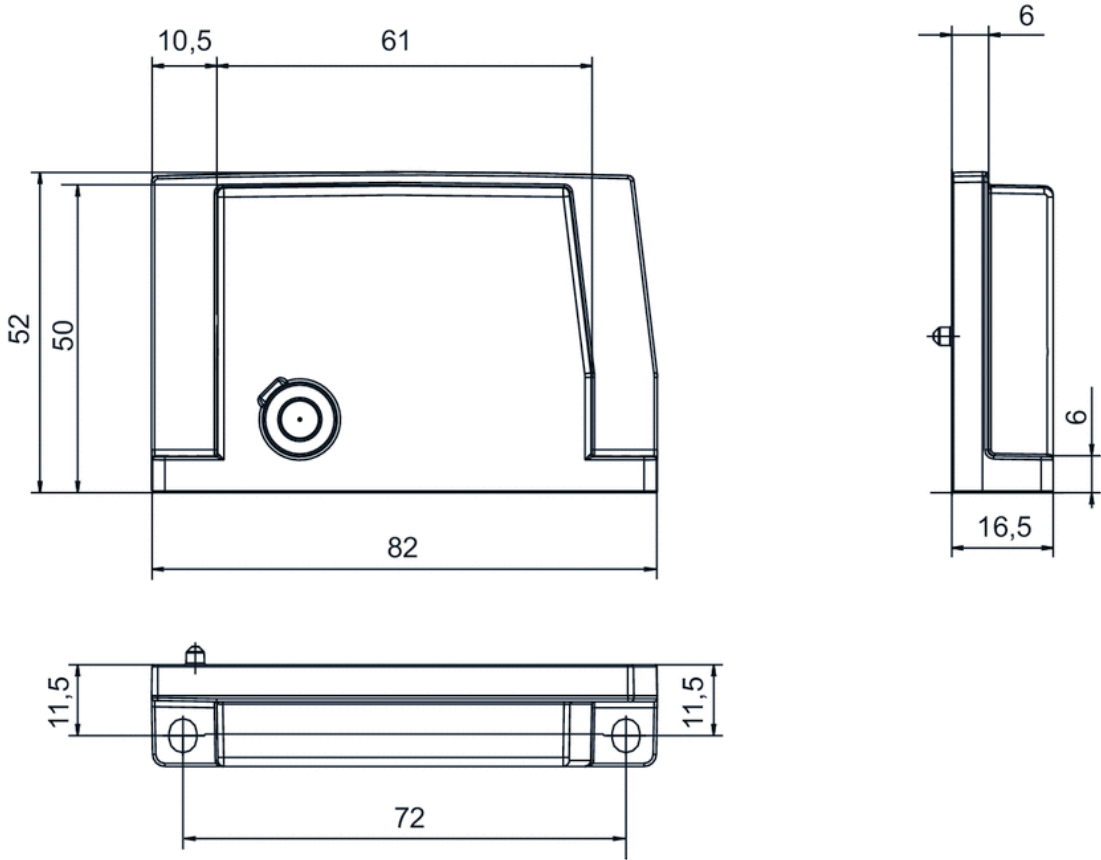


Fig. 2



# Transition plate

- for control cabinet mounting
- Compressed air connection output M7
- for AV03-BP



|                               |                  |
|-------------------------------|------------------|
| Working pressure min./max.    | -0.95 ... 10 bar |
| Ambient temperature min./max. | -10 ... 60 °C    |
| Medium temperature min./max.  | -10 ... 60 °C    |
| Medium                        | Compressed air   |

## Technical data

| Part No.   | Type              | Scope of delivery                                            |
|------------|-------------------|--------------------------------------------------------------|
| R412026469 | Internal assembly | Transition plate, sealing kit, mounting screws, sealing tape |
| R412026470 | Internal assembly | Transition plate, sealing kit, mounting screws, sealing tape |
| R412026471 | Internal assembly | Transition plate, sealing kit, mounting screws, sealing tape |
| R412026472 | Internal assembly | Transition plate, sealing kit, mounting screws, sealing tape |
| R412026473 | External assembly | Transition plate, sealing kit, mounting screws, gasket       |
| R412026474 | External assembly | Transition plate, sealing kit, mounting screws, gasket       |
| R412026475 | External assembly | Transition plate, sealing kit, mounting screws, gasket       |
| R412026476 | External assembly | Transition plate, sealing kit, mounting screws, gasket       |

| Part No.   | Compressed air connection<br>Input<br>[1] | Compressed air connection<br>Output<br>[2 / 4] |
|------------|-------------------------------------------|------------------------------------------------|
| R412026469 | G 1/8                                     | M7                                             |
| R412026470 | G 1/8                                     | M7                                             |
| R412026471 | G 1/8                                     | M7                                             |
| R412026472 | G 1/8                                     | M7                                             |
| R412026473 | G 1/8                                     | M7                                             |
| R412026474 | G 1/8                                     | M7                                             |
| R412026475 | G 1/8                                     | M7                                             |
| R412026476 | G 1/8                                     | M7                                             |

| Part No.   | Compressed air connection<br>Exhaust<br>[3 / 5] | Compressed air connection<br>Pilot connection<br>[X] |
|------------|-------------------------------------------------|------------------------------------------------------|
| R412026469 | G 1/8                                           | M5                                                   |
| R412026470 | G 1/8                                           | M5                                                   |
| R412026471 | G 1/8                                           | M5                                                   |
| R412026472 | G 1/8                                           | M5                                                   |

| Part No.   | Compressed air connection<br>Exhaust<br>[3 / 5] | Compressed air connection<br>Pilot connection<br>[X] |
|------------|-------------------------------------------------|------------------------------------------------------|
| R412026473 | G 1/8                                           | M5                                                   |
| R412026474 | G 1/8                                           | M5                                                   |
| R412026475 | G 1/8                                           | M5                                                   |
| R412026476 | G 1/8                                           | M5                                                   |

| Part No.   | Compressed air connection<br>Pilot control exhaust<br>[R] | Number of valve positions | Material          |
|------------|-----------------------------------------------------------|---------------------------|-------------------|
| R412026469 | G 1/8                                                     | 4                         | Aluminum anodized |
| R412026470 | G 1/8                                                     | 8                         | Aluminum anodized |
| R412026471 | G 1/8                                                     | 12                        | Aluminum anodized |
| R412026472 | G 1/8                                                     | 16                        | Aluminum anodized |
| R412026473 | G 1/8                                                     | 4                         | Stainless steel   |
| R412026474 | G 1/8                                                     | 8                         | Stainless steel   |
| R412026475 | G 1/8                                                     | 12                        | Stainless steel   |
| R412026476 | G 1/8                                                     | 16                        | Stainless steel   |

| Part No.   | Fig.   |    |
|------------|--------|----|
| R412026469 | Fig. 1 | -  |
| R412026470 | Fig. 1 | -  |
| R412026471 | Fig. 1 | 1) |
| R412026472 | Fig. 1 | 1) |
| R412026473 | Fig. 2 | -  |
| R412026474 | Fig. 2 | -  |
| R412026475 | Fig. 2 | 1) |
| R412026476 | Fig. 2 | 1) |

1) Supply module between 8th and 9th valve position

## Technical information

The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in the MediaCentre).

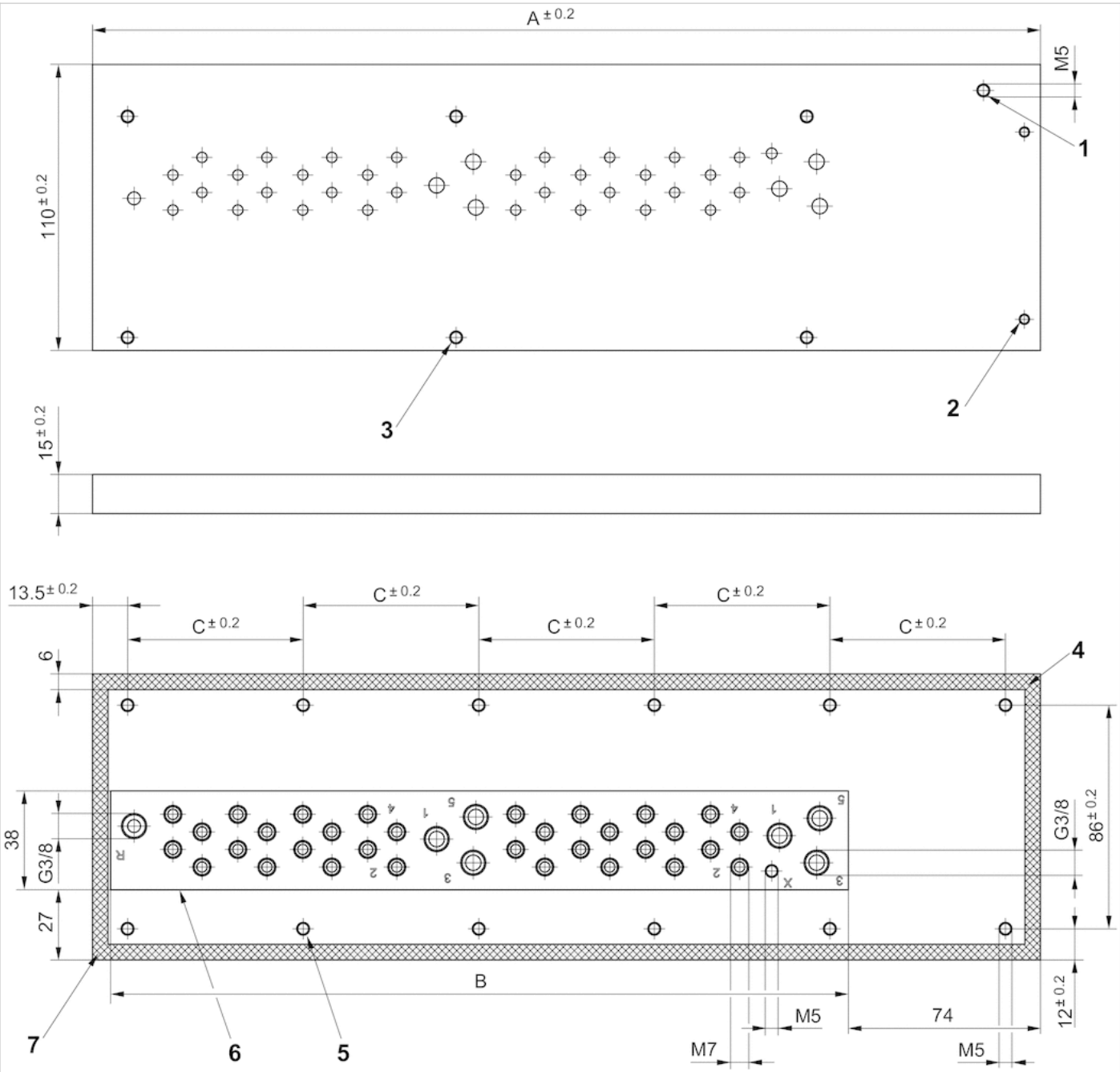
The protection class depends on the stability of the mounting wall.

## Technical information

| Material |                                    |
|----------|------------------------------------|
| Housing  | Aluminum, anodized Stainless steel |

Dimensions

Fig. 1



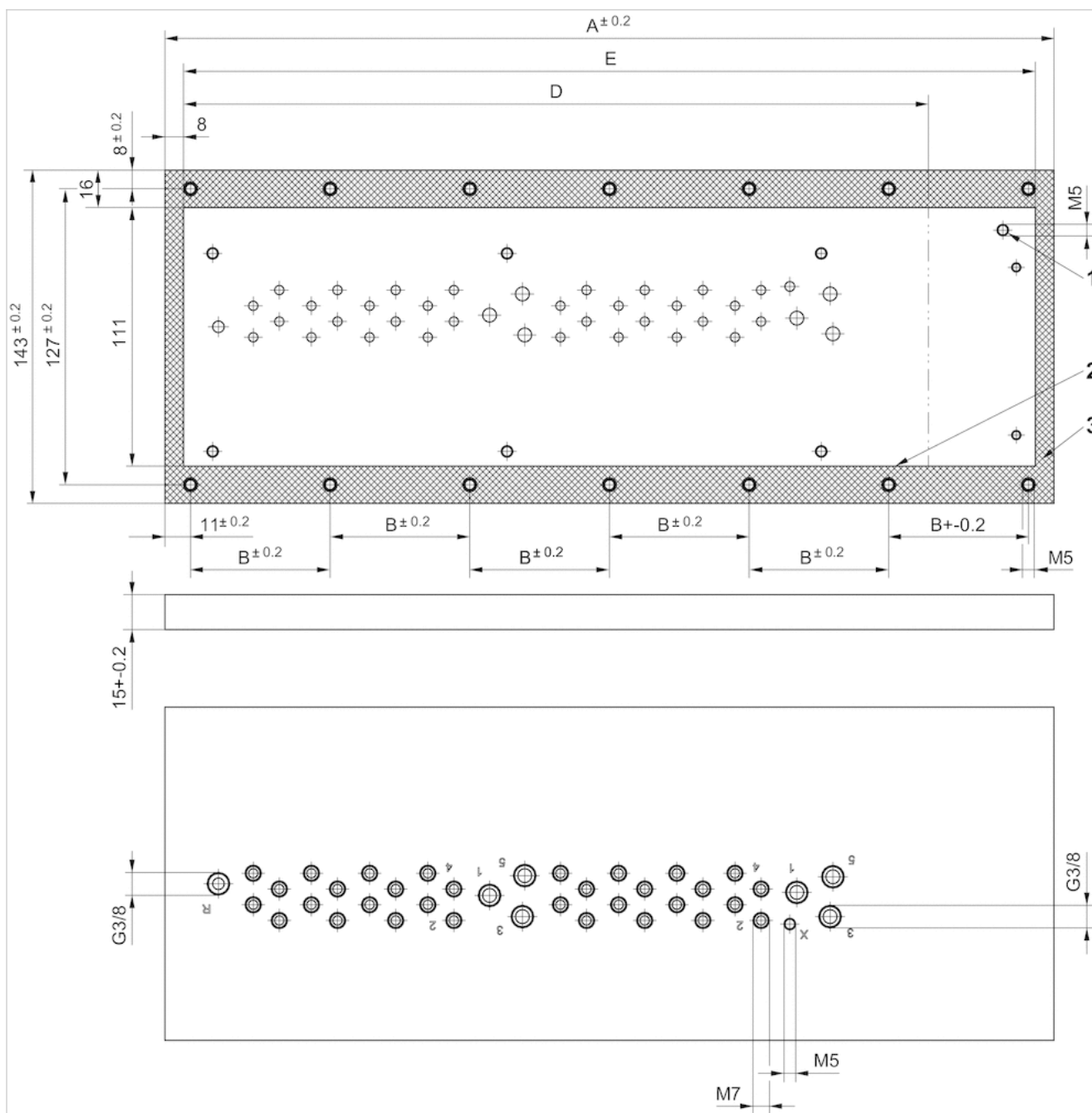
- 1) Ground screw
- 2) Torque for valve system assembly: M4: 2.5 Nm
- 3) Torque for valve system assembly: M5: 5 Nm
- 4) sealing surface
- 5) Torque for control cabinet assembly: M5: 5 Nm
- 6) Control cabinet cut-out
- 7) Assembly note for sealing strip: see Fig. 3

Dimensions

| Part No.   | A   | B   | C  |
|------------|-----|-----|----|
| R412026469 | 183 | 102 | 52 |

## Dimensions

Fig. 2



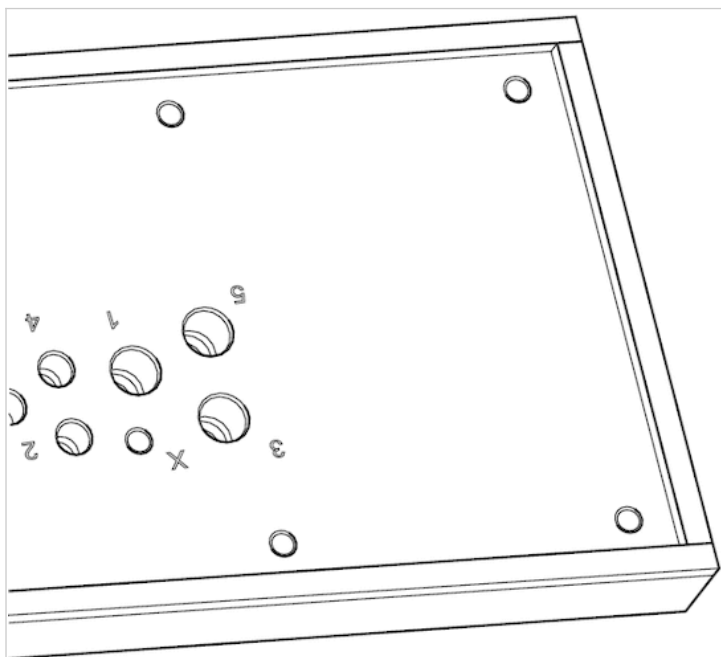
- 1) Thread for ground screw
- 2) Control cabinet cut-out
- 3) sealing surface

## Dimensions

| Part No.   | A   | B     | D - Control cabinet cut-out Multipole | E - Control cabinet cut-out Fieldbus |
|------------|-----|-------|---------------------------------------|--------------------------------------|
| R412026473 | 200 | 59.33 | 138                                   | 184                                  |
| R412026474 | 250 | 57    | 188                                   | 234                                  |
| R412026475 | 332 | 62    | 270                                   | 316                                  |
| R412026476 | 382 | 60    | 320                                   | 366                                  |

## Dimensions

### Maximum outer dimensions for push-in fitting



Glue sealing strip at the joint

## Dimensions

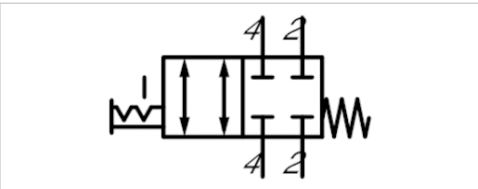
| Connection type        | 2 , 4 | 1, 3 and 5 (on bottom) | X (on bottom) |
|------------------------|-------|------------------------|---------------|
| Connection thread      | M7    | G 1/8                  | M5            |
| Max. external diameter | 13    | 15,5                   | 10,9          |

| R (top, bottom) |       |
|-----------------|-------|
|                 | G 1/8 |
|                 | 15,5  |



# Shut-off module, Series AV

- For port channels 2, 4
- Qn = 250-750 l/min
- Compressed air connection output Ø 1/4" Ø 8 Ø 6 Ø 4



|                               |                |
|-------------------------------|----------------|
| Activation                    | Mechanical     |
| Working pressure min./max.    | 0 ... 10 bar   |
| Ambient temperature min./max. | -10 ... 60 °C  |
| Medium temperature min./max.  | -10 ... 60 °C  |
| Medium                        | Compressed air |
| Weight                        | 0.08 kg        |

## Technical data

| Part No.   | Compressed air connection type | Compressed air connection Output | Flow rate value |
|------------|--------------------------------|----------------------------------|-----------------|
|            |                                |                                  | Qn              |
| R422102699 | push-in fitting                | Ø 1/4"                           | 550 l/min       |
| R422102704 | push-in fitting                | Ø 8                              | 750 l/min       |
| R422102705 | push-in fitting                | Ø 6                              | 550 l/min       |
| R422102706 | push-in fitting                | Ø 4                              | 250 l/min       |

## Technical information

When using polyurethane tubing, we recommend using additional stiffener sleeves.

Pneumatic connection to base plate valves, suitable for all sizes in the AV03 and AV05 series

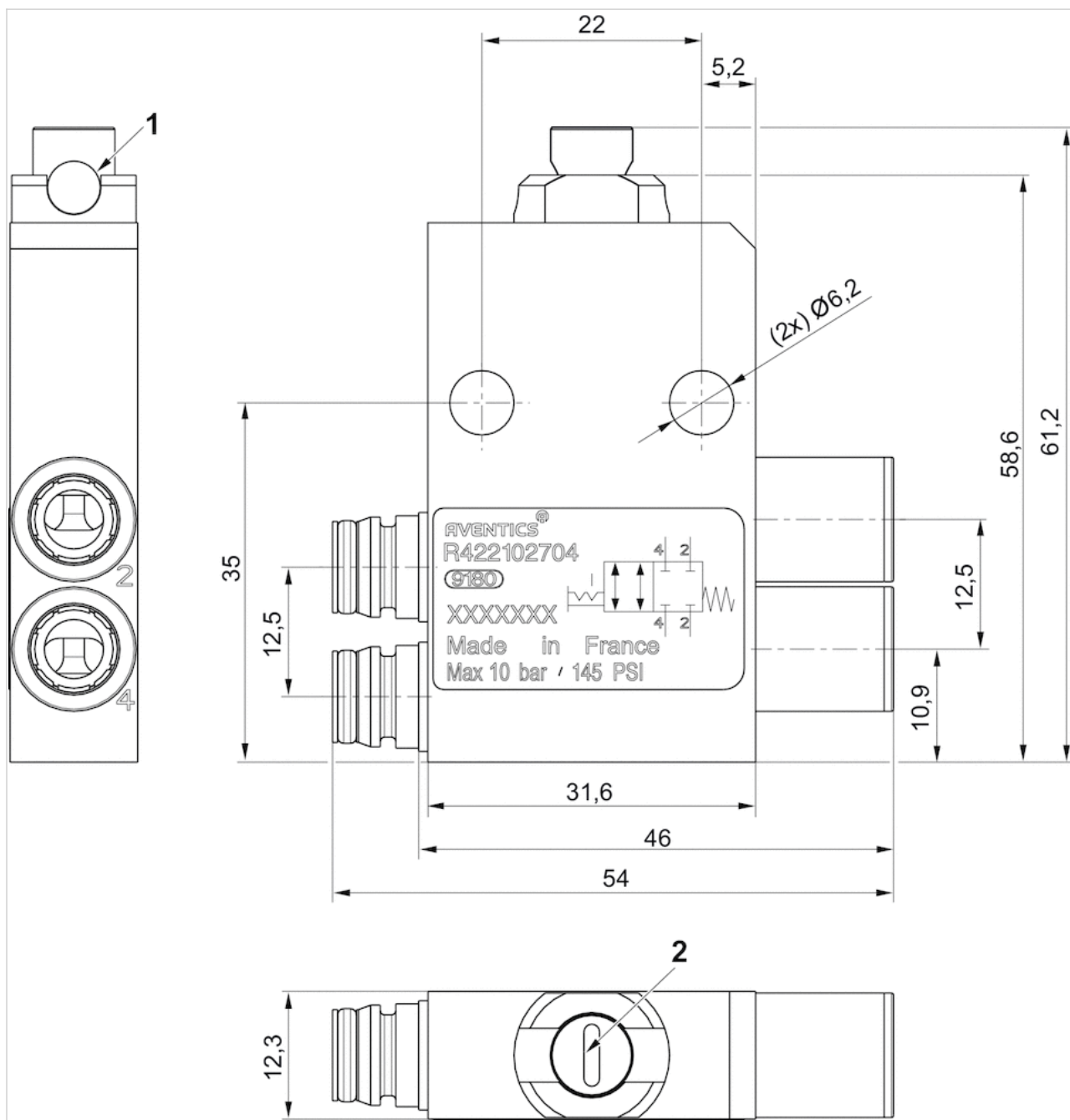
For push-in fittings, only use plug accessories made of plastic (polyamide) from our catalog.

## Technical information

| Material |                          |
|----------|--------------------------|
| Housing  | Aluminum                 |
| Seals    | Nitrile butadiene rubber |

## Dimensions

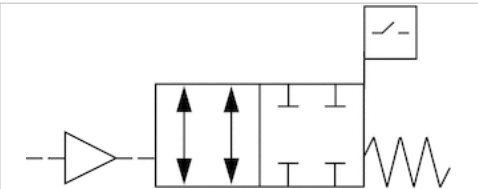
### Dimensions



- 1) Through hole for cable lock  
Order cable lock 7472D02758 separately
- 2) Manual override lock

# Shut-off module, Series AV

- With position detection, for port channels 2, 4
- push-in fitting



|                                           |                |
|-------------------------------------------|----------------|
| Activation                                | pneumatically  |
| Working pressure min./max.                | 0 ... 10 bar   |
| Ambient temperature min./max.             | 0 ... 60 °C    |
| Medium temperature min./max.              | 0 ... 60 °C    |
| Medium                                    | Compressed air |
| Nominal flow Qn                           | 400 l/min      |
| Operating voltage DC, min.                | 10 V DC        |
| Operating voltage DC, max.                | 30 V DC        |
| Sensor Version                            | PNP            |
| Max. power consumption                    | 15 A           |
| Voltage drop sensor U at I <sub>max</sub> | ≤ 2,5 V        |
| Sensor Protection class                   | IP67           |
| Weight                                    | 0.1 kg         |

## Technical data

| Part No.   | Compressed air connection type Input | Compressed air connection Output |
|------------|--------------------------------------|----------------------------------|
| R422101511 | push-in fitting                      | Ø 6                              |
| R422101510 | push-in fitting                      | Ø 8                              |
| R422101509 | push-in fitting                      | Ø 1/4"                           |

## Technical information

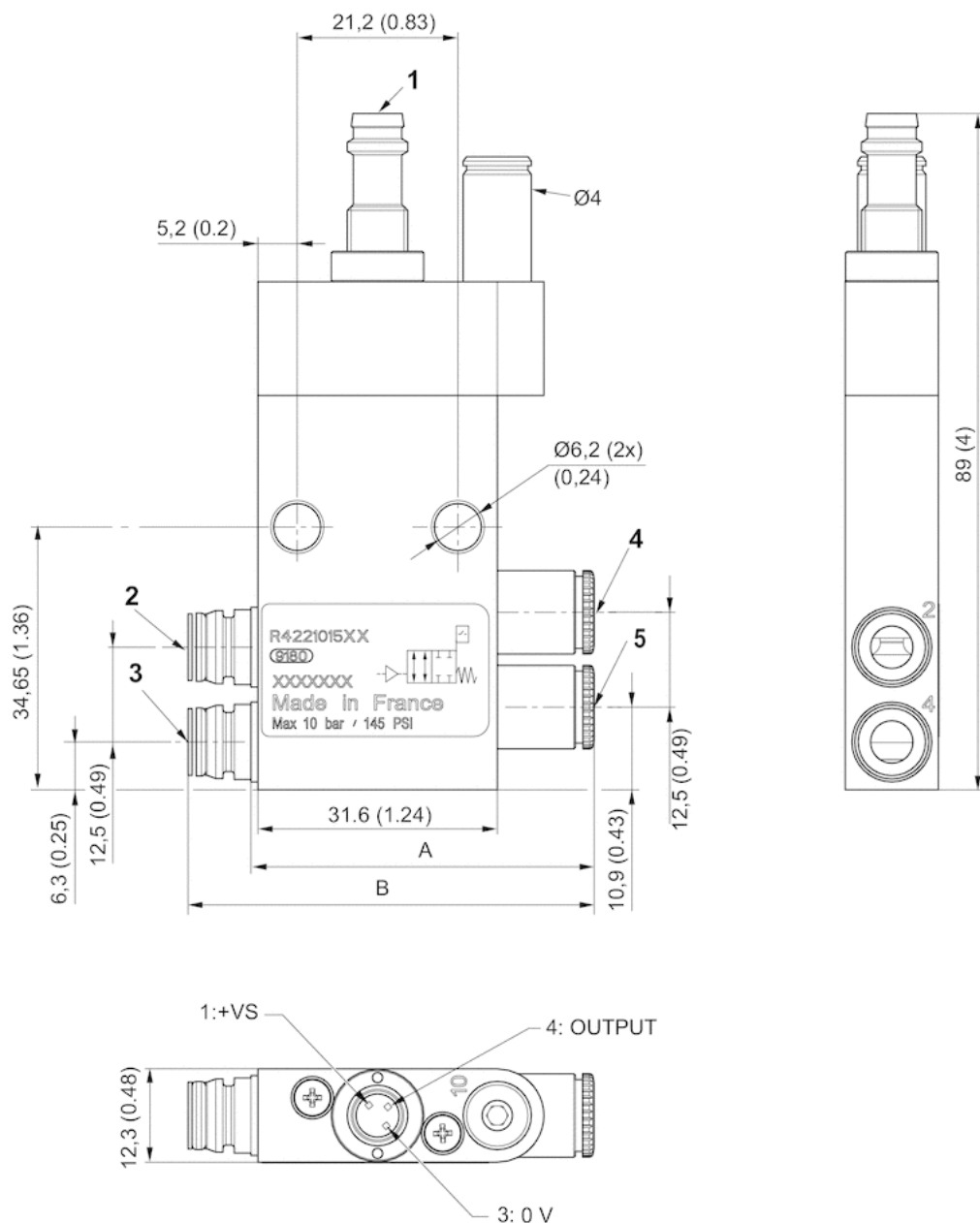
For push-in fittings, only use plug accessories made of plastic (polyamide) from our catalog.  
 In the non-actuated state, the sensor signal is “high”

## Technical information

| Material |                          |
|----------|--------------------------|
| Housing  | Aluminum                 |
| Seals    | Nitrile butadiene rubber |

## Dimensions

### Dimensions



1) Sensor plug M8, 3-pin  
electronic PNP

The orientation of the pins depends on the angular position of the sensor, which is random.

2) Connection 2, valve side

3) Connection 4, valve side

4) Operating line 2

5) Operating line 4

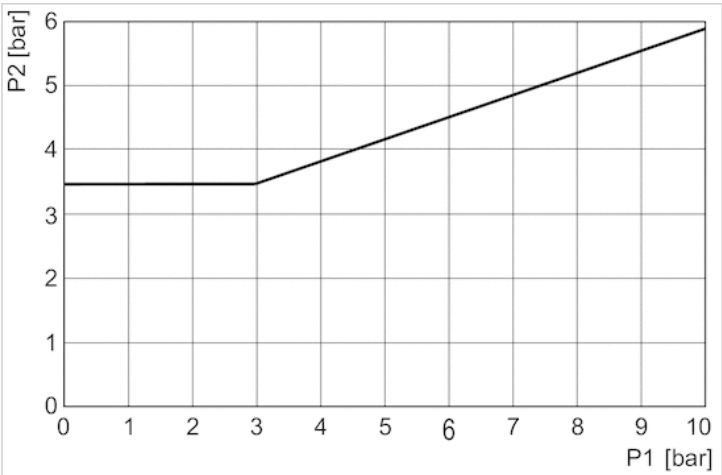
## Dimensions

| Part No.   | A    | B    |
|------------|------|------|
| R422101511 | 42±1 | 50±1 |

| Part No.   | A    | B    |
|------------|------|------|
| R422101510 | 45±1 | 54±1 |
| R422101509 | 45±1 | 53±1 |

Diagrams

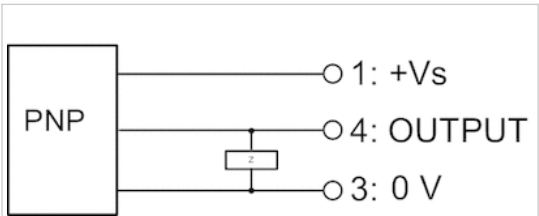
Minimum control pressure (depending on operating pressure)



p1 = pressure on connections 2 and 4, p2 = control pressure

Pin assignments

Sensor circuit diagram



# Pressure regulator, Series AV

- Inch version
- push-in fitting
- Controlled port 2 4



|                               |                |
|-------------------------------|----------------|
| Adjustment range min./max.    | 0.5 ... 10 bar |
| Ambient temperature min./max. | -10 ... 60 °C  |
| Medium temperature min./max.  | -10 ... 60 °C  |
| Medium                        | Compressed air |
| Weight                        | 0.2 kg         |

## Technical data

| Part No.   |                                                                                     | Compressed air connection type Input | Compressed air connection Output | Repetitive precision |
|------------|-------------------------------------------------------------------------------------|--------------------------------------|----------------------------------|----------------------|
| R422003563 |  | push-in fitting                      | Ø 1/4"                           | ± 10 %               |
| R422003571 |  | push-in fitting                      | Ø 1/4"                           | ± 10 %               |

| Part No.   | Controlled port |
|------------|-----------------|
| R422003563 | 2               |
| R422003571 | 4               |

Order pressure gauge separately

## Technical information

Pneumatic connection to base plate valves, suitable for all sizes in the AV03 and AV05 series

Mounting bracket (2x) for mounting to the mounting plate: R422103091

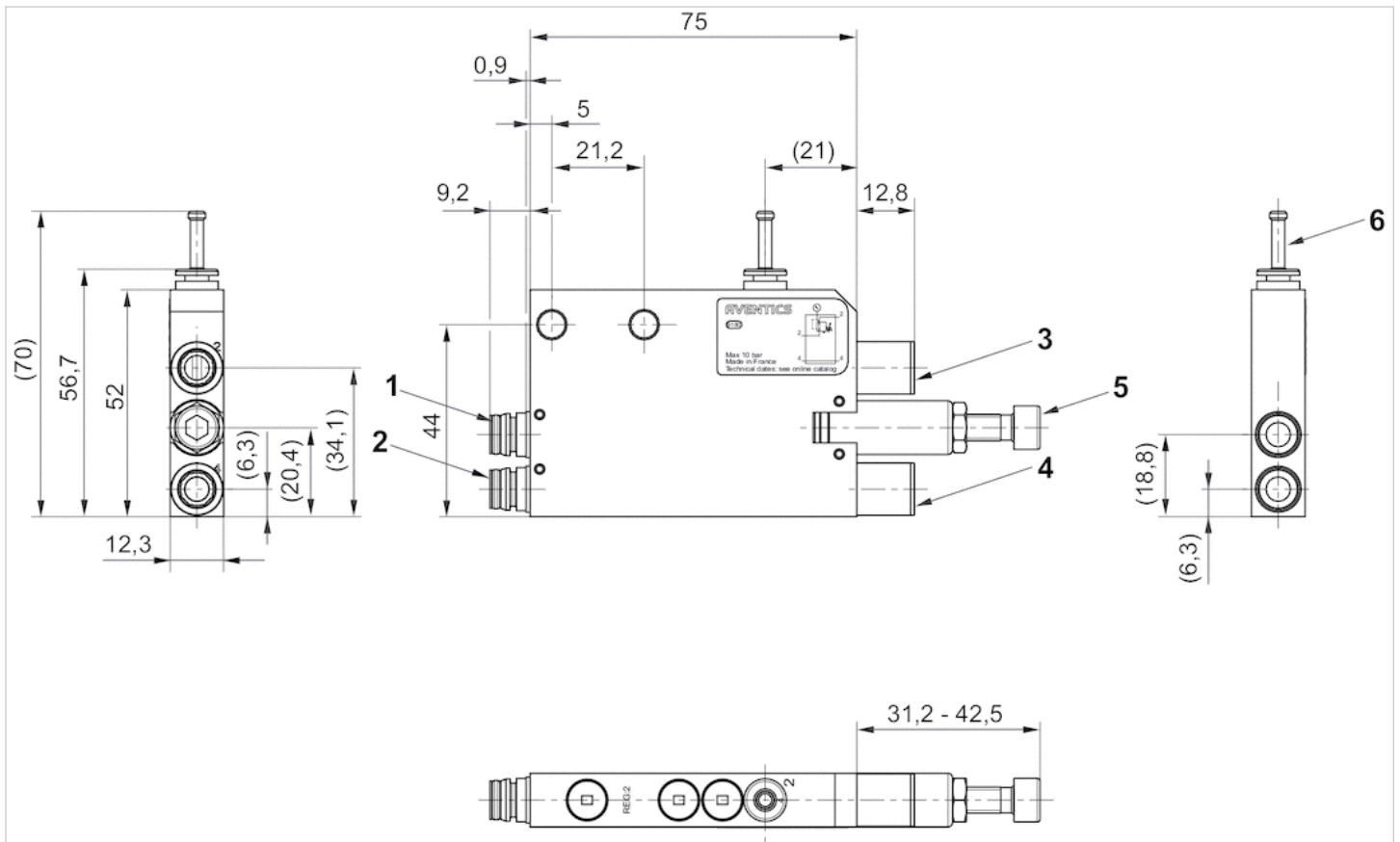
For 2 or more AV pressure regulators assembled into blocks with pressure gauges, use of push-in fitting R412005046 is recommended for every second pressure gauge

## Technical information

| Material |                                |
|----------|--------------------------------|
| Housing  | Aluminum                       |
| Seals    | Acrylonitrile butadiene rubber |

## Dimensions

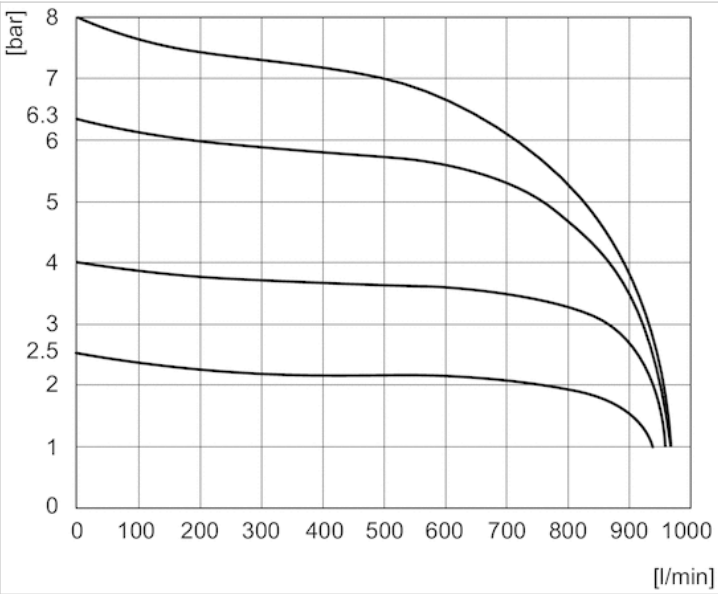
### Dimensions



- 1) Connection 2, valve side
- 2) Connection 4, valve side
- 3) Operating line 2
- 4) Operating line 4
- 5) adjustment screw, Port 2, 4
- 6) plugs
- 7) Logic valves

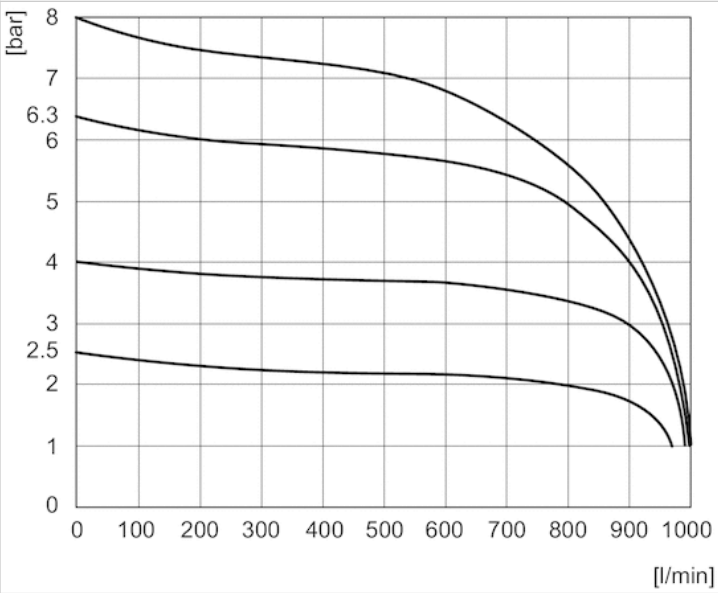
# Diagrams

## Flow diagram, Port 2



Pv = 9 bar

## Flow diagram, Port 4

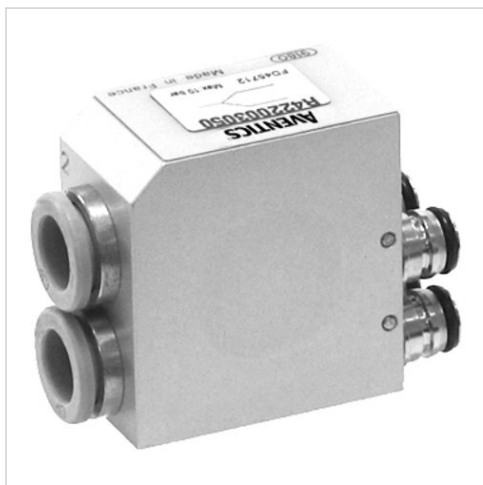


Pv = 9 bar



# Flow rate coupler, Series AV Inch version

- For port channels 2, 4



Working pressure min./max.

-0.9 ... 10 bar

Ambient temperature min./max.

-10 ... 60 °C

Medium

Compressed air

Weight

0.12 kg

## Technical data

| Part No.   | Type     | Fig.   |
|------------|----------|--------|
| R422102791 | 2 x 3/8" | Fig. 1 |
| R422102795 | 1 x 3/8" | Fig. 2 |

## Technical information

When using polyurethane tubing, we recommend using additional stiffener sleeves.

For push-in fittings, only use plug accessories made of plastic (polyamide) from our catalog.

Pneumatic connection to base plate valves, suitable for all sizes in the AV03 and AV05 series

Doubling of flow rate performance by connecting the working connections of two valves.

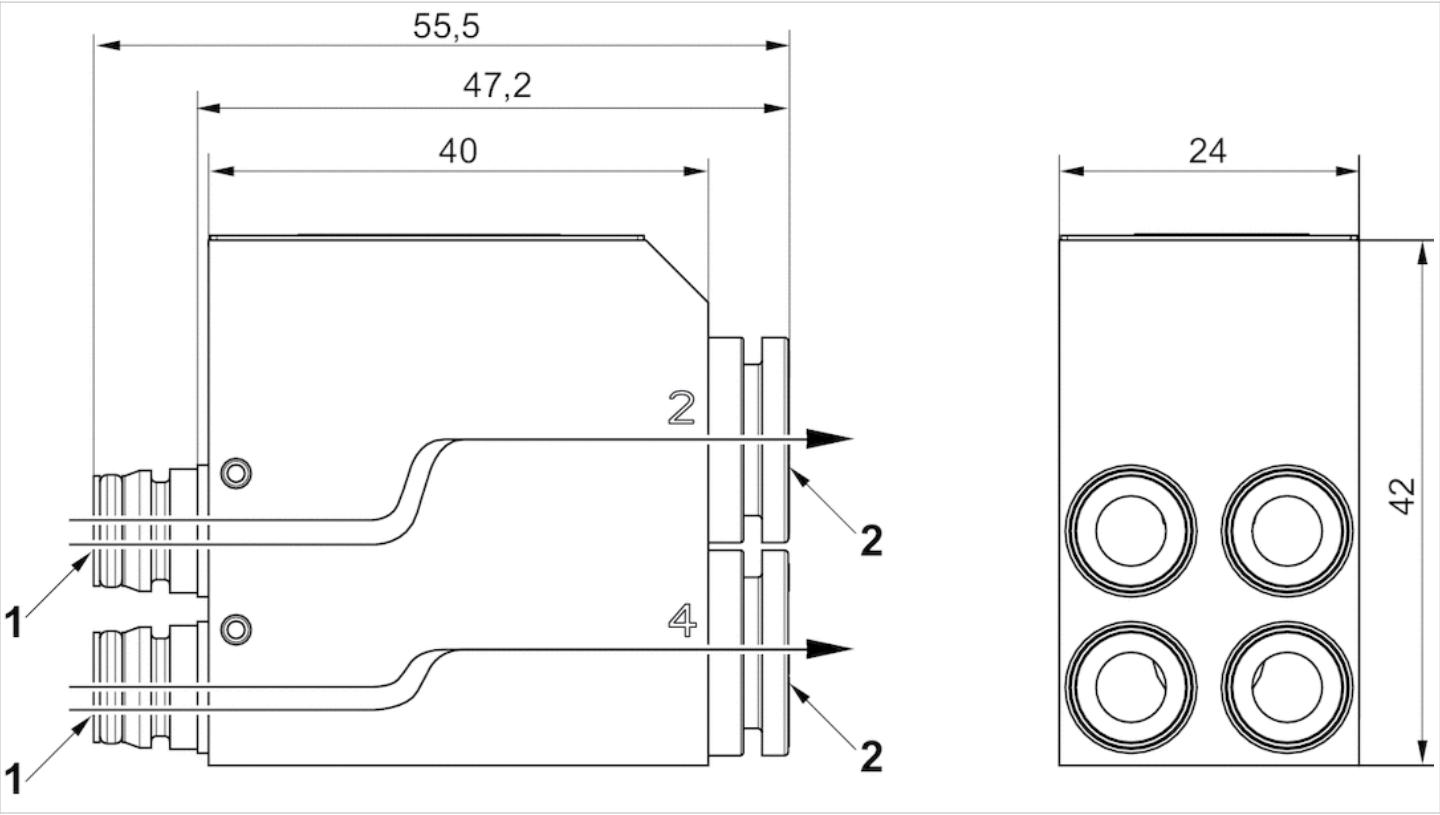
Both valves must be identical models and controlled electrically at the same time.

## Technical information

| Material |                |
|----------|----------------|
| Housing  | Aluminum       |
| Seals    | Nitrile rubber |

Dimensions

Fig. 1



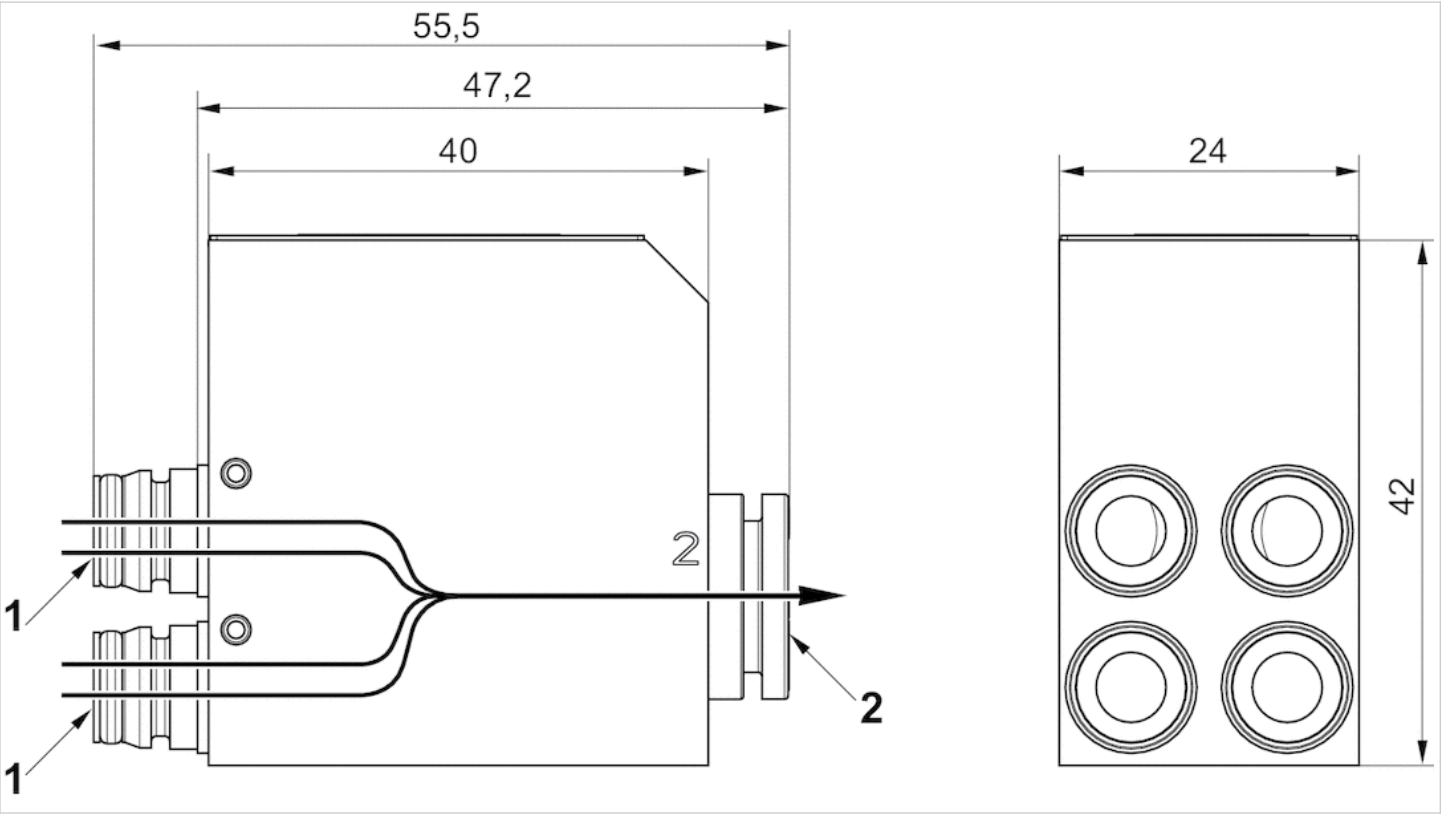
- 1) Pneumatic connection to base plate valves, suitable for all sizes in the AV03 and AV05 series
- 2) 2 x Ø 10

Dimensions

| Number of valves | 2    | 2    | 2     | 2    | 2    | 2     |
|------------------|------|------|-------|------|------|-------|
| Valve function   | 5/2  | 5/3  | 2x3/2 | 5/2  | 5/3  | 2x3/2 |
| Series           | AV03 | AV03 | AV03  | AV05 | AV05 | AV05  |
| Flow [l/min]     | 670  | 670  | 670   | 1100 | 1100 | 1100  |

Dimensions

Fig. 2



- 1) Pneumatic connection to base plate valves, suitable for all sizes in the AV03 and AV05 series
- 2) 1 x Ø 10

Dimensions

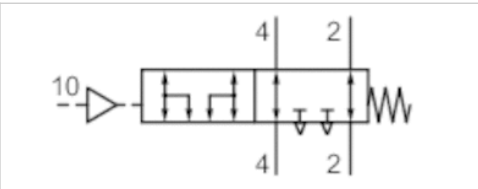
| Number of valves | 2     | 2     |
|------------------|-------|-------|
| Valve function   | 2x3/2 | 2x3/2 |
| Series           | AV03  | AV05  |
| Flow [l/min]     | 830   | 1400  |

# Exhaust module Series AV

- For port channels 2, 4
- push-in fitting



|                               |                |
|-------------------------------|----------------|
| Working pressure min./max.    | 0 ... 10 bar   |
| Ambient temperature min./max. | -10 ... 60 °C  |
| Medium                        | Compressed air |
| Weight                        | 0.07 kg        |



## Technical data

| Part No.   | Type Port 1     | Compressed air connection Output | Compressed air connection pilot air | Flow Qn    |
|------------|-----------------|----------------------------------|-------------------------------------|------------|
| R422003046 | push-in fitting | Ø 8                              | Ø 4                                 | 1080 l/min |
| R422003185 | push-in fitting | Ø 6                              | Ø 4                                 | 720 l/min  |
| R422003187 | push-in fitting | Ø 4                              | Ø 4                                 | 280 l/min  |

## Technical information

When using polyurethane tubing, we recommend using additional stiffener sleeves.

For push-in fittings, only use plug accessories made of plastic (polyamide) from our catalog.

Pneumatic connection to base plate valves, suitable for all sizes in the AV03 and AV05 series

Particularly suitable for 5/3 CC valves, since the remaining pressure in the actuator can be exhausted when the control pressure is applied.

The exhaust module and the air circuit should be tested monthly to ensure they function correctly.

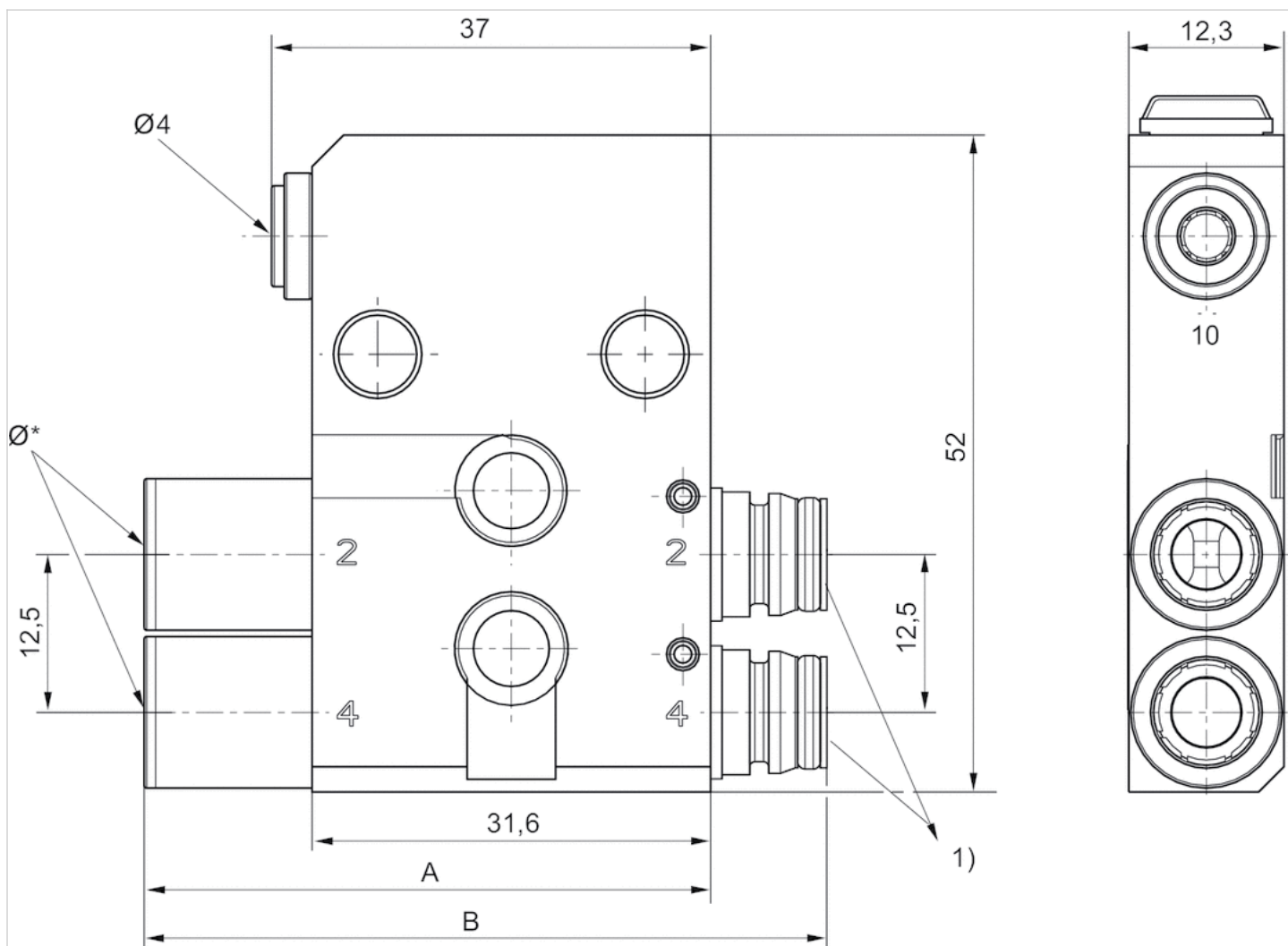
Applications with vertical actuators with exhaust or pressure throttles and a maximum load of 15 kg as well as up to a speed of Vmax 33 mm/s .

## Technical information

| Material |                |
|----------|----------------|
| Housing  | Aluminum       |
| Seals    | Nitrile rubber |

## Dimensions

### Dimensions



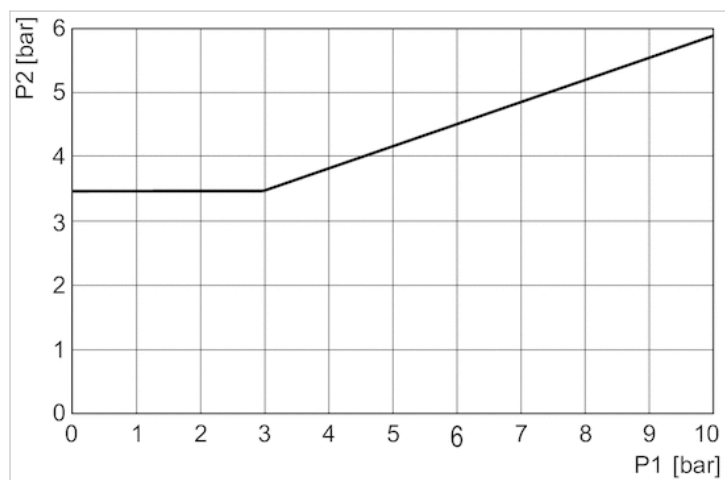
1) Pneumatic connection to base plate valves, suitable for all sizes in the AV03 and AV05 series

## Dimensions

| Part No.   | $\varnothing^*$ | A  | B  |
|------------|-----------------|----|----|
| R422003046 | 8               | 46 | 54 |
| R422003185 | 6               | 42 | 50 |
| R422003187 | 4               | 38 | 46 |

## Diagrams

### Minimum control pressure (depending on operating pressure)



p1 = pressure on connections 2 and 4, p2 = control pressure

# Push-in fittings

- for AV



Working pressure min./max.

-0.95 ... 10 bar

Ambient temperature min./max.

-10 ... 60 °C

Medium

Compressed air

## Technical data

| Part No.   | Type                                                                                              | Scope of delivery |
|------------|---------------------------------------------------------------------------------------------------|-------------------|
| R412018617 | Push-in fitting Ø 4 mm - 5/32", straight                                                          | 2 piece           |
| R412018618 | Push-in fitting Ø 6 mm, straight                                                                  | 2 piece           |
| R412018619 | Push-in fitting Ø 8 mm - 5/16", straight                                                          | 2 piece           |
| R412018621 | Push-in fitting Ø 3 mm, angled, short, and<br>push-in fitting Ø 3 mm, angled, long                | 1 piece           |
| R412018622 | Push-in fitting Ø 4 mm - 5/32", angled, short and<br>push-in fitting Ø 4 mm - 5/32", angled, long | 1 piece           |
| R412018623 | Push-in fitting Ø 6 mm, angled, short<br>Push-in fitting Ø 6 mm, angled, long                     | 1 piece           |
| R422002561 | Push-in fitting Ø 3 mm, angled, short                                                             | 10 piece          |
| R422002569 | Plug connector Ø 3 mm, angled, long                                                               | 10 piece          |
| R422002554 | Push-in fitting Ø 4 mm - 5/32", straight                                                          | 10 piece          |
| R422002562 | Push-in fitting Ø 4 mm, 5/32", angled, short                                                      | 10 piece          |
| R422002570 | Push-in fitting Ø 4 mm, 5/32", angled, long                                                       | 10 piece          |
| R422002555 | Push-in fitting Ø 6 mm, straight                                                                  | 10 piece          |
| R422002563 | Push-in fitting Ø 6 mm, angled, short                                                             | 10 piece          |
| R422002571 | Push-in fitting Ø 6 mm, angled, long                                                              | 10 piece          |
| R422002557 | Push-in fitting Ø 8 mm, 5/16", straight                                                           | 10 piece          |
| R422002565 | Push-in fitting Ø 8 mm, 5/16", angled, short                                                      | 10 piece          |
| R422002573 | Push-in fitting Ø 8 mm, 5/16", angled, long                                                       | 10 piece          |
| R422002944 | Push-in fitting Ø 8 mm, angled, short<br>Push-in fitting Ø 8 mm, angled, long                     | 1 piece           |
| R412021785 | Push-in fitting 1/8", straight                                                                    | 2 piece           |
| R412018620 | Push-in fitting 1/4", straight                                                                    | 2 piece           |
| R422002560 | Push-in fitting 3/8", straight                                                                    | 10 piece          |
| R422102508 | Push-in fitting Ø 12 mm, straight                                                                 | 2 piece           |
| R422002559 | Push-in fitting Ø 12 mm, straight                                                                 | 10 piece          |
| R422002556 | Push-in fitting 1/4", straight                                                                    | 10 piece          |
| R412021786 | Push-in fitting 1/8", straight                                                                    | 10 piece          |

| Part No.   | Housing material                         |    |
|------------|------------------------------------------|----|
| R412018617 | Brass, nickel-plated                     | -  |
| R412018618 | Brass, nickel-plated                     | -  |
| R412018619 | Brass, nickel-plated                     | -  |
| R412018621 | Brass, nickel-plated                     | 1) |
| R412018622 | Brass, nickel-plated                     | -  |
| R412018623 | Brass, nickel-plated                     | -  |
| R422002561 | Brass, nickel-plated                     | -  |
| R422002569 | Brass, nickel-plated                     | -  |
| R422002554 | Brass, nickel-plated                     | -  |
| R422002562 | Brass, nickel-plated                     | -  |
| R422002570 | Brass, nickel-plated                     | -  |
| R422002555 | Brass, nickel-plated                     | -  |
| R422002563 | Brass, nickel-plated                     | -  |
| R422002571 | Brass, nickel-plated                     | -  |
| R422002557 | Brass, nickel-plated                     | -  |
| R422002565 | Polyamide, fiber-glass reinforced, black | -  |
| R422002573 | Polyarylamide, fiber-glass reinforced    | -  |
| R422002944 | Polyamide, fiber-glass reinforced, black | -  |
| R412021785 | Brass, nickel-plated                     | -  |
| R412018620 | Brass, nickel-plated                     | -  |
| R422002560 | Brass, nickel-plated                     | -  |
| R422102508 | Brass, nickel-plated                     | 1) |
| R422002559 | Brass, nickel-plated                     | 1) |
| R422002556 | Brass, nickel-plated                     | -  |
| R412021786 | Brass, nickel-plated                     | -  |

1) Only for AV05 air connection, connection 1

## Technical information

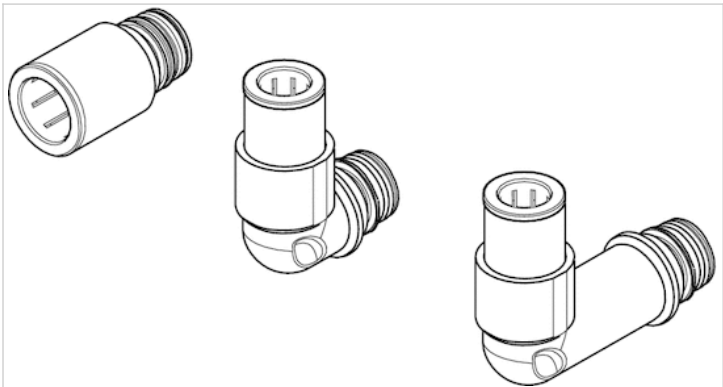
When using polyurethane tubing, we recommend using additional stiffener sleeves.  
For push-in fittings, only use plug accessories made of plastic (polyamide) from our catalog.

## Technical information

| Material |                                                                                                           |
|----------|-----------------------------------------------------------------------------------------------------------|
| Housing  | Brass, nickel-plated<br>Polyamide, fiber-glass reinforced, black<br>Polyarylamide, fiber-glass reinforced |
| Seal     | Nitrile rubber                                                                                            |



Dimensions



# End plate left

R412018334



## Technical data

Industry  
Industrial

Type  
End plate

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

electr. connection  
D-Sub plug, 25-pin, top

For series  
AV03

Type  
Top connection

Min. medium temperature  
-10 °C

Max. medium temperature  
60 °C

Weight  
0.045 kg

## Material

Housing material  
Polyamide

Screws material  
Steel

Part No.  
R412018334

## Technical information

Scope of delivery: incl. 1 seal and 2 mounting screws

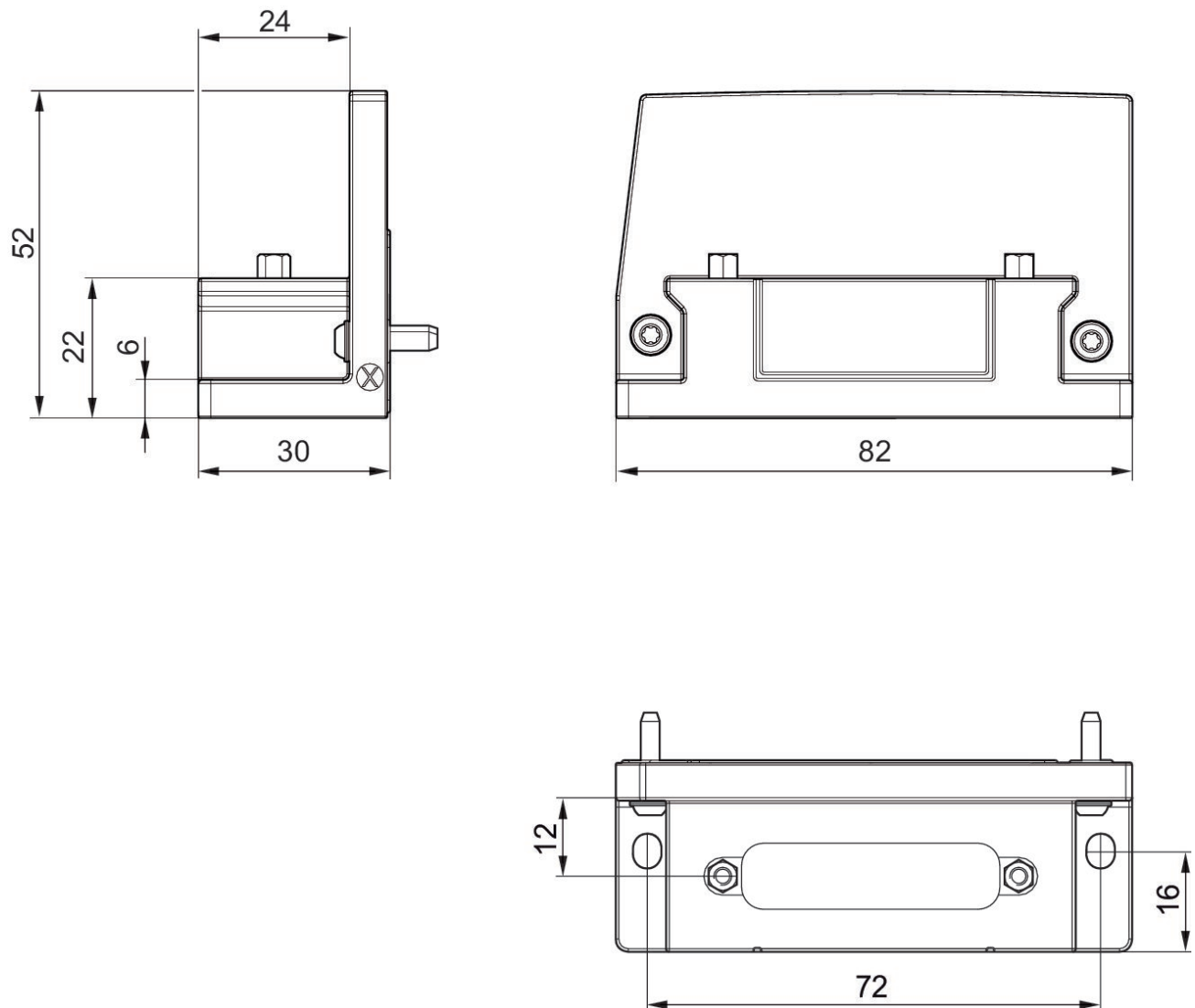
The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in <https://www.emerson.com/en-us/support>).

## Dimensions in mm



# End plate left

## R412018335



### Technical data

Industry  
Industrial

Type  
End plate

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

electr. connection  
D-Sub plug, 25-pin, on the side

For series  
AV03

Type  
Side connection

Min. medium temperature  
-10 °C

Max. medium temperature  
60 °C

Weight  
0.05 kg

### Material

Housing material  
Polyamide

Screws material  
Steel

Part No.  
R412018335

## Technical information

Scope of delivery: incl. 1 seal and 2 mounting screws

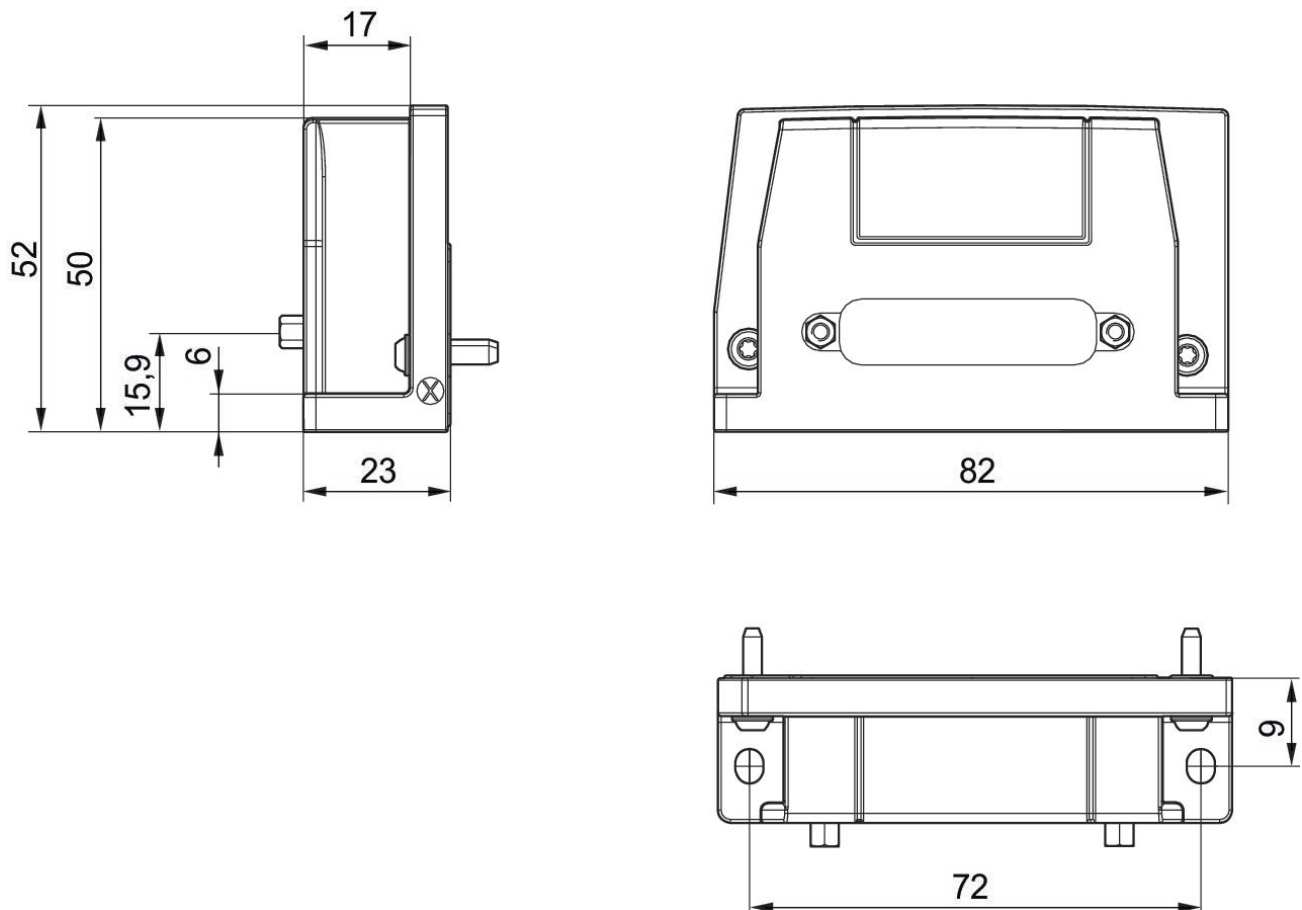
The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in <https://www.emerson.com/en-us/support>).

## Dimensions in mm



# End plate left

## R412027731



### Technical data

Industry  
Industrial

Type  
End plate

For series  
AV03-SW

Type  
Single wiring

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

Min. medium temperature  
-10 °C

Max. medium temperature  
60 °C

Weight  
0.05 kg

### Material

Housing material  
Polyamide

Screws material  
Steel

Part No.  
R412027731

## Technical information

Scope of delivery: incl. 1 seal and 2 mounting screws

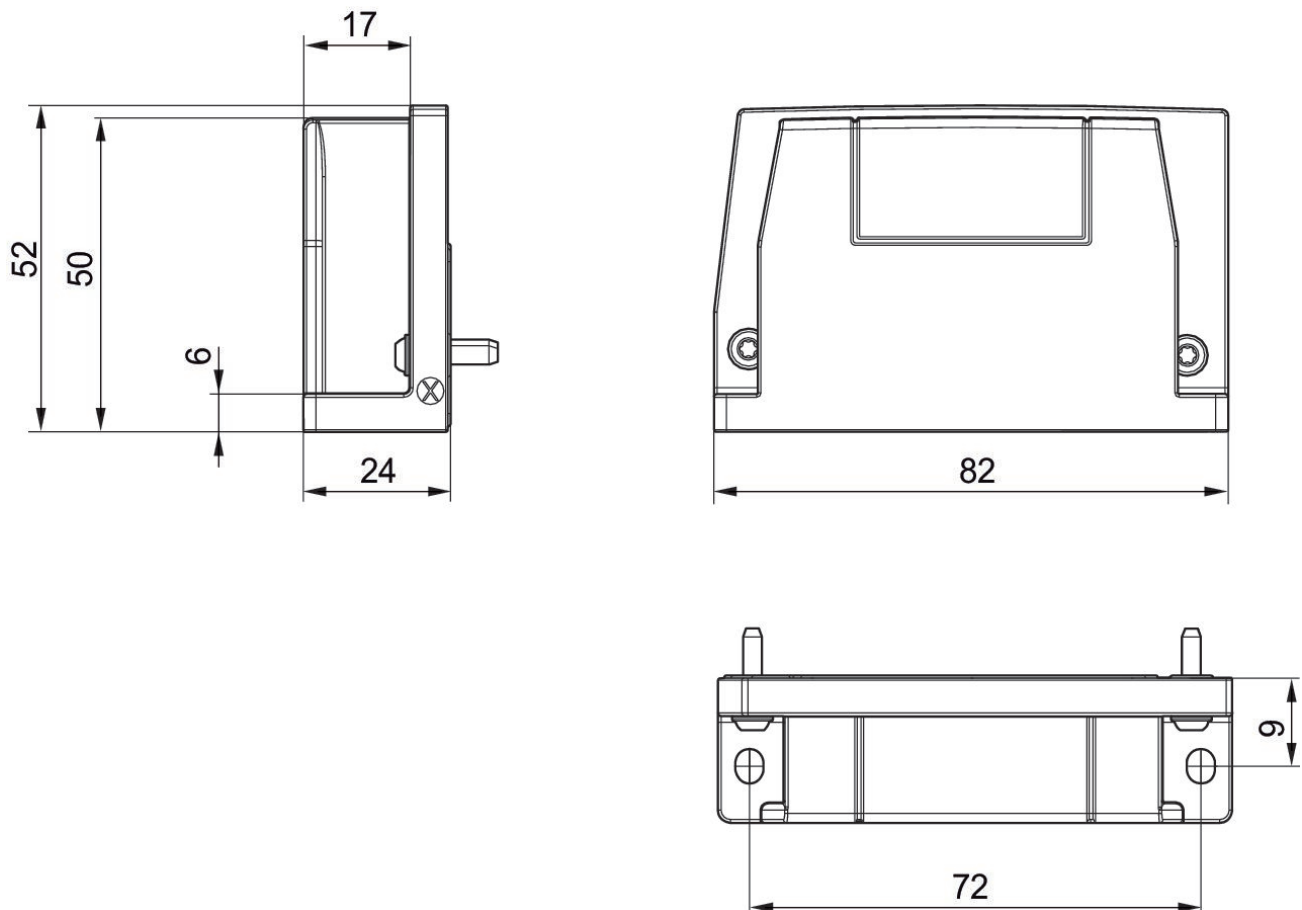
The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in <https://www.emerson.com/en-us/support>).

## Dimensions in mm



# Extension kit transition plate AES - AV03

R412015587



## Technical data

Industry  
Industrial

Working pressure min.  
-0.95 bar

Working pressure max  
10 bar

Min. ambient temperature  
-10 °C

Max. ambient temperature  
60 °C

### Scope of delivery

Adapter plate incl. 2x sealings, 4x Screws, 1x Tie rod nut,  
1x circuit board, 1x Extension circuit board

### Housing material

Polyamide fiber-glass reinforced

### Seal material

Natural rubber

### Part No.

R412015587

## Technical information

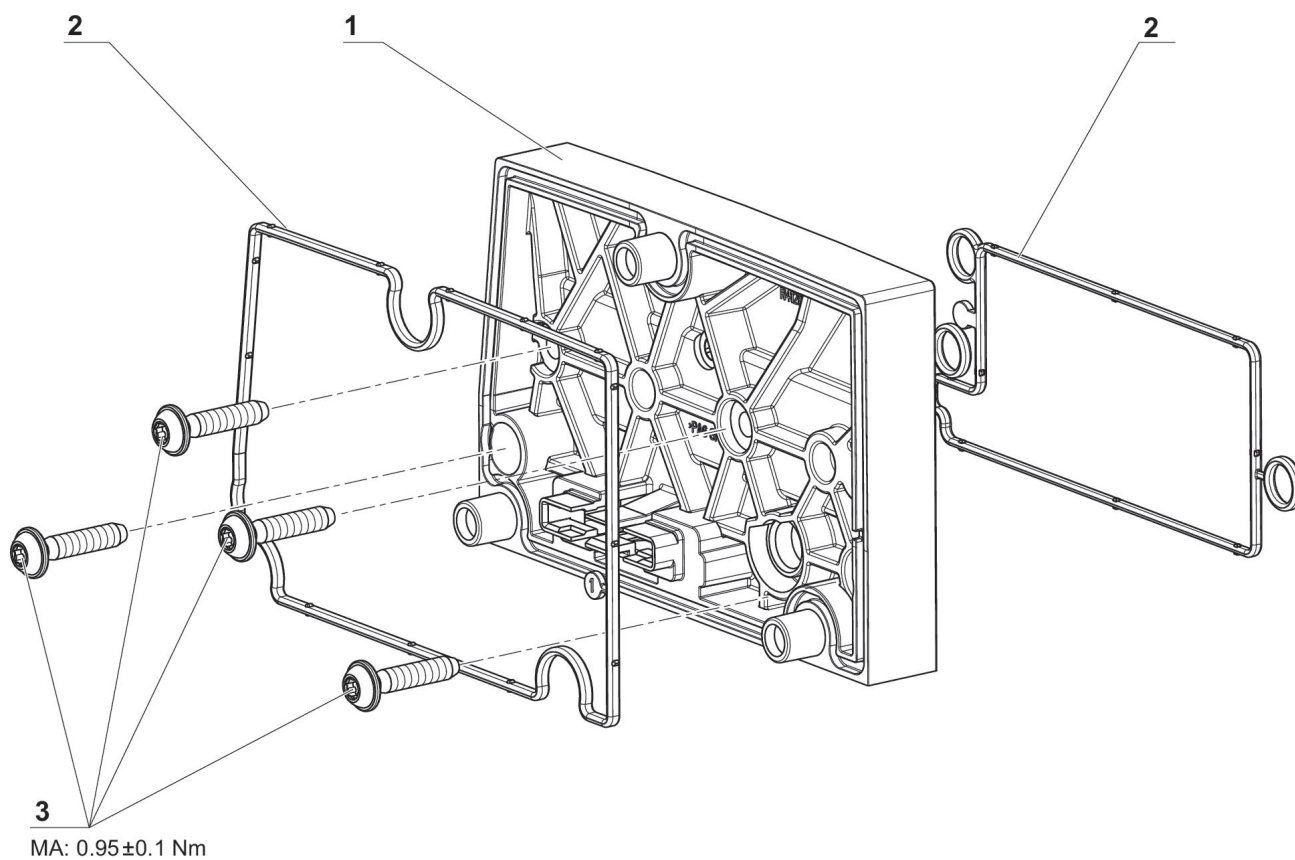
The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.



## Dimensions



- 1) Transition plate
- 2) Seal
- 3) Screws

# Mounting kit for DIN rail

- for AV03, AV05, AES, ES05



## Technical data

| Part No.   |
|------------|
| R412019468 |

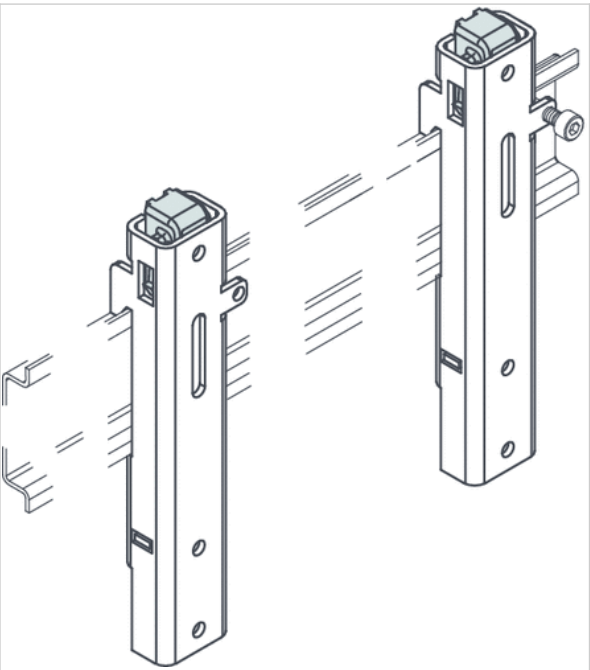
Scope of delivery: 2 clamps, 4 screws M4x8 DIN 912, 1 screw M3x14 DIN 912, Note: The valve system should not be equipped with more than the maximum number of components. After maximum equipment of the valve system, we recommend no longer assembling the valve system on a DIN rail.

## Technical information

| Material |                      |
|----------|----------------------|
| Housing  | Steel, chrome-plated |

Dimensions

Dimensions



# Assembly kit

- for AV



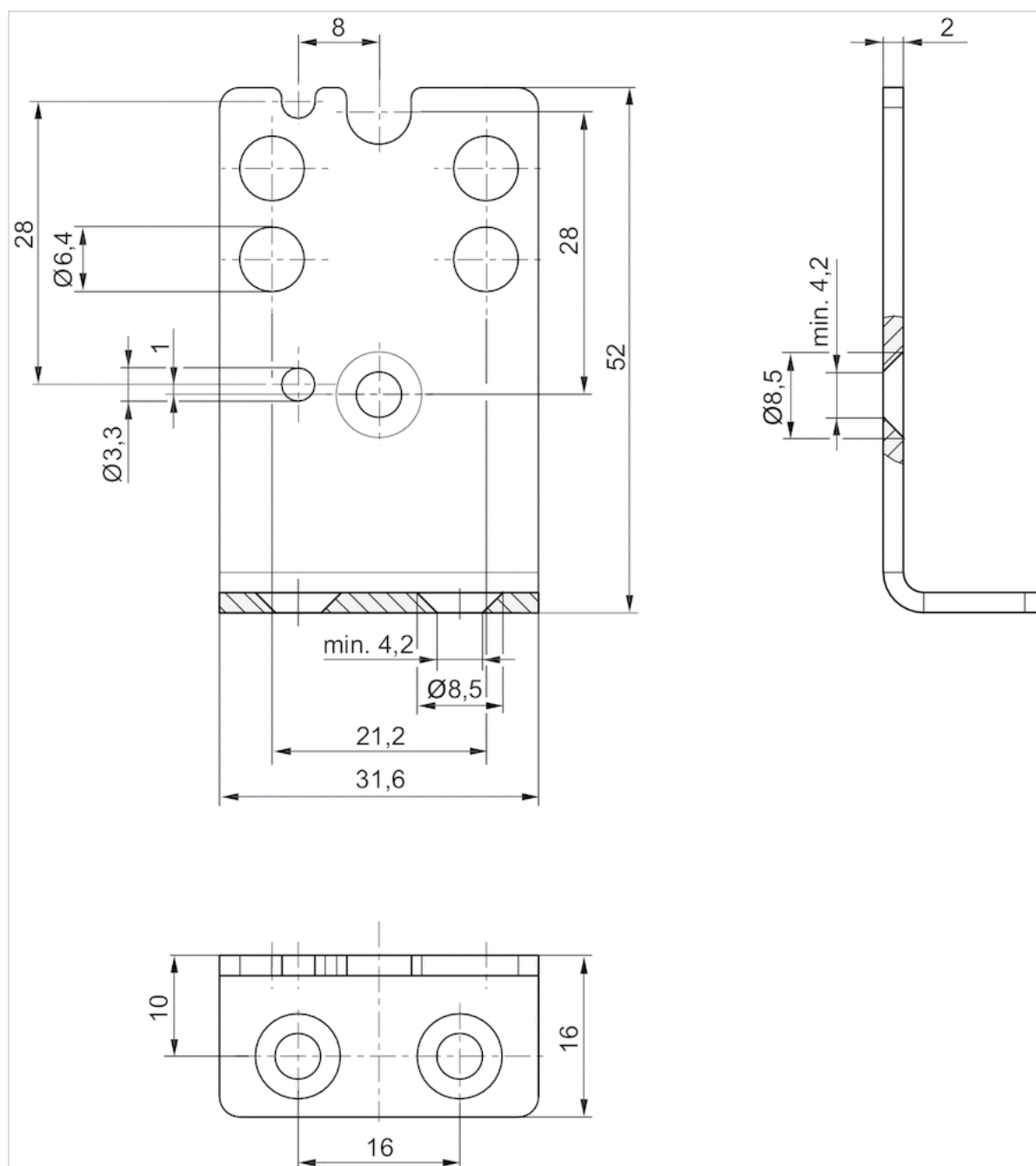
## Technical data

| Part No.   | Type                                                | Delivery unit |
|------------|-----------------------------------------------------|---------------|
| R422103091 | Mounting bracket for mounting to the mounting plate | 2 piece       |

## Technical information

| Material |                 |
|----------|-----------------|
| Housing  | Stainless steel |

## Dimensions



2 countersunk screws DIN 7991 A4 M4x8 for mounting on AV series pressure regulators are included in the scope of delivery. Countersunk screws for mounting on a mounting plate are not included in the scope of delivery.

# Retaining bracket for intermediate mounting

- for AES, AV03, AV05



## Technical data

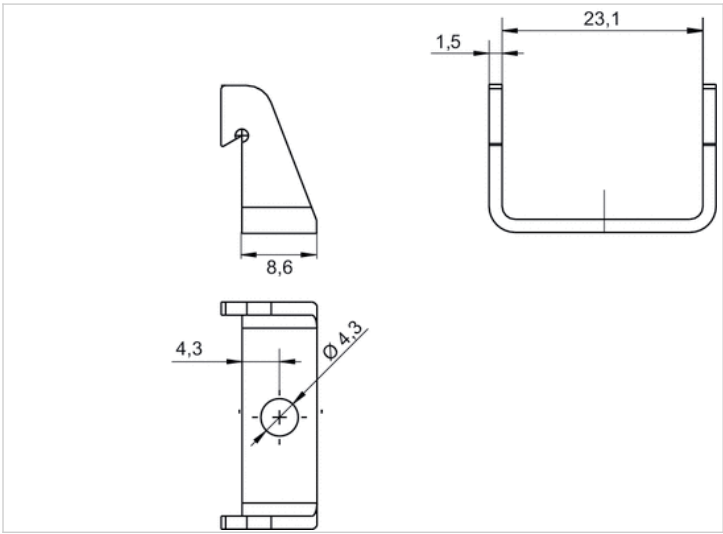
| Part No.   | Type               | Delivery unit |
|------------|--------------------|---------------|
| R412018339 | Retaining brackets | 10 piece      |

After three I/O modules or 8 valves, mount a retaining bracket (R412018339) to fasten the entire unit to the mounting surface., Screws not included in scope of delivery, The max. permissible space between the retaining brackets is 150 mm .

## Technical information

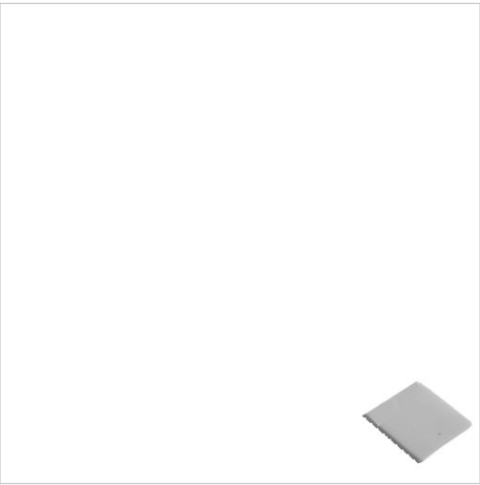
| Material |                 |
|----------|-----------------|
| Housing  | Stainless steel |

Dimensions



# Name plates, AV-valves front

- for AV03, AV05, AES



Weight

0.014 kg

## Technical data

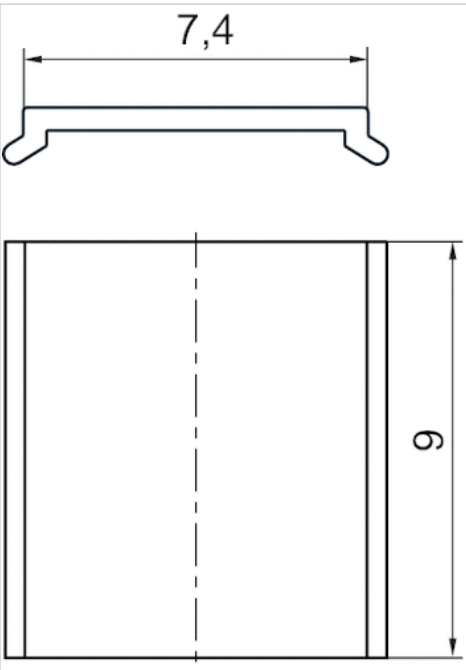
| Part No.   | Type        | Delivery unit |
|------------|-------------|---------------|
| R412019552 | Name plates | 150 piece     |

## Technical information

| Material |           |
|----------|-----------|
| Housing  | Polyamide |



Dimensions



# Name plates, AV-valves, AES bus coupler top

- for AV03, AV05, AES



Weight

0.014 kg

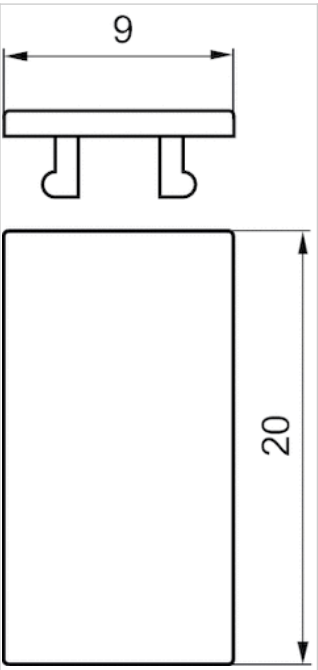
## Technical data

| Part No.   | Type        | Delivery unit |
|------------|-------------|---------------|
| R422100889 | Name plates | 24 piece      |

## Technical information

| Material |              |
|----------|--------------|
| Housing  | Polycarbonat |

Dimensions



# Name plates, AV-BP base plates bottom

- for AV03-BP, AV05-BP



Weight

0.014 kg

## Technical data

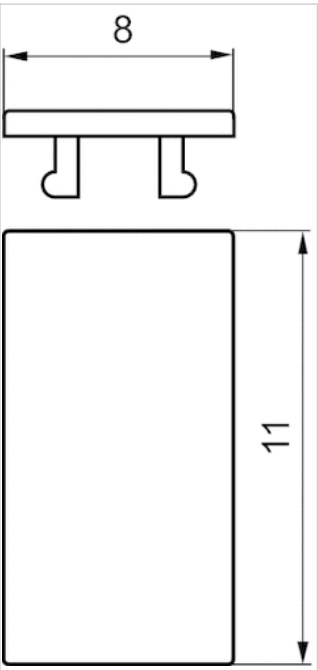
| Part No.   | Type        | Scope of delivery |
|------------|-------------|-------------------|
| R412026461 | Name plates | 20 Piece          |

## Technical information

| Material |           |
|----------|-----------|
| Housing  | Polyamide |

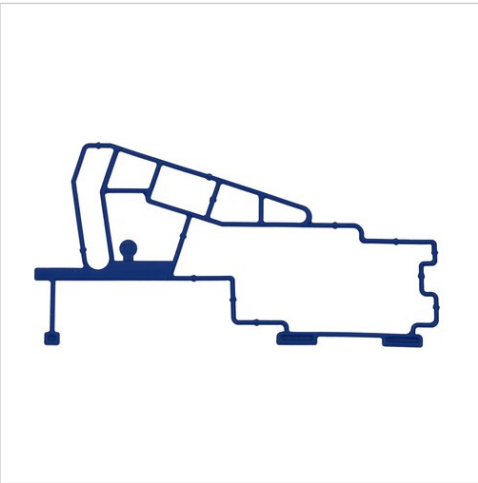
Dimensions

Dimensions



# Sealing kit

- for AV03-BP



Ambient temperature min./max.
-10 ... 60 °C

## Technical data

| Part No.   | Type                                                    |  |
|------------|---------------------------------------------------------|--|
| R412026462 | sealing kit: Connections "2" and "4"                    |  |
| R412026464 | 5x Sealing kit: Connections "1" , "3", "5", "X" and "R" |  |
| R412026467 | Sealing kit for base plate                              |  |

| Part No.   | Sealing material               | Scope of delivery |
|------------|--------------------------------|-------------------|
| R412026462 | Acrylonitrile butadiene rubber | 20 Piece          |
| R412026464 | Acrylonitrile butadiene rubber | 5 Piece           |
| R412026467 | Nitrile butadiene rubber       | 10 Piece          |

# Spare parts

- for AV03-BP



Ambient temperature min./max.

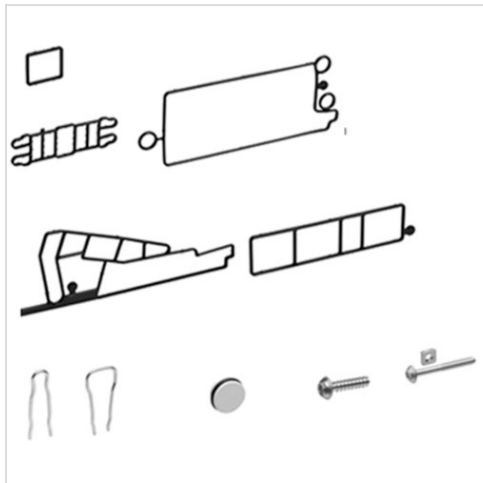
-10 ... 60 °C

## Technical data

Part No.

R412026460

# Accessories



Ambient temperature min./max.  
Medium

-10 ... 60 °C  
Compressed air

## Technical data

| Part No.   | Position | Type                             | Scope of delivery |    |
|------------|----------|----------------------------------|-------------------|----|
| R412018338 | 1        | Valve seals                      | 10 piece          | 1) |
| R412020084 | 1        | Valve seals                      | 10 piece          | 2) |
| R412018344 | 2        | Seals for left end plate         | 10 piece          | 1) |
| R412020080 | 2        | Seals for left end plate         | 10 piece          | 2) |
| R412018345 | 3        | Seals for base plate             | 10 piece          | 1) |
| R412020082 | 3        | Seals for base plate             | 10 piece          | 2) |
| R412018346 | 4        | Seals for function modules       | 10 piece          | 1) |
| R412020081 | 4        | Seals for function modules       | 10 piece          | 2) |
| R412018746 | 5        | Retaining clips for supply plate | 10 piece          | 1) |
| R412020075 | 5        | Retaining clips for supply plate | 10 piece          | 2) |
| R412018747 | 6        | Retaining clips for base plate   | 10 piece          | 3) |
| R412018351 | 7        | Sealing cap for right end plate  | 5 piece           | 3) |
| R412015467 | 8        | Screws for left end plate        | 10 piece          | 3) |
| R412018336 | 9        | Mounting screw for valve         | 10 piece          | 3) |

1) AV03

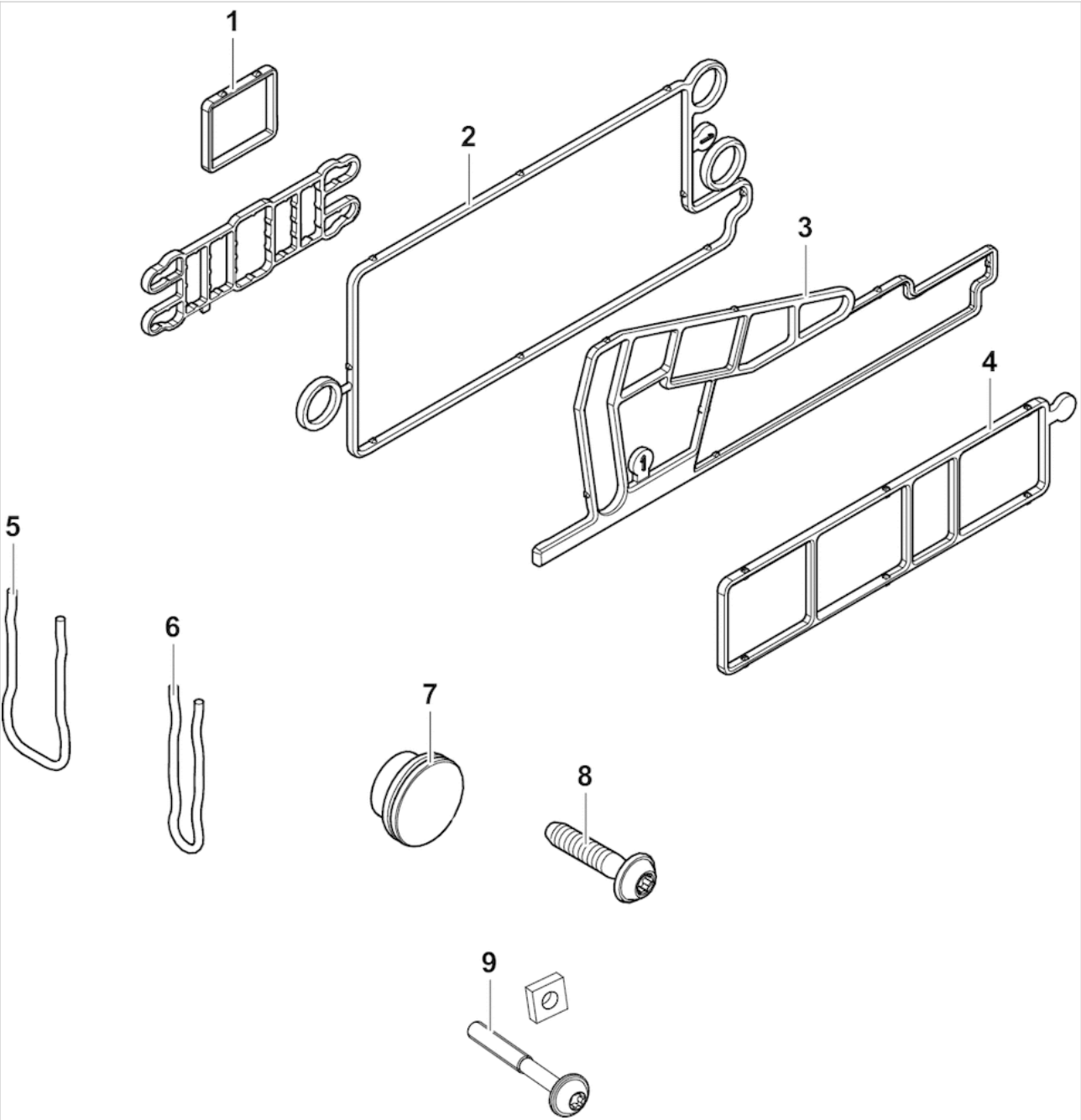
2) AV05

3) AV03 / AV05



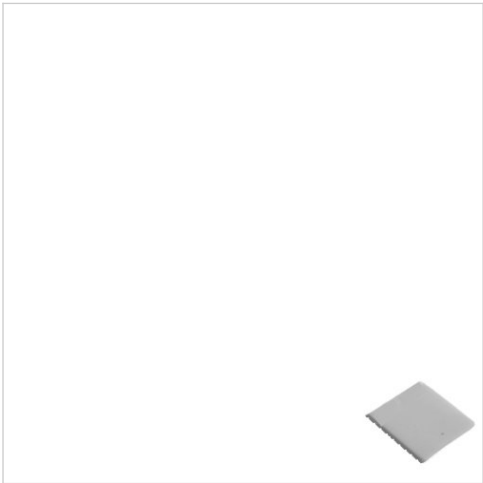
Dimensions

Overview drawing



# Name plates, AES E/A-module

- for AES



Weight

0.014 kg

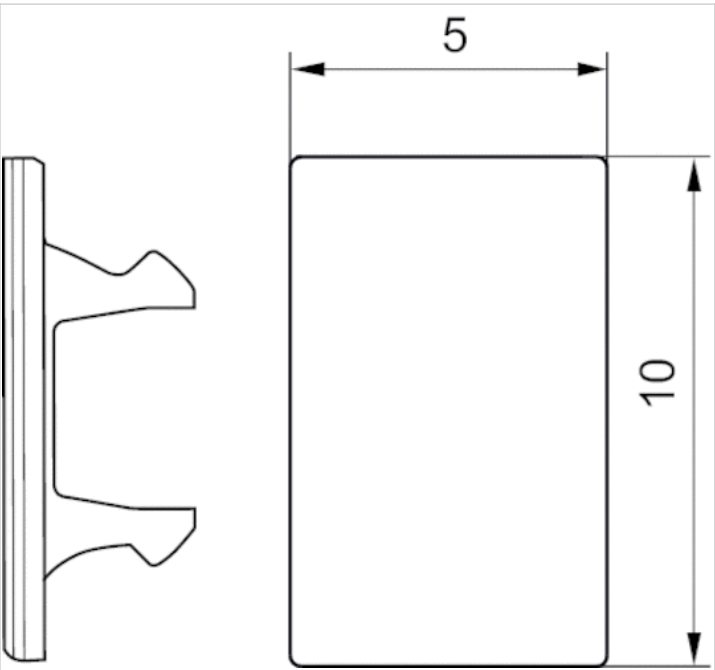
## Technical data

| Part No.   | Type        | Delivery unit |
|------------|-------------|---------------|
| R412018192 | Name plates | 60 piece      |

## Technical information

| Material |           |
|----------|-----------|
| Housing  | Polyamide |

Dimensions



# Protective cap, series CON-RD

- M8x1



|                               |               |
|-------------------------------|---------------|
| Ambient temperature min./max. | -40 ... 85 °C |
| Protection class              | IP67          |
| Weight                        | 0.001 kg      |

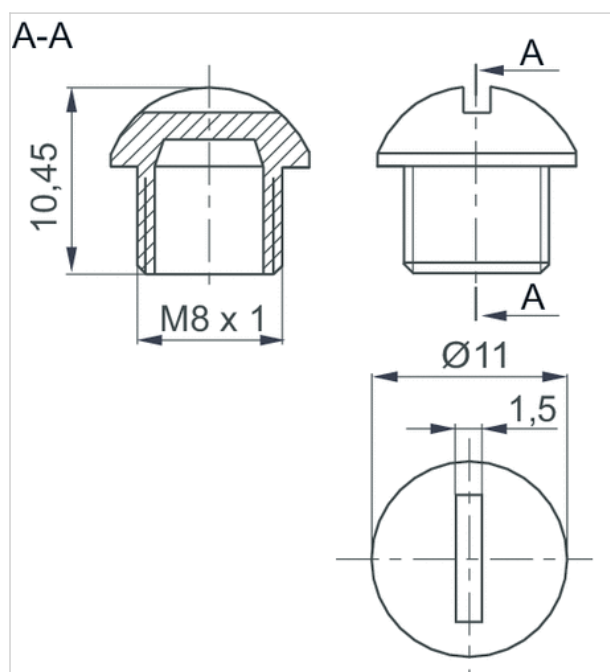
## Technical data

| Part No.   | Type | Scope of delivery |
|------------|------|-------------------|
| R412003493 | M8x1 | 25                |

## Technical information

| Material |           |
|----------|-----------|
| Housing  | Polyamide |

## Dimensions



# Protective cap, series CON-RD

- M12x1



|                               |               |
|-------------------------------|---------------|
| Ambient temperature min./max. | -40 ... 85 °C |
| Protection class              | IP67          |
| Weight                        | 0.001 kg      |

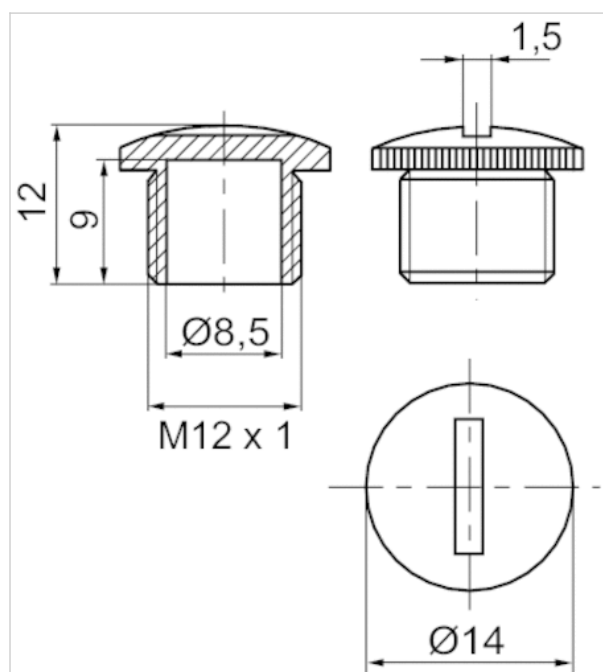
## Technical data

| Part No.   | Type  | Delivery unit |
|------------|-------|---------------|
| 1823312001 | M12x1 | 50 piece      |

## Technical information

| Material |           |
|----------|-----------|
| Housing  | Polyamide |

## Dimensions



# End plate left

- for AES



Ambient temperature min./max.  
Weight

-10 ... 60 °C  
0.033 kg

## Technical data

| Part No.   | Type           |
|------------|----------------|
| R412015398 | End plate left |

Delivery contents: incl. 2 spring clamp elements

## Technical information

The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

Use only the approved oils from AVENTICS. Further information can be found in the “Technical information” document (available in the MediaCentre).

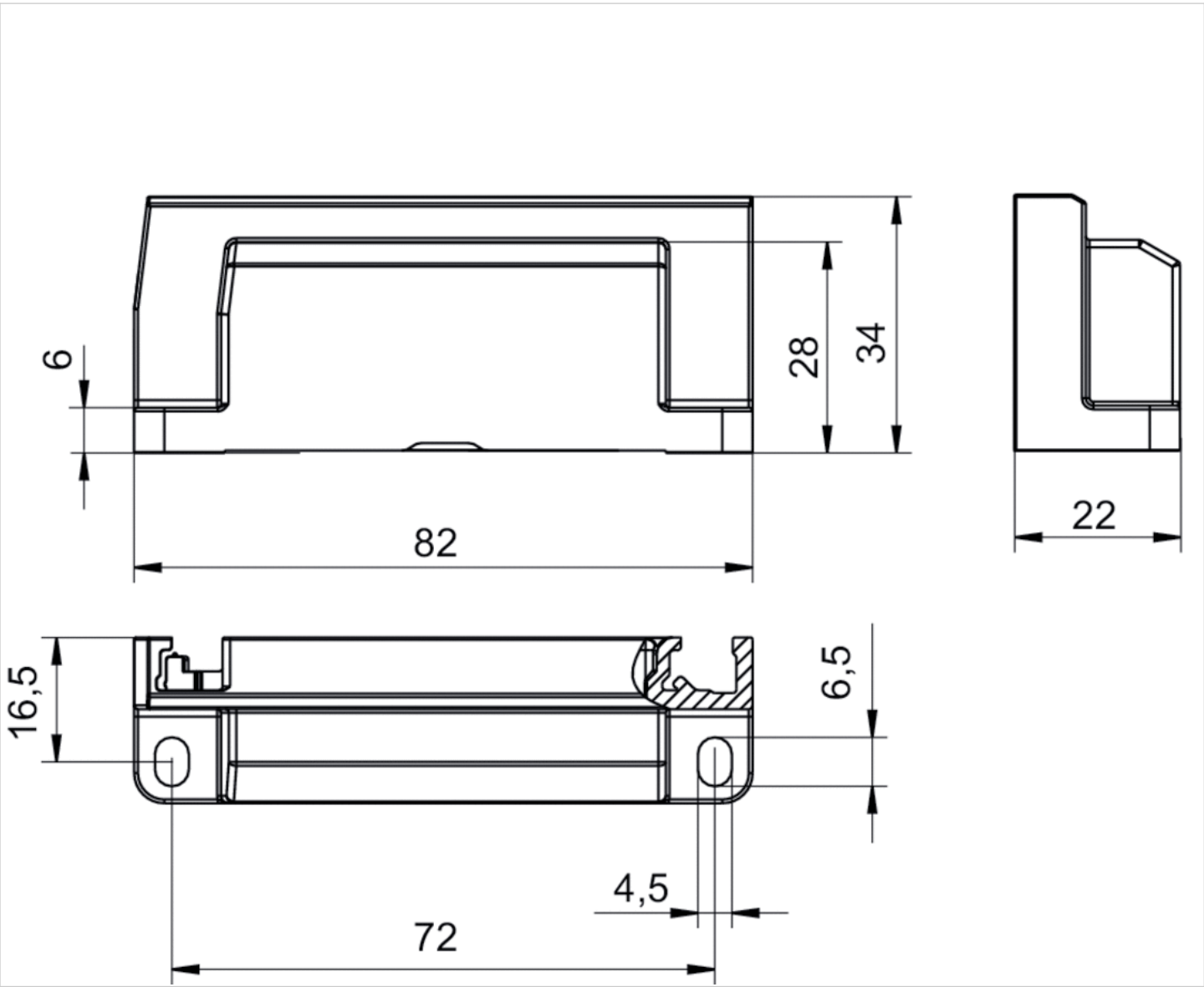
## Technical information

| Material   |                                  |
|------------|----------------------------------|
| Base plate | Polyamide fiber-glass reinforced |



Dimensions

Dimensions



# End plate right

- for AES



Ambient temperature min./max. -10 ... 60 °C  
Weight 0.039 kg

## Technical data

| Part No.   | Suitable for Series     |
|------------|-------------------------|
| R412015741 | Stand-Alone variant AES |

Scope of delivery incl. seal and mounting screws

## Technical information

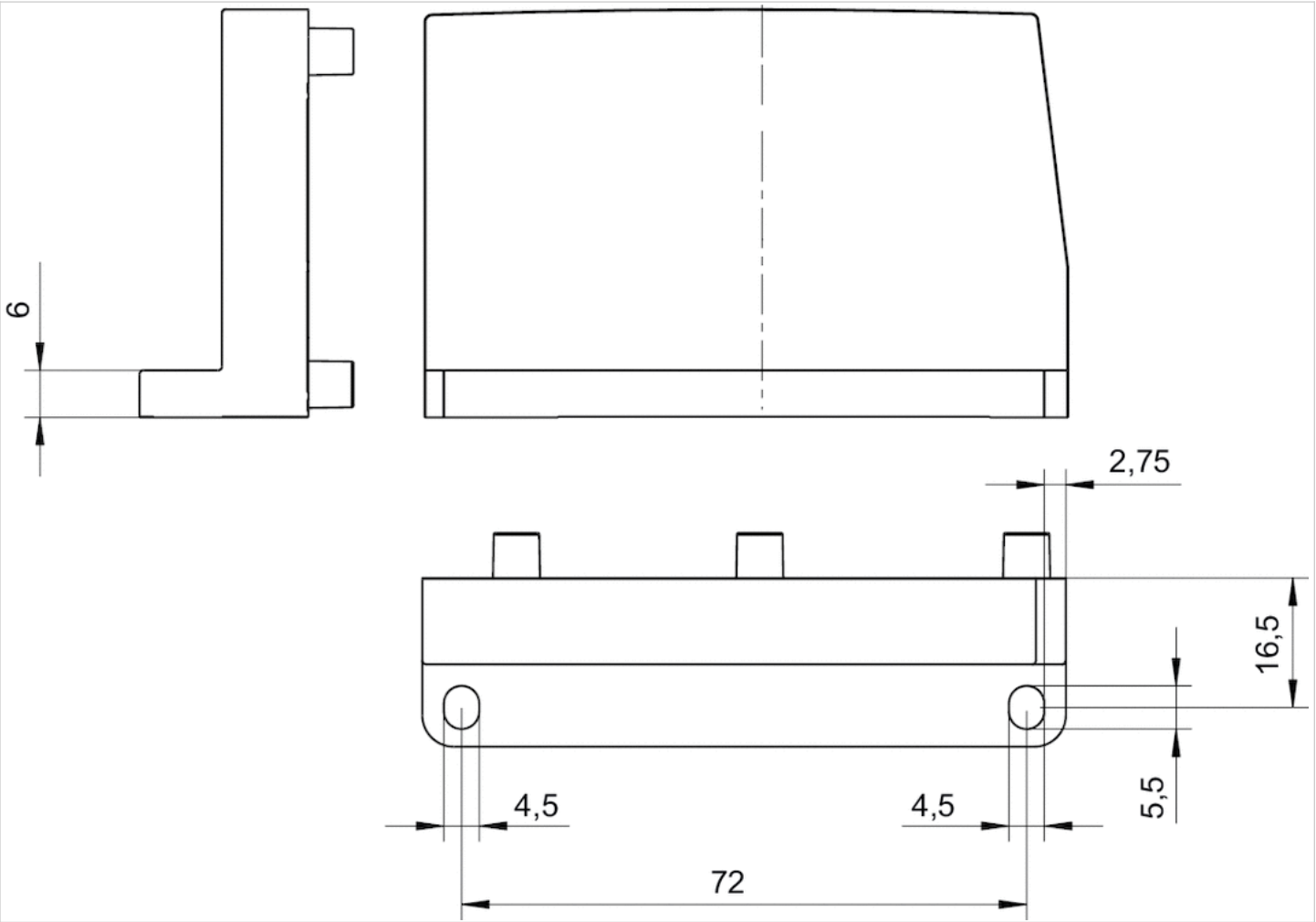
The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!  
The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .  
The oil content of compressed air must remain constant during the life cycle.  
Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in the MediaCentre).

## Technical information

| Material   |                                  |
|------------|----------------------------------|
| Base plate | Polyamide fiber-glass reinforced |

Dimensions

Dimensions



# Retaining bracket for intermediate mounting

- for AES, AV03, AV05



## Technical data

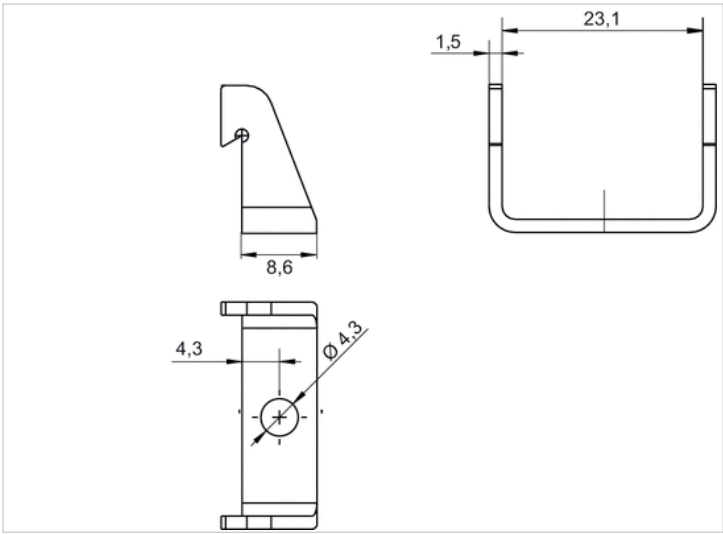
| Part No.   | Type               | Delivery unit |
|------------|--------------------|---------------|
| R412018339 | Retaining brackets | 10 piece      |

After three I/O modules or 8 valves, mount a retaining bracket (R412018339) to fasten the entire unit to the mounting surface., Screws not included in scope of delivery, The max. permissible space between the retaining brackets is 150 mm .

## Technical information

| Material |                 |
|----------|-----------------|
| Housing  | Stainless steel |

Dimensions



# Mounting bracket

## R412020083

Mechanical accessories



### Technical data

Industry

For series

Delivery unit

Weight

Housing material

Part No.

Industrial

AV03

AV05

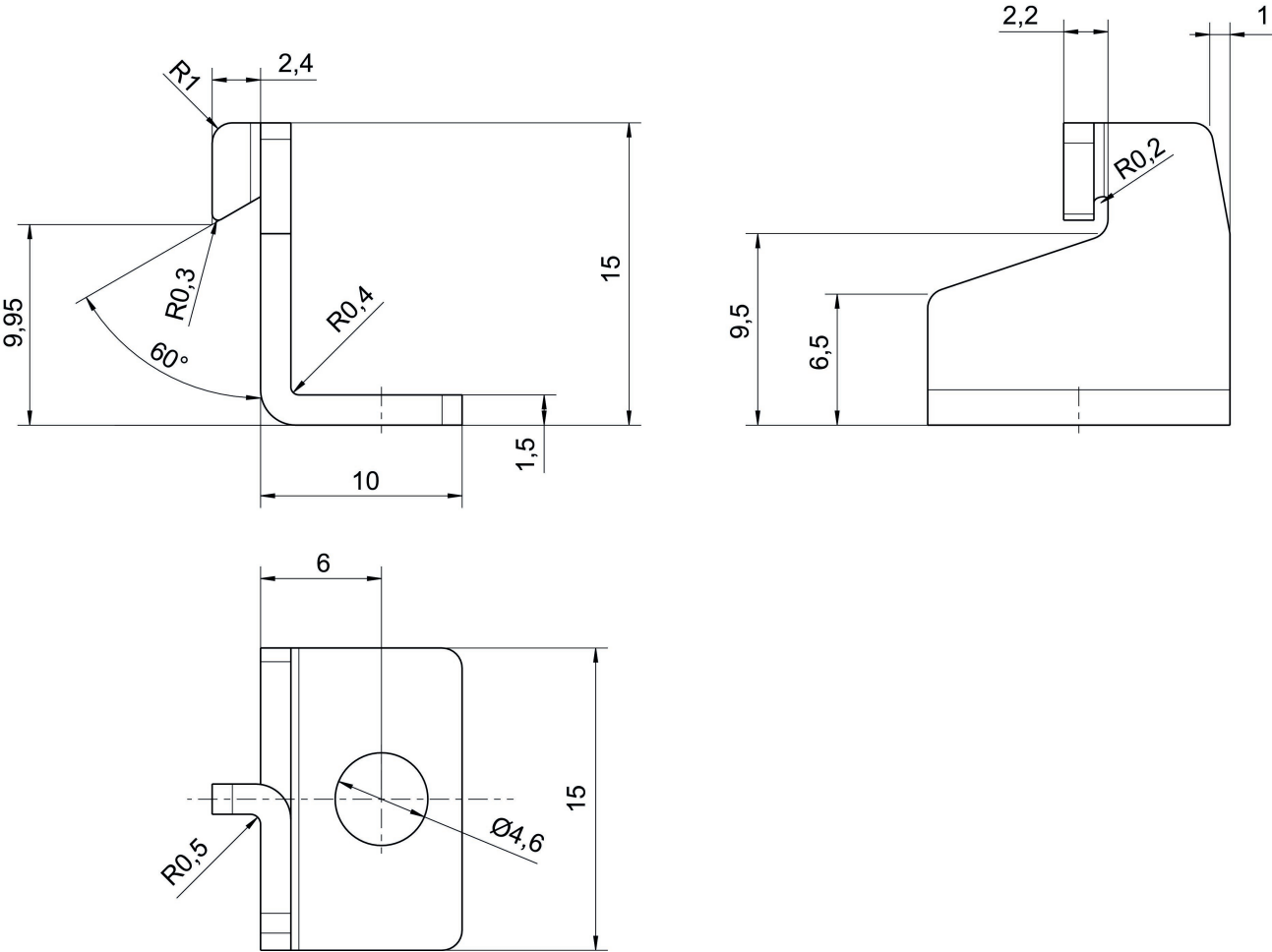
10 piece

0.047 kg

Stainless Steel

R412020083

Dimensions in mm



# Spring clamp element

- for AES



## Technical data

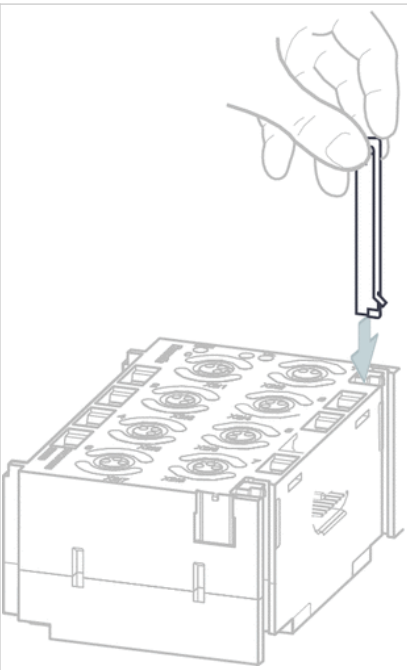
| Part No.   | Type                 | Suitable for                       | Delivery unit |
|------------|----------------------|------------------------------------|---------------|
| R412015400 | Spring clamp element | For connecting fieldbus components | 10 piece      |

## Technical information

| Material |       |
|----------|-------|
| Housing  | Steel |



Dimensions



# Release tool

- for AV



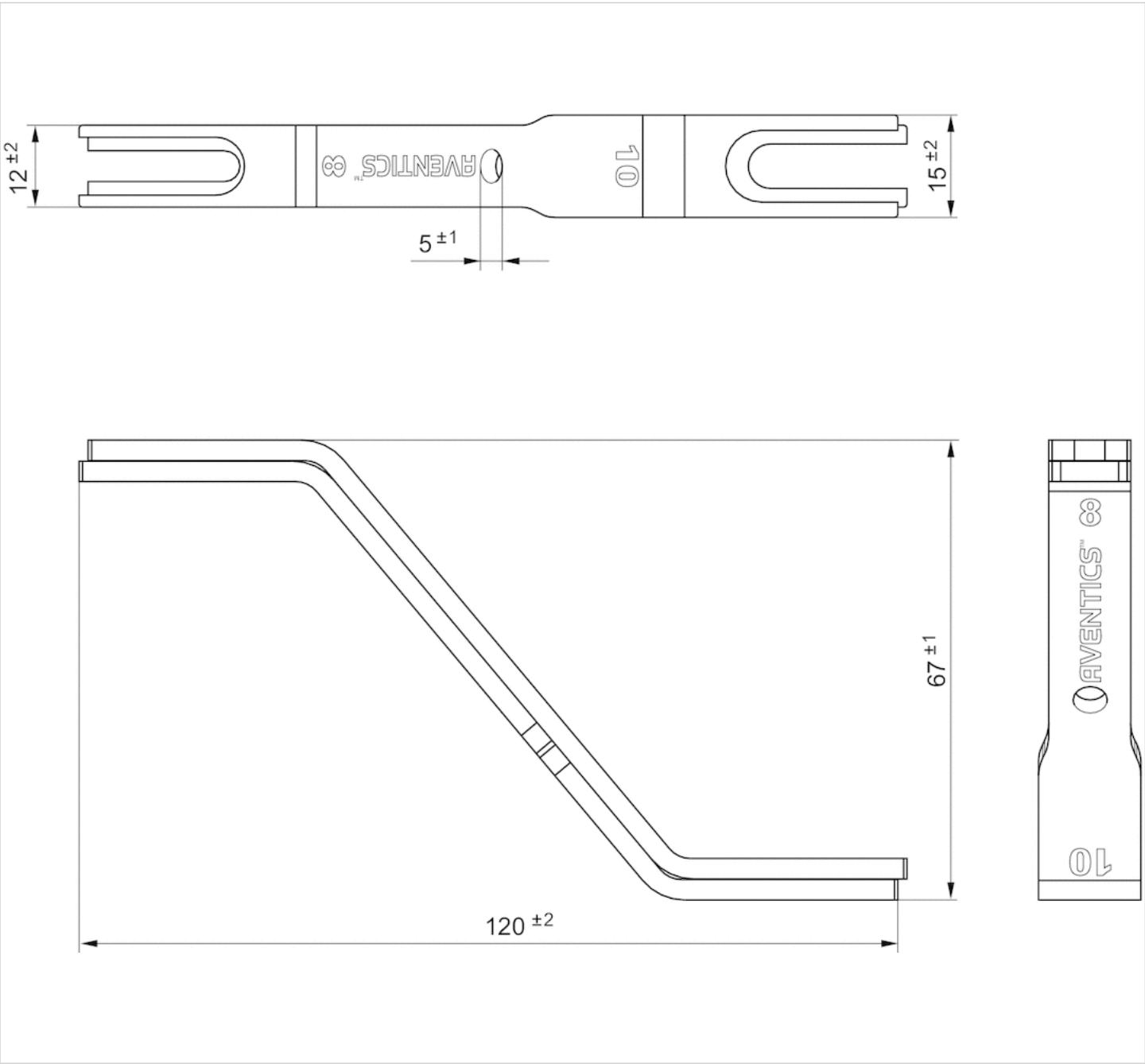
Ambient temperature min./max. -10 ... 60 °C

## Technical data

| Part No.   | Type                |
|------------|---------------------|
| R422004106 | Ø 4, Ø 6, Ø 8, Ø 10 |

Dimensions

Dimensions



# Round plug connector, Series CON-RD

- Plug, M12x1, 4-pin, D-coded, straight, 180°
- for Ethernet, EtherNET/IP, EtherCAT, POWERLINK, sercos III
- shielded



|                               |                |
|-------------------------------|----------------|
| Connection type               | Thread cutting |
| Ambient temperature min./max. | -40 ... 85 °C  |
| Operational voltage           | 48 V AC/DC     |
| Protection class              | IP67           |
| Weight                        | 0.41 kg        |



## Technical data

| Part No.   | Max. current | suitable cable-Ø min./max |
|------------|--------------|---------------------------|
| R419801401 | 4 A          | 6 / 8 mm                  |

## Technical information

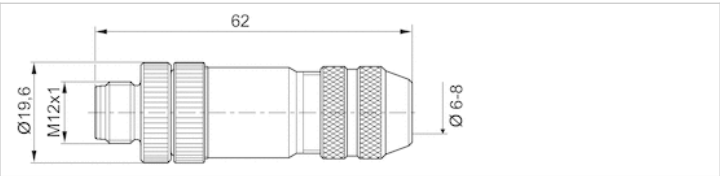
The specified protection class is only valid in assembled and tested state.

## Technical information

| Material |                      |
|----------|----------------------|
| Housing  | Brass, nickel-plated |

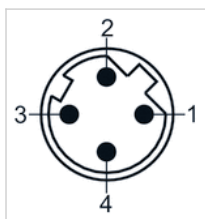
## Dimensions

### Dimensions



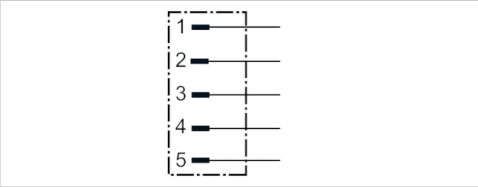
## Pin assignments

### Plug pin assignment



# Round plug connector, Series CON-RD

- Plug, M12x1, 5-pin, A-coded, straight, 180°
- for CANopen, DeviceNet
- UL (Underwriters Laboratories)
- shielded



|                               |               |
|-------------------------------|---------------|
| Connection type               | Screws        |
| Ambient temperature min./max. | -40 ... 85 °C |
| Operational voltage           | 48 V AC/DC    |
| Protection class              | IP67          |
| Weight                        | 0.48 kg       |

## Technical data

| Part No.   | Max. current | suitable cable-Ø min./max |
|------------|--------------|---------------------------|
| 8942051612 | 4 A          | 6 / 8 mm                  |

## Technical information

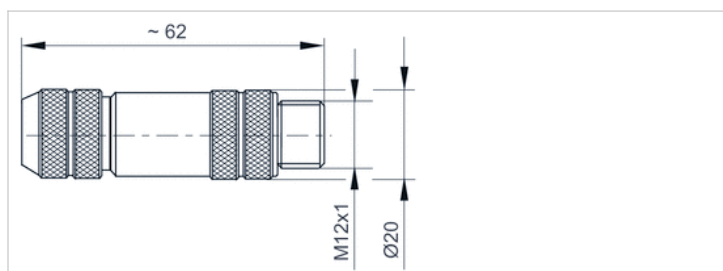
The specified protection class is only valid in assembled and tested state.

## Technical information

| Material |                      |
|----------|----------------------|
| Housing  | Brass, nickel-plated |

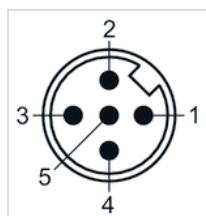
## Dimensions

### Dimensions



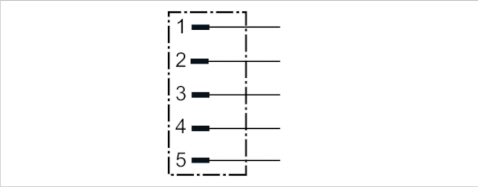
## Pin assignments

### Plug pin assignment



# Round plug connector, Series CON-RD

- Plug, M12x1, 5-pin, B-coded, straight, 180°
- for PROFIBUS DP
- UL (Underwriters Laboratories)
- shielded



|                               |               |
|-------------------------------|---------------|
| Connection type               | Screws        |
| Ambient temperature min./max. | -25 ... 85 °C |
| Operational voltage           | 48 V AC/DC    |
| Protection class              | IP67          |
| Weight                        | 0.06 kg       |

## Technical data

| Part No.   | Max. current | suitable cable-Ø min./max |
|------------|--------------|---------------------------|
| 8941054054 | 4 A          | 4 / 9 mm                  |

## Technical information

The specified protection class is only valid in assembled and tested state.

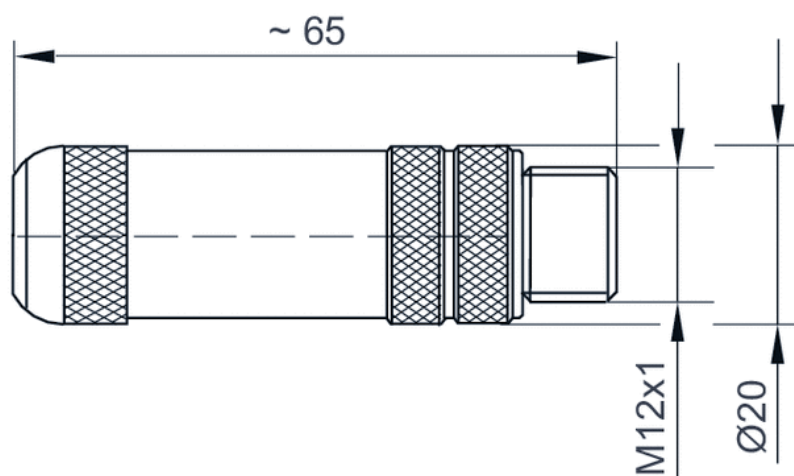
## Technical information

| Material |                         |
|----------|-------------------------|
| Housing  | Brass, nickel-plated    |
| Seals    | Fluorocarbon caoutchouc |



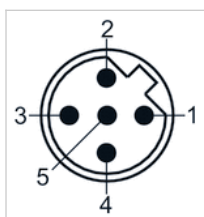
## Dimensions

### Dimensions



## Pin assignments

### Plug pin assignment

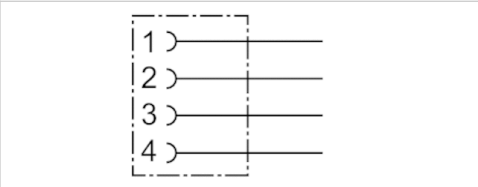


# Round plug connector, Series CON-RD

- Socket, M12x1, 4-pin, A-coded, straight, 180°
- UL (Underwriters Laboratories)
- unshielded



|                                                               |               |
|---------------------------------------------------------------|---------------|
| Connection type                                               | Screws        |
| Ambient temperature min./max.                                 | -25 ... 90 °C |
| Operational voltage                                           | 48 V AC/DC    |
| Protection class                                              | IP67          |
| Weight                                                        | 0.029 kg      |
| The delivered product may vary from that in the illustration. |               |



## Technical data

| Part No.   | Max. current | suitable cable-Ø min./max |
|------------|--------------|---------------------------|
| 8941054324 | 4 A          | 4 mm                      |

## Technical information

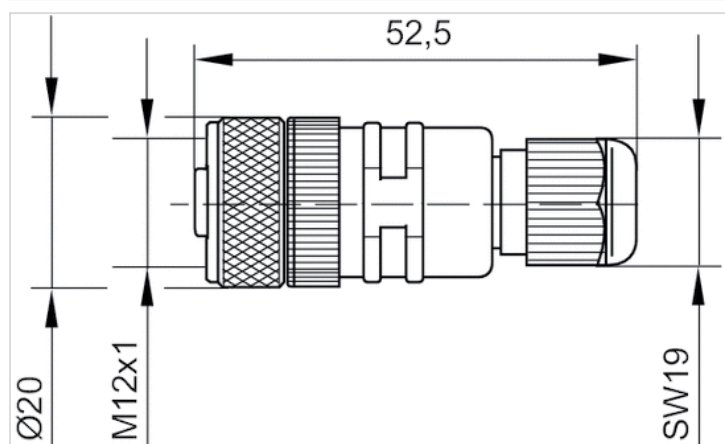
The specified protection class is only valid in assembled and tested state.

## Technical information

| Material |                           |
|----------|---------------------------|
| Housing  | Polybutyleneterephthalate |
| Seals    | Fluorocarbon caoutchouc   |

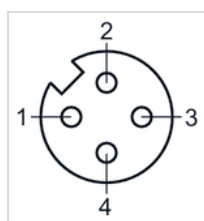
## Dimensions

### Dimensions



## Pin assignments

### Pin assignment, socket

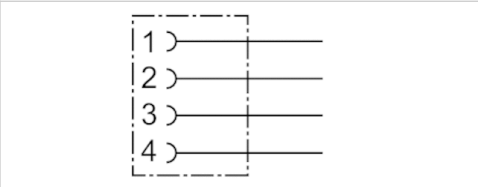


# Round plug connector, Series CON-RD

- Socket, M12x1, 4-pin, A-coded, angled, 90°
- unshielded



|                               |               |
|-------------------------------|---------------|
| Connection type               | Screws        |
| Ambient temperature min./max. | -25 ... 90 °C |
| Operational voltage           | 48 V AC/DC    |
| Protection class              | IP67          |
| Weight                        | 0.027 kg      |



## Technical data

| Part No.   | Max. current | suitable cable-Ø min./max |
|------------|--------------|---------------------------|
| 8941054424 | 4 A          | 4 mm                      |

## Technical information

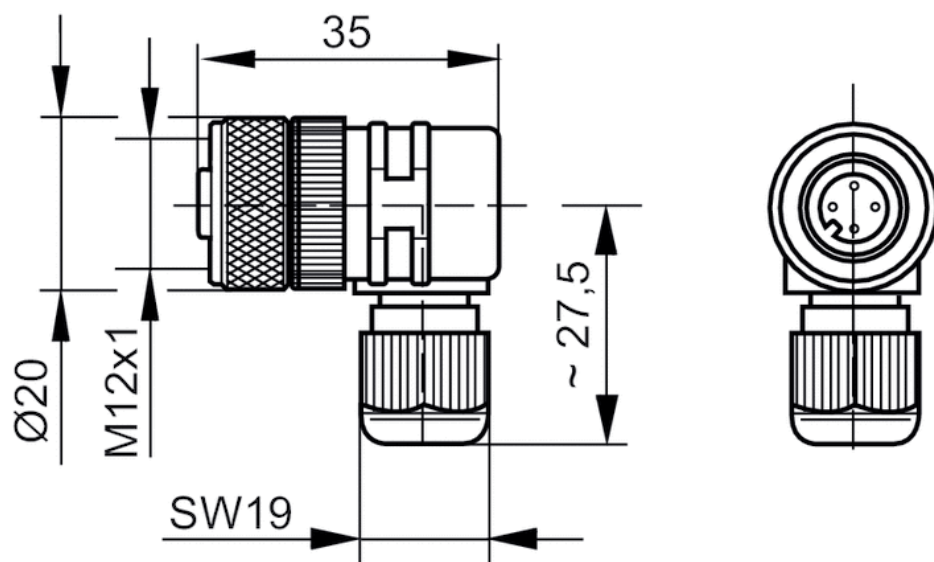
The specified protection class is only valid in assembled and tested state.

## Technical information

| Material |                           |
|----------|---------------------------|
| Housing  | Polybutyleneterephthalate |
| Seals    | Fluorocarbon caoutchouc   |

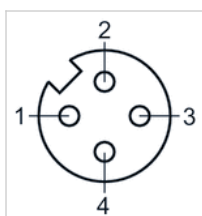
## Dimensions

## Dimensions



## Pin assignments

## Pin assignment, socket

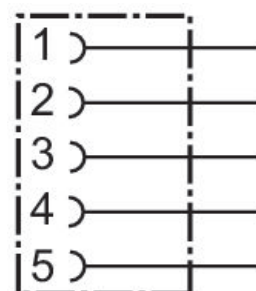


# Round plug connector, Series CON-RD

8942051602

Round plug connector, Series CON-RD

- Round plug connectors for self-assembly
- M8x1, M12x1, M23, 7/8"
- Round plug connector adapter



## Technical data

Industry

Industrial

Type

Round plug connectors

Connection type

Screws

Protocol

CANopen

DeviceNet

Certificates

UL (Underwriters Laboratories)

Shielding

shielded

Min. ambient temperature

-40 °C

Max. ambient temperature

85 °C

Max. current

4 A

Protection class

IP67

Operational voltage

48 V AC/DC

Electrical connection 1, type

Socket

Electrical connection 1, thread size

M12x1

Electrical connection 1, number of poles

5-pin

Electrical connection 1, coding  
A-coded  
Cable exit  
straight

Cable exit angle  
180°  
Weight  
0.051 kg

## Material

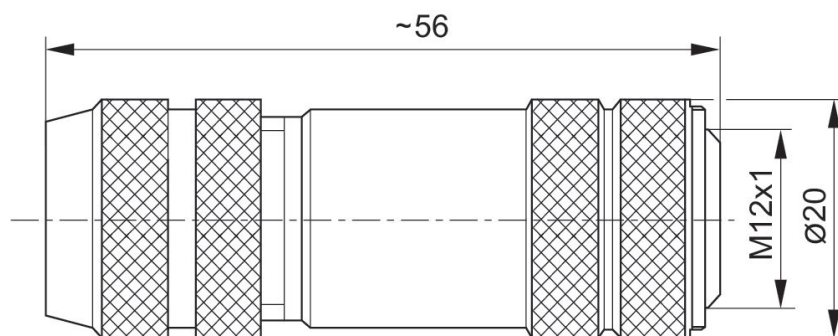
Housing material  
Brass

Part No.  
8942051602

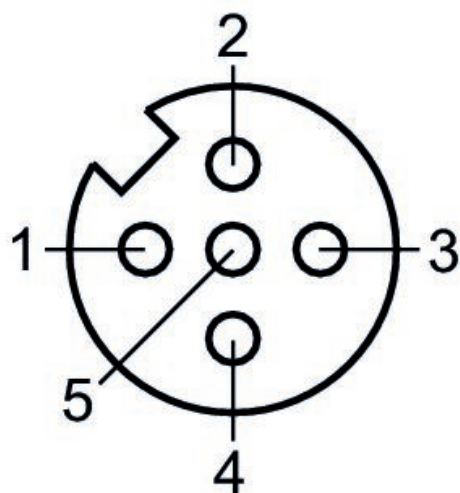
## Technical information

The specified protection class is only valid in assembled and tested state.

## Dimensions

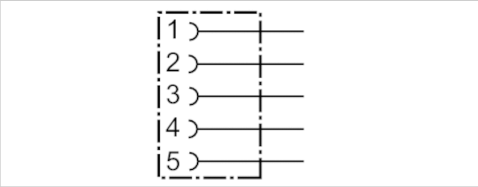


## Pin assignment, socket



# Round plug connector, Series CON-RD

- Socket, M12x1, 5-pin, B-coded, straight, 180°
- for PROFIBUS DP
- UL (Underwriters Laboratories)
- shielded



|                               |               |
|-------------------------------|---------------|
| Connection type               | Screws        |
| Ambient temperature min./max. | -40 ... 85 °C |
| Operational voltage           | 48 V AC/DC    |
| Protection class              | IP67          |
| Weight                        | 0.06 kg       |

## Technical data

| Part No.   | Max. current | suitable cable-Ø min./max |
|------------|--------------|---------------------------|
| 8941054044 | 4 A          | 6 / 8 mm                  |

## Technical information

The specified protection class is only valid in assembled and tested state.

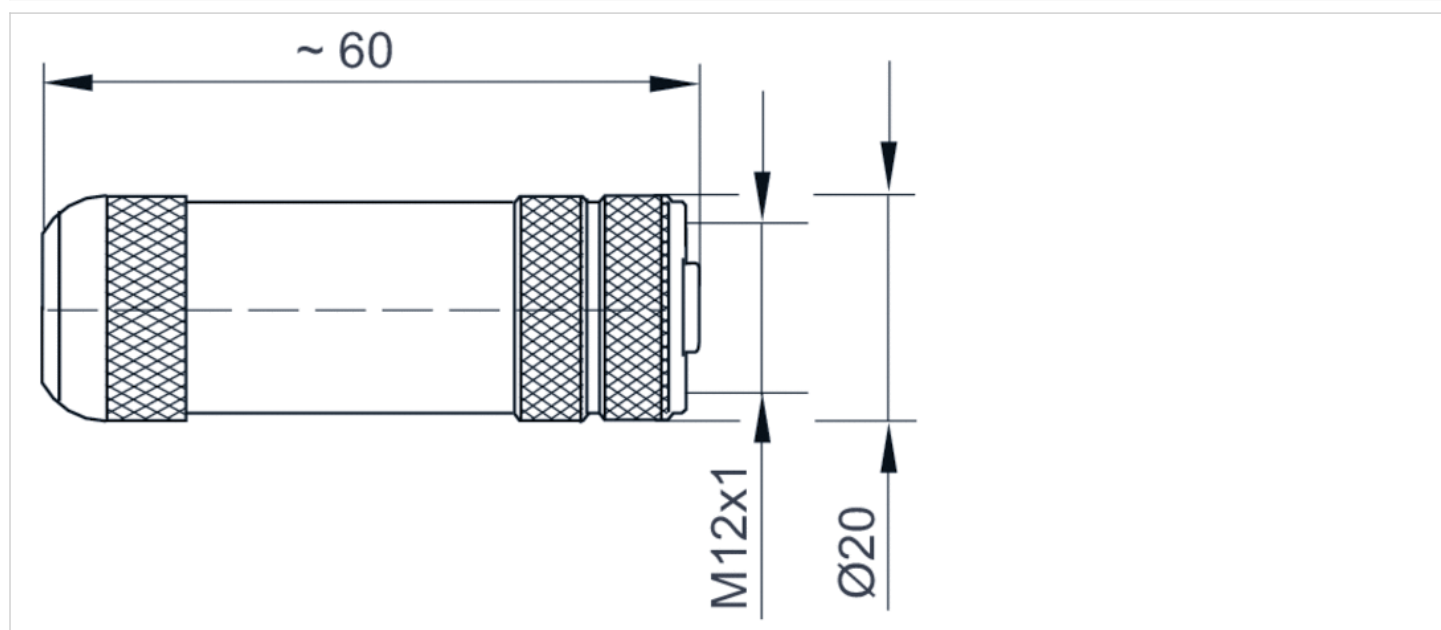
## Technical information

| Material |                         |
|----------|-------------------------|
| Housing  | Brass, nickel-plated    |
| Seals    | Fluorocarbon caoutchouc |



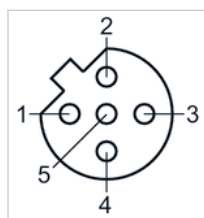
## Dimensions

### Dimensions



## Pin assignments

### Pin assignment, socket



# Data final plug, Series CON-RD

- Plug, M12x1, 4-pin, B-coded, straight, 180°
- for PROFIBUS DP



|                               |               |
|-------------------------------|---------------|
| Ambient temperature min./max. | -25 ... 80 °C |
| Protection class              | IP67          |
| Weight                        | 0.013 kg      |



## Technical data

| Part No.   |
|------------|
| 8941054064 |

## Technical information

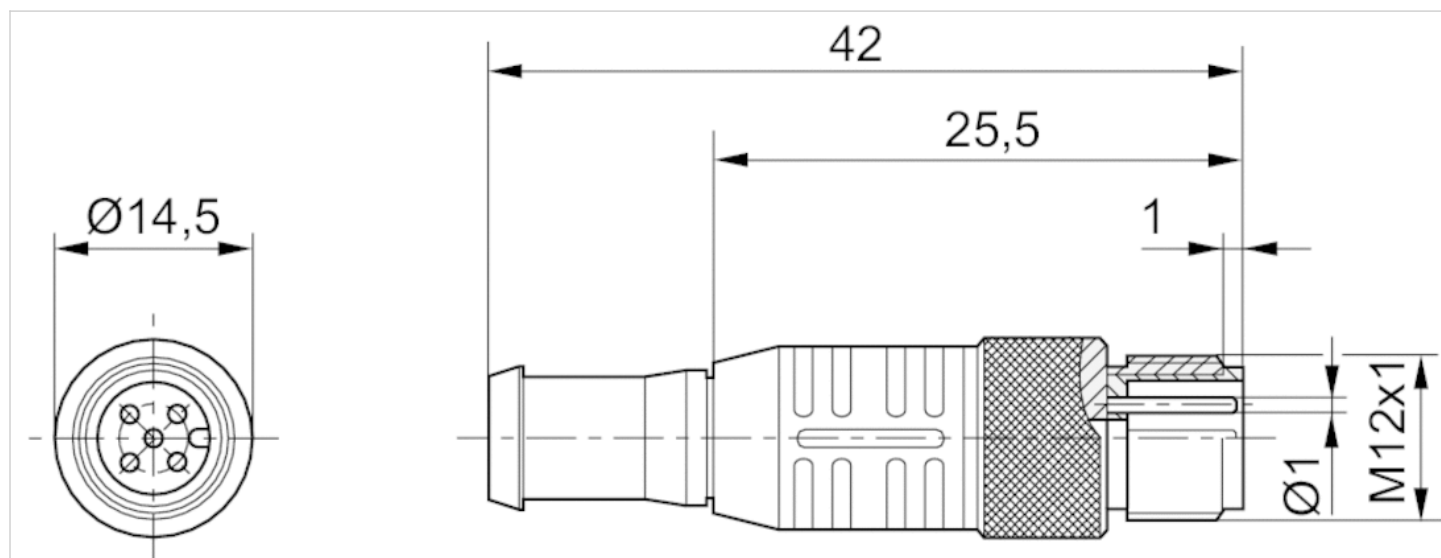
The specified protection class is only valid in assembled and tested state.  
PROFIBUS DP bus termination plug

## Technical information

| Material |                         |
|----------|-------------------------|
| Housing  | Thermoplastic elastomer |

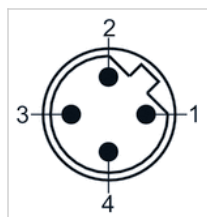
## Dimensions

## Dimensions



## Pin assignments

## Plug pin assignment

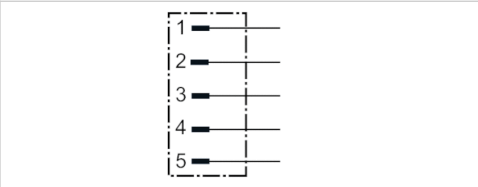


# Data final plug, Series CON-RD

- Plug, M12x1, 5-pin, A-coded, straight, 180°
- for CANopen, DeviceNet



|                               |             |
|-------------------------------|-------------|
| Ambient temperature min./max. | 0 ... 60 °C |
| Protection class              | IP67        |
| Weight                        | 0.011 kg    |



## Technical data

| Part No.   |
|------------|
| 8941054264 |

## Technical information

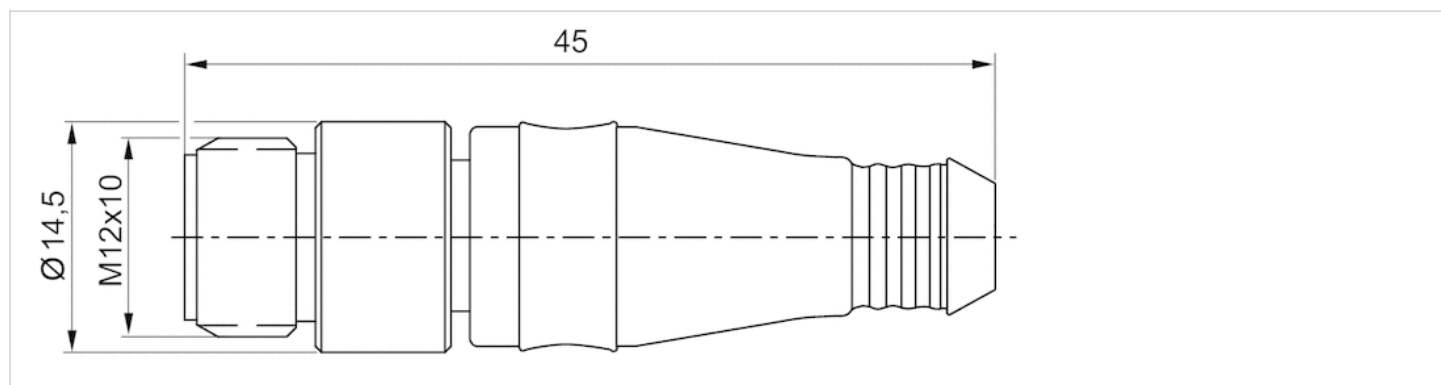
The specified protection class is only valid in assembled and tested state.

## Technical information

| Material |                         |
|----------|-------------------------|
| Housing  | Thermoplastic elastomer |

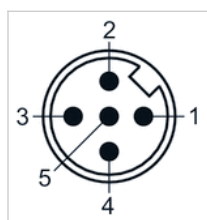
## Dimensions

### Dimensions



## Pin assignments

### Plug pin assignment

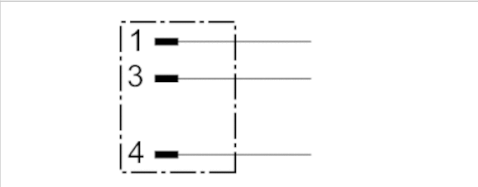


# Round plug connector, Series CON-RD

- Plug, M8x1, 3-pin, A-coded, straight, 180°
- unshielded



|                               |               |
|-------------------------------|---------------|
| Connection type               | Screws        |
| Ambient temperature min./max. | -40 ... 85 °C |
| Operational voltage           | 48 V AC/DC    |
| Protection class              | IP67          |
| Weight                        | 0.01 kg       |



## Technical data

| Part No.   | Max. current | Contact assignment | suitable cable-Ø min./max |
|------------|--------------|--------------------|---------------------------|
| R412021676 | 4 A          | 3                  | 3.5 / 5 mm                |

## Technical information

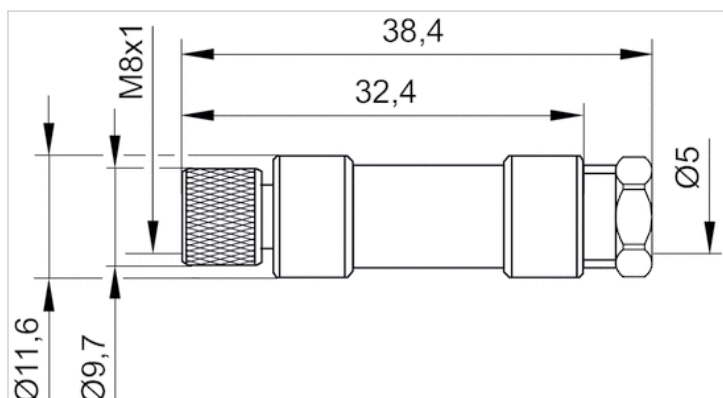
The specified protection class is only valid in assembled and tested state.

## Technical information

| Material |           |
|----------|-----------|
| Housing  | Polyamide |

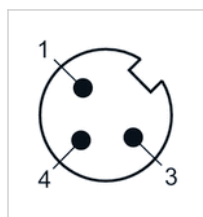
## Dimensions

### Dimensions



## Pin assignments

### Plug pin assignment



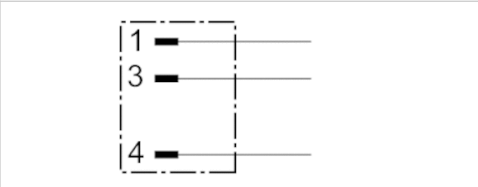
# Round plug connector, Series CON-RD

- Plug, M8x1, 3-pin, A-coded, angled, 90°
- unshielded



Connection type  
 Ambient temperature min./max.  
 Operational voltage  
 Protection class  
 Weight

Screws  
 -25 ... 85 °C  
 48 V AC/DC  
  
 IP67  
 0.01 kg  
 The delivered product may vary from that in the illustration.



## Technical data

| Part No.   | Max. current | Contact assignment | suitable cable-Ø min./max |
|------------|--------------|--------------------|---------------------------|
| R412021677 | 4 A          | 3                  | 3.5 / 6 mm                |

## Technical information

The specified protection class is only valid in assembled and tested state.

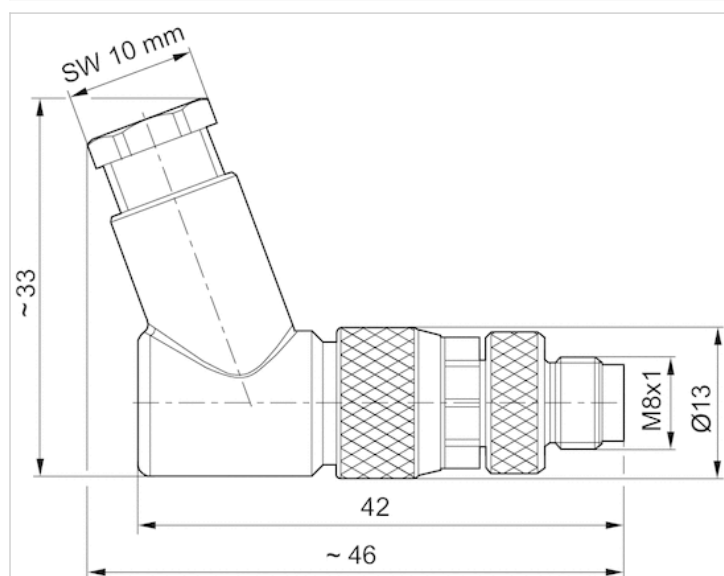
## Technical information

| Material |           |
|----------|-----------|
| Housing  | Polyamide |



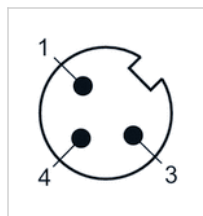
## Dimensions

### Dimensions



## Pin assignments

### Plug pin assignment

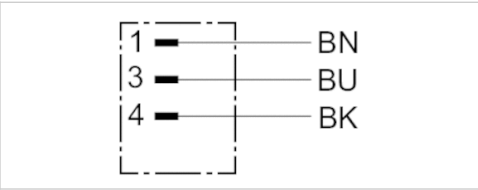


# Round plug connector, Series CON-RD

- Plug M8x1 3-pin A-coded angled 90°
- open cable ends
- with cable
- suitable for dynamic laying
- unshielded



|                               |                 |
|-------------------------------|-----------------|
| Ambient temperature min./max. | -25 ... 80 °C   |
| Operational voltage           | 48 V AC/DC      |
| Protection class              | IP68            |
| Wire cross-section            | 0.25 mm²        |
| Weight                        | See table below |



## Technical data

| Part No.   | Max. current | Number of wires | Bending radius min. | Cable-Ø | Cable length | Weight   |
|------------|--------------|-----------------|---------------------|---------|--------------|----------|
| R412021678 | 4 A          | 3               | 41 mm               | 4.1 mm  | 2 m          | 0.06 kg  |
| R412021679 | 4 A          | 3               | 41 mm               | 4.1 mm  | 5 m          | 0.121 kg |
| R412021680 | 4 A          | 3               | 41 mm               | 4.1 mm  | 10 m         | 0.224 kg |

suitable for dynamic laying

## Technical information

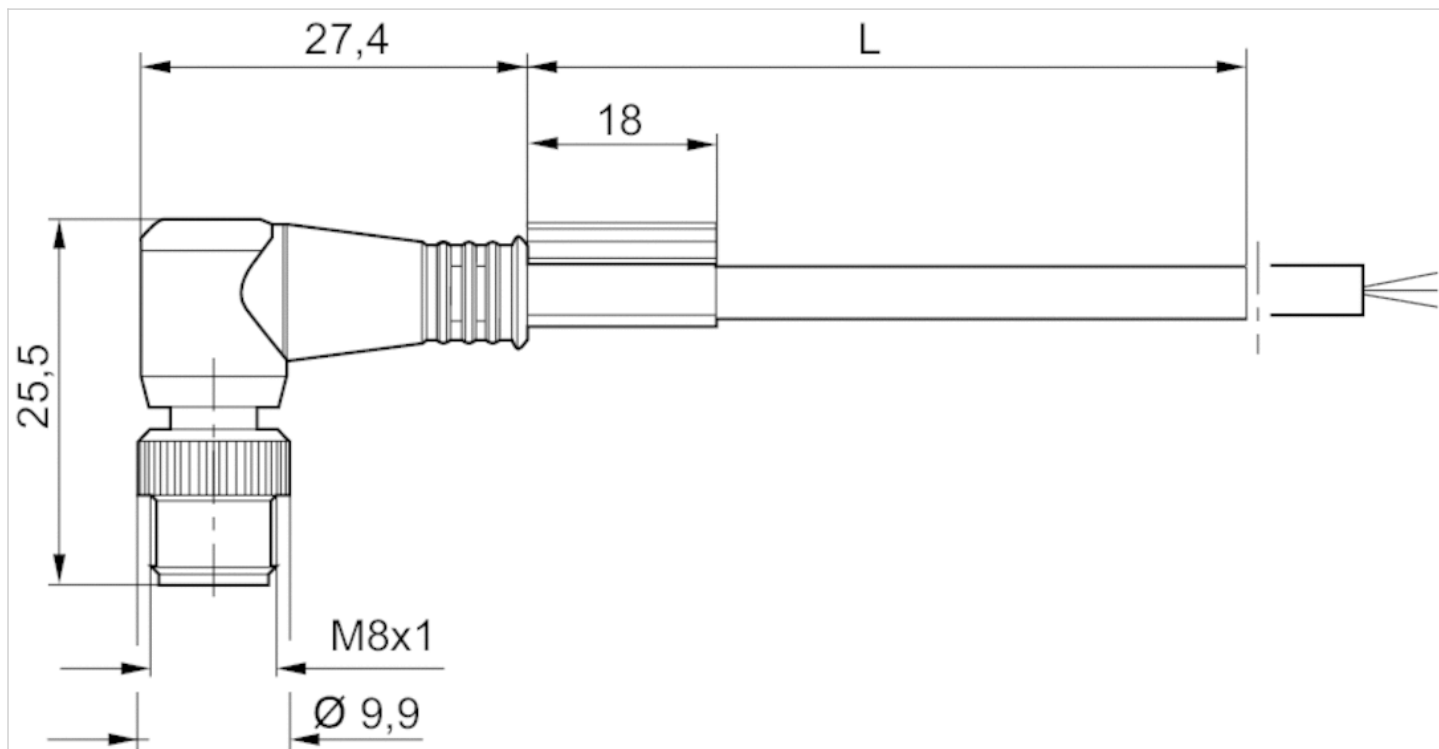
The specified protection class is only valid in assembled and tested state.

## Technical information

| Material     |              |
|--------------|--------------|
| Housing      | Polyurethane |
| Cable sheath | Polyurethane |

## Dimensions

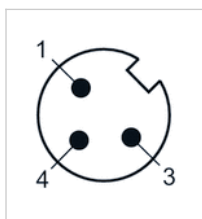
### Dimensions



L = length

## Pin assignments

### Plug pin assignment



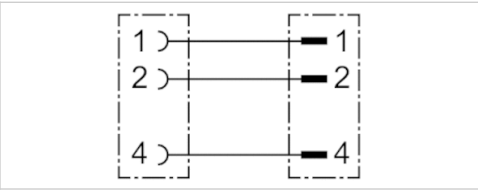
- (1) BN=brown
- (3) BU=blue
- (4) BK=black

# Round plug connector, Series CON-RD

- Socket M8x1 3-pin A-coded straight 180°
- Plug M8x1 3-pin A-coded angled 90°
- with cable
- suitable for dynamic laying
- unshielded



|                               |                 |
|-------------------------------|-----------------|
| Ambient temperature min./max. | -25 ... 80 °C   |
| Operational voltage           | 48 V AC/DC      |
| Protection class              | IP68            |
| Wire cross-section            | 0.25 mm²        |
| Weight                        | See table below |



## Technical data

| Part No.   | Max. current | Number of wires | Bending radius min. | Cable-Ø | Cable length | Weight   |
|------------|--------------|-----------------|---------------------|---------|--------------|----------|
| R412021681 | 4 A          | 3               | 41 mm               | 4.1 mm  | 1 m          | 0.045 kg |
| R412021682 | 4 A          | 3               | 41 mm               | 4.1 mm  | 2 m          | 0.064 kg |
| R412021683 | 4 A          | 3               | 41 mm               | 4.1 mm  | 5 m          | 0.131 kg |

suitable for dynamic laying

## Technical information

The specified protection class is only valid in assembled and tested state.

## Technical information

| Material     |              |
|--------------|--------------|
| Housing      | Polyurethane |
| Cable sheath | Polyurethane |

## Dimensions

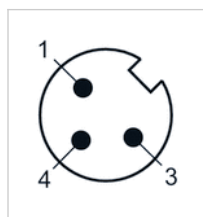
### Dimensions



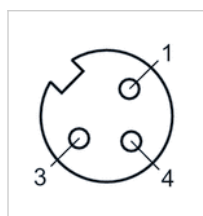
L = length

## Pin assignments

### Plug pin assignment

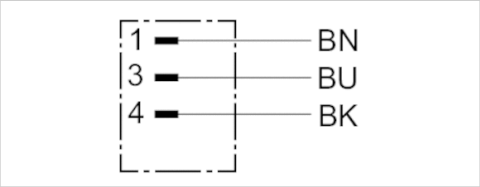


### Pin assignment, socket



# Round plug connector, Series CON-RD

- Plug M8x1 3-pin A-coded straight 180°
- open cable ends
- with cable
- unshielded



|                               |                 |
|-------------------------------|-----------------|
| Ambient temperature min./max. | -25 ... 80 °C   |
| Operational voltage           | 30 V AC/DC      |
| Protection class              | IP67            |
| Wire cross-section            | 0.25 mm²        |
| Weight                        | See table below |

## Technical data

| Part No.   | Max. current | Number of wires | Cable-Ø | Cable length | Weight   |
|------------|--------------|-----------------|---------|--------------|----------|
| 8946203602 | 3 A          | 3               | 4.5 mm  | 3 m          | 0.06 kg  |
| 8946203612 | 3 A          | 3               | 4.5 mm  | 5 m          | 0.143 kg |
| 8946203622 | 3 A          | 3               | 4.5 mm  | 10 m         | 0.281 kg |

## Technical information

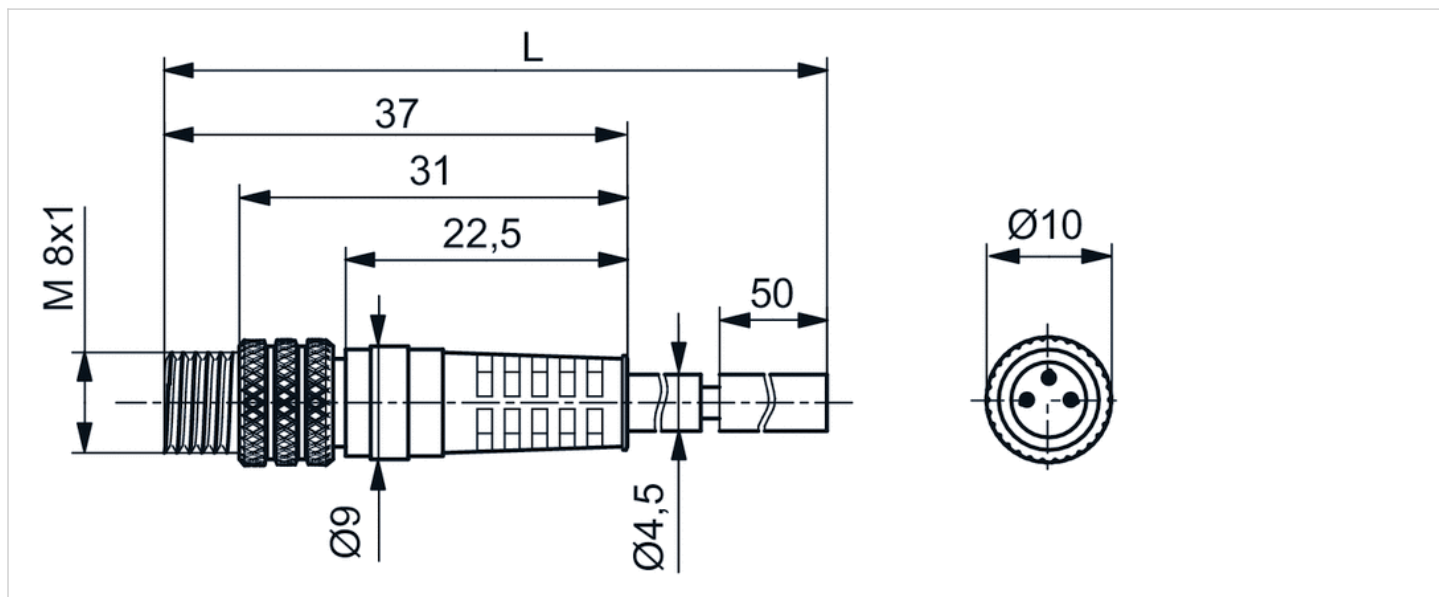
The specified protection class is only valid in assembled and tested state.

## Technical information

| Material     |                    |
|--------------|--------------------|
| Housing      | Polyurethane       |
| Cable sheath | Polyvinyl chloride |

## Dimensions

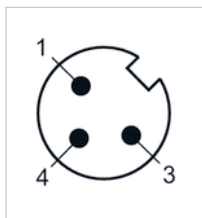
### Dimensions



L = length

## Pin assignments

### Plug pin assignment



- (1) BN=brown
- (3) BU=blue
- (4) BK=black

# Round plug connector, Series CON-RD

- Socket M8x1 3-pin A-coded straight 180°
- Plug A-coded straight 180°
- with cable
- unshielded

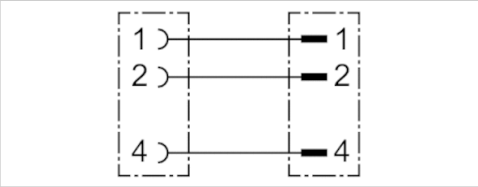


Protection class

Weight

IP68

See table below



## Technical data

| Part No.   | Number of wires | Cable-Ø | Cable length | Weight   |
|------------|-----------------|---------|--------------|----------|
| 8946203702 | 3               | 4.5 mm  | 1 m          | 0.038 kg |
| 8946203712 | 3               | 4.5 mm  | 2 m          | 0.067 kg |
| 8946203722 | 3               | 4.5 mm  | 5 m          | 0.148 kg |

## Technical information

The specified protection class is only valid in assembled and tested state.

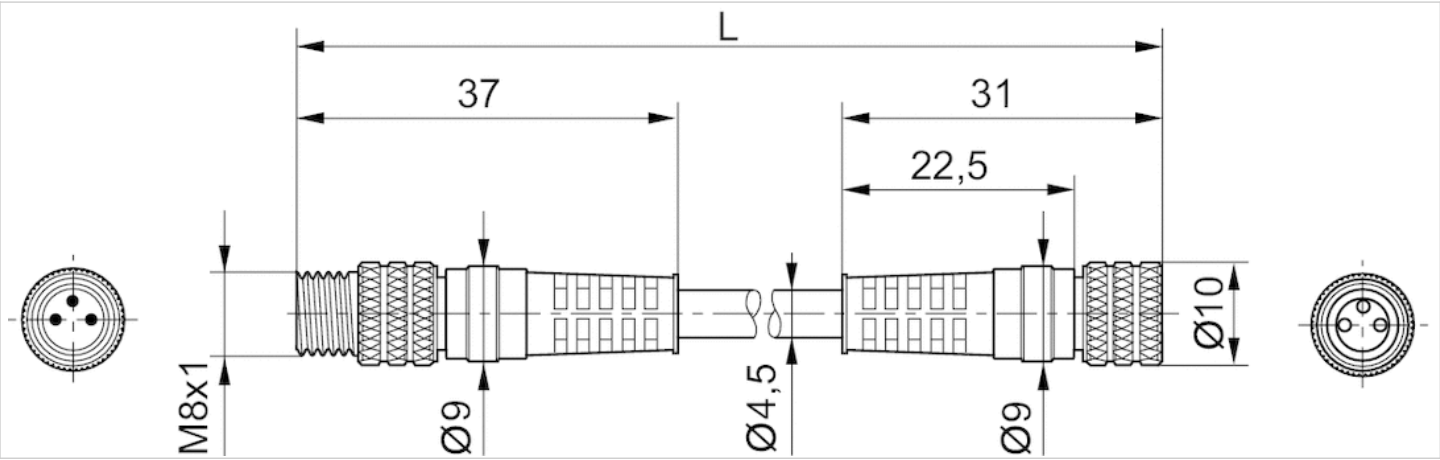
## Technical information

| Material     |                    |
|--------------|--------------------|
| Cable sheath | Polyvinyl chloride |



Dimensions

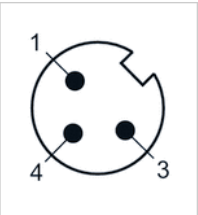
Dimensions



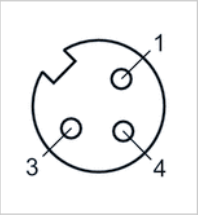
L = length

Pin assignments

Plug pin assignment



Pin assignment, socket

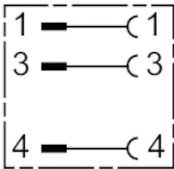


# Adapter, Series CON-AP

- Socket, M12x1, 3-pin, A-coded, straight, 180°
- Plug, M8x1, 3-pin, A-coded, straight, 180°
- unshielded



|                               |               |
|-------------------------------|---------------|
| Ambient temperature min./max. | -25 ... 85 °C |
| Operational voltage           | 48 V AC/DC    |
| Protection class              | IP67          |
| Weight                        | 0.013 kg      |



## Technical data

| Part No.   | Max. current | Contact assignment |
|------------|--------------|--------------------|
| R412021684 | 4 A          | 3                  |

## Technical information

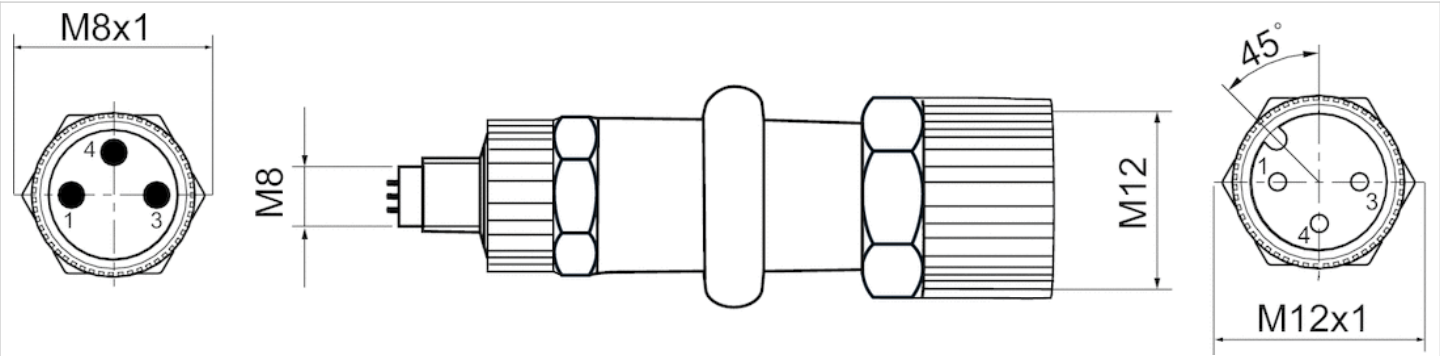
The specified protection class is only valid in assembled and tested state.

## Technical information

| Material |              |
|----------|--------------|
| Housing  | Polyurethane |

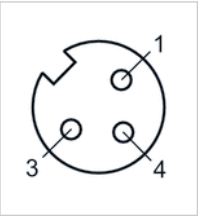
Dimensions

Dimensions

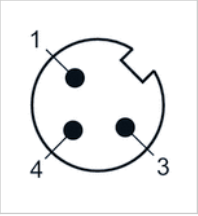


Pin assignments

Pin assignment, socket



Plug pin assignment



# Round plug connector, Series CON-RD

- Plug, M12x1, 4-pin, A-coded, angled, 90° Plug, M12x1, 4-pin, A-coded, straight, 180°
- UL (Underwriters Laboratories)
- unshielded



|                               |                                                               |
|-------------------------------|---------------------------------------------------------------|
| Connection type               | Screws                                                        |
| Ambient temperature min./max. | -40 ... 85 °C                                                 |
| Operational voltage           | 48 V AC/DC                                                    |
| Protection class              | IP67                                                          |
| Weight                        | See table below                                               |
|                               | The delivered product may vary from that in the illustration. |

## Technical data

| Part No.   | Electrical connection                  | Max. current | suitable cable-Ø min./max | Weight   |
|------------|----------------------------------------|--------------|---------------------------|----------|
|            | 1                                      |              |                           |          |
| 1834484223 | Plug M12x1 4-pin A-coded angled 90°    | 4 A          | 4 / 6 mm                  | 0.02 kg  |
| 1834484246 | Plug M12x1 4-pin A-coded straight 180° | 4 A          | 2.1 / 3 mm                | 0.024 kg |

| Part No.   | Fig.   |
|------------|--------|
| 1834484223 | Fig. 1 |
| 1834484246 | Fig. 2 |

For the duo plug, the cable diameter to be used varies between 2.1 ... 3.0 mm and 4.0 ... 5.0 mm depending on the seal used.

## Technical information

The specified protection class is only valid in assembled and tested state.  
Included: 2 seals for 2 cables each with Ø 2.1 mm ... 3.0 mm and Ø 4.0 mm ... 5.0 mm .

## Technical information

| Material |           |
|----------|-----------|
| Housing  | Polyamide |

Dimensions

Fig. 1

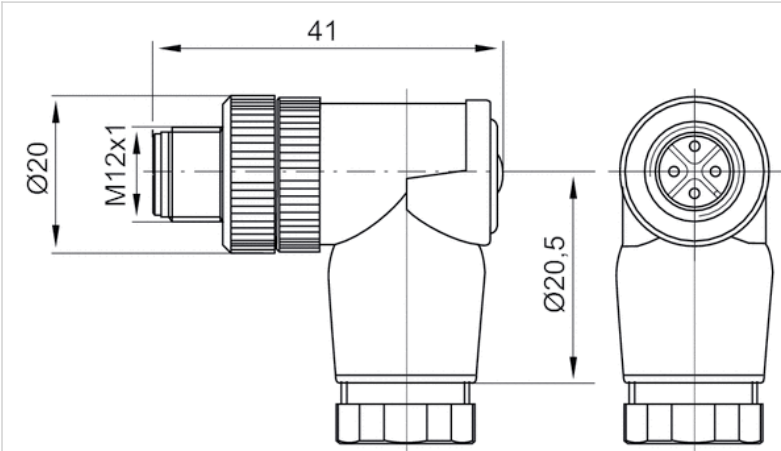
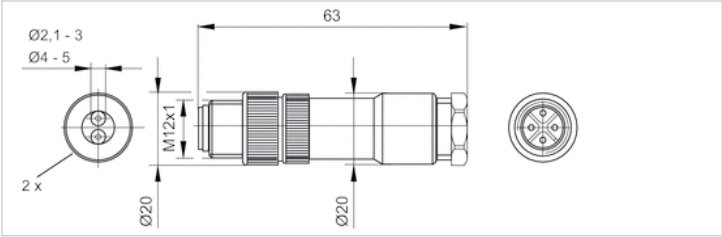


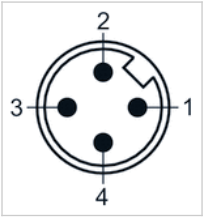
Fig. 2



duo plug

Pin assignments

Plug pin assignment



# Round plug connector, Series CON-RD

- Plug, M12x1, 4-pin, A-coded, straight, 180°
- UL (Underwriters Laboratories)
- unshielded



|                               |               |
|-------------------------------|---------------|
| Connection type               | Screws        |
| Ambient temperature min./max. | -40 ... 85 °C |
| Operational voltage           | 48 V AC/DC    |
| Protection class              | IP67          |
| Weight                        | 0.016 kg      |



## Technical data

| Part No.   | Max. current | suitable cable-Ø min./max |
|------------|--------------|---------------------------|
| 1834484222 | 4 A          | 4 / 6 mm                  |

## Technical information

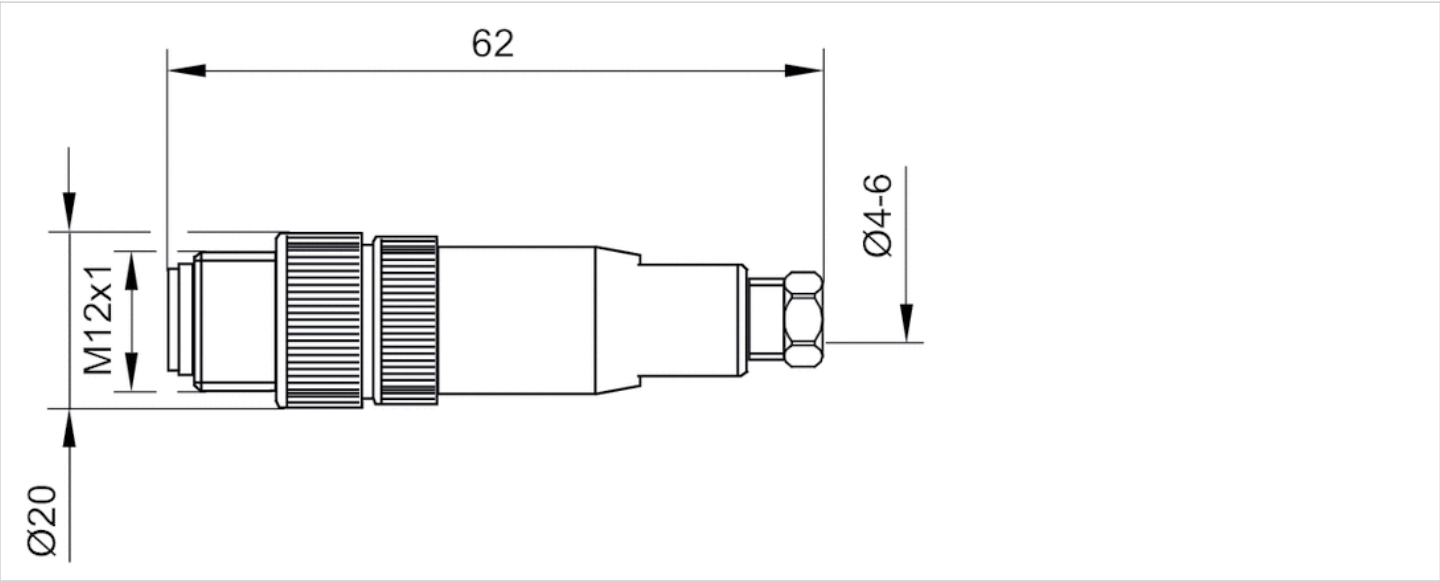
The specified protection class is only valid in assembled and tested state.

## Technical information

| Material |           |
|----------|-----------|
| Housing  | Polyamide |

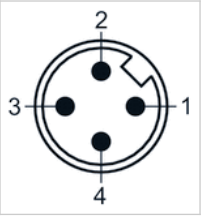
Dimensions

Dimensions



Pin assignments

Plug pin assignment



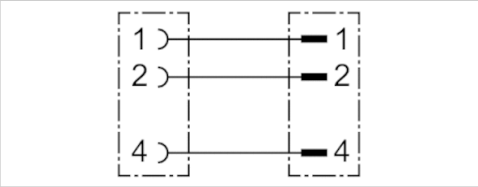
# Round plug connector, Series CON-RD

- Socket M8x1 3-pin A-coded straight 180°
- Plug M12x1 3-pin A-coded straight 180°
- with cable
- unshielded



Protection class  
Weight

IP68  
0.073 kg  
The delivered product may vary from that in the illustration.



## Technical data

| Part No.   | Number of wires | Cable length |
|------------|-----------------|--------------|
| 8946203462 | 3               | 2 m          |

## Technical information

The specified protection class is only valid in assembled and tested state.

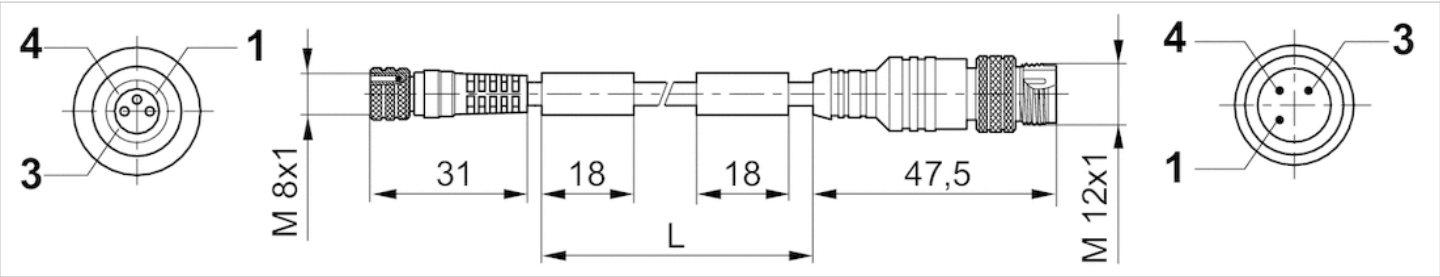
## Technical information

| Material     |                    |
|--------------|--------------------|
| Cable sheath | Polyvinyl chloride |



Dimensions

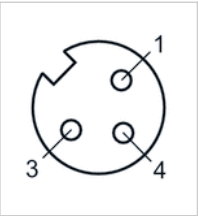
Dimensions



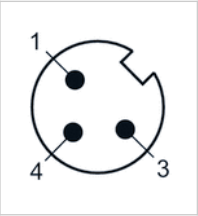
L = length

Pin assignments

Pin assignment, socket



Plug pin assignment

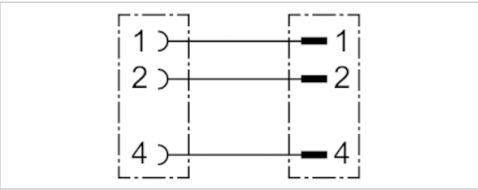


# Round plug connector, Series CON-RD

- Socket M8x1 3-pin A-coded straight 180°
- Plug M12x1 3-pin A-coded angled 90°
- with cable
- suitable for dynamic laying
- unshielded



|                                                               |                 |
|---------------------------------------------------------------|-----------------|
| Ambient temperature min./max.                                 | See table below |
| Operational voltage                                           | 48 V AC/DC      |
| Protection class                                              | IP67            |
| Wire cross-section                                            | 0.25 mm²        |
| Mounting screw tightening torque                              | 0.5 Nm          |
| Weight                                                        | See table below |
| The delivered product may vary from that in the illustration. |                 |



## Technical data

| Part No.   | Ambient temperature min./max. | Max. current | Number of wires | Bending radius min. | Cable-Ø | Cable length |
|------------|-------------------------------|--------------|-----------------|---------------------|---------|--------------|
| R412021696 | -25 ... 80 °C                 | 4 A          | 3               | 41 mm               | 4.1 mm  | 2 m          |
| R412021697 | -20 ... 80 °C                 | 4 A          | 3               | 41 mm               | 4.1 mm  | 5 m          |

| Part No.   | Weight   |
|------------|----------|
| R412021696 | 0.077 kg |
| R412021697 | 0.135 kg |

suitable for dynamic laying

## Technical information

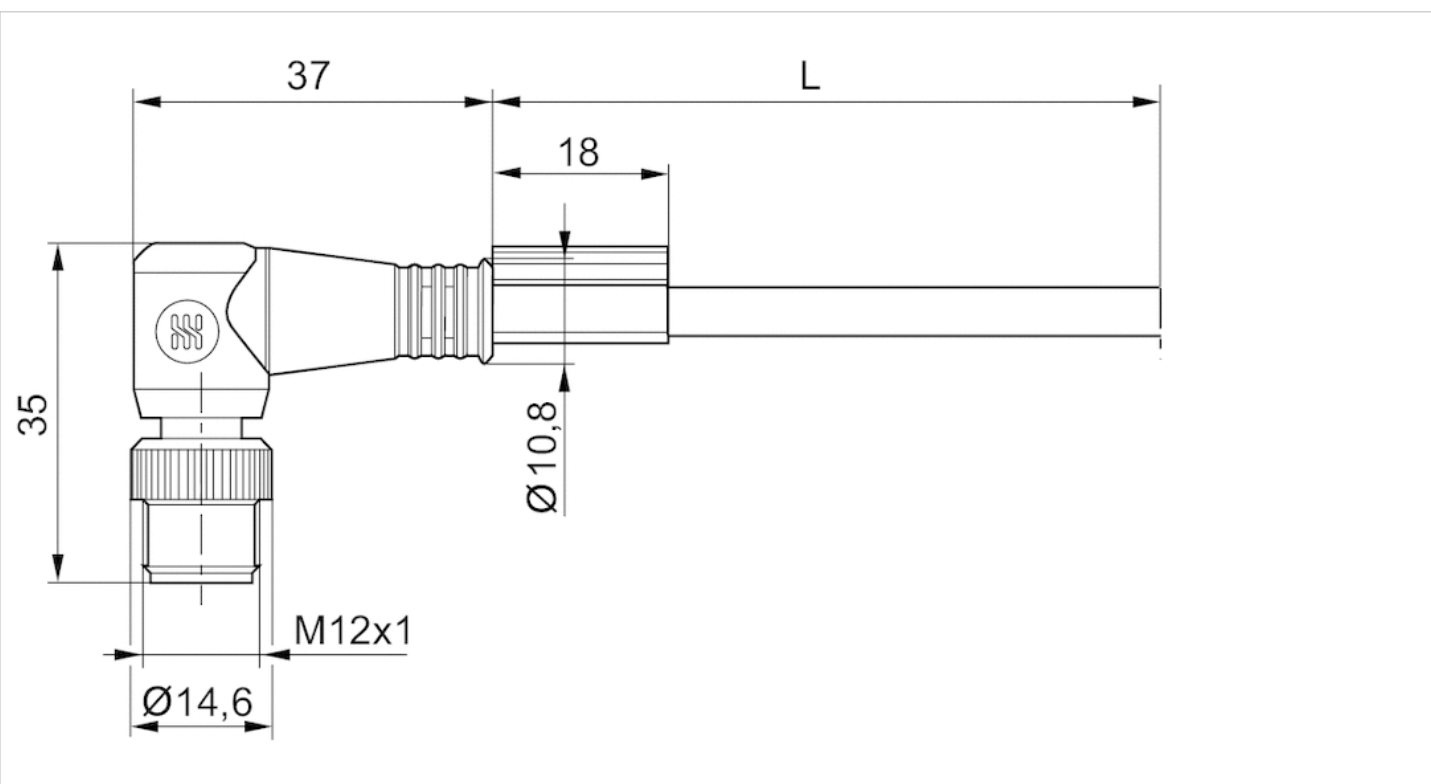
The specified protection class is only valid in assembled and tested state.

## Technical information

| Material     |              |
|--------------|--------------|
| Housing      | Polyurethane |
| Cable sheath | Polyurethane |

## Dimensions

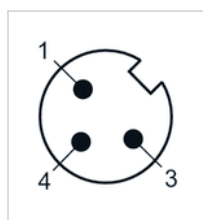
### Dimensions



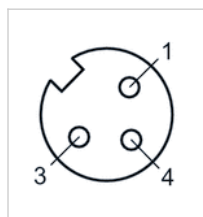
L = length

## Pin assignments

### Plug pin assignment



### Pin assignment, socket

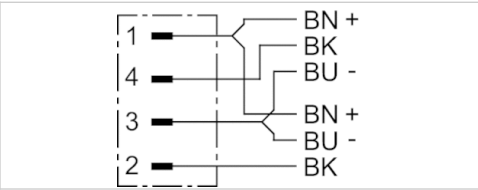


# Y-Plug connector, series CON-RD

- Plug M12x1 4-pin A-coded straight 180°
- 2 x open cable ends 3-pin
- 3-pin
- with cable
- unshielded



|                                  |               |
|----------------------------------|---------------|
| Ambient temperature min./max.    | -40 ... 80 °C |
| Operational voltage              | 48 V AC/DC    |
| Protection class                 | IP67          |
| Wire cross-section               | 0.34 mm²      |
| Mounting screw tightening torque | 0.8 Nm        |
| Weight                           | 0.122 kg      |



## Technical data

| Part No.   | Max. current | Number of wires | Cable-Ø | Cable length |
|------------|--------------|-----------------|---------|--------------|
| R412021688 | 4 A          | 4               | 4.3 mm  | 2 m          |

with self-clinching screw

## Technical information

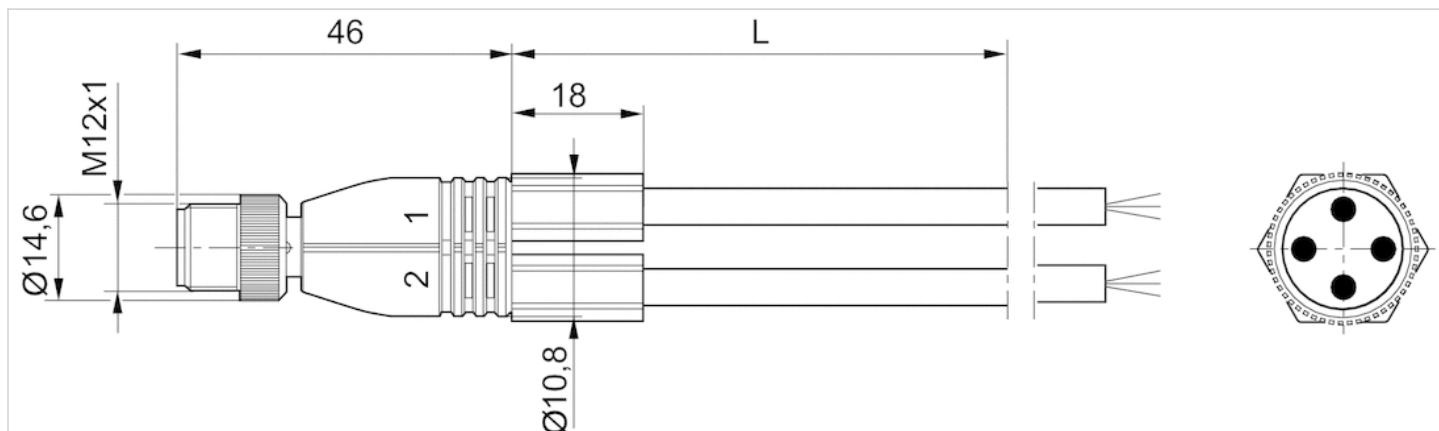
The specified protection class is only valid in assembled and tested state.

## Technical information

| Material     |              |
|--------------|--------------|
| Housing      | Polyurethane |
| Cable sheath | Polyurethane |

## Dimensions

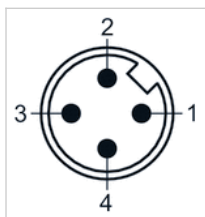
### Dimensions



L = length

## Pin assignments

### Plug pin assignment

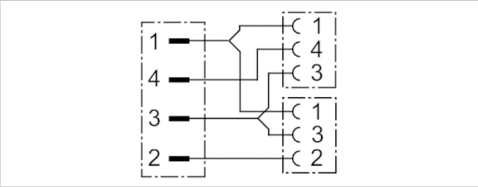


Line 1: (1) BN = brown, (3) BU =blue, (4) BK = black

Line 2: (1) BN = brown, (3) BU =blue, (2) BK = black

# Y-Plug connector, series CON-RD

- Plug M12x1 4-pin A-coded straight 180°
- Socket M8x1 3-pin A-coded straight 180°
- with cable
- unshielded



|                                  |                 |
|----------------------------------|-----------------|
| Ambient temperature min./max.    | -25 ... 80 °C   |
| Operational voltage              | 48 V AC/DC      |
| Protection class                 | IP67            |
| Wire cross-section               | 0.25 mm²        |
| Mounting screw tightening torque | 0.8 Nm          |
| Weight                           | See table below |

## Technical data

| Part No.   | Max. current | Number of wires | Cable-Ø | Cable length | Weight   |
|------------|--------------|-----------------|---------|--------------|----------|
| R412021685 | 4 A          | 3               | 4.1 mm  | 0.6 m        | 0.064 kg |
| R412021687 | 4 A          | 3               | 4.1 mm  | 3 m          | 0.167 kg |

## Technical information

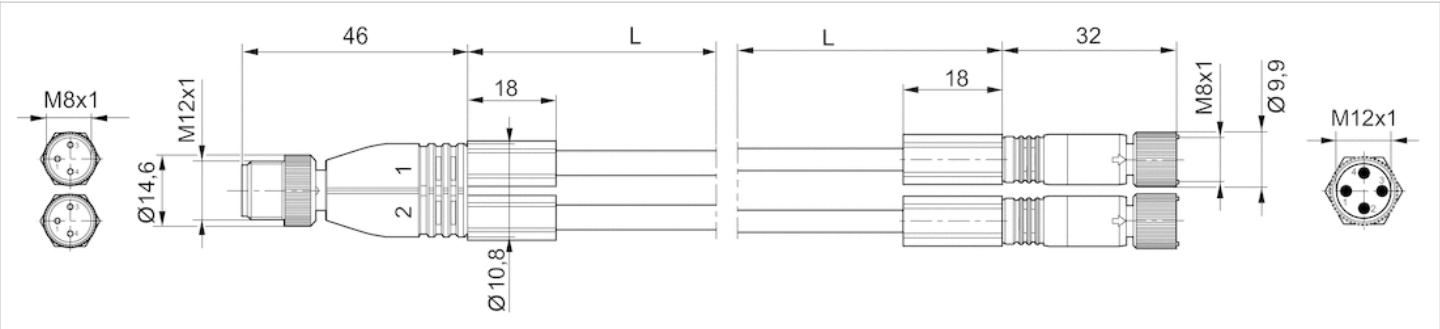
The specified protection class is only valid in assembled and tested state.

## Technical information

| Material     |              |
|--------------|--------------|
| Housing      | Polyurethane |
| Cable sheath | Polyurethane |

Dimensions

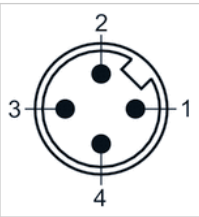
Dimensions



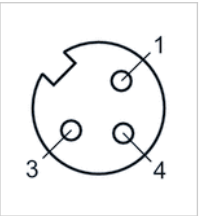
L = length

Pin assignments

Plug pin assignment

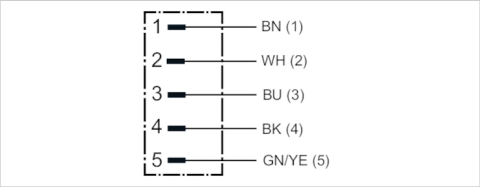


Pin assignment, socket



# Round plug connector, Series CON-RD

- Plug M12x1 5-pin A-coded straight 180°
- open cable ends 5-pin
- with cable
- unshielded



Protection class  
Weight

IP68  
See table below  
The delivered product may vary from that in the illustration.

## Technical data

| Part No.   | Number of wires | Cable length | Weight   |
|------------|-----------------|--------------|----------|
| 8946203432 | 5               | 2 m          | 0.102 kg |
| 8946203442 | 5               | 5 m          | 0.238 kg |

with self-clinching screw

## Technical information

The specified protection class is only valid in assembled and tested state.

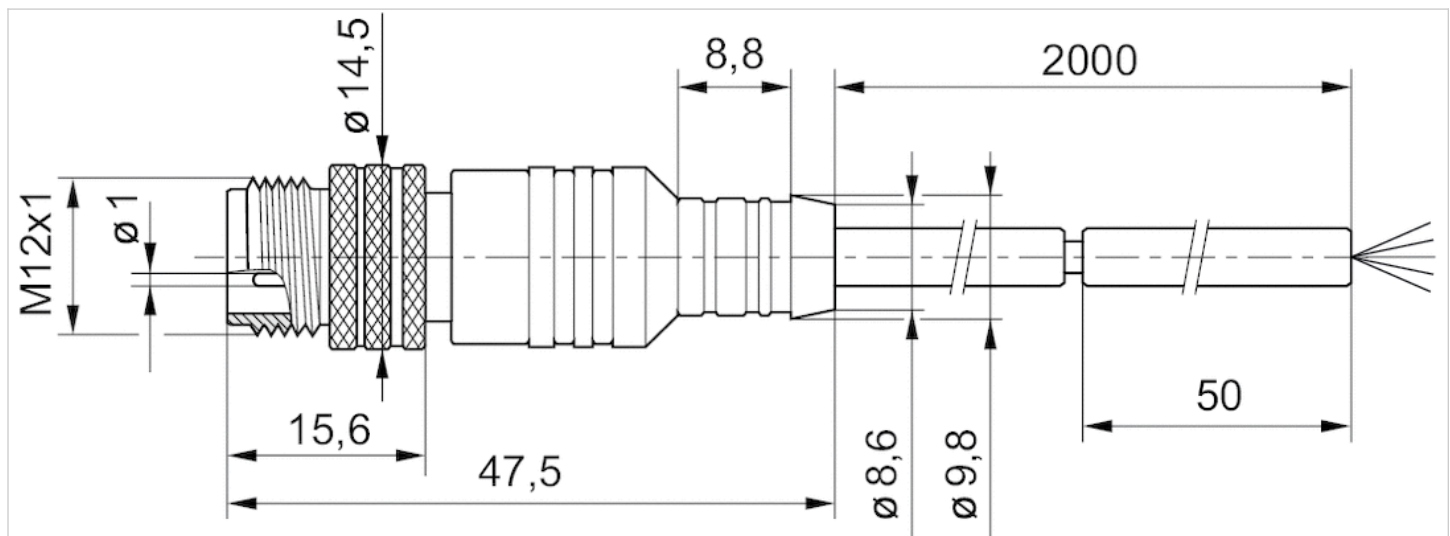
## Technical information

| Material     |                    |
|--------------|--------------------|
| Cable sheath | Polyvinyl chloride |



## Dimensions

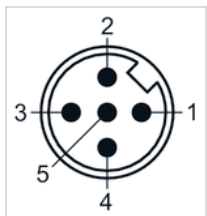
### Dimensions



L = length

## Pin assignments

### Plug pin assignment



- (1) BN=brown
- (2) WH=white
- (3) BU=blue
- (4) BK=black
- (5) GRN-Y=green-yellow

# Round plug connector, Series CON-RD

- Plug M12x1 5-pin A-coded angled 90°
- open cable ends 5-pin
- with cable
- suitable for dynamic laying
- unshielded



|                                  |                      |
|----------------------------------|----------------------|
| Ambient temperature min./max.    | See table below      |
| Operational voltage              | 48 V AC/DC           |
| Protection class                 | IP68                 |
| Wire cross-section               | 0.34 mm <sup>2</sup> |
| Mounting screw tightening torque | 0.8 Nm               |
| Weight                           | See table below      |

|   |        |
|---|--------|
| 1 | BN (1) |
| 2 | WH(2)  |
| 3 | BU (3) |
| 4 | BK (4) |
| 5 | GR (5) |

## Technical data

| Part No.   | Ambient temperature min./max. | Max. current | Number of wires | Bending radius min. | Cable-Ø | Cable length |
|------------|-------------------------------|--------------|-----------------|---------------------|---------|--------------|
| R412021691 | -40 ... 85 °C                 | 4 A          | 5               | 50 mm               | 5 mm    | 2 m          |
| R412021692 | -40 ... 85 °C                 | 4 A          | 5               | 50 mm               | 5 mm    | 5 m          |
| R412021693 | -25 ... 85 °C                 | 4 A          | 5               | 50 mm               | 5 mm    | 10 m         |

| Part No.   | Weight   |
|------------|----------|
| R412021691 | 0.093 kg |
| R412021692 | 0.2 kg   |
| R412021693 | 0.381 kg |

suitable for dynamic laying

## Technical information

The specified protection class is only valid in assembled and tested state.

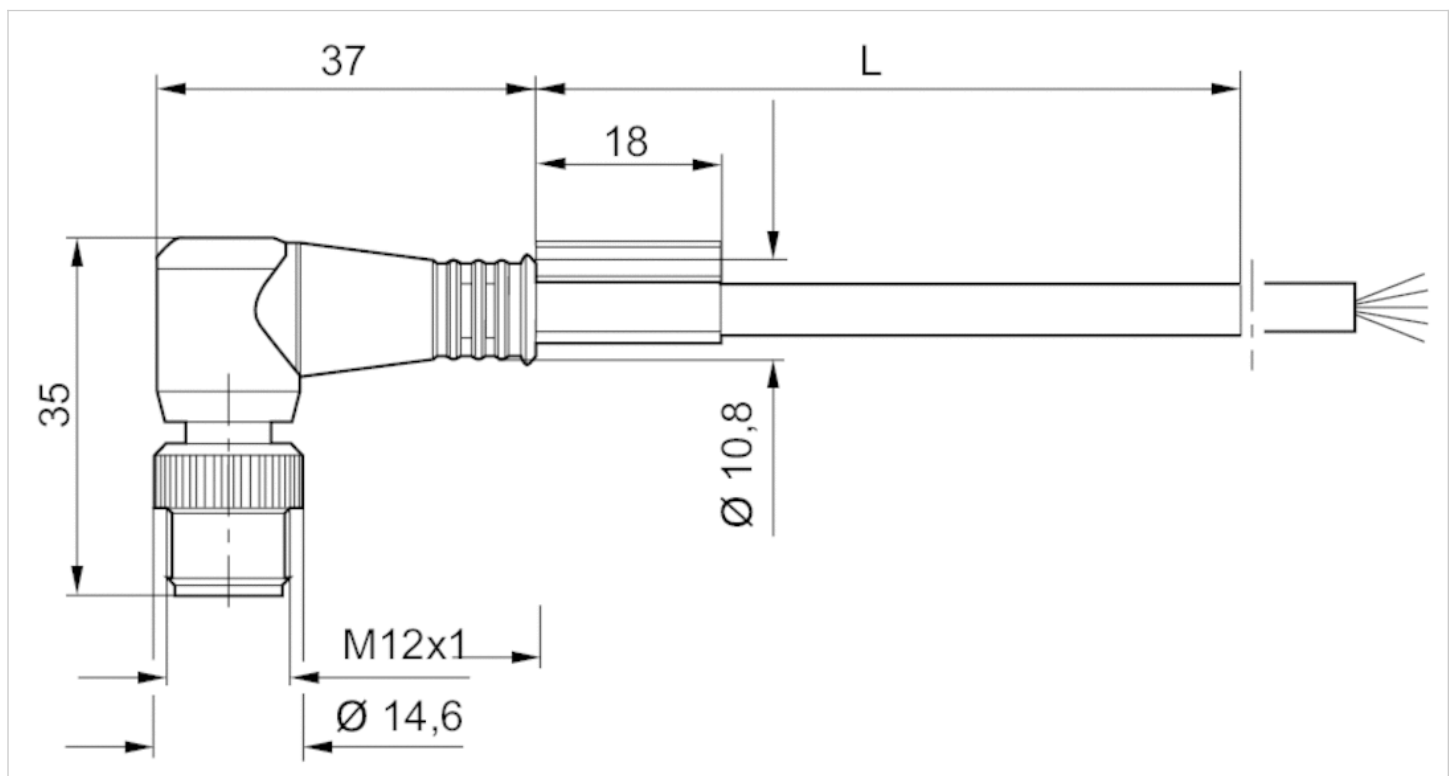
## Technical information

### Material

|              |              |
|--------------|--------------|
| Housing      | Polyurethane |
| Cable sheath | Polyurethane |

## Dimensions

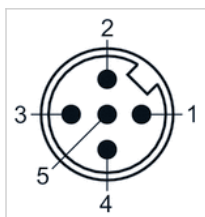
### Dimensions



L = length

## Pin assignments

### Plug pin assignment



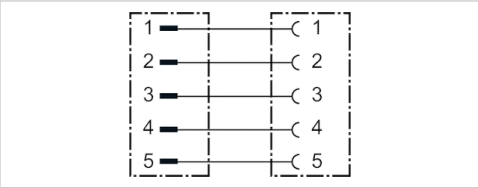
- (1) BN=brown
- (2) WH=white
- (3) BU=blue
- (4) BK=black
- (5) GY=grey

# Round plug connector, Series CON-RD

- Socket M12x1 5-pin A-coded straight 180°
- Plug M12x1 5-pin A-coded angled 90°
- with cable
- suitable for dynamic laying
- unshielded



|                                  |                 |
|----------------------------------|-----------------|
| Ambient temperature min./max.    | -25 ... 85 °C   |
| Operational voltage              | 48 V AC/DC      |
| Protection class                 | IP68            |
| Wire cross-section               | 0.34 mm²        |
| Mounting screw tightening torque | 0.8 Nm          |
| Weight                           | See table below |



## Technical data

| Part No.   | Max. current | Number of wires | Bending radius min. | Cable-Ø | Cable length | Weight   |
|------------|--------------|-----------------|---------------------|---------|--------------|----------|
| R412021694 | 4 A          | 5               | 50 mm               | 5 mm    | 2 m          | 0.114 kg |
| R412021695 | 4 A          | 5               | 50 mm               | 5 mm    | 5 m          | 0.217 kg |

suitable for dynamic laying

## Technical information

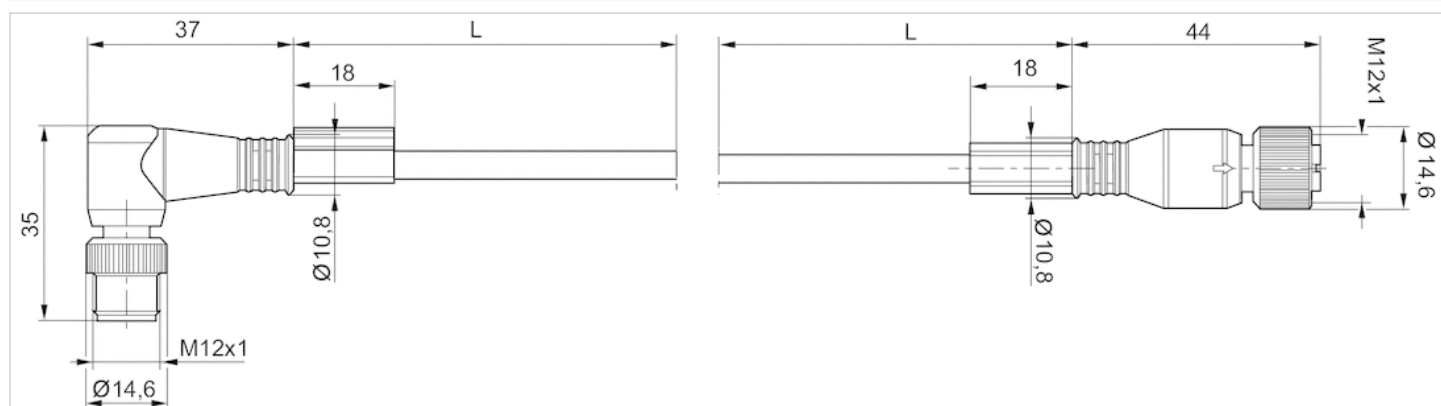
The specified protection class is only valid in assembled and tested state.

## Technical information

| Material     |              |
|--------------|--------------|
| Housing      | Polyurethane |
| Cable sheath | Polyurethane |

## Dimensions

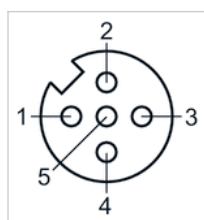
### Dimensions



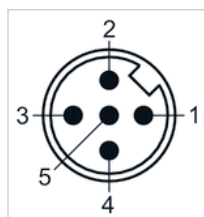
L = length

## Pin assignments

### Pin assignment, socket



### Plug pin assignment

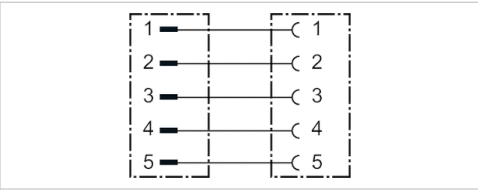


# Round plug connector, Series CON-RD

- Socket M12x1 5-pin A-coded straight 180°
- Plug M12x1 5-pin A-coded angled 90°
- with cable
- suitable for dynamic laying
- shielded



|                                  |               |
|----------------------------------|---------------|
| Ambient temperature min./max.    | -20 ... 85 °C |
| Operational voltage              | 48 V AC/DC    |
| Protection class                 | IP68          |
| Wire cross-section               | 0.34 mm²      |
| Mounting screw tightening torque | 0.8 Nm        |



## Technical data

| Part No.   | Max. current | Number of wires | Bending radius min. | Cable-Ø | Cable length |
|------------|--------------|-----------------|---------------------|---------|--------------|
| R412022193 | 4 A          | 4               | 54 mm               | 5.4 mm  | 2 m          |

suitable for dynamic laying

## Technical information

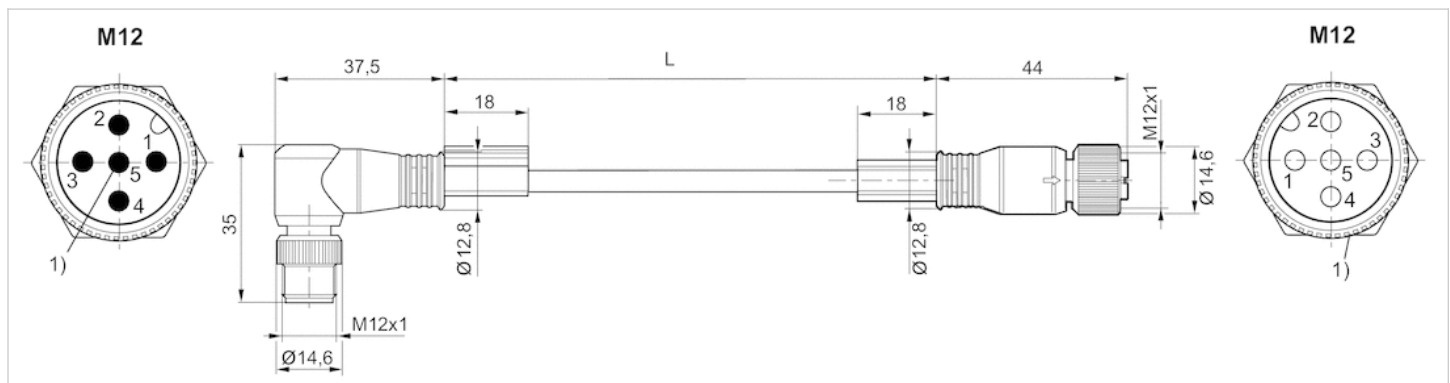
The specified protection class is only valid in assembled and tested state.

## Technical information

| Material     |              |
|--------------|--------------|
| Housing      | Polyurethane |
| Cable sheath | Polyurethane |

## Dimensions

### Dimensions



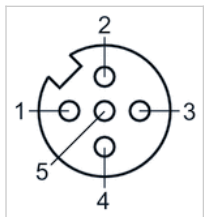
L = length

PIN assignment 1:1

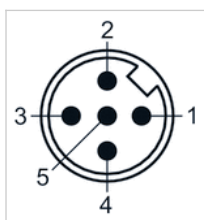
1) Shield is connected to pin 5 of the plug and the knurled screw of the socket.

## Pin assignments

### Pin assignment, socket

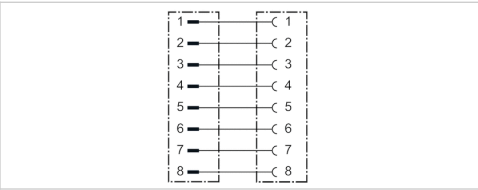


### Plug pin assignment



# Round plug connector, Series CON-RD

- Socket M12x1 8-pin A-coded straight 180°
- Plug M12x1 8-pin A-coded straight 180°
- with cable
- suitable for dynamic laying
- shielded



|                               |                 |
|-------------------------------|-----------------|
| Ambient temperature min./max. | -25 ... 80 °C   |
| Operational voltage           | 30 / 36 V AC/DC |
| Protection class              | IP67            |
| Wire cross-section            | 0.25 mm²        |
| Weight                        | See table below |

## Technical data

| Part No.   | Max. current | Number of wires | Cable-Ø | Cable length | Weight   |
|------------|--------------|-----------------|---------|--------------|----------|
| 8946202802 | 1.5 A        | 8               | 6.6 mm  | 0.5 m        | 0.067 kg |
| 8946202812 | 1.5 A        | 8               | 6.6 mm  | 1 m          | 0.96 kg  |
| 8946202822 | 1.5 A        | 8               | 6.6 mm  | 2 m          | 0.161 kg |
| 8946202832 | 1.5 A        | 8               | 6.6 mm  | 5 m          | 0.339 kg |
| 8946202842 | 1.5 A        | 8               | 6.6 mm  | 10 m         | 0.65 kg  |

suitable for dynamic laying

## Technical information

The specified protection class is only valid in assembled and tested state.

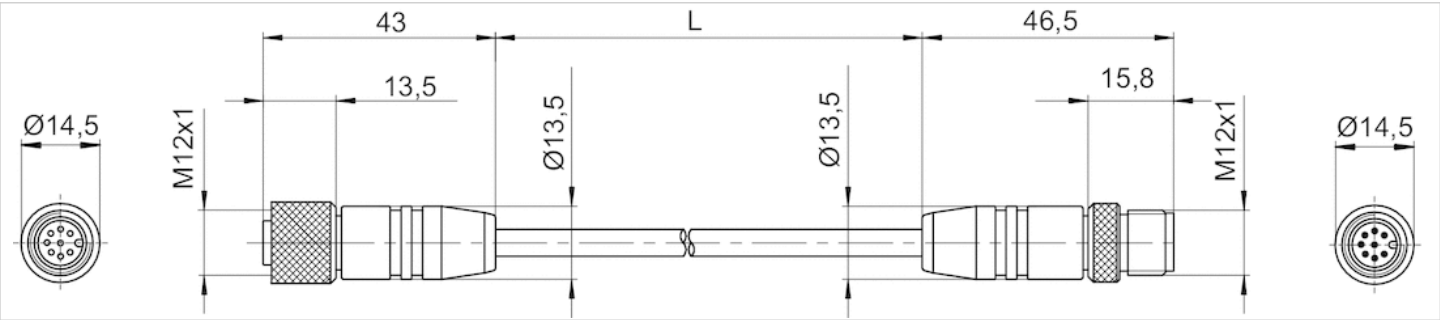
## Technical information

| Material     |                  |
|--------------|------------------|
| Housing      | Polyurethane     |
| Seals        | Fluorocaoutchouc |
| Cable sheath | Polyurethane     |



Dimensions

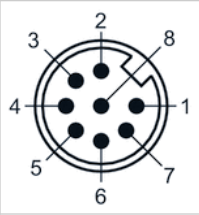
Dimensions



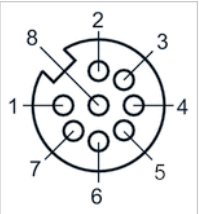
L = length

Pin assignments

Plug pin assignment



Pin assignment, socket



# Passive distributor, Series AES

## R412028732

General series information  
AVENTICS Series AES Field bus modules

- The AVENTICS Series AES fieldbus connection can be integrated into all AVENTICS fieldbus-compatible valve systems or can also be configured as a stand-alone solution. AES connects your AVENTICS valve system to all relevant fieldbus protocols and offers the integration of I/O-modules and enables optimized decentralized wiring of sensors. The integration of the Digital Twin enables users to be IIoT ready and use the AES to solve their interoperability challenges.



### Technical data

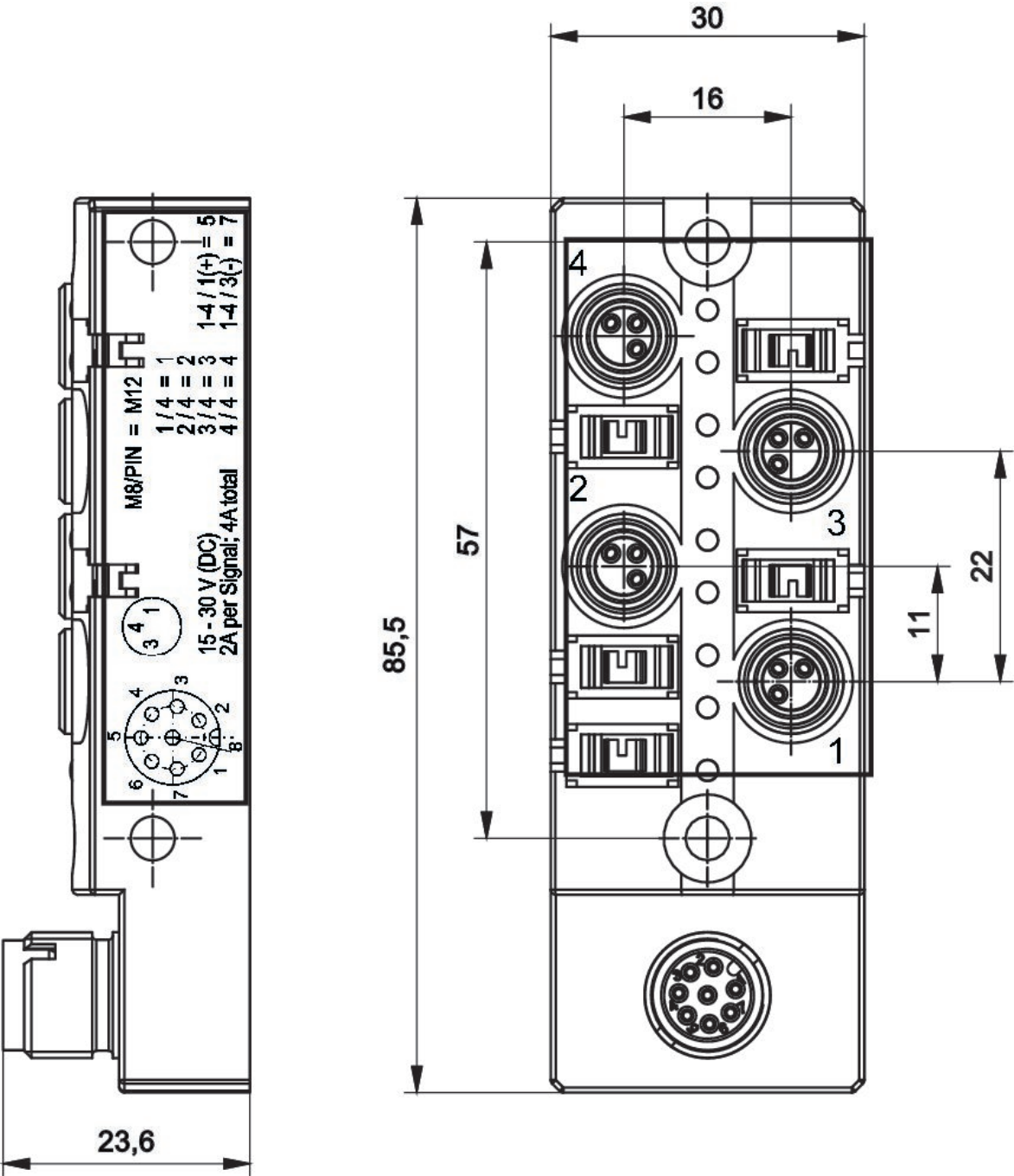
|                                       |                      |
|---------------------------------------|----------------------|
| Version                               | Passive distributor  |
| E/A capable                           | connection with I/O  |
| Number of I/O connections             | 4 inputs / 4 outputs |
| Signal connection E/A type            | Socket               |
| Signal connection E/A thread size     | M8x1                 |
| Signal connection E/A number of poles | 3-pin                |
| Min. ambient temperature              | -25 °C               |
| Max. ambient temperature              | 80 °C                |
| Operational voltage electronics       | 15-30 V DC           |
| Current consumption electronics       | 2 A                  |
| Protection class                      | IP67                 |
| Communication port Type               | Plug                 |
| Number                                | 1                    |
| Communication port, Thread size       | M12x1                |
| Communication port, Number of poles   | 8-pin                |
| Communication port, Coding            | A-coded              |

Material

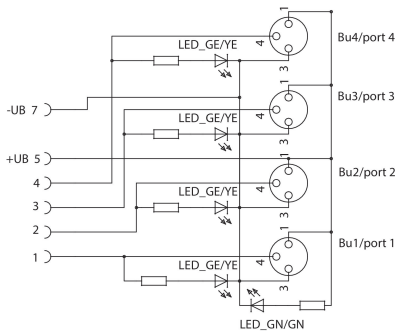
Housing material  
Part No.

Polybutyleneterephthalate  
R412028732

Dimensions

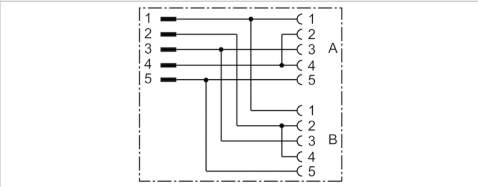


Circuit diagram



# Y-Plug connector, series CON-AP

- Plug, M12x1, 5-pin, A-coded, straight, 180°
- Socket, M12x1, 5-pin, A-coded, straight, 180°
- unshielded



|                               |                                                               |
|-------------------------------|---------------------------------------------------------------|
| Ambient temperature min./max. | -25 ... 90 °C                                                 |
| Operational voltage           | 48 V AC/DC                                                    |
| Protection class              | IP67                                                          |
| Weight                        | 0.029 kg                                                      |
|                               | The delivered product may vary from that in the illustration. |

## Technical data

| Part No.   | Max. current |
|------------|--------------|
| 8941002392 | 4 A          |

## Technical information

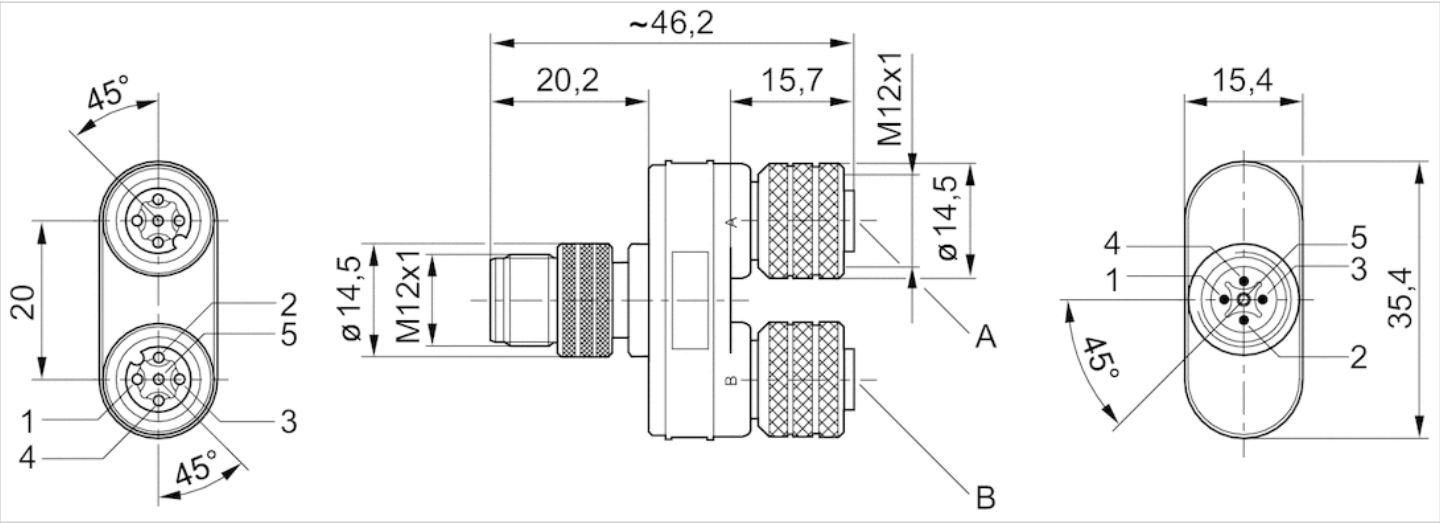
The specified protection class is only valid in assembled and tested state.

## Technical information

| Material |                  |
|----------|------------------|
| Housing  | Polyurethane     |
| Seals    | Fluorocaoutchouc |

Dimensions

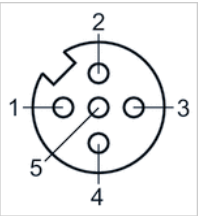
Dimensions



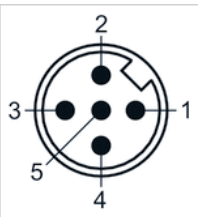
Sockets: Pin 2 and 4 bridged.

Pin assignments

Pin assignment, socket



Plug pin assignment

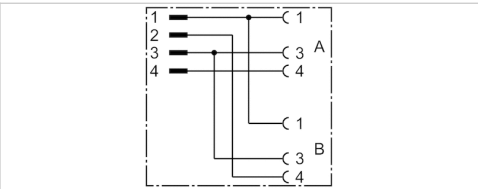


# Y-Plug connector, series CON-AP

- Plug, M12x1, 4-pin, A-coded, straight, 180°
- Socket, M8x1, 3-pin, A-coded, straight, 180°
- unshielded



|                               |                                                               |
|-------------------------------|---------------------------------------------------------------|
| Ambient temperature min./max. | -25 ... 90 °C                                                 |
| Operational voltage           | 48 V AC/DC                                                    |
| Protection class              | IP67                                                          |
| Weight                        | 0.02 kg                                                       |
|                               | The delivered product may vary from that in the illustration. |



## Technical data

| Part No.   | Max. current |
|------------|--------------|
| 8941002382 | 4 A          |

## Technical information

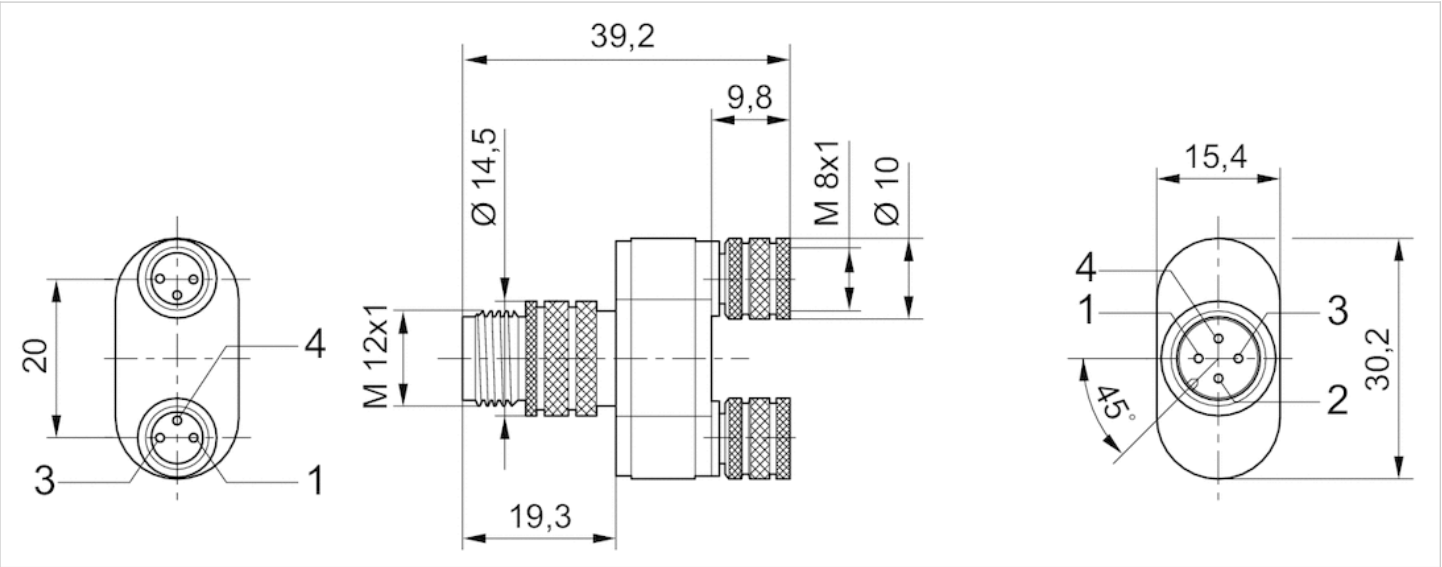
The specified protection class is only valid in assembled and tested state.

## Technical information

| Material |                  |
|----------|------------------|
| Housing  | Polyurethane     |
| Seals    | Fluorocaoutchouc |

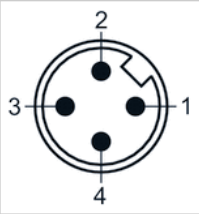
Dimensions

Dimensions

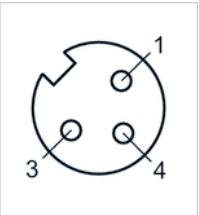


Pin assignments

Plug pin assignment



Pin assignment, socket





# Y-Plug connector, series CON-AP

## R412028657

Adapter



### Technical data

|                                          |                            |
|------------------------------------------|----------------------------|
| Type                                     | Adapters & contact bridges |
| Shielding                                | unshielded                 |
| Min. ambient temperature                 | -25 °C                     |
| Max. ambient temperature                 | 90 °C                      |
| Max. current                             | 4 A                        |
| Protection class                         | IP67                       |
| Operational voltage                      | 30 V AC / 36 V DC          |
| Electrical connection 1, type            | Socket                     |
| Electrical connection 1, thread size     | M12x1                      |
| Electrical connection 1, number of poles | 5-pin                      |
| Electrical connection 1, coding          | A-coded                    |
| Cable exit                               | straight                   |
| Cable exit angle                         | 180°                       |
| Electrical connection 2, type            | Plug                       |
| Electrical connection 2, thread size     | M12x1                      |
| Electrical connection 2, number of poles | 4-pin                      |
| Electrical connection 2, coding          | A-coded                    |
| Cable exit                               | straight                   |
| Cable exit angle                         | 180°                       |

|                                          |          |
|------------------------------------------|----------|
| Electrical connection 3, type            | Plug     |
| Electrical connection 3, thread size     | M12x1    |
| Electrical connection 3, number of poles | 5-pin    |
| Electrical connection 3, coding          | A-coded  |
| Cable exit                               | straight |
| Cable exit angle                         | 180°     |

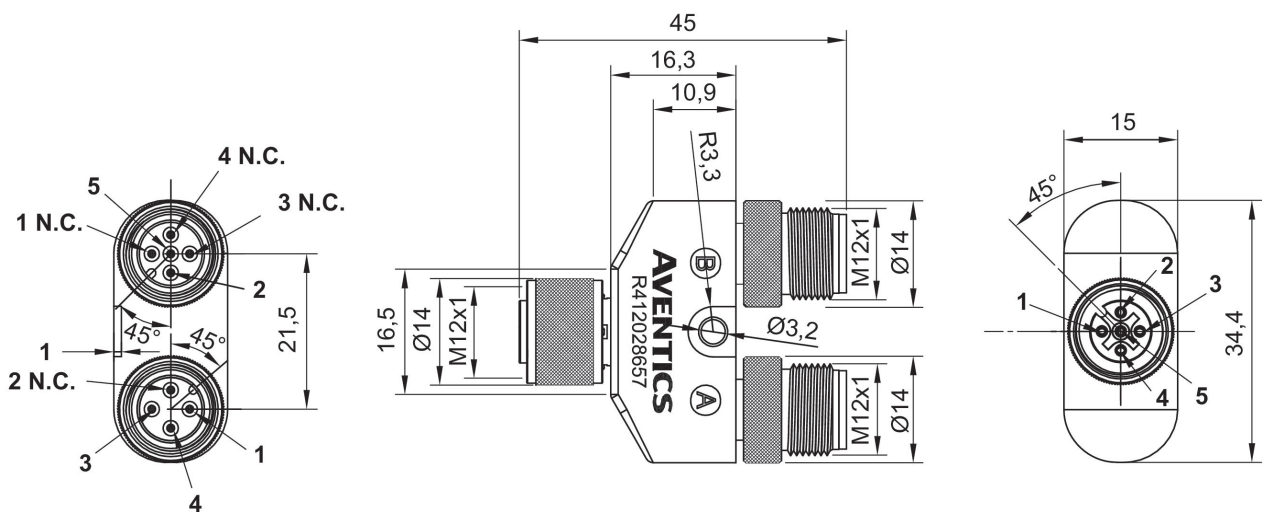
## Material

|                  |                  |
|------------------|------------------|
| Housing material | Polyurethane     |
| Seal material    | Fluorocaoutchouc |
| Part No.         | R412028657       |

## Technical information

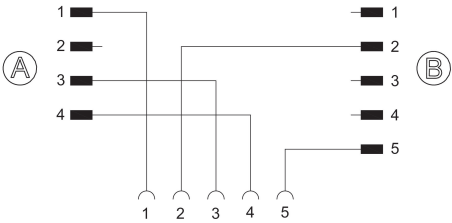
The specified protection class is only valid in assembled and tested state.  
For IO-Link Class B supply (external)

## Dimensions in mm



A = Electrical connection 2  
B = Electrical connection 3

Pin assignments



Pin assignments

| Pin | Electrical con-<br>nection 1 | Electrical con-<br>nection 2 (A) | Electrical con-<br>nection 3 (B) |
|-----|------------------------------|----------------------------------|----------------------------------|
| 1   | L+                           | L+                               | N.C.                             |
| 2   | UA +24V                      | N.C.                             | UA +24V                          |
| 3   | L-                           | L-                               | N.C.                             |
| 4   | CQ (IO-Link da-<br>ta)       | CQ (IO-Link da-<br>ta)           | N.C.                             |
| 5   | UA 0V                        | N.C.                             | UA 0V                            |

# Multipole plug, series CON-MP

- Plug D-Sub 25-pin angled 90°
- Socket D-Sub 25-pin straight 180°
- with cable
- UL (Underwriters Laboratories)
- unshielded



|                               |                 |
|-------------------------------|-----------------|
| Ambient temperature min./max. | -20 ... 80 °C   |
| Operational voltage           | 24 V DC         |
| Protection class              | IP67            |
| Wire cross-section            | 0.2 mm²         |
| Weight                        | See table below |

## Technical data

| Part No.   | Max. current | Number of wires | Cable-Ø | Cable length | Certification                  | Weight   |
|------------|--------------|-----------------|---------|--------------|--------------------------------|----------|
| R412020635 | 3 A          | 25              | 8.5 mm  | 0.5 m        | UL (Underwriters Laboratories) | 0.205 kg |
| R412020636 | 3 A          | 25              | 8.5 mm  | 1 m          | UL (Underwriters Laboratories) | 0.275 kg |
| R412020637 | 3 A          | 25              | 8.5 mm  | 2 m          | UL (Underwriters Laboratories) | 0.396 kg |
| R412020638 | 3 A          | 25              | 8.5 mm  | 5 m          | UL (Underwriters Laboratories) | 0.756 kg |
| R412020639 | 3 A          | 25              | 8.5 mm  | 10 m         | UL (Underwriters Laboratories) | 1.409 kg |

## Technical information

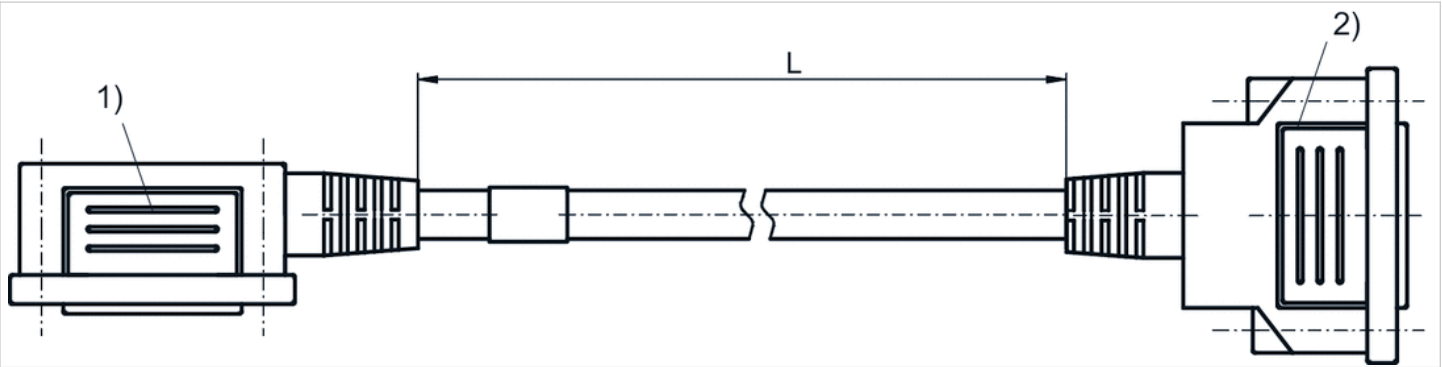
The specified protection class is only valid in assembled and tested state.

## Technical information

| Material     |                         |
|--------------|-------------------------|
| Housing      | Thermoplastic elastomer |
| Cable sheath | Polyvinyl chloride      |

Dimensions

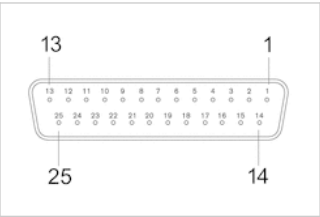
Dimensions



- 1) Port 1 (Plug)
- 2) Port 2 (Socket)

Pin assignments

PIN assignment and cable colors, cable identification as per DIN 47100



Socket

| Pin   | 1     | 2     | 3     | 4      | 5    | 6    | 7    | 8   | 9     |
|-------|-------|-------|-------|--------|------|------|------|-----|-------|
| Color | white | brown | green | yellow | gray | pink | blue | red | black |

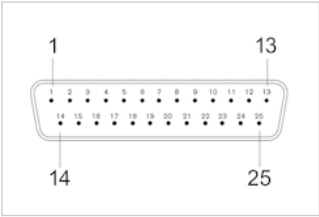
| 10     | 11        | 12       | 13          | 14          | 15           |
|--------|-----------|----------|-------------|-------------|--------------|
| violet | gray/pink | red/blue | white/green | brown/green | white/yellow |

| 16           | 17         | 18         | 19         | 20         | 21         |
|--------------|------------|------------|------------|------------|------------|
| yellow/brown | white/gray | gray/brown | white/pink | pink/brown | white/blue |

| 22         | 23        | 24        | 25          |
|------------|-----------|-----------|-------------|
| brown/blue | white/red | brown/red | white/black |

Pin assignments

PIN assignment and cable colors, cable identification as per DIN 47100



Plug

|       |       |       |       |        |      |      |      |     |       |
|-------|-------|-------|-------|--------|------|------|------|-----|-------|
| Pin   | 1     | 2     | 3     | 4      | 5    | 6    | 7    | 8   | 9     |
| Color | white | brown | green | yellow | gray | pink | blue | red | black |

|        |           |          |             |             |              |
|--------|-----------|----------|-------------|-------------|--------------|
| 10     | 11        | 12       | 13          | 14          | 15           |
| violet | gray/pink | red/blue | white/green | brown/green | white/yellow |

|              |            |            |            |            |            |
|--------------|------------|------------|------------|------------|------------|
| 16           | 17         | 18         | 19         | 20         | 21         |
| yellow/brown | white/gray | gray/brown | white/pink | pink/brown | white/blue |

|            |           |           |             |
|------------|-----------|-----------|-------------|
| 22         | 23        | 24        | 25          |
| brown/blue | white/red | brown/red | white/black |

# Multipole plug, series CON-MP

- Plug D-Sub 25-pin angled 90°
- Socket D-Sub 25-pin angled 90°
- with cable
- UL (Underwriters Laboratories)
- unshielded



Ambient temperature min./max.

-20 ... 80 °C

Operational voltage

24 V DC

Protection class

IP67

Wire cross-section

0.2 mm<sup>2</sup>

Weight

See table below

The delivered product may vary from that in the illustration.

## Technical data

| Part No.   | Max. current | Number of wires | Cable-Ø | Cable length | Certification                  | Weight   |
|------------|--------------|-----------------|---------|--------------|--------------------------------|----------|
| R412020630 | 3 A          | 25              | 8.5 mm  | 0.5 m        | UL (Underwriters Laboratories) | 0.19 kg  |
| R412020631 | 3 A          | 25              | 8.5 mm  | 1 m          | UL (Underwriters Laboratories) | 0.26 kg  |
| R412020632 | 3 A          | 25              | 8.5 mm  | 2 m          | UL (Underwriters Laboratories) | 0.383 kg |
| R412020633 | 3 A          | 25              | 8.5 mm  | 5 m          | UL (Underwriters Laboratories) | 0.736 kg |
| R412020634 | 3 A          | 25              | 8.5 mm  | 10 m         | UL (Underwriters Laboratories) | 1.4 kg   |

## Technical information

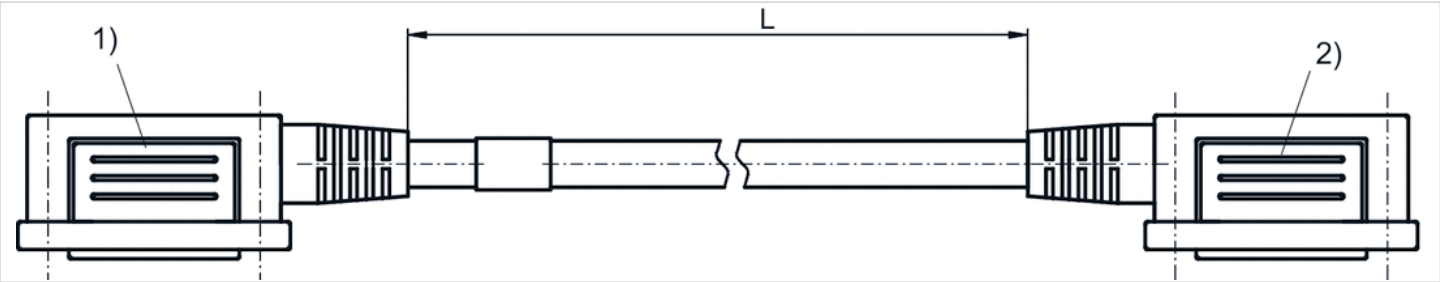
The specified protection class is only valid in assembled and tested state.

## Technical information

| Material     |                         |
|--------------|-------------------------|
| Housing      | Thermoplastic elastomer |
| Cable sheath | Polyvinyl chloride      |

Dimensions

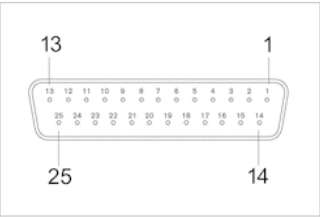
Dimensions



- 1) Port 1 (Plug)
- 2) Port 2 (Socket)

Pin assignments

PIN assignment and cable colors, cable identification as per DIN 47100



Socket

| Pin   | 1     | 2     | 3     | 4      | 5    | 6    | 7    | 8   | 9     |
|-------|-------|-------|-------|--------|------|------|------|-----|-------|
| Color | white | brown | green | yellow | gray | pink | blue | red | black |

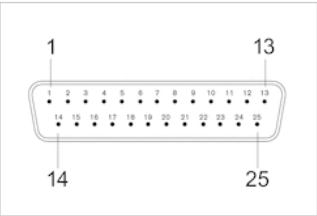
| 10     | 11        | 12       | 13          | 14          | 15           |
|--------|-----------|----------|-------------|-------------|--------------|
| violet | gray/pink | red/blue | white/green | brown/green | white/yellow |

| 16           | 17         | 18         | 19         | 20         | 21         |
|--------------|------------|------------|------------|------------|------------|
| yellow/brown | white/gray | gray/brown | white/pink | pink/brown | white/blue |

| 22         | 23        | 24        | 25          |
|------------|-----------|-----------|-------------|
| brown/blue | white/red | brown/red | white/black |

Pin assignments

PIN assignment and cable colors, cable identification as per DIN 47100



Plug



|              |            |            |             |             |              |      |      |     |       |
|--------------|------------|------------|-------------|-------------|--------------|------|------|-----|-------|
| Pin          | 1          | 2          | 3           | 4           | 5            | 6    | 7    | 8   | 9     |
| Color        | white      | brown      | green       | yellow      | gray         | pink | blue | red | black |
| 10           | 11         | 12         | 13          | 14          | 15           |      |      |     |       |
| violet       | gray/pink  | red/blue   | white/green | brown/green | white/yellow |      |      |     |       |
| 16           | 17         | 18         | 19          | 20          | 21           |      |      |     |       |
| yellow/brown | white/gray | gray/brown | white/pink  | pink/brown  | white/blue   |      |      |     |       |
| 22           | 23         | 24         | 25          |             |              |      |      |     |       |
| brown/blue   | white/red  | brown/red  | white/black |             |              |      |      |     |       |

# Multipole plug, series CON-MP

- open cable ends 44-pin
- with cable
- unshielded



|                               |                      |
|-------------------------------|----------------------|
| Ambient temperature min./max. | See table below      |
| Operational voltage           | 24 V DC              |
| Protection class              | IP65                 |
| Wire cross-section            | 0.22 mm <sup>2</sup> |
| Weight                        | See table below      |

## Technical data

| Part No.   | Ambient temperature min./max. | Electrical connection             | Max. current | Number of wires |
|------------|-------------------------------|-----------------------------------|--------------|-----------------|
|            |                               | 1                                 |              |                 |
| R419500466 | -20 ... 80 °C                 | Socket D-Sub 44-pin straight 180° | 3 A          | 44              |
| R419500467 | -20 ... 80 °C                 | Socket D-Sub 44-pin straight 180° | 3 A          | 44              |
| R419500468 | -20 ... 80 °C                 | Socket D-Sub 44-pin straight 180° | 3 A          | 44              |
| R419500469 | -20 ... 80 °C                 | Socket D-Sub 44-pin straight 180° | 3 A          | 44              |
| R419500470 | -20 ... 80 °C                 | Socket D-Sub 44-pin straight 180° | 3 A          | 44              |
| R419500471 | -20 ... 80 °C                 | Socket D-Sub 44-pin straight 180° | 3 A          | 44              |
| R419500472 | -20 ... 80 °C                 | Socket D-Sub 44-pin angled 90°    | 3 A          | 44              |
| R419500473 | -20 ... 80 °C                 | Socket D-Sub 44-pin angled 90°    | 3 A          | 44              |
| R419500474 | -20 ... 80 °C                 | Socket D-Sub 44-pin angled 90°    | 3 A          | 44              |
| R419500475 | -20 ... 80 °C                 | Socket D-Sub 44-pin angled 90°    | 3 A          | 44              |
| R419500476 | -20 ... 80 °C                 | Socket D-Sub 44-pin angled 90°    | 3 A          | 44              |
| R419500477 | -25 ... 80 °C                 | Socket D-Sub 44-pin angled 90°    | 3 A          | 44              |

| Part No.   | Cable sheath       | Bending radius min. | Cable-Ø | Cable length | Weight   |    | Fig.   |
|------------|--------------------|---------------------|---------|--------------|----------|----|--------|
| R419500466 | Polyvinyl chloride | -                   | 10.7 mm | 3 m          | 0.632 kg | -  | Fig. 1 |
| R419500467 | Polyvinyl chloride | -                   | 10.7 mm | 5 m          | 1.013 kg | -  | Fig. 1 |
| R419500468 | Polyvinyl chloride | -                   | 10.7 mm | 10 m         | 1.934 kg | -  | Fig. 1 |
| R419500469 | Polyurethane       | 97.5 mm             | 13 mm   | 3 m          | 0.722 kg | 1) | Fig. 1 |
| R419500470 | Polyurethane       | 97.5 mm             | 13 mm   | 5 m          | 1.146 kg | 1) | Fig. 1 |
| R419500471 | Polyurethane       | 97.5 mm             | 13 mm   | 10 m         | 2.288 kg | 1) | Fig. 1 |
| R419500472 | Polyvinyl chloride | -                   | 10.7 mm | 3 m          | 0.61 kg  | -  | Fig. 2 |
| R419500473 | Polyvinyl chloride | -                   | 10.7 mm | 5 m          | 1.001 kg | -  | Fig. 2 |
| R419500474 | Polyvinyl chloride | -                   | 10.7 mm | 10 m         | 1.913 kg | -  | Fig. 2 |
| R419500475 | Polyurethane       | 97.5 mm             | 13 mm   | 3 m          | 0.747 kg | 1) | Fig. 2 |
| R419500476 | Polyurethane       | 97.5 mm             | 13 mm   | 5 m          | 1.178 kg | 1) | Fig. 2 |
| R419500477 | Polyurethane       | 97.5 mm             | 13 mm   | 10 m         | 2.295 kg | 1) | Fig. 2 |

1) suitable for dynamic laying

Technical information

The specified protection class is only valid in assembled and tested state.

Technical information

| Material     |                                 |
|--------------|---------------------------------|
| Housing      | Thermoplastic elastomer         |
| Cable sheath | Polyvinyl chloride Polyurethane |

Dimensions

Fig. 1

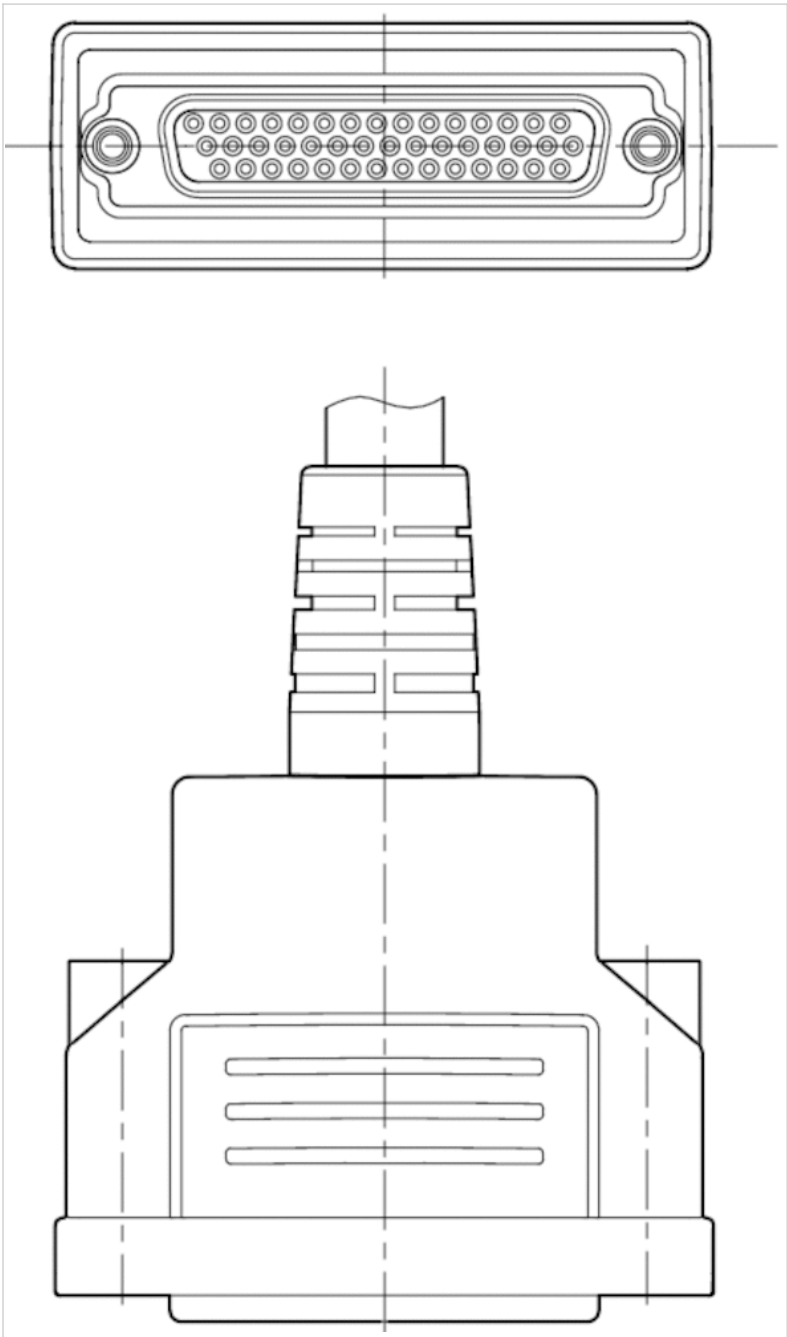
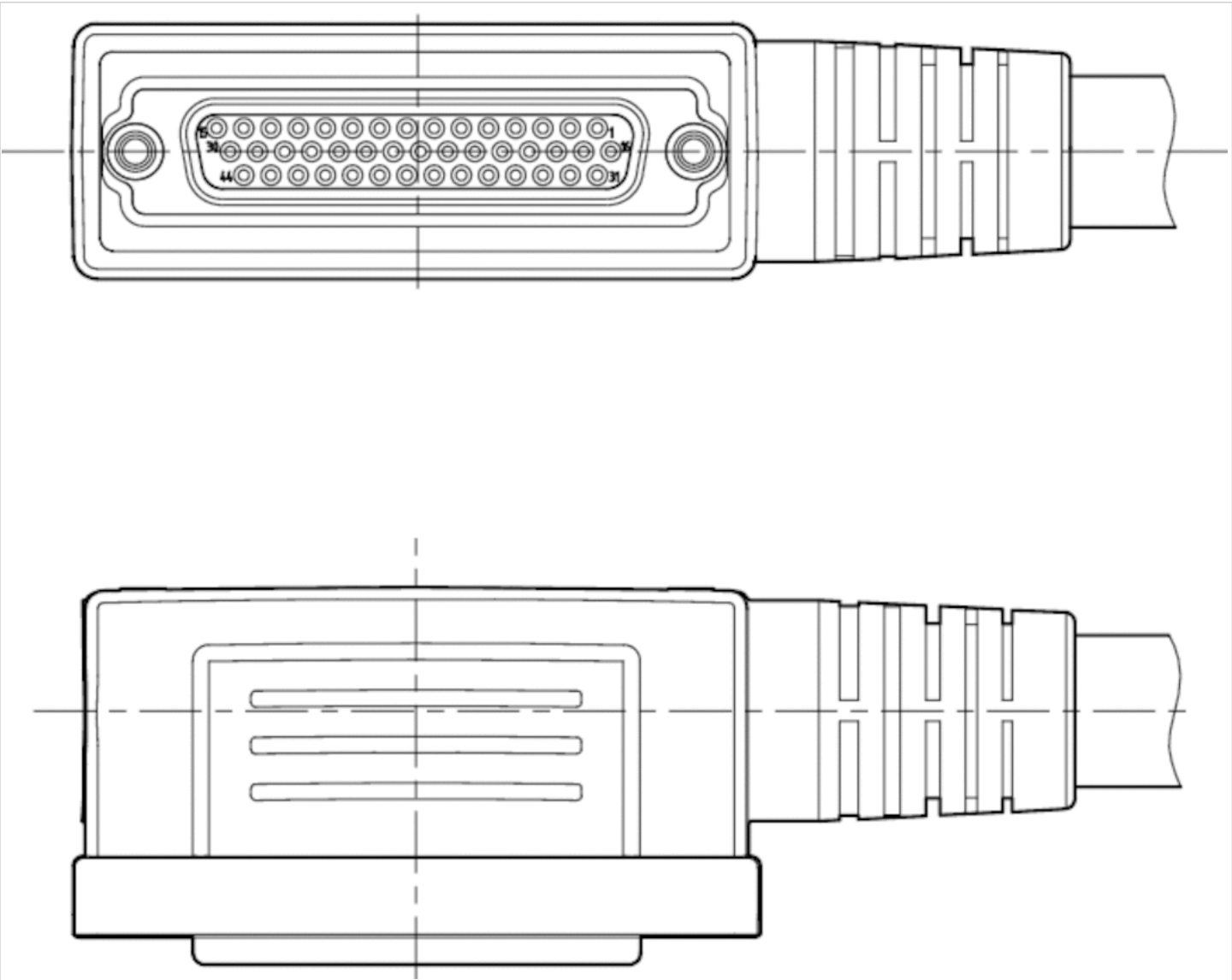
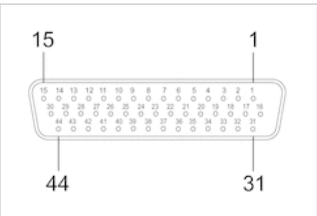


Fig. 2



Pin assignments

PIN assignment and cable colors, cable identification as per DIN 47100



Socket

|              |            |              |             |             |              |          |      |     |       |
|--------------|------------|--------------|-------------|-------------|--------------|----------|------|-----|-------|
| Pin          | 1          | 2            | 3           | 4           | 5            | 6        | 7    | 8   | 9     |
| Color        | white      | brown        | green       | yellow      | gray         | pink     | blue | red | black |
| 10           | 11         | 12           | 13          | 14          | 15           |          |      |     |       |
| violet       | gray/pink  | red/blue     | white/green | brown/green | white/yellow |          |      |     |       |
| 16           | 17         | 18           | 19          | 20          | 21           |          |      |     |       |
| yellow/brown | white/gray | gray/brown   | white/pink  | pink/brown  | white/blue   |          |      |     |       |
| 22           | 23         | 24           | 25          | 26          | 27           |          |      |     |       |
| brown/blue   | white/red  | brown/red    | white/black | brown/black | gray/green   |          |      |     |       |
| 28           | 29         | 30           | 31          | 32          | 33           |          |      |     |       |
| yellow/gray  | pink/green | yellow/pink  | green/blue  | yellow/blue | green/red    |          |      |     |       |
| 34           | 35         | 36           | 37          | 38          | 39           | 40       |      |     |       |
| yellow/red   | gray/black | yellow/black | gray/blue   | pink/blue   | gray/red     | pink/red |      |     |       |
| 41           | 42         | 43           | 44          |             |              |          |      |     |       |
| gray/black   | pink/black | blue/black   | red/black   |             |              |          |      |     |       |

# Multipole plug, series CON-MP

- open cable ends 25-pin
- with cable
- unshielded



|                               |                      |
|-------------------------------|----------------------|
| Ambient temperature min./max. | -20 ... 80 °C        |
| Operational voltage           | 24 V DC              |
| Protection class              | IP67                 |
| Wire cross-section            | 0.22 mm <sup>2</sup> |
| Weight                        | See table below      |

## Technical data

| Part No.   | Electrical connection             | Max. current | Number of wires | Cable sheath       |
|------------|-----------------------------------|--------------|-----------------|--------------------|
|            | 1                                 |              |                 |                    |
| R419500454 | Socket D-Sub 25-pin straight 180° | 3 A          | 25              | Polyvinyl chloride |
| R419500455 | Socket D-Sub 25-pin straight 180° | 3 A          | 25              | Polyvinyl chloride |
| R419500456 | Socket D-Sub 25-pin straight 180° | 3 A          | 25              | Polyvinyl chloride |
| R412022156 | Socket D-Sub 25-pin straight 180° | 3 A          | 25              | Polyvinyl chloride |
| R419500457 | Socket D-Sub 25-pin straight 180° | 3 A          | 25              | Polyurethane       |
| R419500458 | Socket D-Sub 25-pin straight 180° | 3 A          | 25              | Polyurethane       |
| R419500459 | Socket D-Sub 25-pin straight 180° | 3 A          | 25              | Polyurethane       |
| R419500460 | Socket D-Sub 25-pin angled 90°    | 3 A          | 25              | Polyvinyl chloride |
| R419500461 | Socket D-Sub 25-pin angled 90°    | 3 A          | 25              | Polyvinyl chloride |
| R419500462 | Socket D-Sub 25-pin angled 90°    | 3 A          | 25              | Polyvinyl chloride |
| R412022352 | Socket D-Sub 25-pin angled 90°    | 3 A          | 25              | Polyvinyl chloride |
| R419500463 | Socket D-Sub 25-pin angled 90°    | 3 A          | 25              | Polyurethane       |
| R419500464 | Socket D-Sub 25-pin angled 90°    | 3 A          | 25              | Polyurethane       |
| R419500465 | Socket D-Sub 25-pin angled 90°    | 3 A          | 25              | Polyurethane       |

| Part No.   | Bending radius min. | Cable-Ø | Cable length | Weight   |    | Fig.   |
|------------|---------------------|---------|--------------|----------|----|--------|
| R419500454 | -                   | 8.5 mm  | 3 m          | 0.465 kg | -  | Fig. 1 |
| R419500455 | -                   | 8.5 mm  | 5 m          | 0.731 kg | -  | Fig. 1 |
| R419500456 | -                   | 8.5 mm  | 10 m         | 1.373 kg | -  | Fig. 1 |
| R412022156 | -                   | 8.5 mm  | 15 m         | 2.002 kg | -  | Fig. 1 |
| R419500457 | 78.75 mm            | 10.5 mm | 3 m          | 0.51 kg  | 1) | Fig. 1 |
| R419500458 | 78.75 mm            | 10.5 mm | 5 m          | 0.789 kg | 1) | Fig. 1 |
| R419500459 | 78.75 mm            | 10.5 mm | 10 m         | 1.491 kg | 1) | Fig. 1 |
| R419500460 | -                   | 8.5 mm  | 3 m          | 0.46 kg  | -  | Fig. 2 |
| R419500461 | -                   | 8.5 mm  | 5 m          | 0.707 kg | -  | Fig. 2 |
| R419500462 | -                   | 8.5 mm  | 10 m         | 1.334 kg | -  | Fig. 2 |
| R412022352 | -                   | 8.5 mm  | 15 m         | 1.982 kg | -  | Fig. 2 |

| Part No.   | Bending radius min. | Cable-Ø | Cable length | Weight   |    | Fig.   |
|------------|---------------------|---------|--------------|----------|----|--------|
| R419500463 | 78.75 mm            | 10.5 mm | 3 m          | 0.484 kg | 1) | Fig. 2 |
| R419500464 | 78.75 mm            | 10.5 mm | 5 m          | 0.767 kg | 1) | Fig. 2 |
| R419500465 | 78.75 mm            | 10.5 mm | 10 m         | 1.461 kg | 1) | Fig. 2 |

1) suitable for dynamic laying

Technical information

The specified protection class is only valid in assembled and tested state.  
 The increased wire cross-section of pin 25 is 0.82 mm².

Technical information

| Material     |                                 |
|--------------|---------------------------------|
| Housing      | Thermoplastic elastomer         |
| Cable sheath | Polyvinyl chloride Polyurethane |

Dimensions

Fig. 1

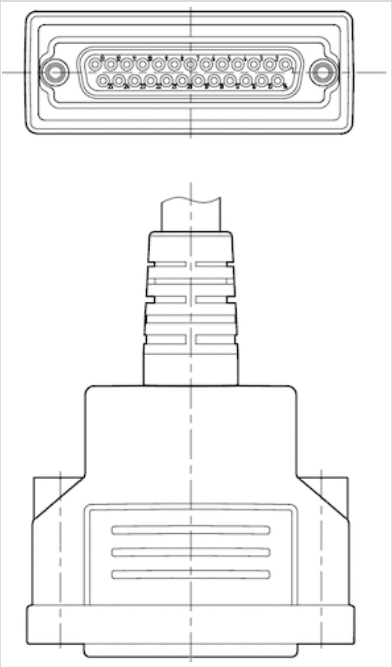
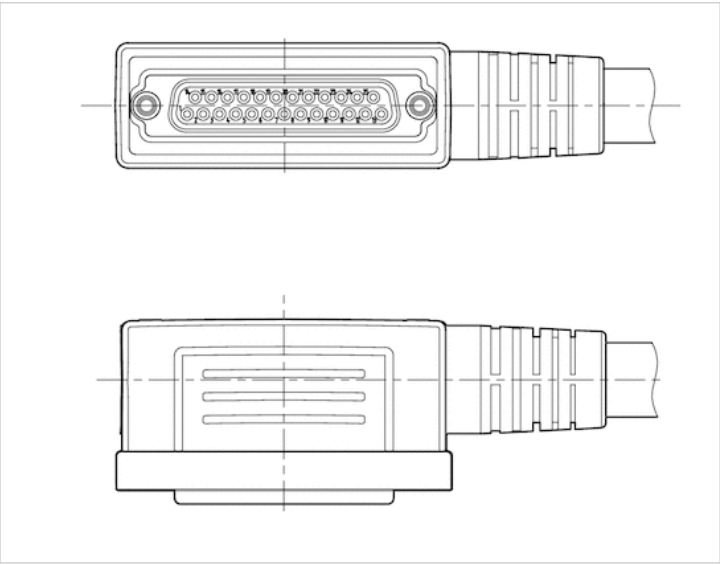


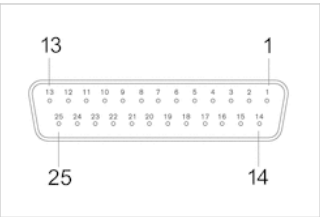


Fig. 2



Pin assignments

PIN assignment and cable colors, cable identification as per DIN 47100



Socket

|       |       |       |       |        |      |      |      |     |       |
|-------|-------|-------|-------|--------|------|------|------|-----|-------|
| Pin   | 1     | 2     | 3     | 4      | 5    | 6    | 7    | 8   | 9     |
| Color | white | brown | green | yellow | gray | pink | blue | red | black |

|        |           |          |             |             |              |
|--------|-----------|----------|-------------|-------------|--------------|
| 10     | 11        | 12       | 13          | 14          | 15           |
| violet | gray/pink | red/blue | white/green | brown/green | white/yellow |

|              |            |            |            |            |            |
|--------------|------------|------------|------------|------------|------------|
| 16           | 17         | 18         | 19         | 20         | 21         |
| yellow/brown | white/gray | gray/brown | white/pink | pink/brown | white/blue |

|            |           |           |             |
|------------|-----------|-----------|-------------|
| 22         | 23        | 24        | 25          |
| brown/blue | white/red | brown/red | white/black |

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