

Series HF02-LG



AVENTICS™ Series HF02-LG



Valve system, Series HF02-LG

- Configurable valve systems, Multipole, Fieldbus




Blocking principle
 Certificates
 Working pressure min./max.
 Control pressure min./max.
 Ambient temperature min./max.
 Medium temperature min./max.
 Medium
 Max. particle size
 Oil content of compressed air
 Nominal flow Qn
 Operational voltage electronics
 Number of valve positions max.
 Protection class with connection
 DC operating voltage
 Voltage tolerance DC

Single base plate principle
 UR (Underwriters Laboratories)
 -0.9 ... 10 bar
 3 ... 10 bar
 0 ... 50 °C
 0 ... 50 °C
 Compressed air
 5 µm
 0 ... 5 mg/m³
 1400 l/min
 24 V DC
 16
 IP65
 24 V
 -15% / +20%

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

Overview of variants

	Version	You have the following options:
	Multipole	D-Sub plug, 25-pin, on the side D-Sub plug, 44-pin, on the side
	Direct fieldbus connection	PROFIBUS DP CANopen CANopen sb DeviceNet EtherCAT sercos III
	Fieldbus connection with I/O functionality (AES)	PROFIBUS DP CANopen DeviceNet PROFINET IO EtherCAT EtherNET/IP POWERLINK
	Fieldbus connection with AS i	4 outputs 8 outputs 4 inputs / 4 outputs 8 inputs / 8 outputs
	Fieldbus connection with I/O functionality (CMS)	PROFIBUS DP CANopen DeviceNet EtherNET/IP PROFINET IO
	Connection with diagnosis, optionally with I/O function (DDL)	PROFIBUS DP Interbus-S DeviceNet PROFINET IO

	Version	You have the following options:
	Connection with diagnosis (DDL)	PROFIBUS DP Interbus-S DeviceNet PROFINET IO

Technical information

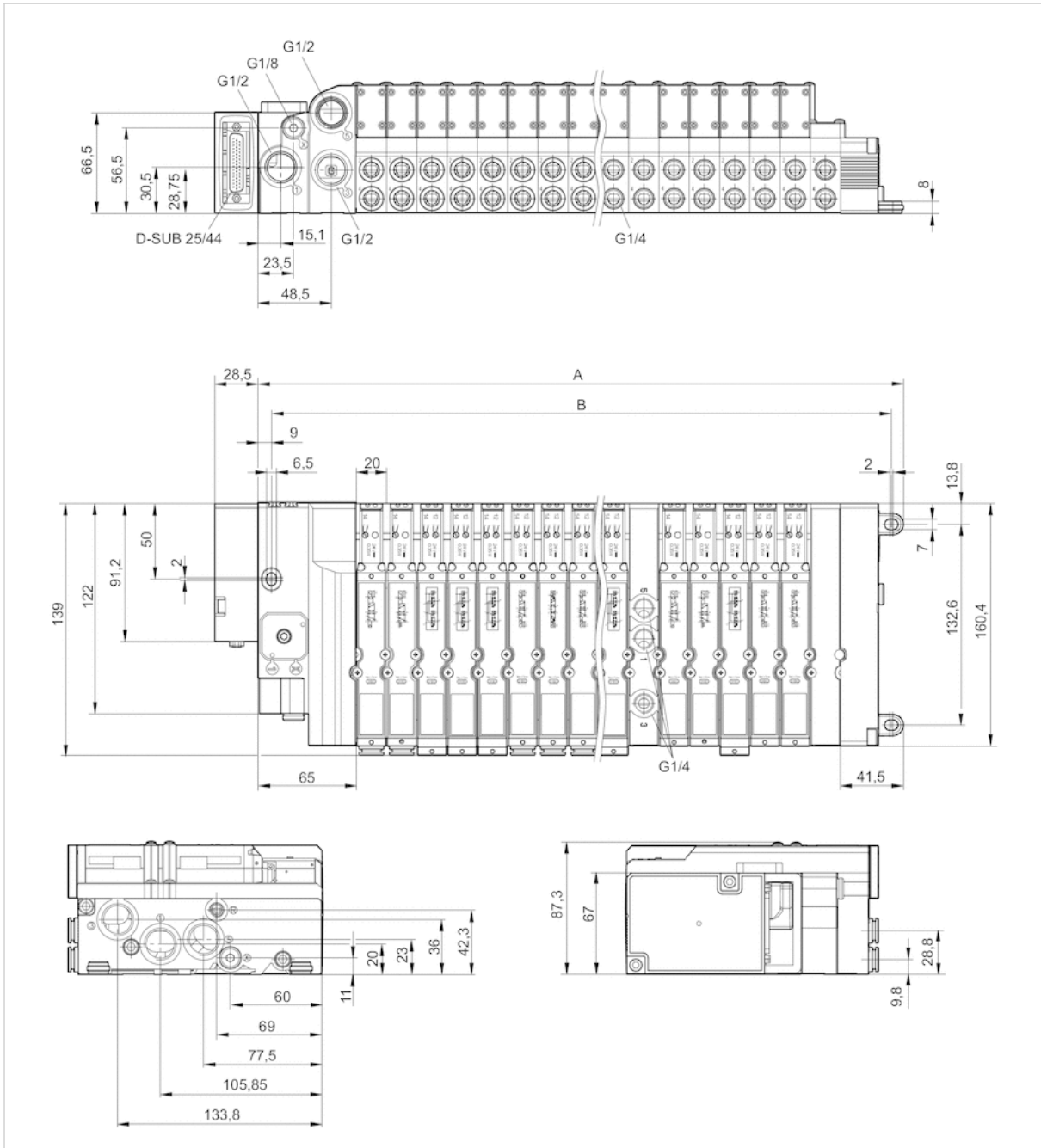
The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!
 The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .
 The oil content of compressed air must remain constant during the life cycle.
 Use only the approved oils from AVENTICS. Further information can be found in the “Technical information” document (available in the MediaCentre).
 See the following pages on the series for technical data on individual components.
 The technical data for the electronics (link structures) can be found in the section “Fieldbus Connections”.
 For push-in fittings, only use plug accessories made of plastic (polyamide) from our catalog.
 It is necessary to maintain the electrical current in the coil of double solenoid valves to avoid unexpected auto-switching.
 The pilot valve is UL (Underwriters Laboratories) certified.

Technical information

Material	
End plate	Aluminum
Plug box	Polyamide
Base plate	Polyamide

Dimensions

Dimensions, D-sub plug, on the side



Dimensions

n	A	B
1	126.5	109.5
2	146.5	129.5
3	166.5	149.5
4	186.5	169.5
5	206.5	189.5
6	226.5	209.5
7	246.5	229.5
8	266.5	249.5

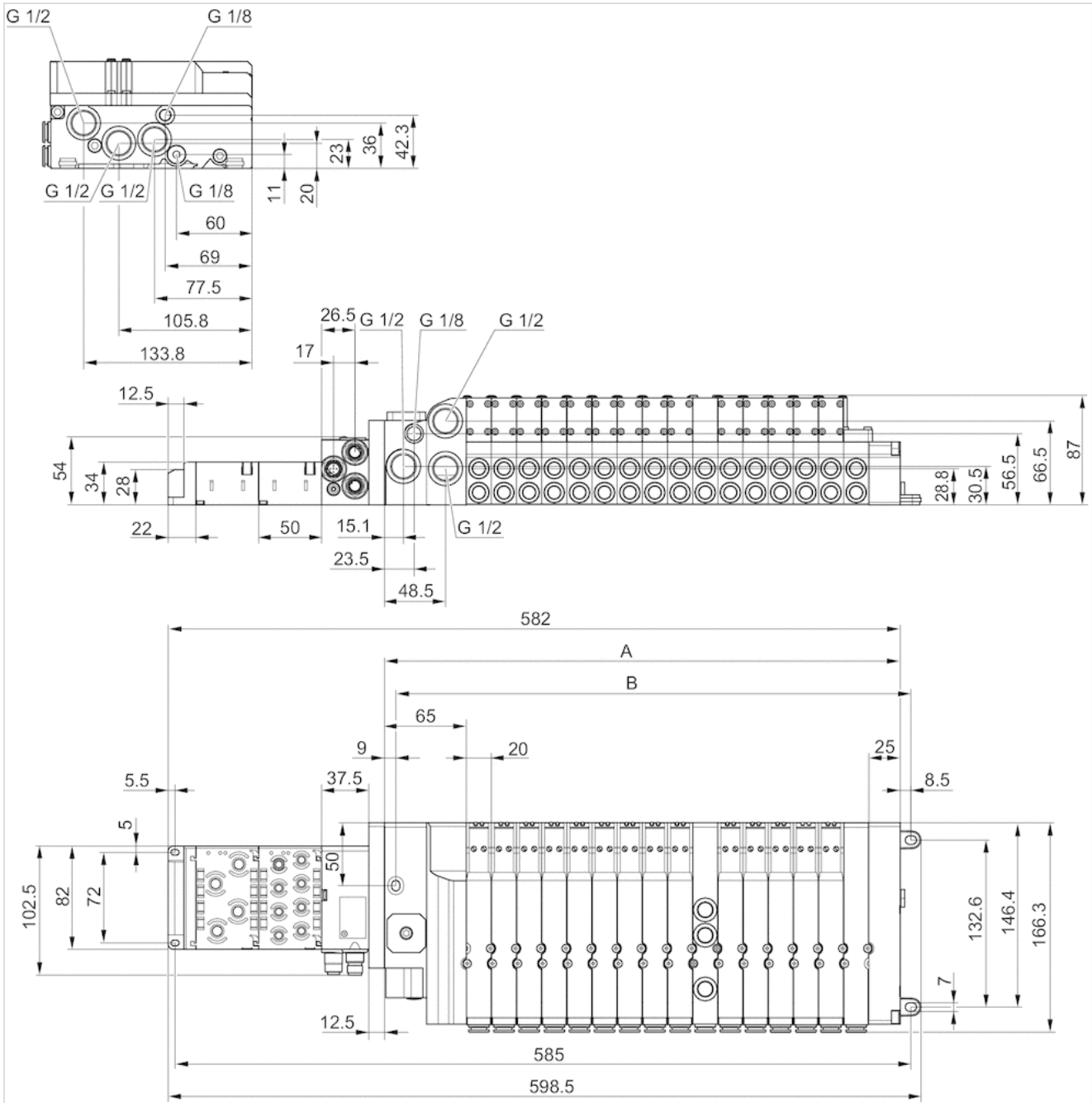
Dimensions

n	A	B
1	126.5	109.5
2	146.5	129.5
3	166.5	149.5
4	186.5	169.5
5	206.5	189.5
6	226.5	209.5
7	246.5	229.5
8	266.5	249.5
9	286.5	269.5
10	306.5	289.5
11	326.5	309.5
12	346.5	329.5
13	366.5	349.5
14	386.5	369.5
15	406.5	389.5
16	426.5	409.5

n = number of base plates

Dimensions

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



Dimensions

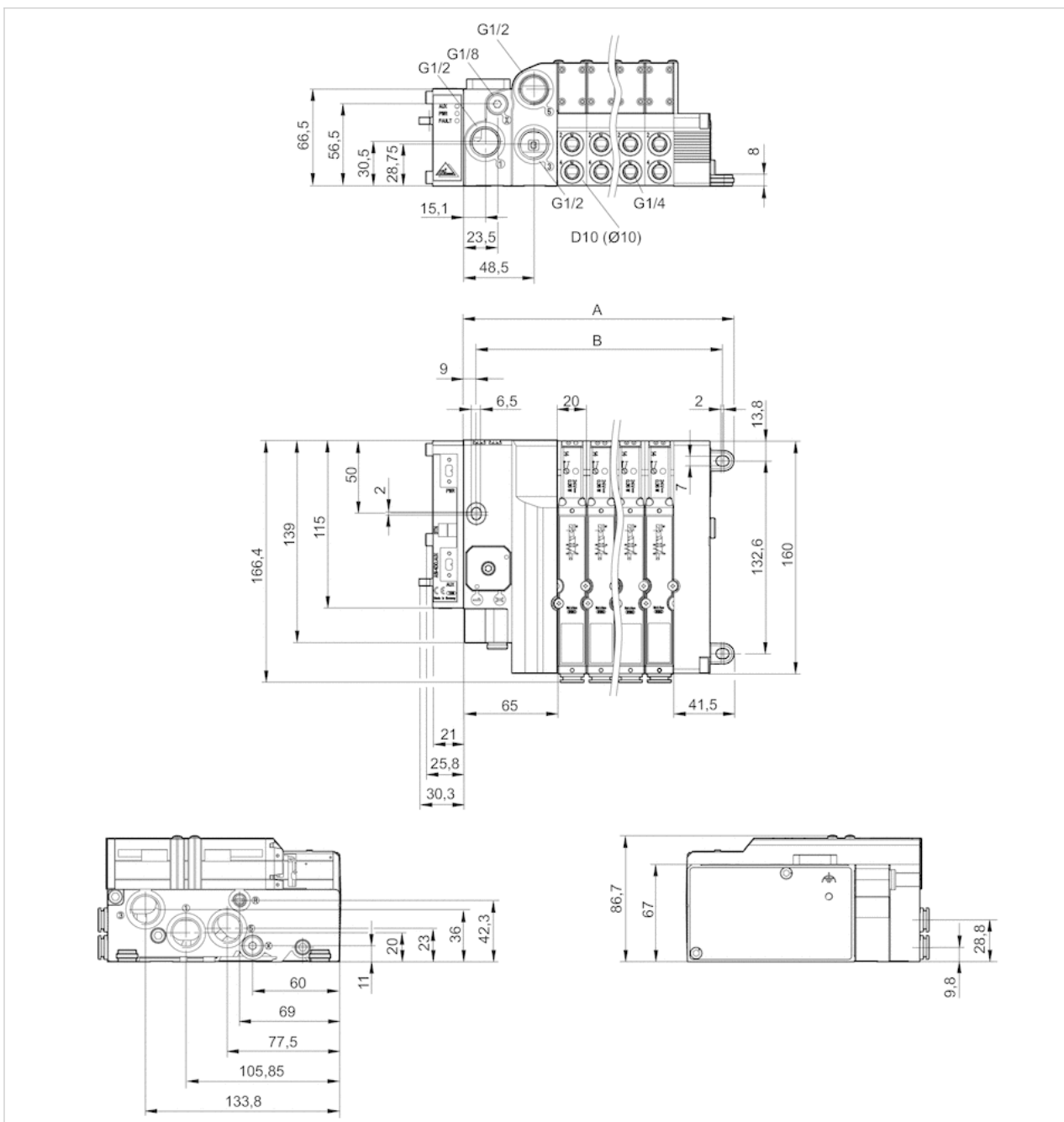
n	A	B
1	126.5	109.5
2	146.5	129.5
3	166.5	149.5
4	186.5	169.5
5	206.5	189.5
6	226.5	209.5
7	246.5	229.5
8	266.5	249.5

n	A	B
9	286.5	269.5
10	306.5	289.5
11	326.5	309.5
12	346.5	329.5
13	366.5	349.5
14	386.5	369.5
15	406.5	389.5
16	426.5	409.5

n = number of base plates

Dimensions

4DO-RUX



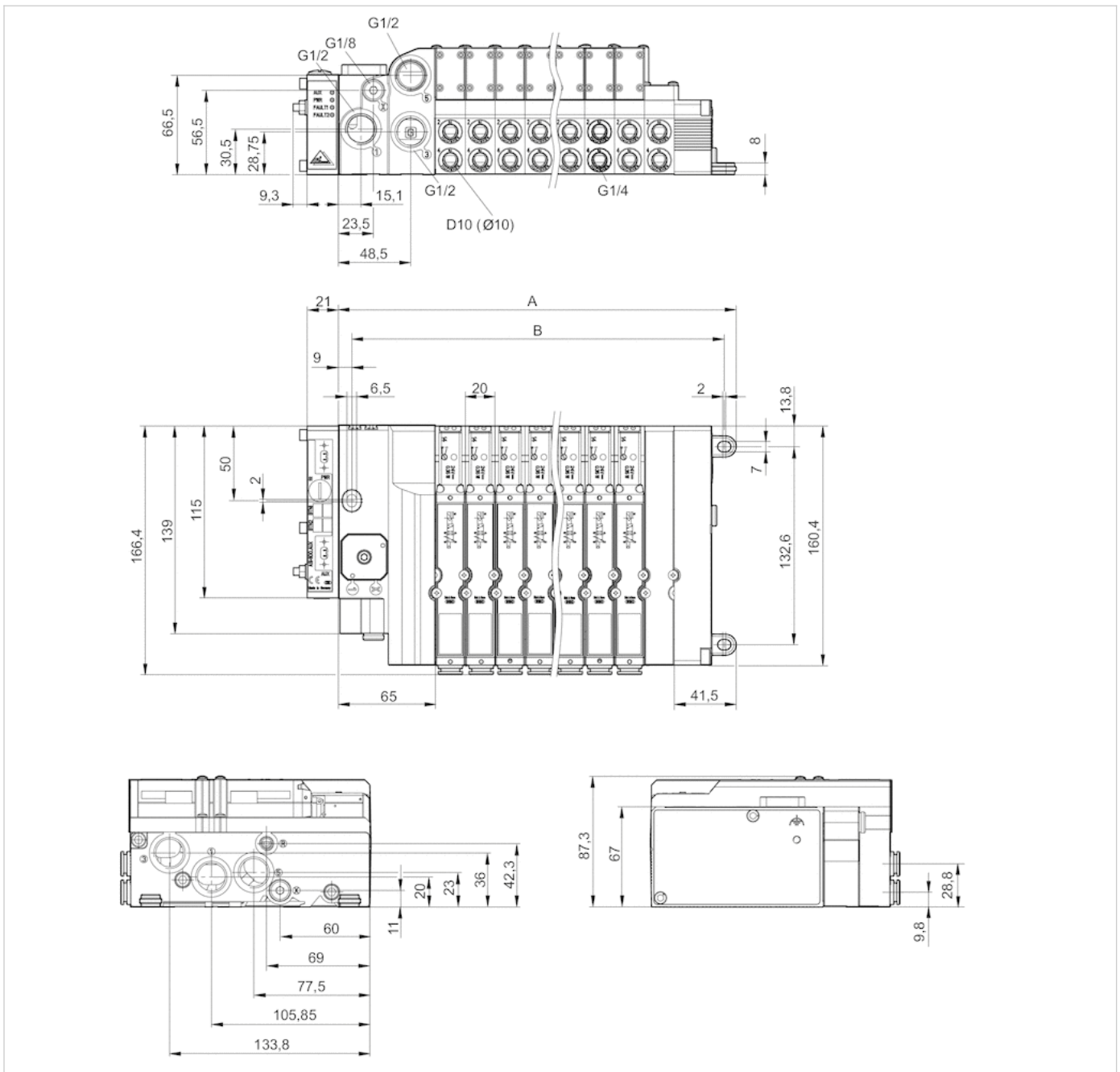
Dimensions

n	A	B
1	126.5	109.5
2	146.5	129.5
3	166.5	149.5
4	186.5	169.5

n = number of base plates

Dimensions

8DO-AUX



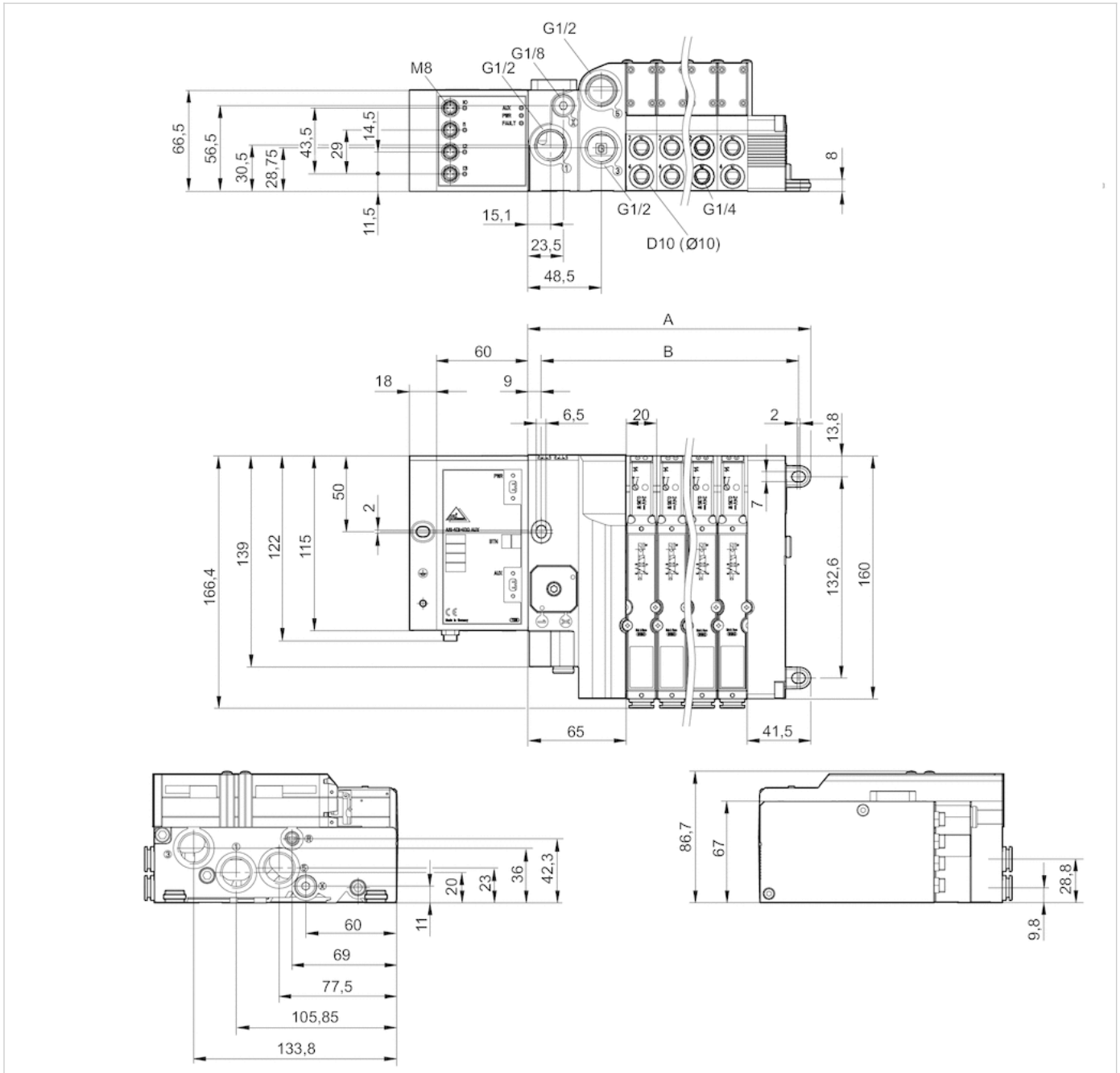
Dimensions

n	A	B
1	126.5	109.5
2	146.5	129.5
3	166.5	149.5
4	186.5	169.5
5	206.5	189.5
6	226.5	209.5
7	246.5	229.5
8	266.5	249.5

n = number of base plates

Dimensions

Dimensions, 4DI/4DO-AUX



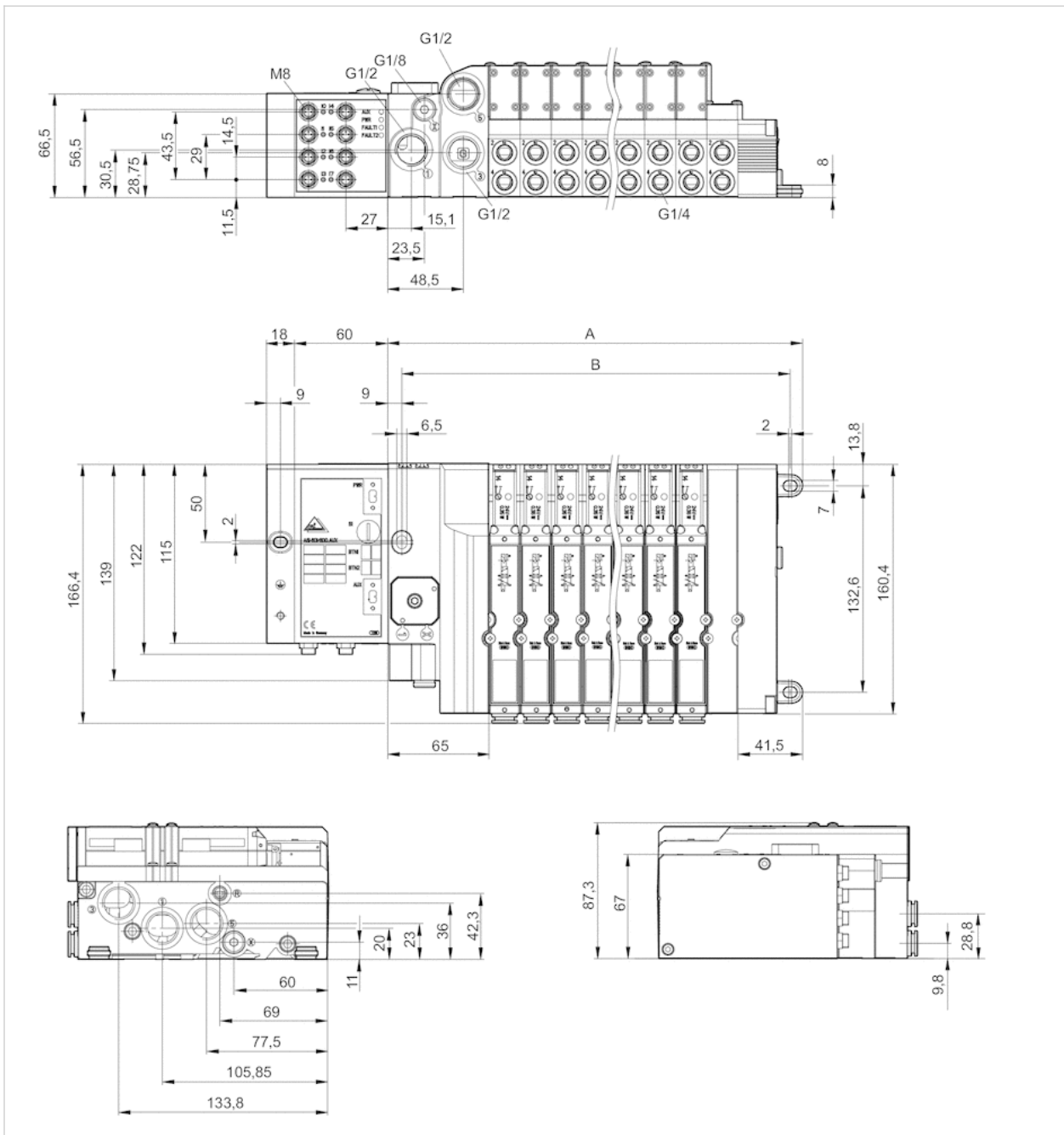
Dimensions

n	A	B
1	126.5	109.5
2	146.5	129.5
3	166.5	149.5
4	186.5	169.5

n = number of base plates

Dimensions

Dimensions, 8DI/8DO-AUX



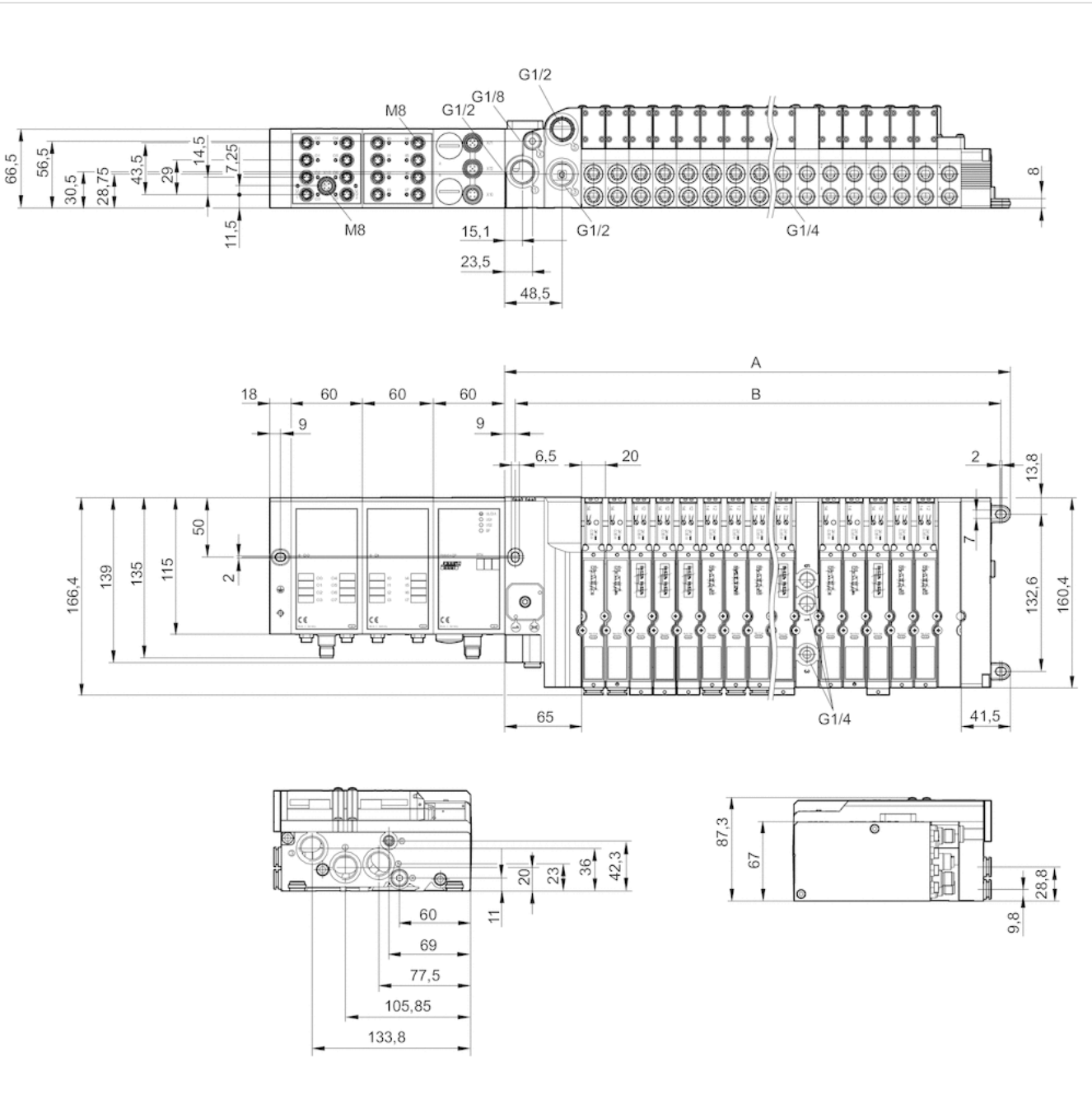
Dimensions

n	A	B
1	126.5	109.5
2	146.5	129.5
3	166.5	149.5
4	186.5	169.5
5	206.5	189.5
6	226.5	209.5
7	246.5	229.5
8	266.5	249.5

n = number of base plates

Dimensions

Dimensions, Optional fieldbus connection with I/O function (CMS), B-design



Dimensions

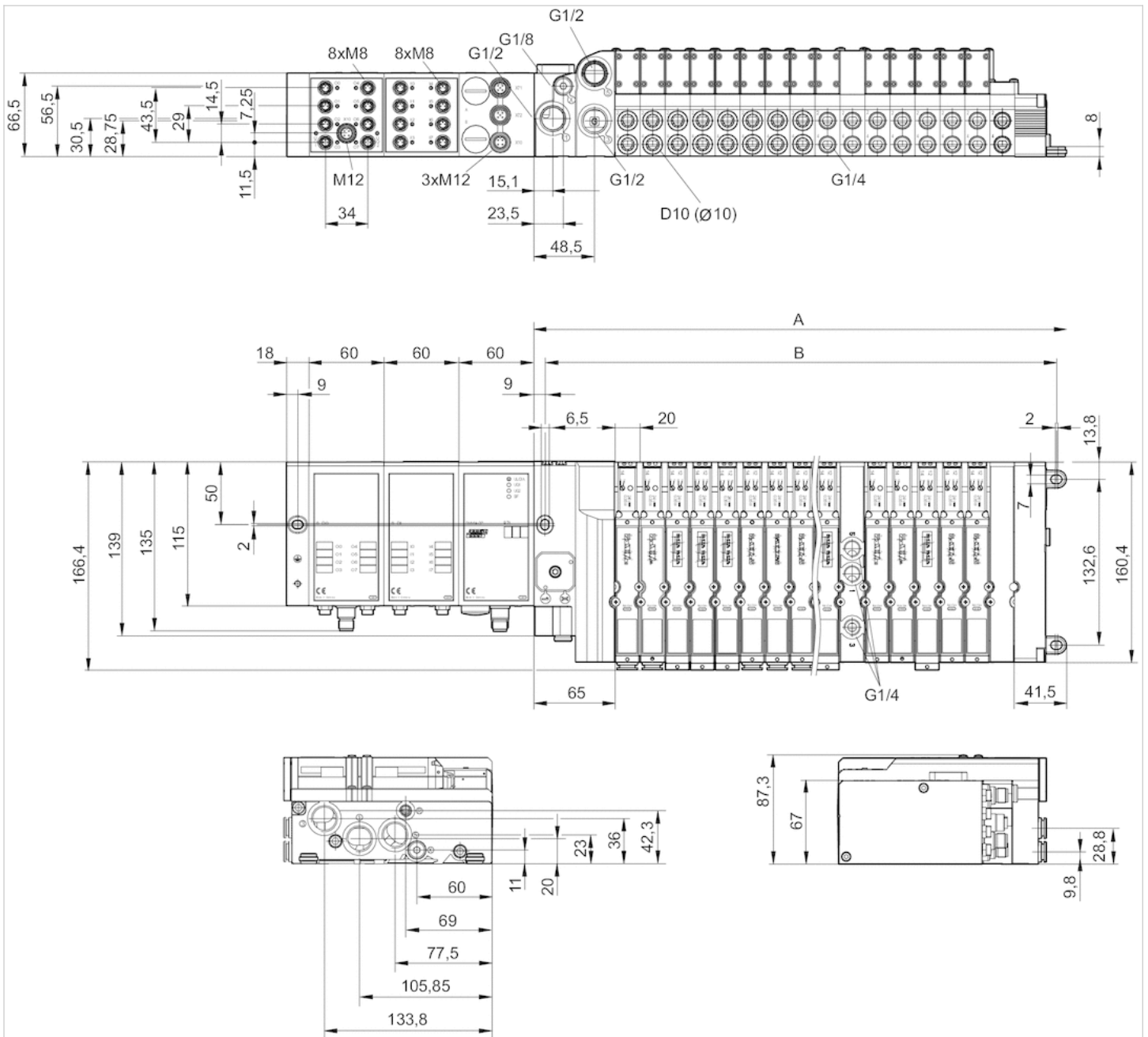
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2	146.5	129.5
3	166.5	149.5
4	186.5	169.5
5	206.5	189.5
6	226.5	209.5

n	A	B
7	246.5	229.5
8	266.5	249.5
9	286.5	269.5
10	306.5	289.5
11	326.5	309.5
12	346.5	329.5
13	366.5	349.5
14	386.5	369.5
15	406.5	389.5
16	426.5	409.5

n = number of base plates

Dimensions

Dimensions, Connection with diagnosis (DDL)



Dimensions

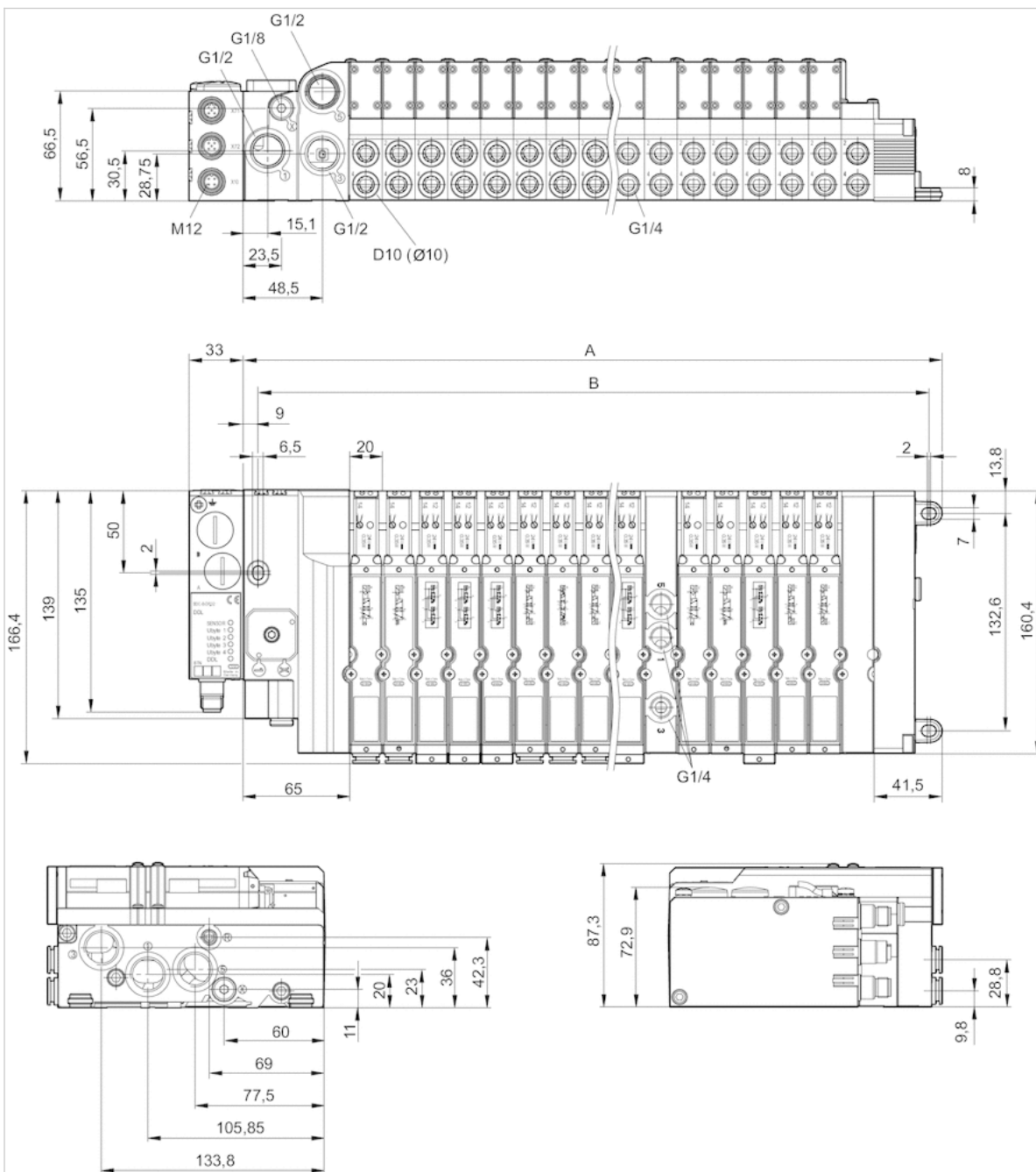
n	A	B
1	126.5	109.5
2	146.5	129.5
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n	A	B
9	286.5	269.5
10	306.5	289.5
11	326.5	309.5
12	346.5	329.5

n = number of base plates

Dimensions

Dimensions, Connection with diagnosis (DDL), B-design



Dimensions

n	A	B
1	126.5	109.5
2	146.5	129.5
3	166.5	149.5
4	186.5	169.5

n = number of base plates




2x3/2-directional valve, Series HF02-LG

- For series : HF02-LG
- 2x3/2
- Qn = 1400 l/min
- Pilot valve width : 16 mm
- NC/NC NO/NO NC/NO
- Plate connection
- Manual override : with detent
- Pilot : External, Internal



Version	Spool valve, positive overlapping
Activation	Electrically
Pilot	External, Internal
Sealing principle	Soft sealing
Blocking principle	Single base plate principle
Certificates	UR (Underwriters Laboratories)
Working pressure min./max.	-0.9 ... 10 bar
Control pressure min./max.	3 ... 10 bar
Ambient temperature min./max.	0 ... 50 °C
Medium temperature min./max.	0 ... 50 °C
Medium	Compressed air
Max. particle size	5 µm
Oil content of compressed air	0 ... 5 mg/m ³
Nominal flow Qn	1400 l/min
Pilot control exhaust	With collective 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	25 ms
Typ. switch-off time	35 ms
mounting screws	cross recessed DIN EN ISO 4757-Z2
Mounting screw tightening torque	1.3 Nm
Weight	0.144 kg

Technical data

Part No.	MO	Operational voltage	Voltage tolerance	
			DC	DC
0820056101		24 V	-15% / +20%	-15% / +20%
0820056201		24 V	-15% / +20%	-15% / +20%
0820056301		24 V	-15% / +20%	-15% / +20%

Part No.	Power consumption	Flow conductance	Flow conductance
	DC	b	C-value
0820056101	0.35 W	0.4	5.87 l/(s*bar)
0820056201	0.35 W	0.4	5.87 l/(s*bar)
0820056301	0.35 W	0.4	5.87 l/(s*bar)

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.

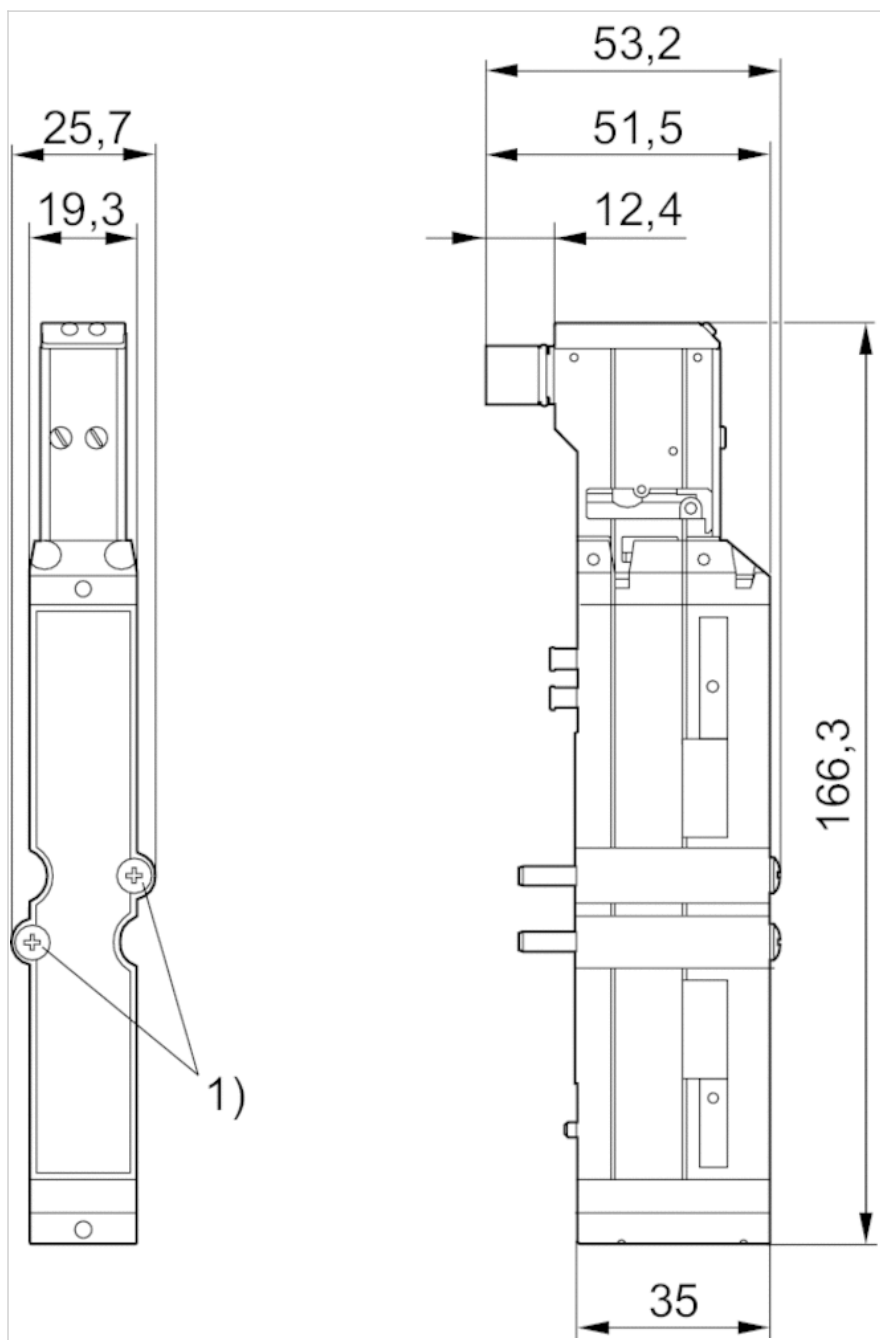
The pilot valve is UL (Underwriters Laboratories) certified.

Technical information

Material	
Housing	Polyamide
Seals	Acrylonitrile butadiene rubber Hydrogenated acrylonitrile butadiene rubber

Dimensions

Dimensions



1) Mounting screw: X-slot DIN EN ISO 4757-Z2
tightening torque for mounting screw [Nm]: 1.3




2x3/2-directional valve, Series HF02-LG

- For series : HF02-LG
- 3/2
- Qn = 1400 l/min
- Pilot valve width : 16 mm
- NC/NC NO/NO NC/NO
- Plate connection
- Manual override : without detent
- Pilot : External, Internal



Version	Spool valve, positive overlapping
Activation	Electrically
Pilot	External, Internal
Sealing principle	Soft sealing
Blocking principle	Single base plate principle
Certificates	UR (Underwriters Laboratories)
Working pressure min./max.	-0.9 ... 10 bar
Control pressure min./max.	3 ... 10 bar
Ambient temperature min./max.	0 ... 50 °C
Medium temperature min./max.	0 ... 50 °C
Medium	Compressed air
Max. particle size	5 µm
Oil content of compressed air	0 ... 5 mg/m ³
Nominal flow Qn	1400 l/min
Pilot control exhaust	With collective 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	25 ms
Typ. switch-off time	35 ms
mounting screws	cross recessed DIN EN ISO 4757-Z2
Mounting screw tightening torque	1.3 Nm
Weight	0.144 kg

Technical data

Part No.	MO	Operational voltage	Voltage tolerance	
			DC	DC
0820056102		24 V	-15%	+20%
0820056202		24 V	-15%	+20%
0820056302		24 V	-15%	+20%

Part No.	Power consumption	Flow conductance	Flow conductance
	DC	b	C-value
0820056102	0.35 W	0.4	5.87 l/(s*bar)
0820056202	0.35 W	0.4	5.87 l/(s*bar)
0820056302	0.35 W	0.4	5.87 l/(s*bar)

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.

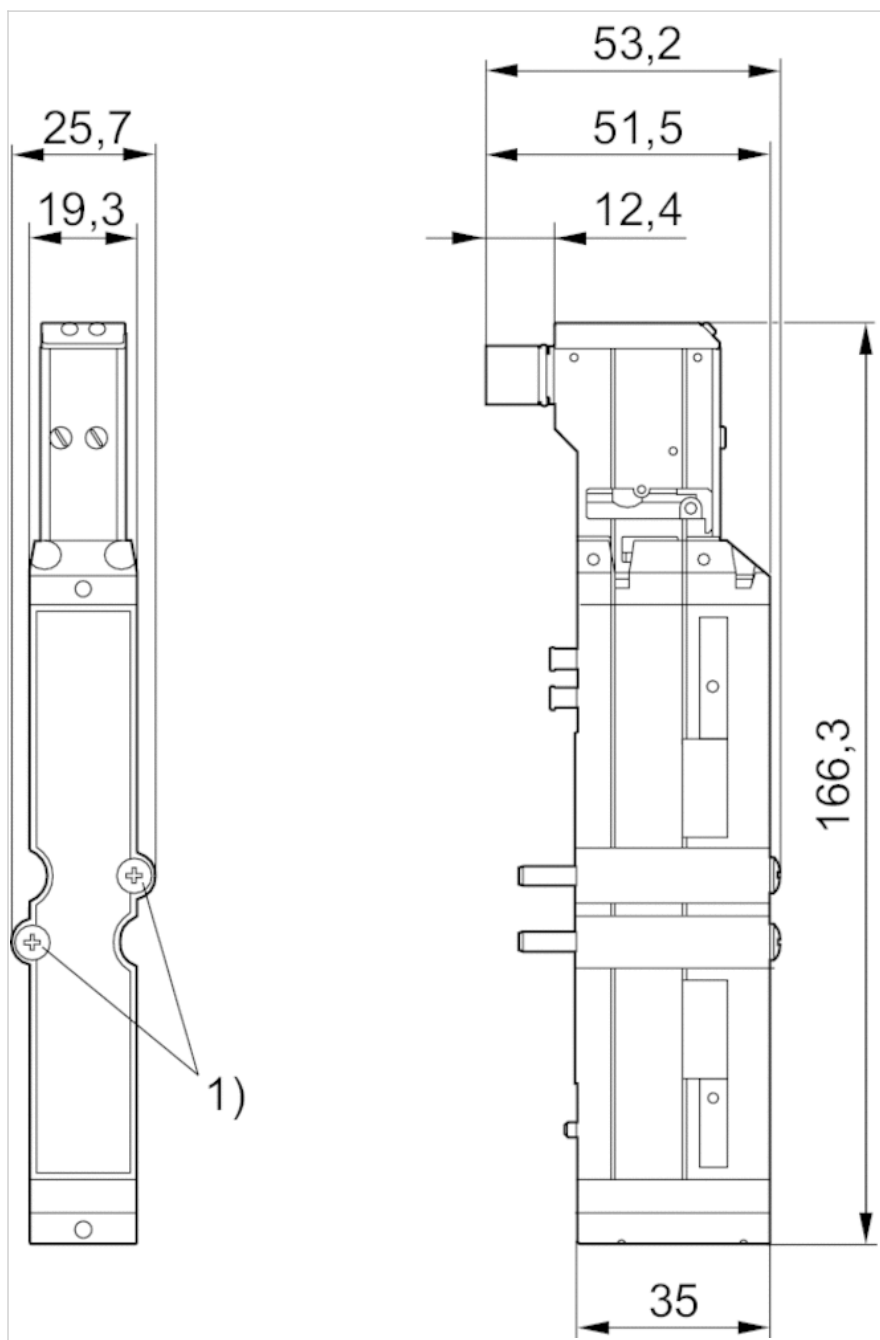
The pilot valve is UL (Underwriters Laboratories) certified.

Technical information

Material	
Housing	Polyamide
Seals	Acrylonitrile butadiene rubber Hydrogenated acrylonitrile butadiene rubber

Dimensions

Dimensions



1) Mounting screw: X-slot DIN EN ISO 4757-Z2
tightening torque for mounting screw [Nm]: 1.3

2x3/2-directional valve, Series HF02-LG

- For series : HF02-LG, CL03
- 2x3/2
- Qn = 1400 l/min
- Pilot valve width : 16 mm
- NC/NC NO/NO NC/NO
- Plate connection
- Manual override : with detent
- Pilot : External, Internal



Type	Spool valve, positive overlapping
Activation	Electrically
Pilot	External, Internal
Sealing principle	Soft sealing
Blocking principle	Single base plate principle
Certificates	UR (Underwriters Laboratories)
Working pressure min./max.	-0,9 ... 10 bar
Control pressure min./max.	3 ... 10 bar
Ambient temperature min./max.	0 ... 50 °C
Medium temperature min./max.	0 ... 50 °C
Medium	Compressed air
Max. particle size	5 µm
Oil content of compressed air	0 ... 5 mg/m³
Nominal flow Qn	1400 l/min
Pilot control exhaust	With collective 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	25 ms
Typ. switch-off time	35 ms
mounting screws	cross recessed DIN EN ISO 4757-Z2
Mounting screw tightening torque	1,3 Nm
Weight	0,144 kg

Technical data

Part No.	MO	Operational voltage	Voltage tolerance	
			DC	DC
R424B10512		24 V	-15%	+20%
R424B10510		24 V	-15%	+20%
R424B10514		24 V	-15%	+20%

Part No.	Power consumption	Flow conductance	Flow conductance
	DC	b	C-value
R424B10512	0,35 W	0,4	5,87 l/(s*bar)
R424B10510	0,35 W	0,4	5,87 l/(s*bar)
R424B10514	0,35 W	0,4	5,87 l/(s*bar)

Nominal flow Q_n 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.

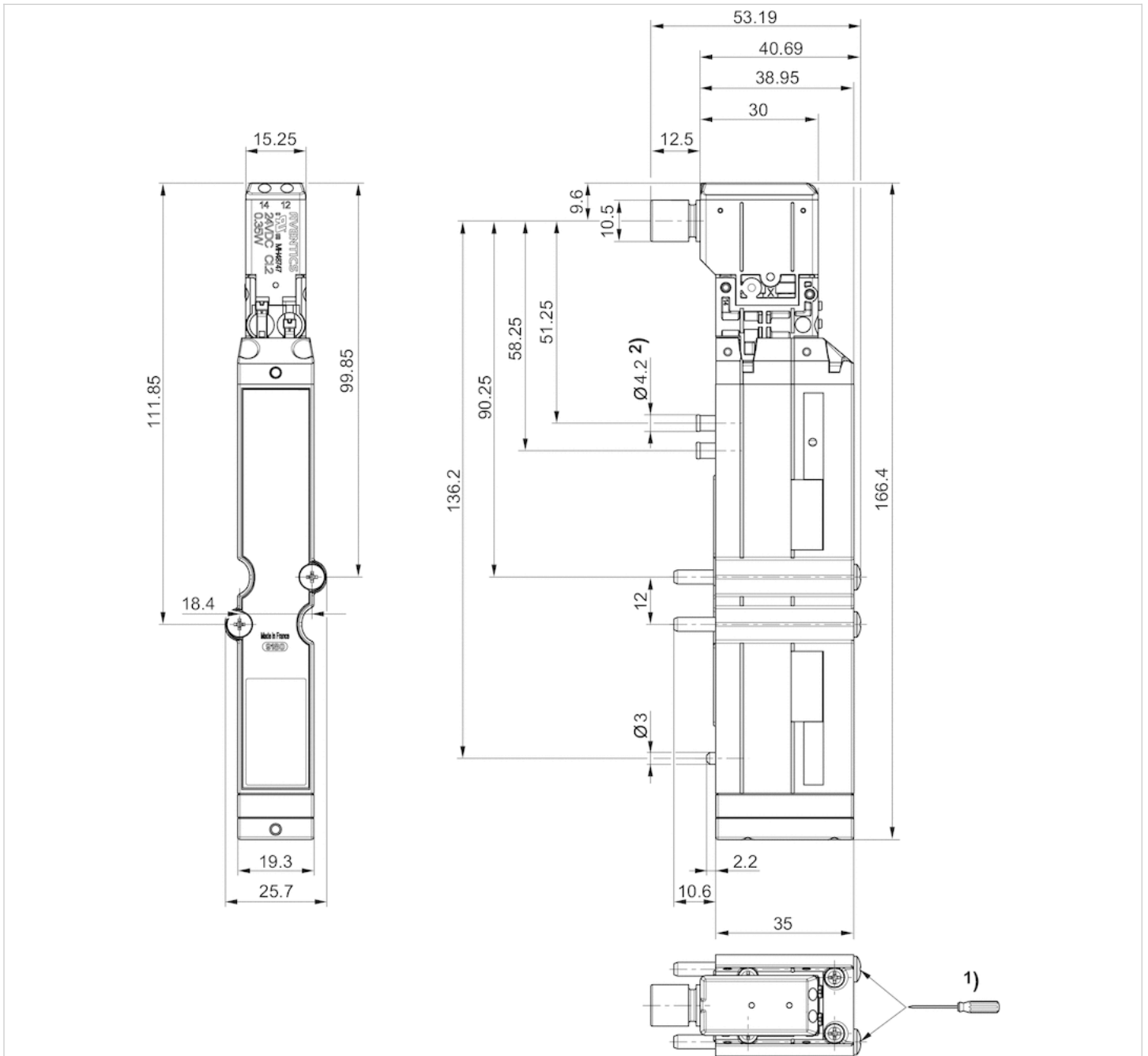
The UL certification refers to the pilot valve.

Technical information

Material	
Housing	Polyamide
Seals	Acrylonitrile butadiene rubber Hydrogenated acrylonitrile butadiene rubber

Dimensions

Dimensions



2x3/2-directional valve, Series HF02-LG

- For series : HF02-LG, CL03
- 2x3/2
- Qn = 1400 l/min
- Pilot valve width : 16 mm
- NC/NC NO/NO NC/NO
- Plate connection
- Manual override : without detent
- Pilot : External, Internal



Type	Spool valve, positive overlapping
Activation	Electrically
Pilot	External, Internal
Sealing principle	Soft sealing
Blocking principle	Single base plate principle
Certificates	UR (Underwriters Laboratories)
Working pressure min./max.	-0,9 ... 10 bar
Control pressure min./max.	3 ..10 bar
Ambient temperature min./max.	0 ... 50 °C
Medium temperature min./max.	0 ... 50 °C
Medium	Compressed air
Max. particle size	5 µm
Oil content of compressed air	0 ... 5 mg/m³
Nominal flow Qn	1400 l/min
Pilot control exhaust	With collective 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	25 ms
Typ. switch-off time	33 ms
mounting screws	cross recessed DIN EN ISO 4757-Z2
Mounting screw tightening torque	1,3 Nm
Weight	0,144 kg

Technical data

Part No.	MO	Operational voltage	Voltage tolerance	
			DC	DC
R424B10511	NC/NC	24 V	-15%	+20%
R424B10339	NO/NO	24 V	-15%	+20%
R424B10513	NC/NO	24 V	-15%	+20%

Part No.	Power consumption	Flow conductance	Flow conductance
	DC	b	C-value
R424B10511	0,35 W	0,4	5,87 l/(s*bar)
R424B10339	0,35 W	0,4	5,87 l/(s*bar)
R424B10513	0,35 W	0,4	5,87 l/(s*bar)

Nominal flow Q_n 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.

The UL certification refers to the pilot valve.

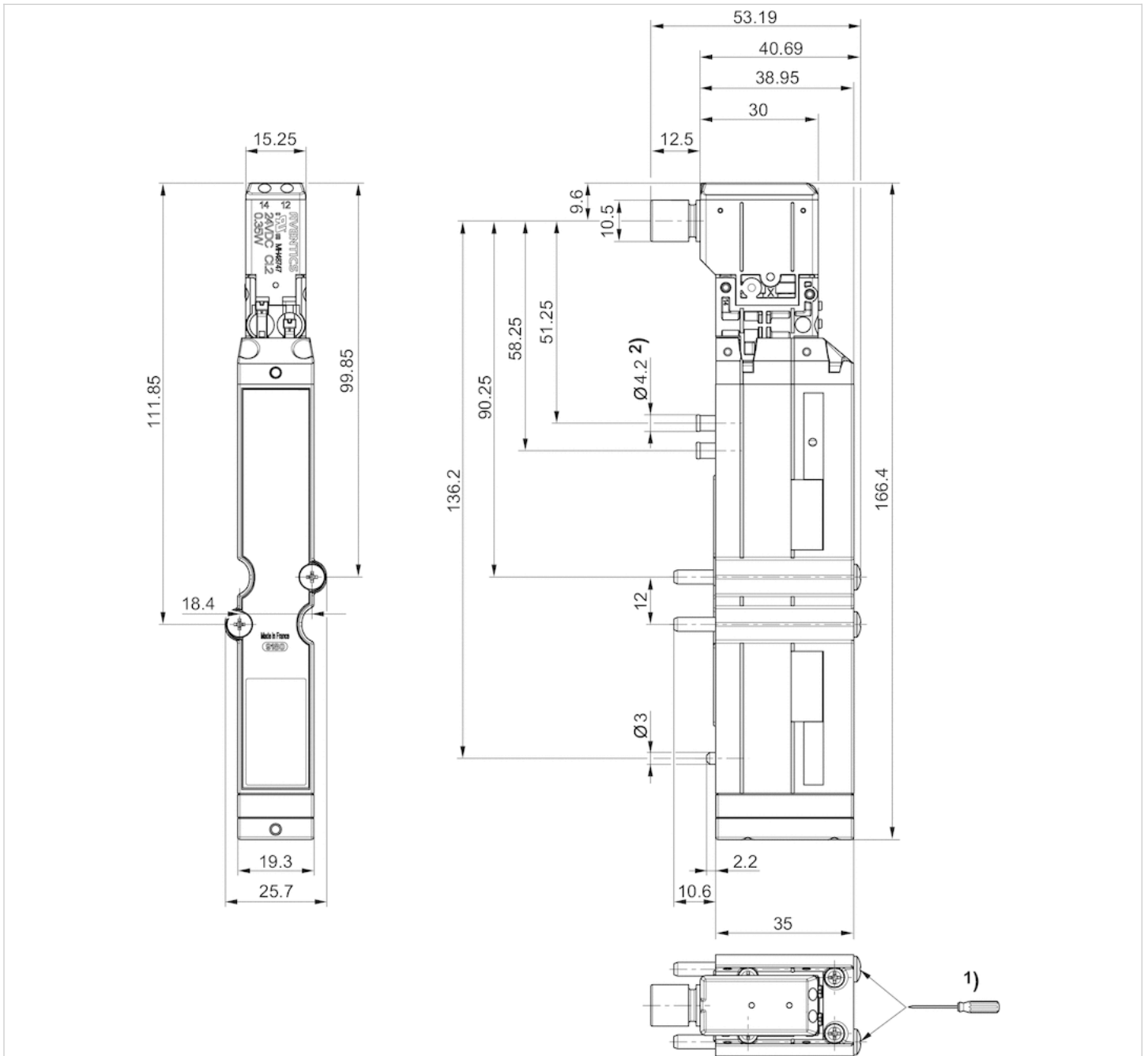
Technical information

Material

Housing	Polyamide
Seals	Acrylonitrile butadiene rubber Hydrogenated acrylonitrile butadiene rubber

Dimensions

Dimensions



1) =1.1Nm 800tr/min. max.

5/2-directional valve, Series HF02-LG

- For series : HF02-LG, CL03
- 5/2
- Qn = 1400 l/min
- Pilot valve width : 16 mm
- Plate connection
- Can be assembled into blocks
- Manual override : with detent
- single solenoid
- Pilot : External, Internal



Version	Spool valve, positive overlapping
Activation	Electrically
Pilot	External, Internal
Sealing principle	Soft sealing
Blocking principle	Single base plate principle
Certificates	UR (Underwriters Laboratories)
Working pressure min./max.	-0.9 ... 10 bar
Control pressure min./max.	3 ... 10 bar
Ambient temperature min./max.	0 ... 50 °C
Medium temperature min./max.	0 ... 50 °C
Medium	Compressed air
Max. particle size	5 µm
Oil content of compressed air	0 ... 5 mg/m ³
Nominal flow Qn	1400 l/min
Pilot control exhaust	With collective 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	cross recessed DIN EN ISO 4757-Z2
Mounting screw tightening torque	1.3 Nm
Weight	0.144 kg

Technical data

Part No.	MO	Operational voltage	Voltage tolerance
			DC
0820056051		24 V	-15% / +20%
0820056501		24 V	-15% / +20%
0820056001		24 V	-15% / +20%

Part No.	Power consumption	Flow conductance	Flow conductance	Typ. switch-on time
	DC	b	C-value	
0820056051	0.35 W	0.38	6.13 l/(s*bar)	20 ms
0820056501	0.35 W	0.38	6.13 l/(s*bar)	13 ms
0820056001	0.35 W	0.38	6.13 l/(s*bar)	19 ms

Part No.	Typ. switch-off time
0820056051	30 ms
0820056501	15 ms
0820056001	30 ms

Nominal flow Q_n 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.

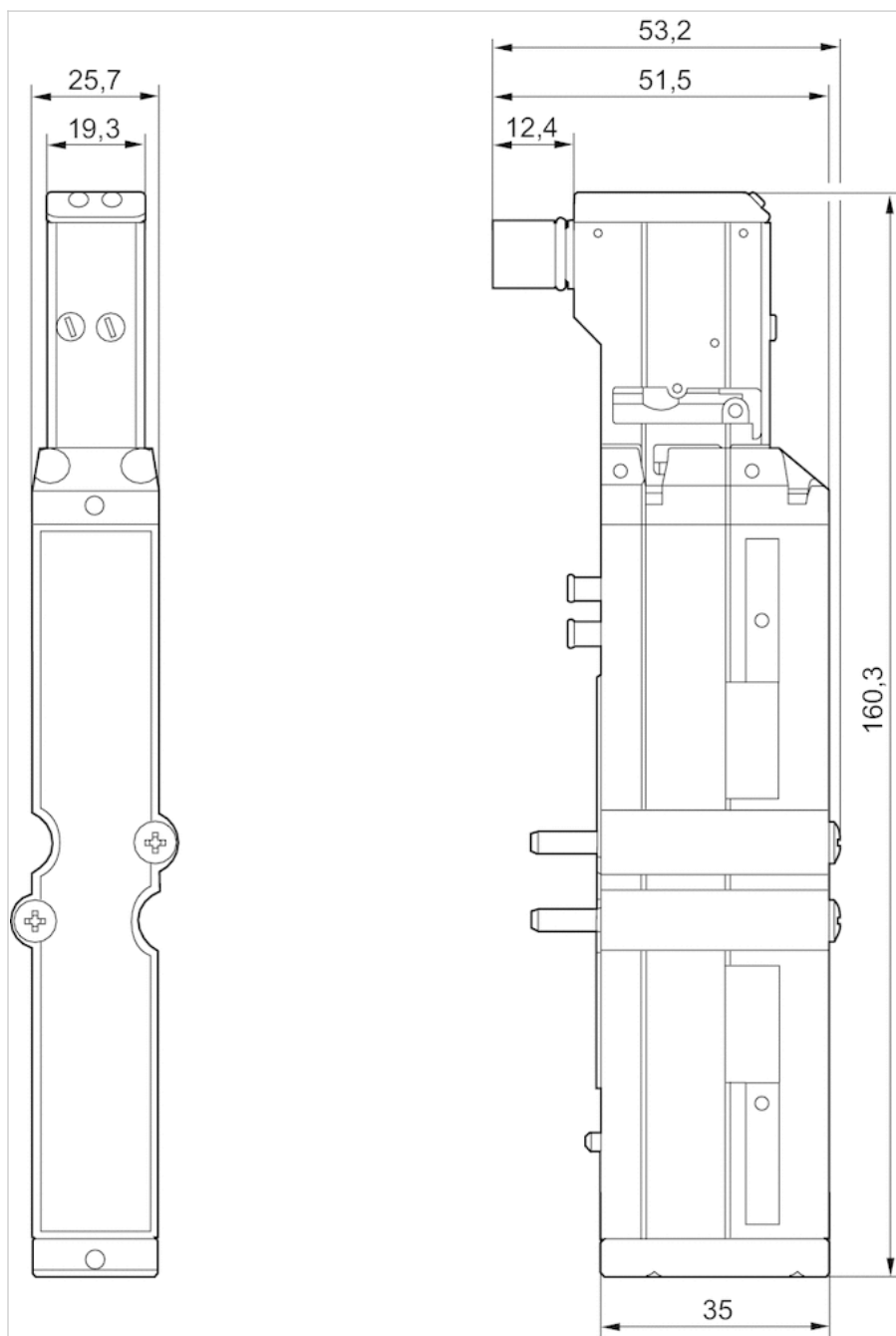
The pilot valve is UL (Underwriters Laboratories) certified.

Technical information

Material	
Housing	Polyamide
Seals	Acrylonitrile butadiene rubber Hydrogenated acrylonitrile butadiene rubber

Dimensions

Dimensions



1) Mounting screw: X-slot DIN EN ISO 4757-Z2
tightening torque for mounting screw [Nm]: 1.3

5/2-directional valve, Series HF02-LG

- For series : HF02-LG, CL03
- 5/2
- Qn = 1400 l/min
- Pilot valve width : 16 mm
- Plate connection
- Manual override : without detent
- single solenoid double solenoid
- Pilot : External, Internal



Version	Spool valve, positive overlapping
Activation	Electrically
Pilot	External, Internal
Sealing principle	Soft sealing
Blocking principle	Single base plate principle
Certificates	UR (Underwriters Laboratories)
Working pressure min./max.	-0.9 ... 10 bar
Control pressure min./max.	3 ... 10 bar
Ambient temperature min./max.	0 ... 50 °C
Medium temperature min./max.	0 ... 50 °C
Medium	Compressed air
Max. particle size	5 µm
Oil content of compressed air	0 ... 5 mg/m ³
Nominal flow Qn	1400 l/min
Pilot control exhaust	With collective 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	cross recessed DIN EN ISO 4757-Z2
Mounting screw tightening torque	1.3 Nm
Weight	0.144 kg

Technical data

Part No.	MO	Operational voltage		Voltage tolerance
		DC	DC	DC
0820056052		24 V		-15% / +20%
0820056502		24 V		-15% / +20%
0820056002		24 V		-15% / +20%

Part No.	Power consumption	Flow conductance	Flow conductance	Typ. switch-on time
	DC	b	C-value	
0820056052	0.35 W	0.38	6.13 l/(s*bar)	20 ms
0820056502	0.35 W	0.38	6.13 l/(s*bar)	13 ms
0820056002	0.35 W	0.38	6.13 l/(s*bar)	19 ms

Part No.	Typ. switch-off time
0820056052	30 ms
0820056502	15 ms
0820056002	30 ms

Nominal flow Q_n 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.

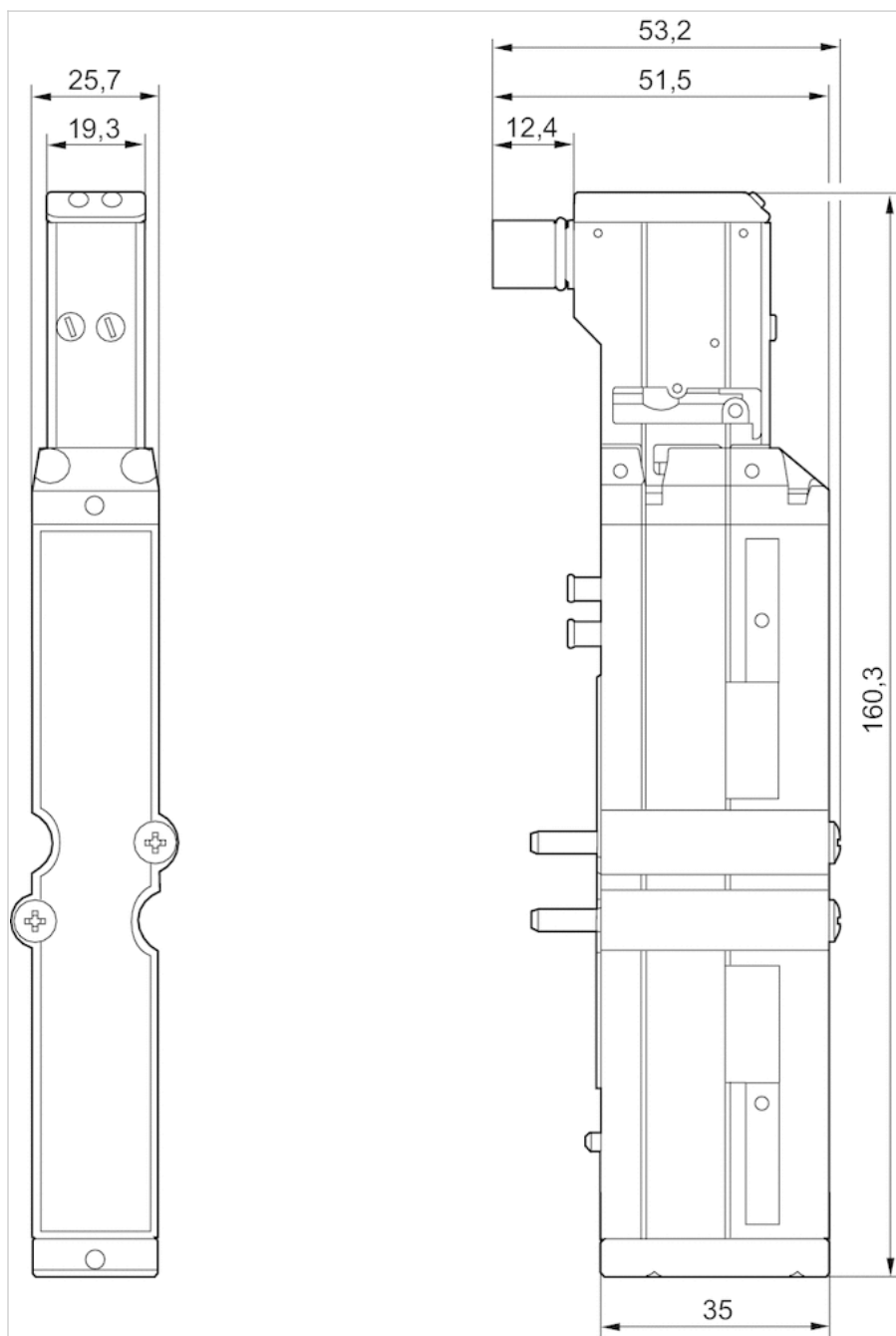
The pilot valve is UL (Underwriters Laboratories) certified.

Technical information

Material	
Housing	Polyamide
Seals	Acrylonitrile butadiene rubber Hydrogenated acrylonitrile butadiene rubber

Dimensions

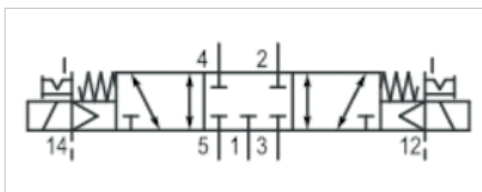
Dimensions



1) Mounting screw: X-slot DIN EN ISO 4757-Z2
tightening torque for mounting screw [Nm]: 1.3

5/3-directional valve, Series HF02-LG

- For series : HF02-LG, CL03
- 5/3
- Qn = 1400 l/min
- Pilot valve width : 16 mm
- closed center
- Plate connection
- Manual override : with detent
- Pilot : External, Internal



Version	Spool valve, positive overlapping
Activation	Electrically
Pilot	External, Internal
Sealing principle	Soft sealing
Blocking principle	Single base plate principle
Certificates	UR (Underwriters Laboratories)
Working pressure min./max.	-0.9 ... 10 bar
Control pressure min./max.	3 ... 10 bar
Ambient temperature min./max.	0 ... 50 °C
Medium temperature min./max.	0 ... 50 °C
Medium	Compressed air
Max. particle size	5 µm
Oil content of compressed air	0 ... 5 mg/m ³
Nominal flow Qn	1400 l/min
Pilot control exhaust	With collective 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	14 ms
Typ. switch-off time	15 ms
mounting screws	cross recessed DIN EN ISO 4757-Z2
Mounting screw tightening torque	1.3 Nm
Weight	0.144 kg

Technical data

Part No.	MO		Operational voltage	Voltage tolerance
			DC	DC
0820056601		closed center	24 V	-15% / +20%

Part No.	Power consumption	Flow conductance	Flow conductance
	DC	b	C-value
0820056601	0.35 W	0.4	5.87 l/(s*bar)

Nominal flow Qn at 6 bar and Δp = 1 bar

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).

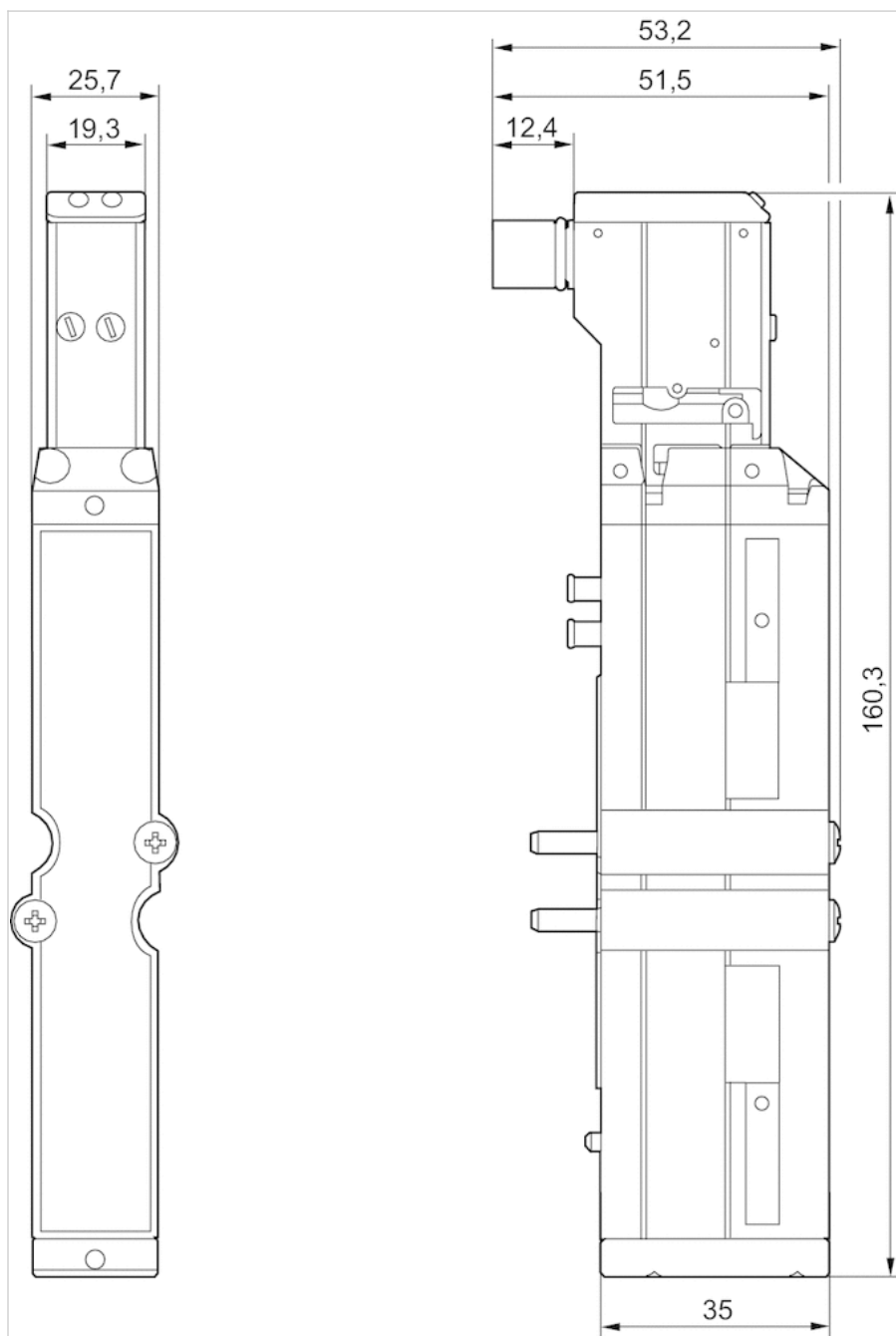
The pilot type (external/internal) is not implemented in the valve, but in the end plate of the valve system.
 The pilot valve is UL (Underwriters Laboratories) certified.

Technical information

Material	
Housing	Polyamide
Seals	Acrylonitrile butadiene rubber Hydrogenated acrylonitrile butadiene rubber

Dimensions

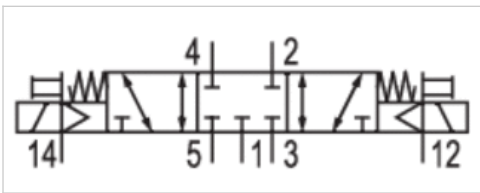
Dimensions



1) Mounting screw: X-slot DIN EN ISO 4757-Z2
tightening torque for mounting screw [Nm]: 1.3


5/3-directional valve, Series HF02-LG

- For series : HF02-LG, CL03
- 5/3
- $Q_n = 1400$ l/min
- Pilot valve width : 16 mm
- closed center
- Plate connection
- Manual override : without detent
- Pilot : External, Internal



Version	Spool valve, positive overlapping
Activation	Electrically
Pilot	External, Internal
Sealing principle	Soft sealing
Blocking principle	Single base plate principle
Certificates	UR (Underwriters Laboratories)
Working pressure min./max.	-0.9 ... 10 bar
Control pressure min./max.	3 ... 10 bar
Ambient temperature min./max.	0 ... 50 °C
Medium temperature min./max.	0 ... 50 °C
Medium	Compressed air
Max. particle size	5 µm
Oil content of compressed air	0 ... 5 mg/m ³
Nominal flow Q_n	1400 l/min
Pilot control exhaust	With collective 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	14 ms
Typ. switch-off time	15 ms
mounting screws	cross recessed DIN EN ISO 4757-Z2
Mounting screw tightening torque	1.3 Nm
Weight	0.144 kg

Technical data

Part No.	MO		Operational voltage	Voltage tolerance
			DC	DC
0820056602		closed center	24 V	-15% / +20%

Part No.	Power consumption	Flow conductance	Flow conductance
	DC	b	C-value
0820056602	0.35 W	0.4	5.87 l/(s*bar)

Nominal flow Q_n 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).

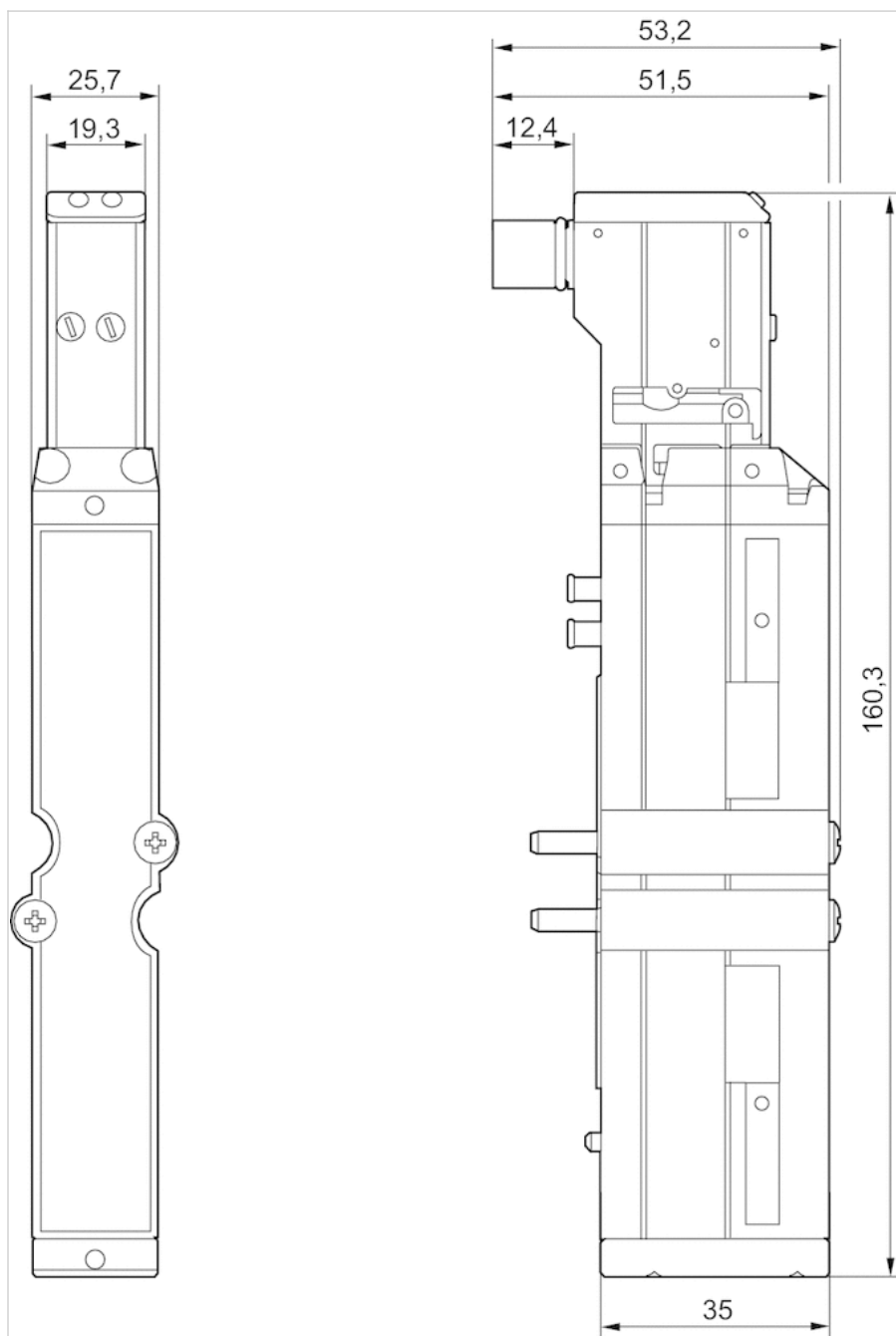
The pilot type (external/internal) is not implemented in the valve, but in the end plate of the valve system.
 The pilot valve is UL (Underwriters Laboratories) certified.

Technical information

Material	
Housing	Polyamide
Seals	Acrylonitrile butadiene rubber Hydrogenated acrylonitrile butadiene rubber

Dimensions

Dimensions



1) Mounting screw: X-slot DIN EN ISO 4757-Z2
tightening torque for mounting screw [Nm]: 1.3

CKD kit, Series HF02-LG

- Compressed air connection output \varnothing 10
- Can be assembled into blocks
- Single base plate principle
- With collective pilot air exhaust



Nominal flow Qn	1400 l/min
Working pressure min./max.	-0.9 ... 10 bar
Control pressure min./max.	2.5 ... 10 bar
Ambient temperature min./max.	0 ... 50 °C
Medium temperature min./max.	0 ... 50 °C
Medium	Compressed air
Number of valve positions max.	1
Grid dimension	19.8 mm
Exhaust (3,5)	With directional exhaust (3/5)
Exhaust type	Ports separated
Tightening torque for mounting screws	1.1 Nm

Technical data

Part No.	Type
R412009658	Base plate for a single or double solenoid valve
R412009659	Base plate for a single or double solenoid valve

Part No.	Scope of delivery
R412009658	2 x end plates with push-in fittings 1, 3, 5, R, X and 1 x base plate with push-in fittings 2, 4, \varnothing 10
R412009659	2 x end plates with push-in fittings 1, 3, 5, R, X and 1 x base plate with push-in fittings 2, 4, G1/4

Part No.	Compressed air connection Input [1]	Compressed air connection Output [2 / 4]
R412009658	G 1/2	\varnothing 10
R412009659	G 1/2	\varnothing 10

Part No.	Compressed air connection Exhaust [3 / 5]	Compressed air connection Pilot connection [X]
R412009658	G 1/2	G 1/8
R412009659	G 1/2	G 1/4

Part No.	Compressed air connection Pilot control exhaust [R]
R412009658	G 1/8
R412009659	G 1/8

1, 3 and 5 = G 1/2, 15 mm deep \leftrightarrow 2 and 4 = push-in fitting \varnothing 10 mm or thread connection G 1/4 \leftrightarrow X and R = G 1/8, 8 mm deep

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 internal and external pneumatic pilots can be adjusted using the change-over plate on the left end plate. For internal pilot, working pressure is limited to 2.5 bar ... 10 bar .

Technical information

Material	
Base plate	Aluminum
push-in fitting	Brass, nickel-plated
Seal	Nitrile rubber

Blanking plate

- for HF02-LG



Working pressure min./max.	-0.9 ... 10 bar
Ambient temperature min./max.	-5 ... 50 °C
Medium	Compressed air
Mounting screw	cross recessed DIN EN ISO 4757-Z2
Tightening torque for mounting screws	1.1 Nm
Weight	0.093 kg

Technical data

Part No.	Type	Delivery unit
1825A00087	Blanking plate, incl. sealing kit, 1x mounting screws	1 piece

Technical information

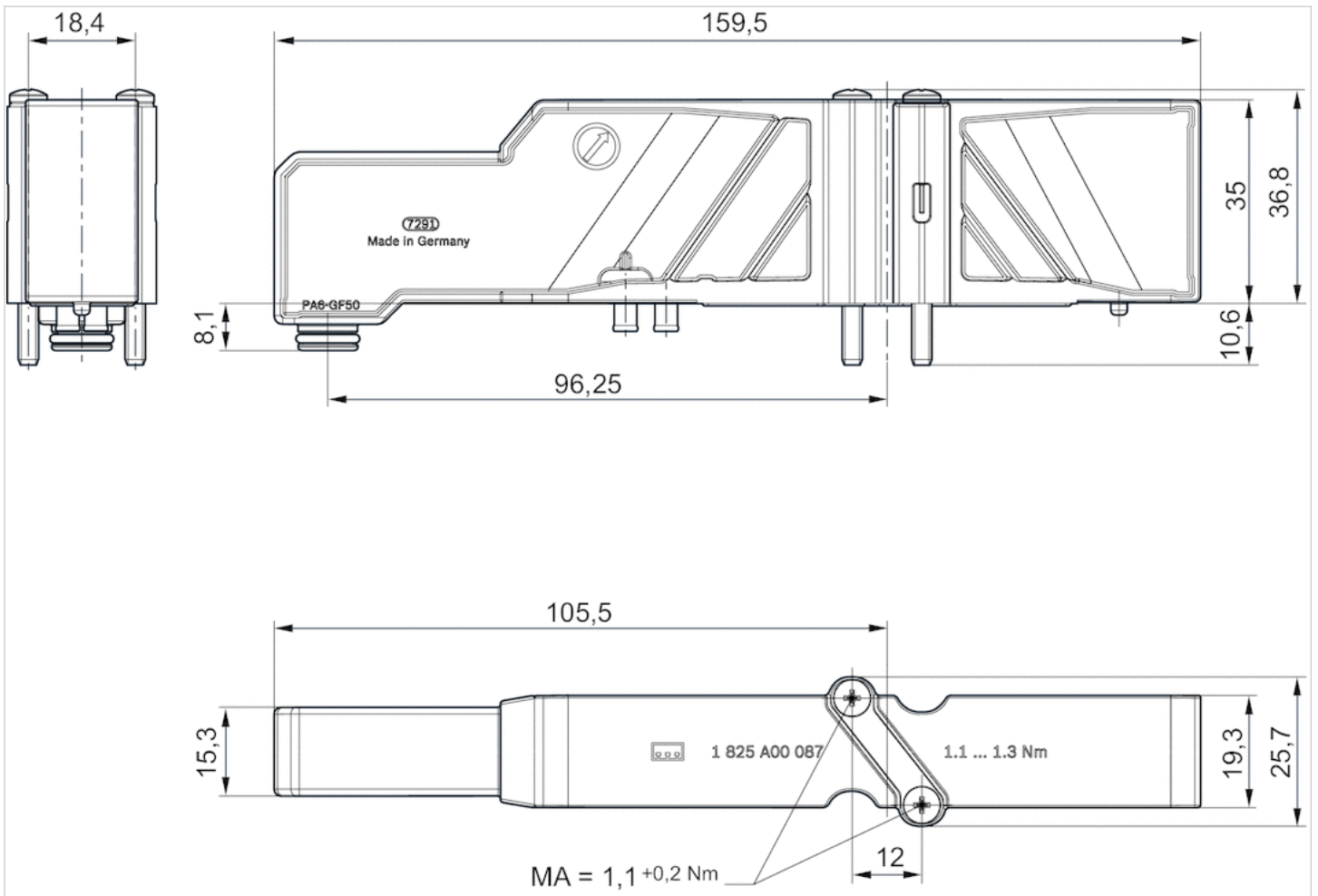
The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!
 The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .
 The oil content of compressed air must remain constant during the life cycle.
 Use 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
Seal	Nitrile rubber

Dimensions

Dimensions



QR1-S-RBS standard series

- Blanking plug
- pin bushing
- Ø 4 Ø 6 Ø 8 Ø 10 Ø 12 Ø 14 Ø 16
- QR1-S-RBS



Working pressure min./max.

-0.95 ... 10 bar

Ambient temperature min./max.

0 ... 60 °C

Weight per piece

See table below

Technical data

Part No.	Port G	Delivery unit	Weight per piece
2123204000	Ø 4	20 piece	0.001 kg
2123206000	Ø 6	20 piece	0.001 kg
2123208000	Ø 8	20 piece	0.001 kg
2123210000	Ø 10	20 piece	0.002 kg
2123212000	Ø 12	20 piece	0.004 kg
2123214000	Ø 14	10 piece	0.005 kg
R412005331	Ø 16	10 piece	0.004 kg

Technical information

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

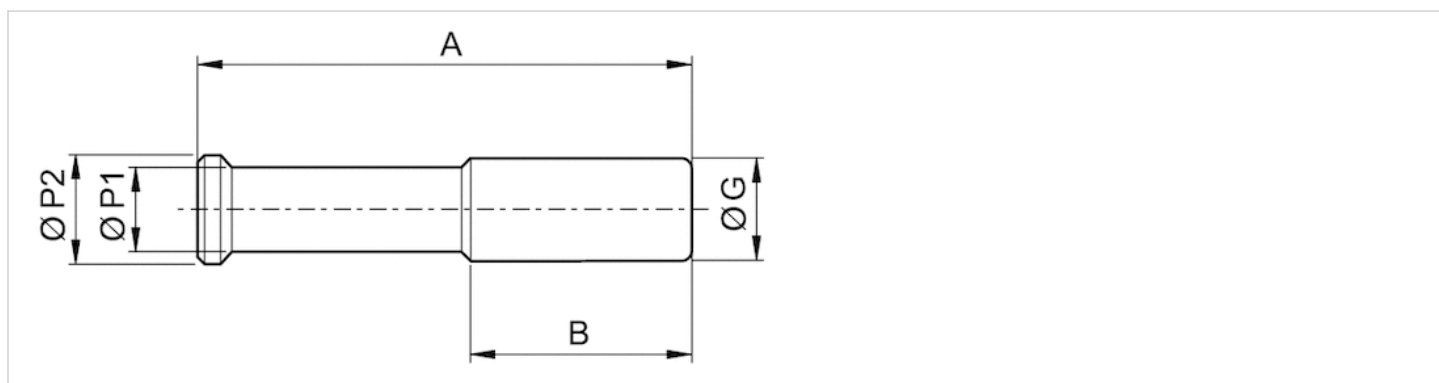
For further information about assembling and tolerances of adaptable tubing can be found in the "Technical information" document (available in the MediaCentre).

Technical information

Material	
Material	nickel-plated
Housing	Polybutyleneterephthalate

Dimensions

Dimensions



Dimensions

Part No.	Port G	A	B	Ø P1	Ø P2
2123204000	Ø 4	28	16	3	4
2123206000	Ø 6	32	17	4	6
2123208000	Ø 8	39	21,5	5	9
2123210000	Ø 10	42	21	8	10
2123212000	Ø 12	44	30	8	12
2123214000	Ø 14	45	24.6	8	14
R412005331	Ø16	46	24.8	10	16

Base plate, Series HF02-LG



Weight

See table below

Technical data

Part No.	Type	Delivery unit
1827A10631	Base plate for 1 valve, push-in fitting Ø 10 mm, 3 tie rod extensions and 1 sealing kit	1 piece
1827010649	Base plate for 3 valves, push-in fitting Ø 10 mm, 3 tie rod extensions and 1 sealing kit	1 piece
1827A10650	Base plate for 5 valves, push-in fitting Ø 10 mm, 3 tie rod extensions and 1 sealing kit	5 piece
1827010640	Base plate for 1 valve, thread connection G1/4, 3 tie rod extensions, and 1 sealing kit	1 piece

Part No.	Weight
1827A10631	0.154 kg
1827010649	0.39 kg
1827A10650	0.644 kg
1827010640	0.142 kg

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).

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 ²
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

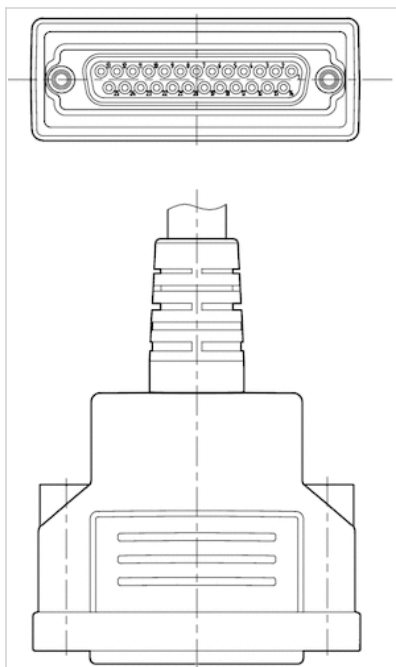
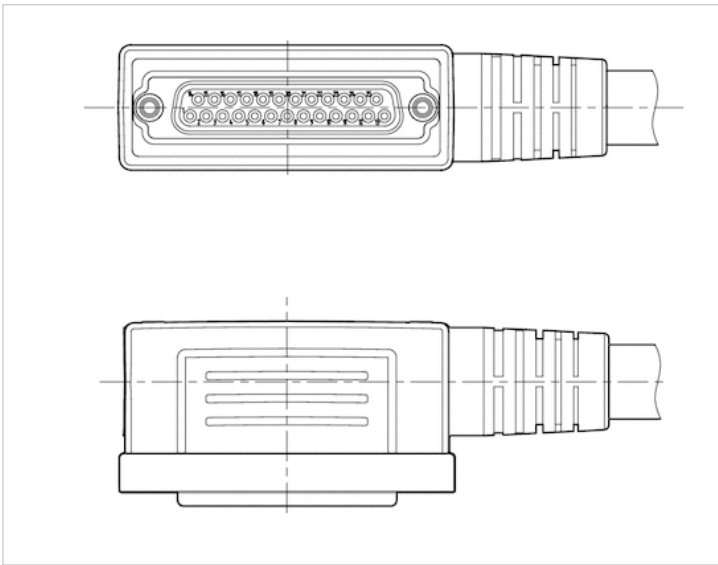
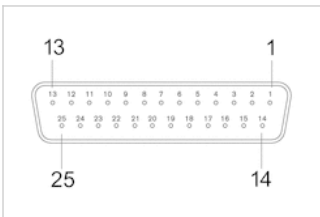


Fig. 2



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						

Multipole plug, series CON-MP

- Socket, D-Sub, 44-pin, Angled/straight, 90°/180°
- unshielded



Connection type	Soldering/crimping
Ambient temperature min./max.	-5 ... 50 °C
Operational voltage	24 V DC
Protection class	IP65
Weight	0.042 kg

Technical data

Part No.	Max. current	suitable cable-Ø min./max
R412011259	3 A	4 / 16 mm

Scope of delivery: multipole plug including 1 tube nut and 1 elbow fitting

Technical information

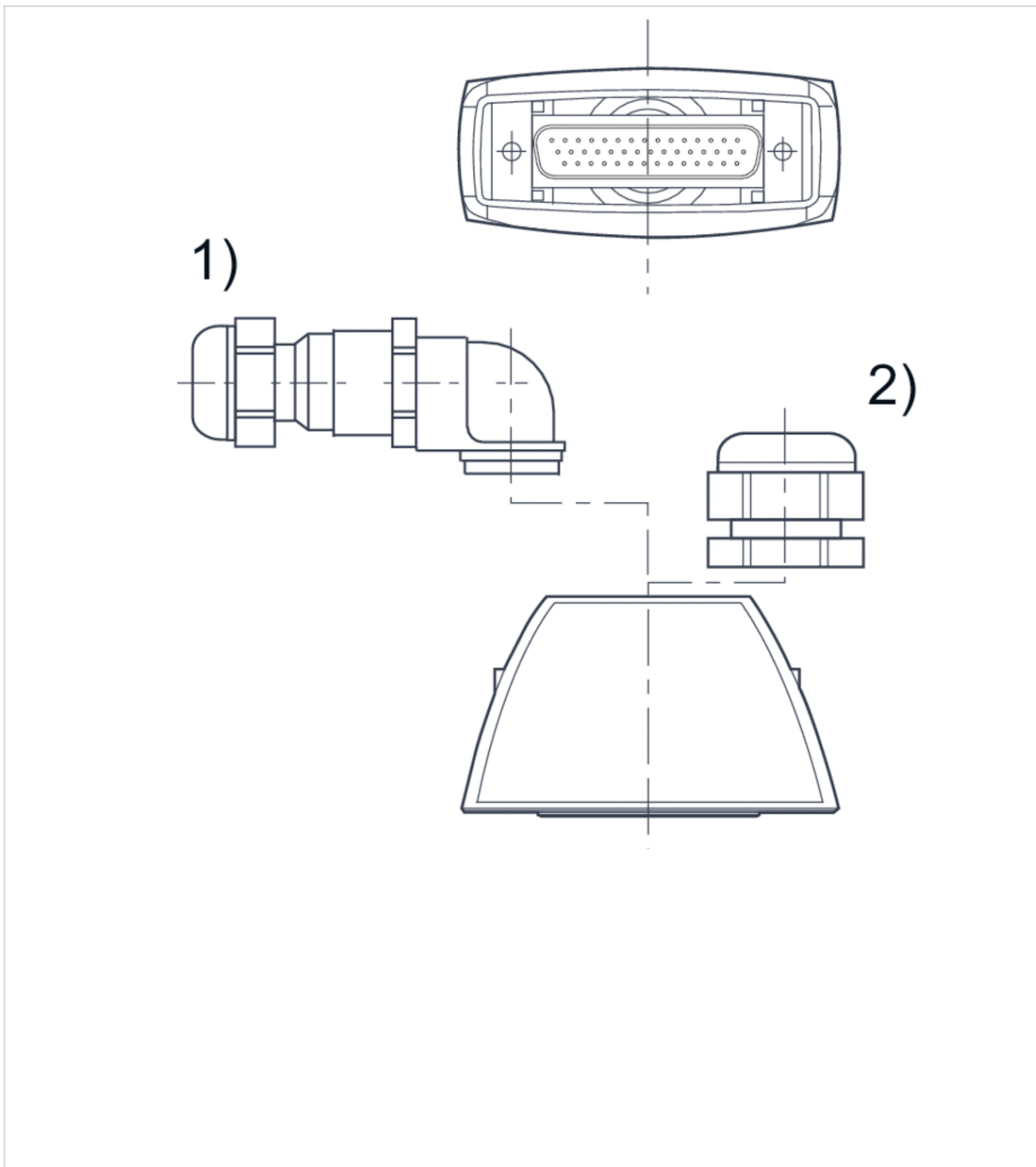
The specified protection class is only valid in assembled and tested state.
 Note for use with VS LP04: The plug can only be used in the LP04 versions with a side electrical connection.

Technical information

Material	
Housing	Polyamide

Dimensions

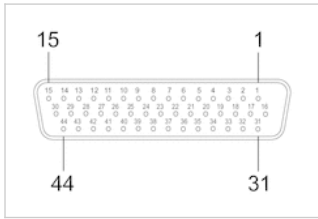
Dimensions



- 1) Elbow fitting
- 2) tube nut

Pin assignments

PIN assignment and cable colors, cable identification as per DIN 47100



Socket

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 ²
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

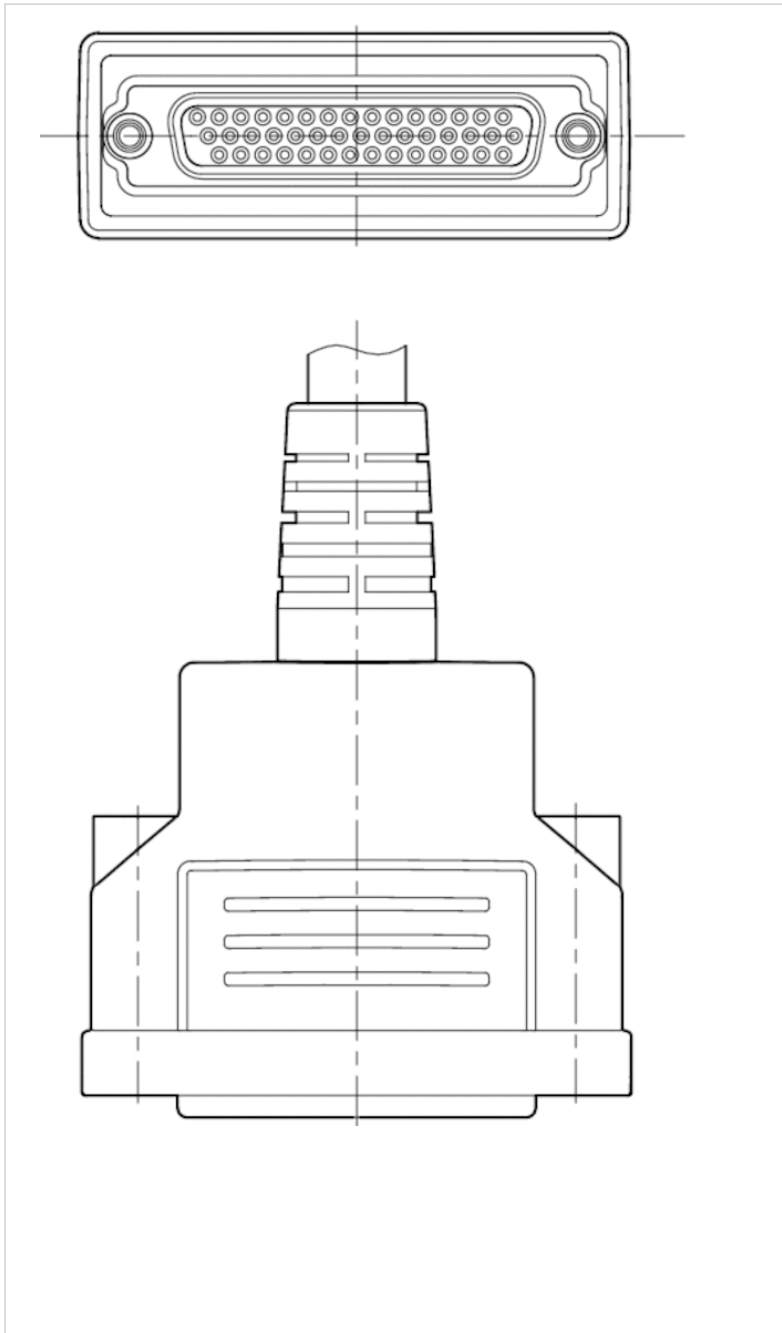
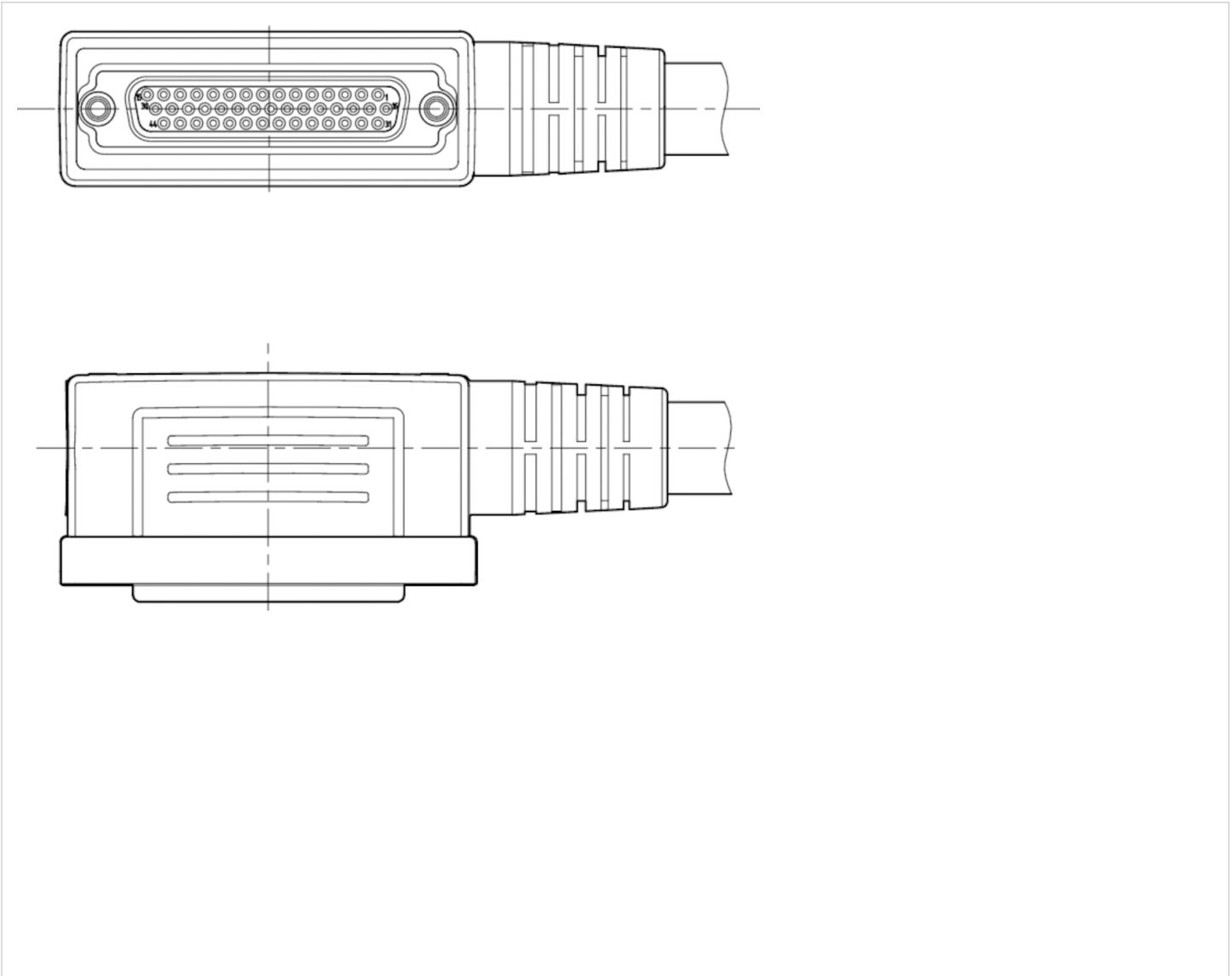
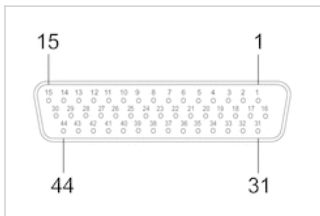


Fig. 2



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						

Plug box



Weight

0.12 kg

Technical data

Part No.	Type
1827030206	Plug box, 25-pin, complete
R412013379	HD multipole plug box, 44-pin, complete

Further accessories: For valve plug connectors, contact bridges, plugs and cables, etc., see the Chapter "Electrical connection technologies". For connectors, plastic tubing, etc., see the Chapter "Pneumatic connection technologies". Fieldbus connections can be found in the correspondent chapter.

Series BDC

- B-design
- Bus coupler with driver
- Fieldbus protocol PROFIBUS DP CANopen CANopen sb DeviceNet EtherCAT sercos III



Version	Bus coupler with driver
Ambient temperature min./max.	0 ... 50 °C
Operational voltage electronics	24 V DC
Electronics voltage tolerance	-15% / +20%
Power consumption electronics	0.05 A
Operating voltage, actuators	24 V DC
Total current for actuators	3 A
Protection class	IP65
Number of solenoid coils max.	32
Max. power consumption per coil	0.1 mA
Generic emission standard in accordance with norm	EN 61000-6-4
Generic immunity standard in accordance with norm	IEC 61000-6-2
Weight	0.29 kg

Technical data

Part No.	Fieldbus protocol	Port
		1
R412008537	PROFIBUS DP	Plug (male), M12x1, 5-pin, B-coded
R412008538	CANopen	Plug (male), M12x1, 5-pin, A-coded
R412008990	CANopen sb	Plug (male), M12x1, 5-pin, A-coded
R412008539	DeviceNet	Plug (male), M12x1, 5-pin, A-coded
R412009573	EtherCAT	Socket (female), M12x1, 5-pin, D-coded
R412009516	sercos III	Socket (female), M12x1, 5-pin, D-coded

Part No.	Port	power supply
	2	
R412008537	Socket (female), M12x1, 5-pin, B-coded	Plug (male), M12, 4-pin, A-coded
R412008538	Socket (female), M12x1, 5-pin, A-coded	Plug (male), M12, 4-pin, A-coded
R412008990	Socket (female), M12x1, 5-pin, A-coded	Plug (male), M12, 4-pin, A-coded
R412008539	Socket (female), M12x1, 5-pin, A-coded	Plug (male), M12, 4-pin, A-coded
R412009573	Socket (female), M12x1, 5-pin, D-coded	Plug (male), M12, 4-pin, A-coded
R412009516	Socket (female), M12x1, 5-pin, D-coded	Plug (male), M12, 4-pin, A-coded

Scope of delivery incl. 2 screws and seal, The following operating instructions can be found in the Media Center for: ←PROFIBUS DP: R412009414 ←CANopen /-sb: R412009415 ←DeviceNet: R412009416 ←EtherCAT: R412012792 ←sercos III: R412012610

Technical information

Max. number of valves: 16 double solenoid or 32 single solenoid

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

Caution: A reduced temperature range in accordance with the operating instructions may need to be considered in ATEX applications.

Technical information

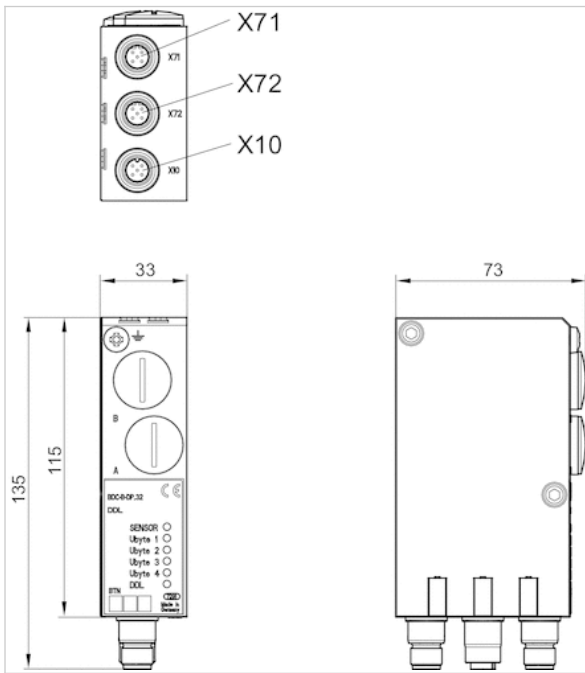
Material

Housing

Die-cast aluminum

Dimensions

Dimensions



- X71 = Bus IN
- X72 = Bus OUT
- X10 = power supply

Series AS-i, B-design

- B-design
- Bus coupler with driver
- Yellow AS-i flat cable
- Fieldbus protocol AS-i



Version	Bus coupler with driver
Ambient temperature min./max.	0 ... 50 °C
Operating voltage, actuators	24 V DC
Protection class	IP65
Max. power consumption per coil	0.03 mA
Port Valve system	Socket, 2.0 mm strip, 2x13-pin
ID Code / ID2 Code	F / E
I/O Code	8
Generic emission standard in accordance with norm	EN 50295
Generic immunity standard in accordance with norm	EN 50295
Weight	0.14 kg

The delivered product may vary from that in the illustration.

Technical data

Part No.	Fieldbus protocol	Port	power supply
		1	
R412003488	AS-i	Yellow AS-i flat cable	Black AS-i flat cable
R412006761	AS-i	Yellow AS-i flat cable	Black AS-i flat cable

Part No.	Number of outputs for valve coils	Power consumption electronics	Fig.
R412003488	4	0.05 A	Fig. 1
R412006761	8	0.08 A	Fig. 2

Scope of delivery incl. seal and mounting screws, The following operating instructions can be found in the Media Center for: →AS-i: R499050017

Technical information

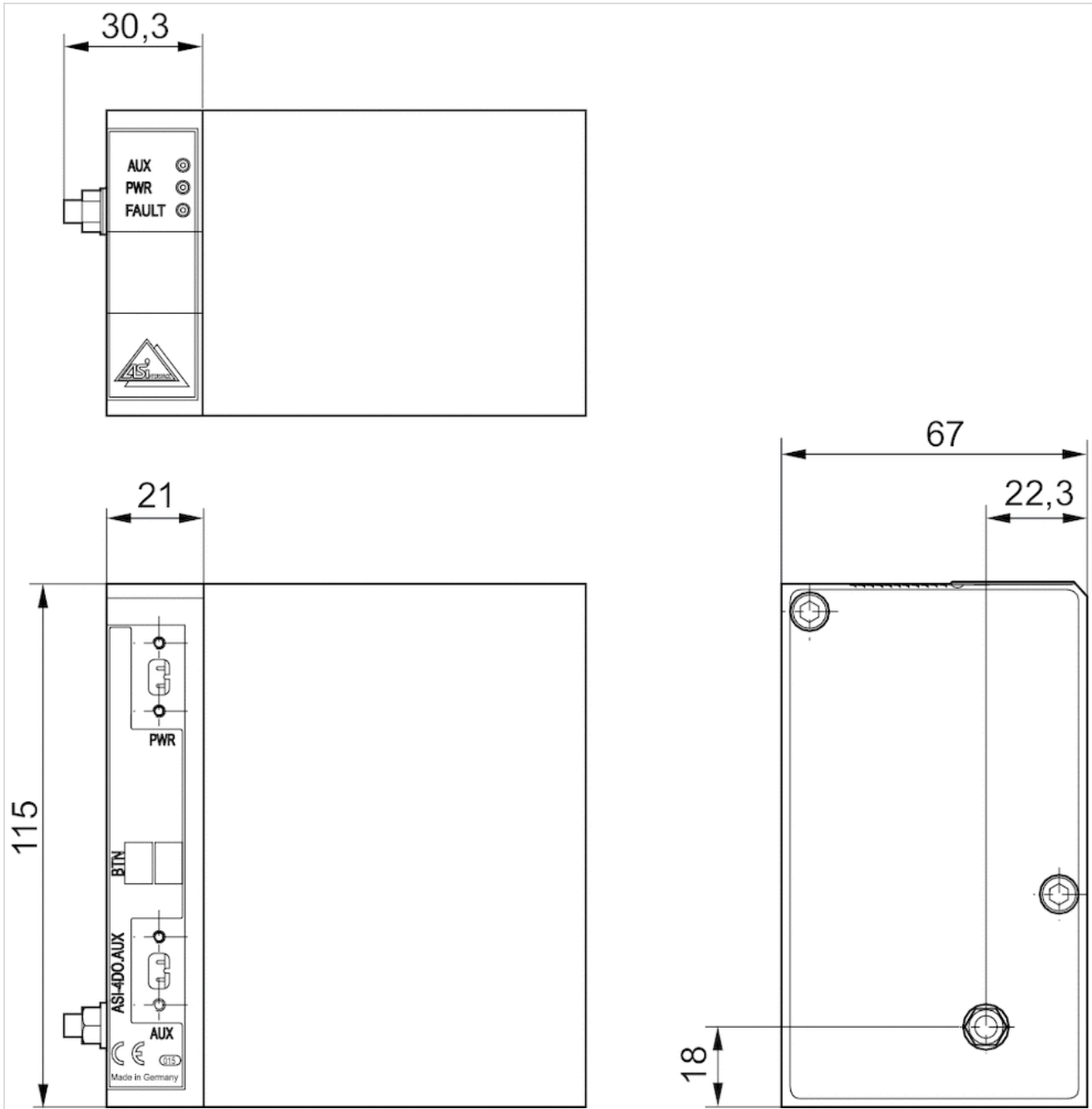
Caution: A reduced temperature range in accordance with the operating instructions may need to be considered in ATEX applications. You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

Technical information

Material	
Housing	Aluminum Die-cast aluminum

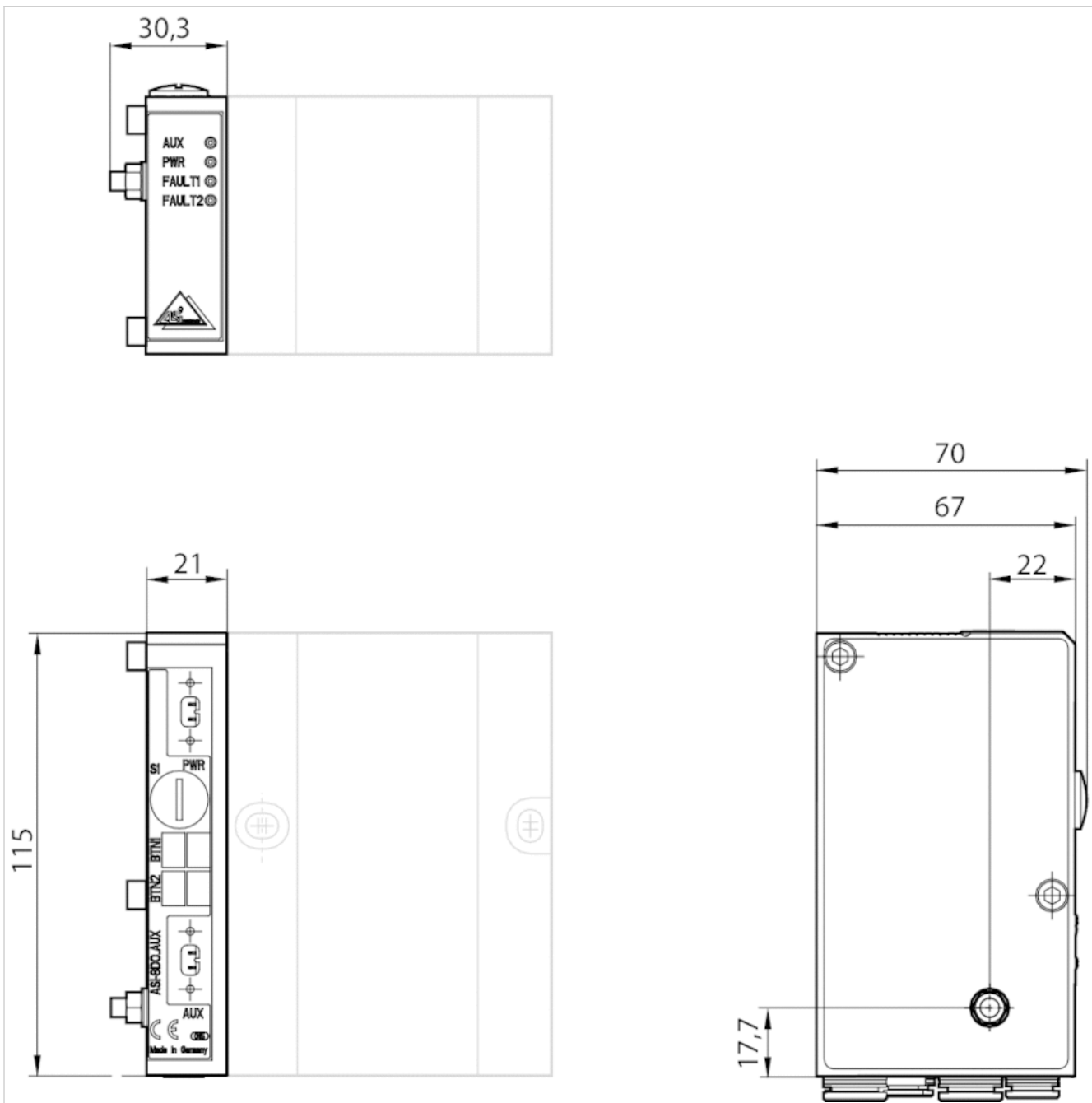
Dimensions

Fig. 1



AS-i, 4DO-AUX

Fig. 2



AS-i, 8DO-AUX

Series AS-i, B-design

- B-design
- Bus coupler with driver
- Yellow AS-i flat cable
- Fieldbus protocol AS i with inputs



Version	Bus coupler with driver
Ambient temperature min./max.	0 ... 50 °C
Operating voltage, actuators	24 V DC
Protection class	IP65
Max. power consumption per coil	0.03 mA
Port Valve system	Socket, 2.0 mm strip, 2x13-pin
ID Code / ID2 Code	F / E
I/O connection	input or output, Socket, M8
I/O Code	7
Generic emission standard in accordance with norm	EN 50295
Generic immunity standard in accordance with norm	EN 50295

The delivered product may vary from that in the illustration.

Technical data

Part No.	Fieldbus protocol	Port	power supply	Number of inputs
		1		
R412003486	AS i with inputs	Yellow AS-i flat cable	Black AS-i flat cable	8
R412003487	AS i with inputs	Yellow AS-i flat cable	Black AS-i flat cable	4

Part No.	Number of outputs for valve coils	I/O connection	I/O connection
			Number
R412003486	8	input or output, Socket, M8	8
R412003487	4	input or output, Socket, M8	4

Part No.	Power consumption electronics	Fig.
R412003486	0.1 A	Fig. 2
R412003487	0.05 A	Fig. 1

Scope of delivery incl. 2 tie rod extensions and seal, The following operating instructions can be found in the Media Center for: ←AS-i: R499050017

Technical information

Caution: A reduced temperature range in accordance with the operating instructions may need to be considered in ATEX applications. You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

Technical information

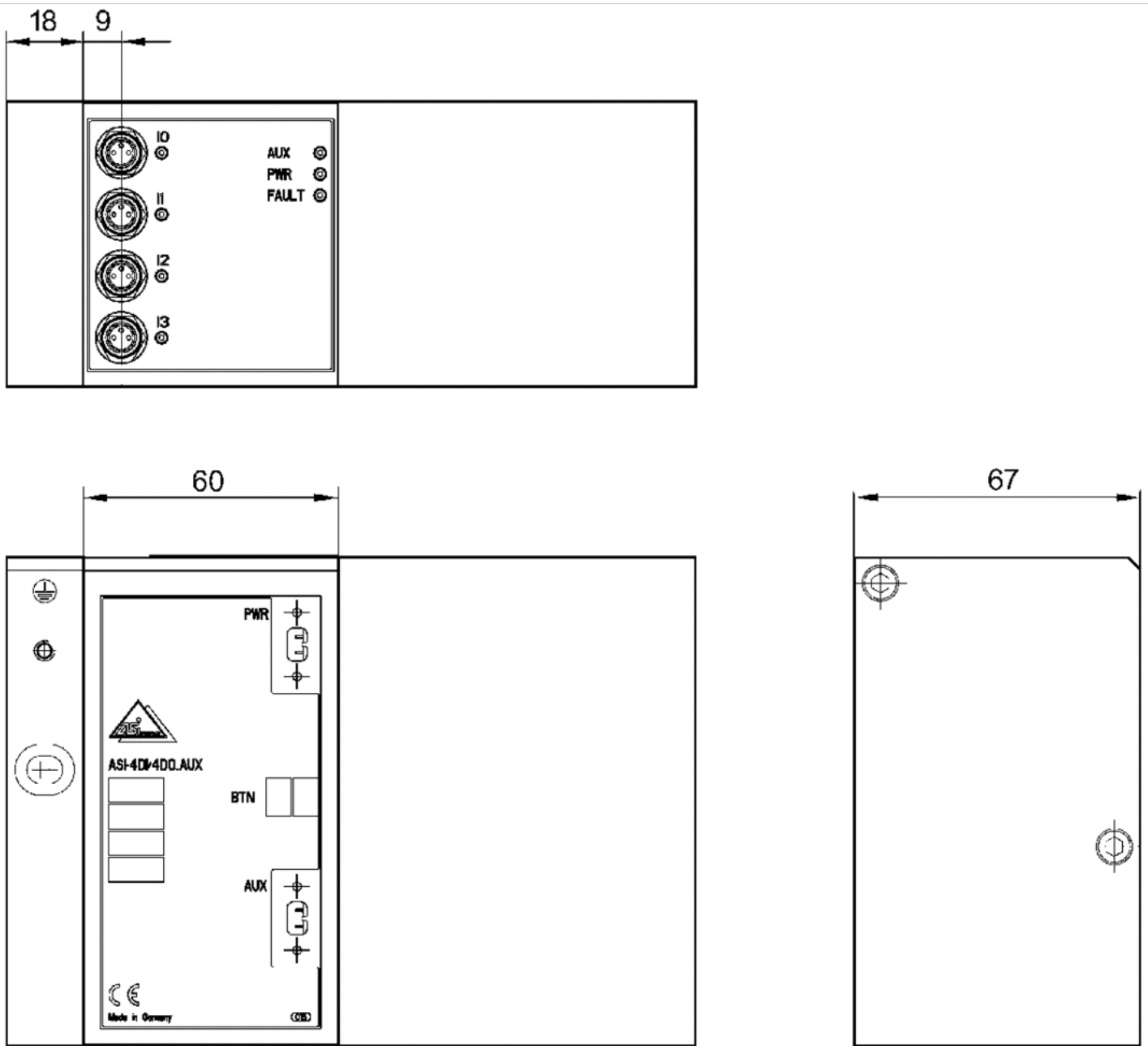
Material

Housing

Aluminum

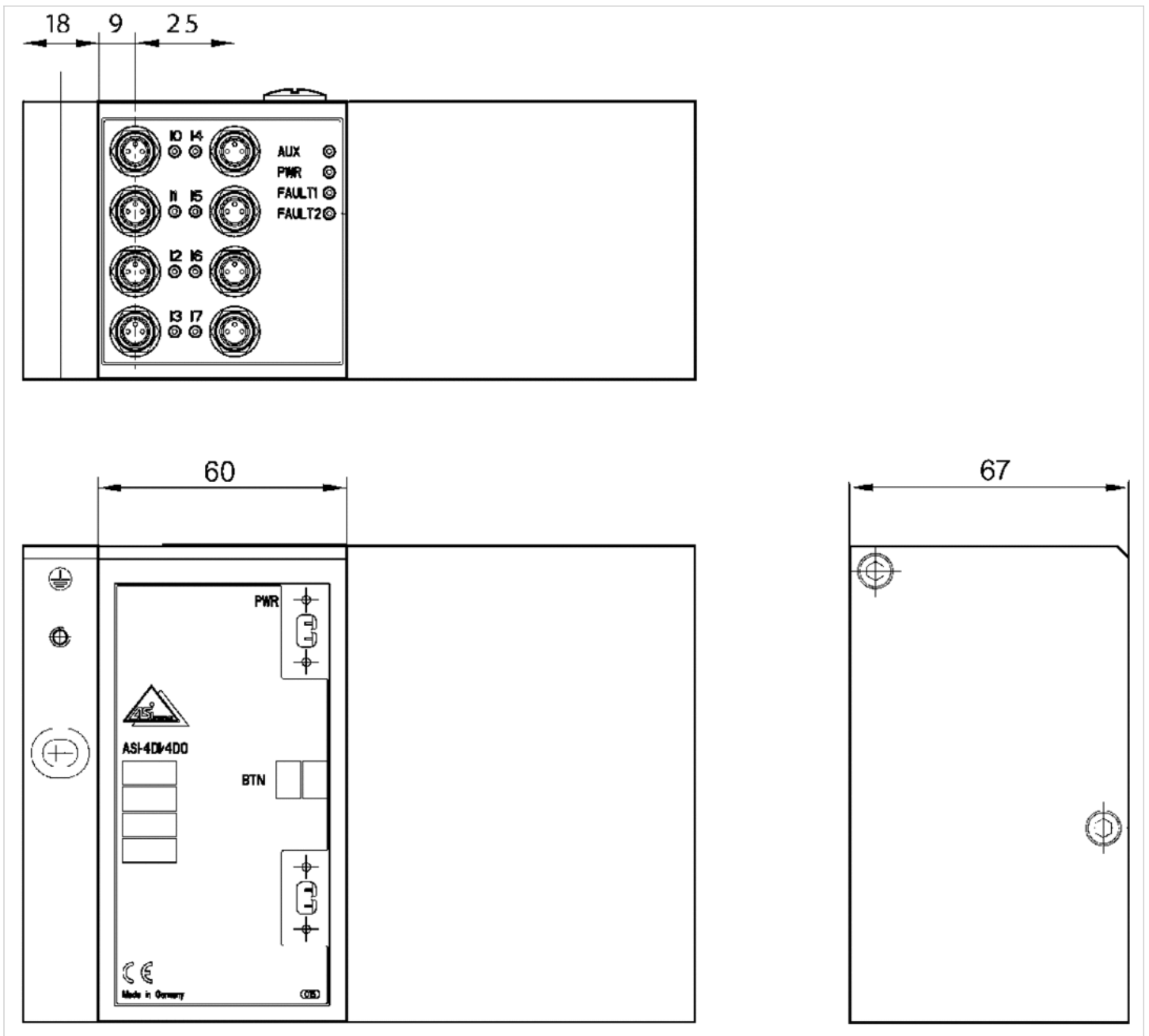
Dimensions

Fig. 1



4DI/4DO-AUX

Fig. 2



8DI/8DO-AUX

Adapter module

- for series AES on B-design
- for series HF02-LG, HF03-LG, HF04, CD01-PI, CD10-PI, CD20-PI



Ambient temperature min./max. -10 ... 60 °C
 Weight 0.16 kg

Technical data

Part No.	Type	Scope of delivery	Scope of delivery
R412023458	32 outputs	Includes screws and seals.	1 piece

Technical information

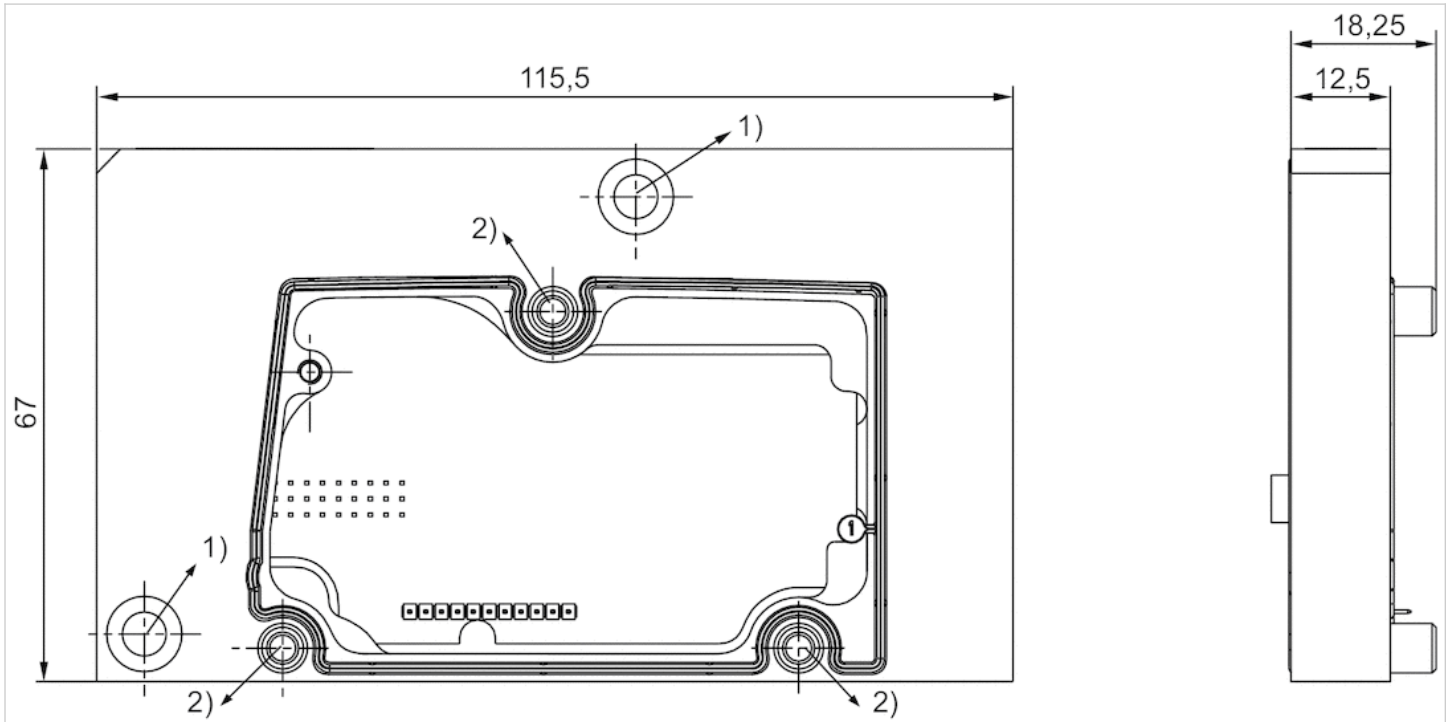
The adapter module is mounted on valve systems with a B-design interface for use with AES fieldbus couplers and AES I/O modules. See the operating instructions for further information (R412018150).

Technical information

Material	
Housing	Aluminum
Seals	Nitrile rubber

Dimensions

Dimensions



Includes screws and seals.

1) Torque: 3 Nm +0.5 Nm

2) Torque: 1.6 Nm +0.4 Nm

Optional fieldbus connection with I/O function (CMS), B-design

- B-design
- Bus coupler with driver
- Fieldbus protocol PROFIBUS DP CANopen DeviceNet EtherNET/IP PROFINET IO



Version	Bus coupler with driver
Ambient temperature min./max.	0 ... 50 °C
Operational voltage electronics	24 V DC
Electronics voltage tolerance	-15% / +20%
Operating voltage, actuators	24 V DC
Protection class	IP65
I/O module extension max.	6
Weight	See table below
	The delivered product may vary from that in the illustration.

Technical data

Part No.	Fieldbus protocol	Port
		1
R412003484	PROFIBUS DP	Plug (male), M12, 5-pin, B-coded
R412008516	PROFIBUS DP	Plug (male), M12, 5-pin, B-coded
R412005747	CANopen	Plug (male), M12, 5-pin, A-coded
R412008518	CANopen	Plug (male), M12, 5-pin, A-coded
R412004346	DeviceNet	Plug (male), M12, 5-pin, A-coded
R412008517	DeviceNet	Plug (male), M12, 5-pin, A-coded
R412012755	EtherNET/IP	-
R412014581	PROFINET IO	Socket (female), M12x1, 4-pin, D-coded
R412014583	PROFINET IO	Socket (female), M12x1, 4-pin, D-coded

Part No.	Port	power supply
	2	
R412003484	Socket (female), M12, 5-pin, B-coded	Plug (male), M12, 4-pin, A-coded
R412008516	Socket (female), M12, 5-pin, B-coded	Plug (male), M12, 4-pin, A-coded
R412005747	Socket (female), M12, 5-pin, A-coded	Plug (male), M12, 4-pin, A-coded
R412008518	Socket (female), M12, 5-pin, A-coded	Plug (male), M12, 4-pin, A-coded
R412004346	Socket (female), M12, 5-pin, A-coded	Plug (male), M12, 4-pin, A-coded
R412008517	Socket (female), M12, 5-pin, A-coded	Plug (male), M12, 4-pin, A-coded
R412012755	Socket (female), M12, 5-pin, D-coded	Plug (male), M12, 4-pin, A-coded
R412014581	Socket (female), M12x1, 4-pin, D-coded	Plug (male), M12x1, 4-pin, A-coded
R412014583	Socket (female), M12x1, 4-pin, D-coded	Plug (male), 7/8"-16UNF, 5-pin

Part No.	Number of outputs for valve coils	Port
		Valve system
R412003484	24	Socket, 2.0 mm strip, 2x13-pin
R412008516	32	Socket, 2.0 mm strip, 3x13-pin

Part No.	Number of outputs for valve coils	Port
		Valve system
R412005747	24	Socket, 2.0 mm strip, 2x13-pin
R412008518	32	Socket, 2.0 mm strip, 3x13-pin
R412004346	24	Socket, 2.0 mm strip, 2x13-pin
R412008517	32	Socket, 2.0 mm strip, 3x13-pin
R412012755	32	Socket, 2.0 mm strip, 3x13-pin
R412014581	32	-
R412014583	32	-

Part No.	Power consumption electronics	Max. power consumption per coil	Weight	Fig.	
R412003484	0.12 A	0.063 mA	0.84 kg	Fig. 1	1)
R412008516	0.12 A	0.063 mA	0.84 kg	Fig. 1	1)
R412005747	0.12 A	0.063 mA	1 kg	Fig. 1	1)
R412008518	0.12 A	0.063 mA	1 kg	Fig. 1	1)
R412004346	0.12 A	0.063 mA	1 kg	Fig. 1	1)
R412008517	0.12 A	0.063 mA	1 kg	Fig. 1	1)
R412012755	0.12 A	0.063 mA	1 kg	Fig. 2	2)
R412014581	0.1 A	0.1 mA	0.91 kg	Fig. 1	1)
R412014583	0.1 A	0.1 mA	0.91 kg	Fig. 3	1)

Scope of delivery incl. 2 tie rod extensions and seal, The following operating instructions can be found in the Media Center for:↔PROFIBUS DP: R499050016↔CANopen: R412005742↔DeviceNet: R499050019↔EtherNET/IP: R412012728

1) Connection with two valve voltage circuits.

2) Connection with two valve voltage circuits., Only star topology

Technical information

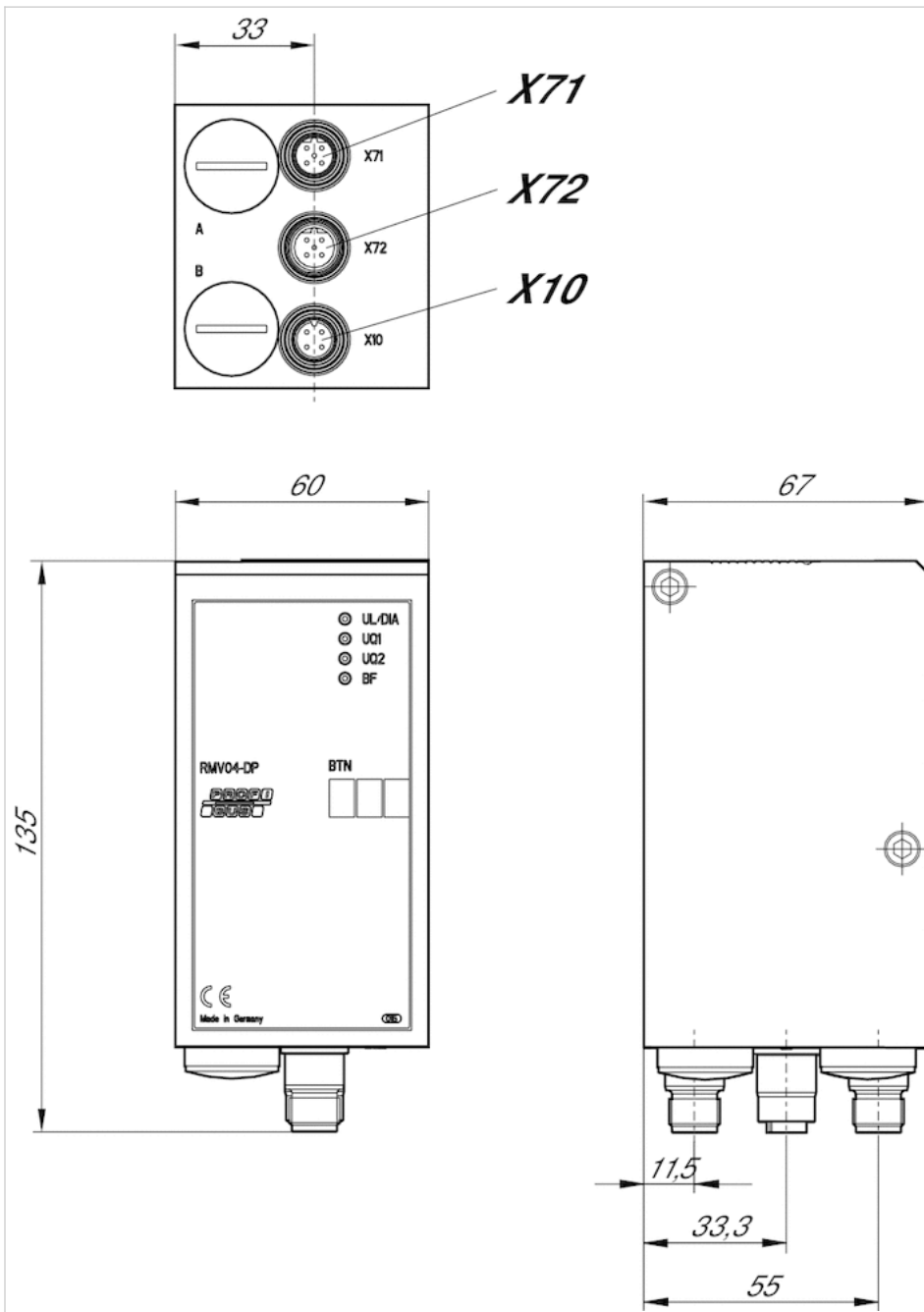
Caution: A reduced temperature range in accordance with the operating instructions may need to be considered in ATEX applications. You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

Technical information

Material	
Housing	Die-cast aluminum

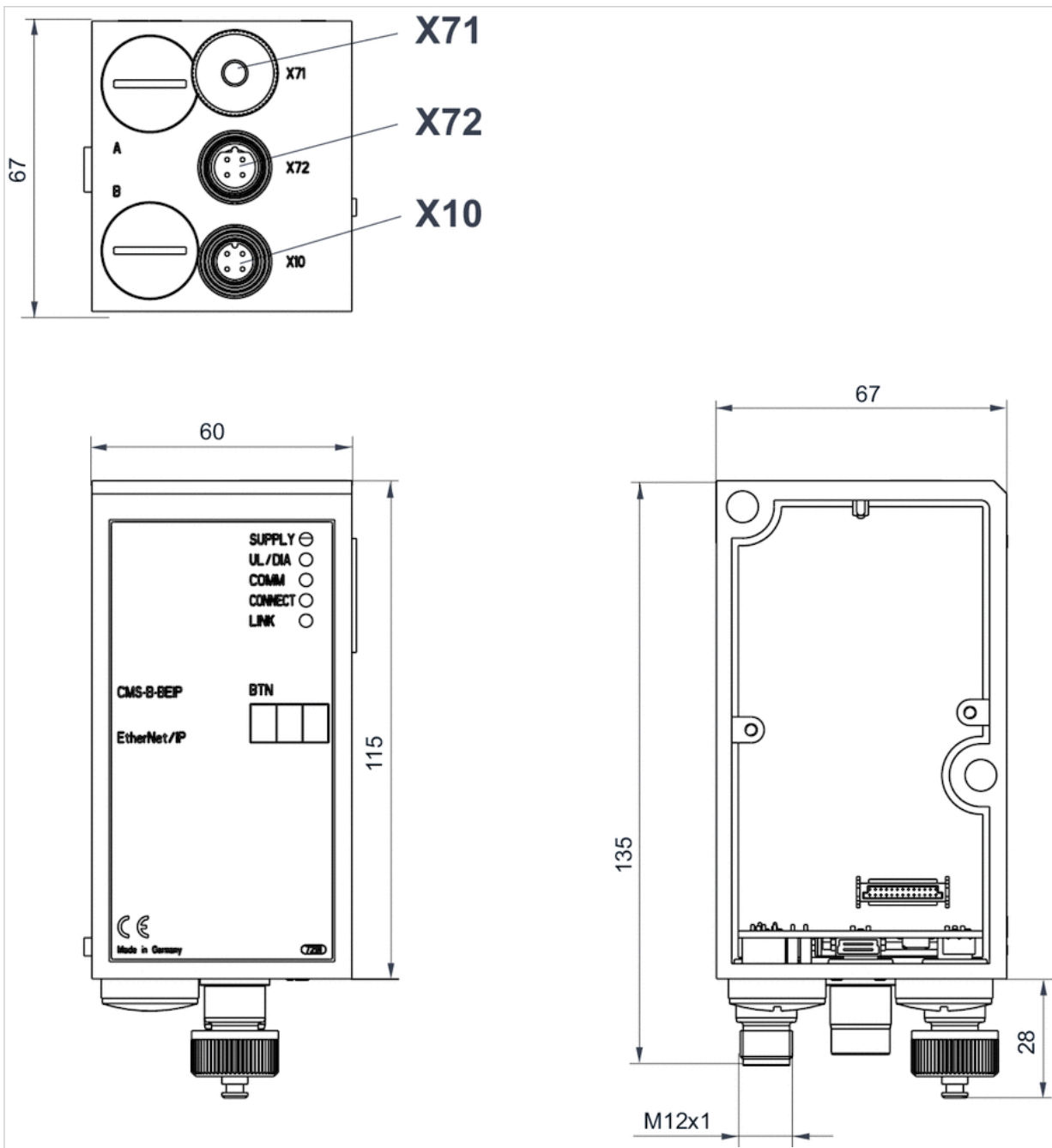
Dimensions

Fig. 1



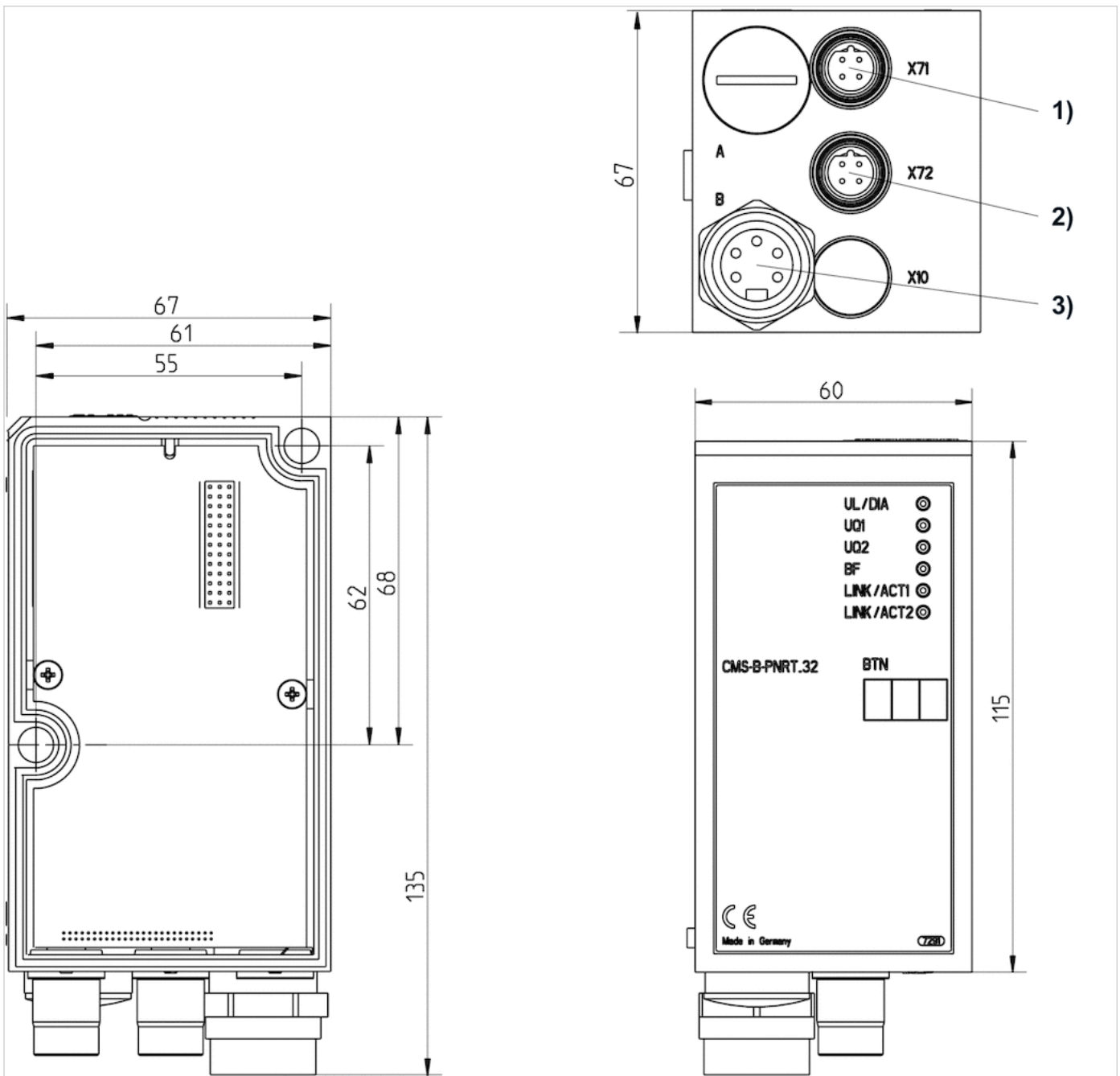
- X71, (Bus IN), M12x1
- X72, (Bus OUT), M12x1
- X10, (Power), M12x1

Fig. 2



- X71 = optional interface
- X72 = Bus
- X10 = Power

Fig. 3



1) Bus IN 2) Bus OUT 3) Power supply

Series DDL

- B-design
- Driver
- Plug (male), M12, 5-pin, A-coded



Version	Driver
Ambient temperature min./max.	0 ... 50 °C
Operational voltage electronics	24 V DC
Power consumption electronics	0.2 A
Operating voltage, actuators	24 V DC
Actuator voltage tolerance	-10% / +10%
Total current for actuators	3 A
Protection class	IP65
Number of solenoid coils max.	24
Max. power consumption per coil	0.1 mA
Max. cable length	40 m
Max. number of DDL participants	14
Port Valve system	Socket (female), 2.0 mm strip, 3x13-pin
I/O module extension max.	6
I/O module extension Input Max.	3
I/O module extension Output Max.	3
Weight	1.04 kg

Technical data

Part No.	Port	Port
	1	2
R412006880	Plug (male), M12, 5-pin, A-coded	Socket (female), M12, 5-pin, A-coded

Part No.	power supply
R412006880	Plug (male), M12, 4-pin, A-coded

Scope of delivery incl. 2 tie rod extensions and seal, The following operating instructions can be found in the Media Center: R412009417 + R499050020

Technical information

Max. current in 0 V line: 4 A

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

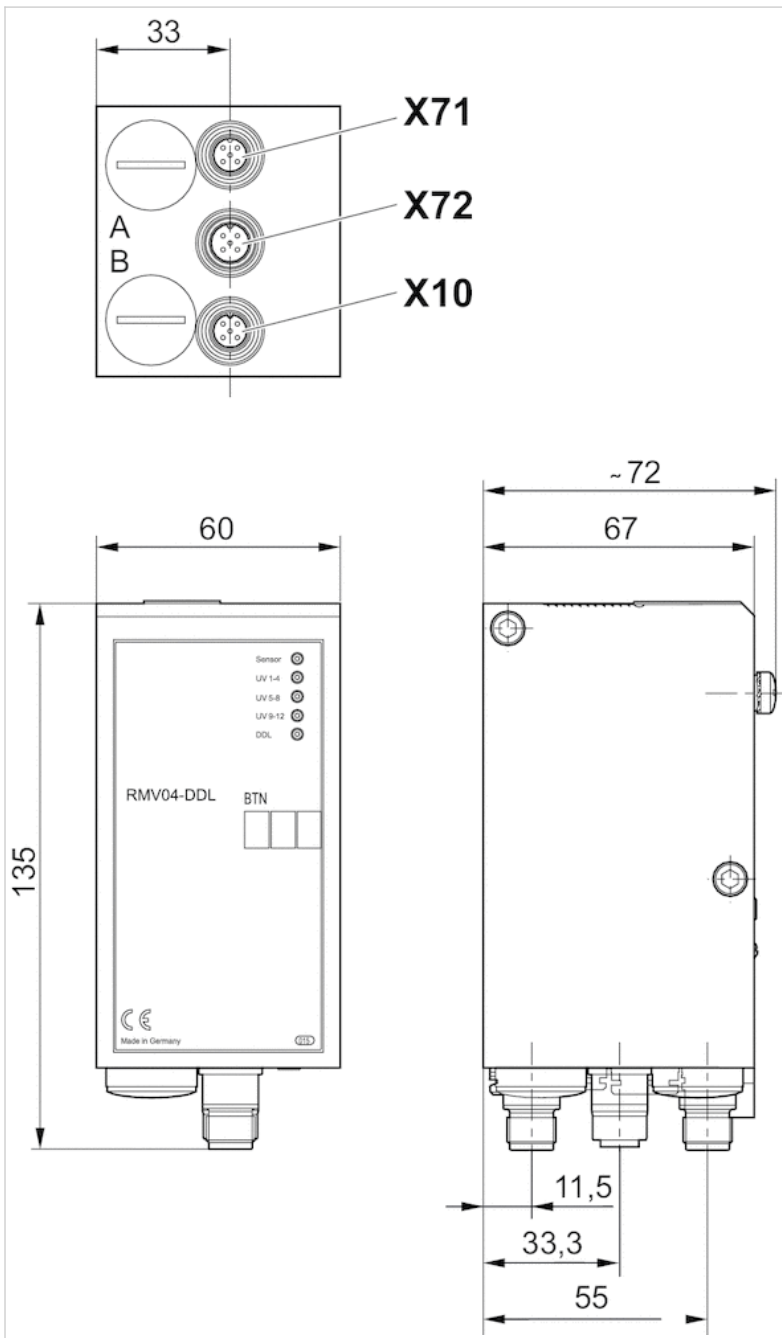
Caution: A reduced temperature range in accordance with the operating instructions may need to be considered in ATEX applications.

Technical information

Material	
Housing	Die-cast aluminum

Dimensions

Dimensions



Series DDL

- B-design
- Driver
- Plug (male), M12, 5-pin, A-coded



Version	Driver
Ambient temperature min./max.	0 ... 50 °C
Operational voltage electronics	24 V DC
Power consumption electronics	0.05 A
Operating voltage, actuators	24 V DC
Actuator voltage tolerance	-10% / +10%
Total current for actuators	3 A
Protection class	IP65
Number of solenoid coils max.	32
Max. power consumption per coil	0.1 mA
Max. cable length	40 m
Max. number of DDL participants	14
Port Valve system	Socket (female), 2.0 mm strip, 2x13-pin
Weight	0.29 kg

Technical data

Part No.	Port	
	1	2
R412008541	Plug (male), M12, 5-pin, A-coded	Socket (female), M12, 5-pin, A-coded

Part No.	power supply
R412008541	Plug (male), M12, 4-pin, A-coded

Scope of delivery incl. 2 tie rod extensions and seal, The following operating instructions can be found in the Media Center: R412009417 + R499050020

Technical information

Max. current in 0 V line: 4 A

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

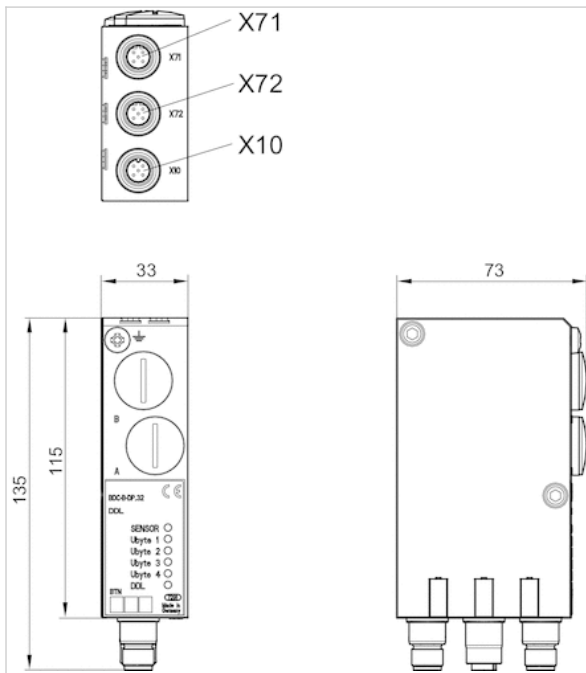
Caution: A reduced temperature range in accordance with the operating instructions may need to be considered in ATEX applications.

Technical information

Material	
Housing	Die-cast aluminum

Dimensions

Dimensions



X71 = Bus IN

X72 = Bus OUT

X10 = power supply

Accessories, Series HF02-LG



Weight

See table below

Technical data

Part No.	Type
R412004540	subbase gasket, pneumatic part
R422003829	Gasket
1821A39036	Supply plate, incl. sealing kit, 2x mounting screws

Part No.	Material	Delivery unit	Weight
R412004540	-	10 piece	0.001 kg
R422003829	Hydrogenated nitrile butadiene rubber	1 piece	0.001 kg
1821A39036	-	1 piece	0.28 kg

Technical information

Material	
Housing	Hydrogenated nitrile butadiene rubber

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	Communication port, Number of poles
Short circuit	5-pin
Undervoltage	Communication port, Coding
I/O module extension max.	B-coded
10	Communication port 2
Generic emission standard in accordance with norm	Socket
EN 61000-6-4	Communication port 2
Generic immunity standard in accordance with norm	M12x1
EN 61000-6-2	Communication port 2
Communication port Type	5-pin
Plug	Communication port 2
Communication port, Thread size	B-coded
M12x1	Weight
	0.16 kg

Material

Housing material	Part No.
Polyamide fiber-glass reinforced	R412018218

Technical information

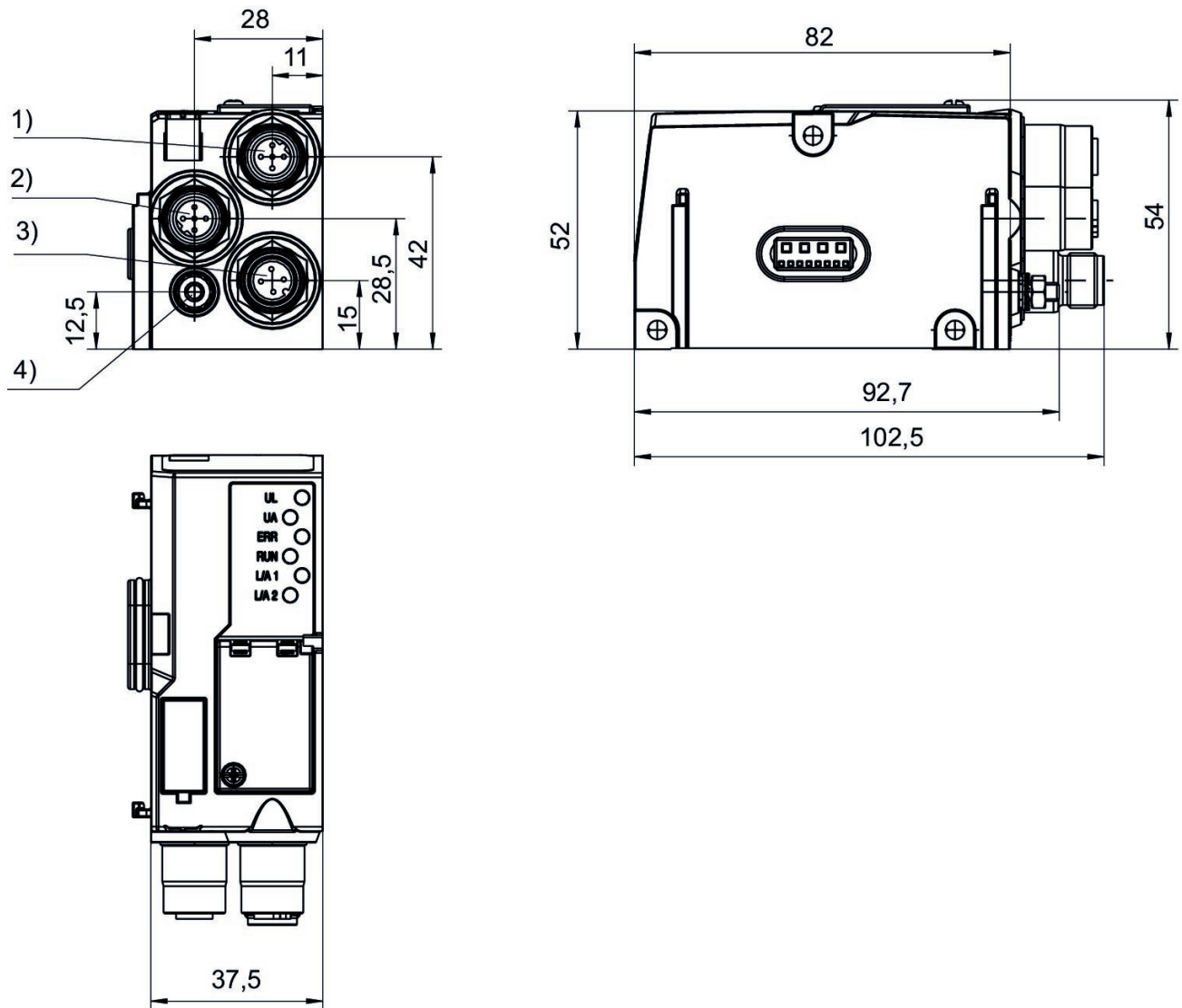
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

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	Communication port, Number of poles
Short circuit	5-pin
Undervoltage	Communication port, Coding
I/O module extension max.	A-coded
10	Communication port 2
Generic emission standard in accordance with norm	Socket
EN 61000-6-4	Communication port 2
Generic immunity standard in accordance with norm	M12x1
EN 61000-6-2	Communication port 2
Communication port Type	5-pin
Plug	Communication port 2
Communication port, Thread size	A-coded
M12x1	Weight
	0.16 kg

Material

Housing material
Polyamide fiber-glass reinforced

Part No.
R412018220

Technical information

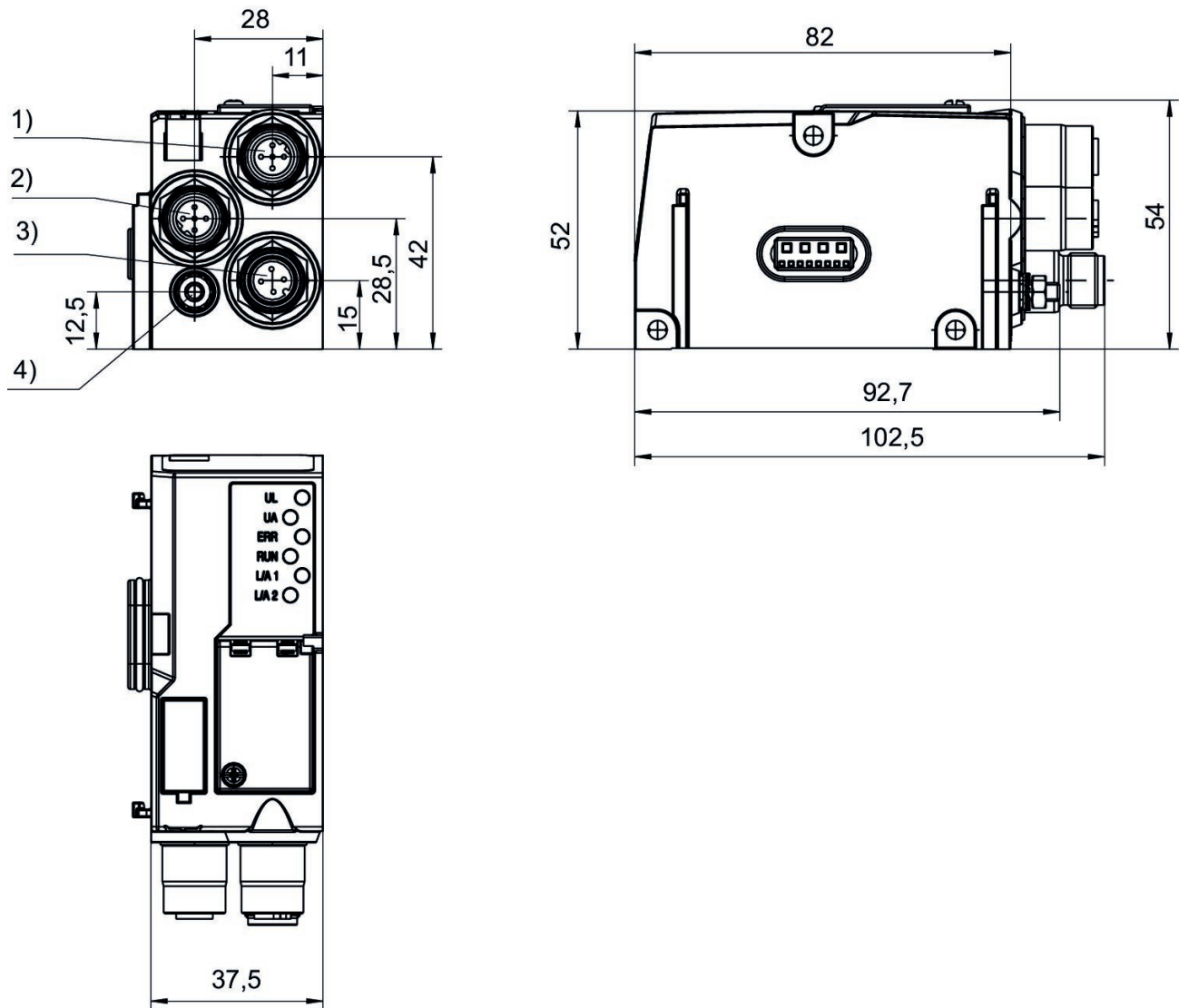
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

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	Communication port, Number of poles
Short circuit	5-pin
Undervoltage	Communication port, Coding
I/O module extension max.	A-coded
10	Communication port 2
Generic emission standard in accordance with norm	Socket
EN 61000-6-4	Communication port 2
Generic immunity standard in accordance with norm	M12x1
EN 61000-6-2	Communication port 2
Communication port Type	5-pin
Plug	Communication port 2
Communication port, Thread size	A-coded
M12x1	Weight
	0.16 kg

Material

Housing material	Part No.
Polyamide fiber-glass reinforced	R412018221

Technical information

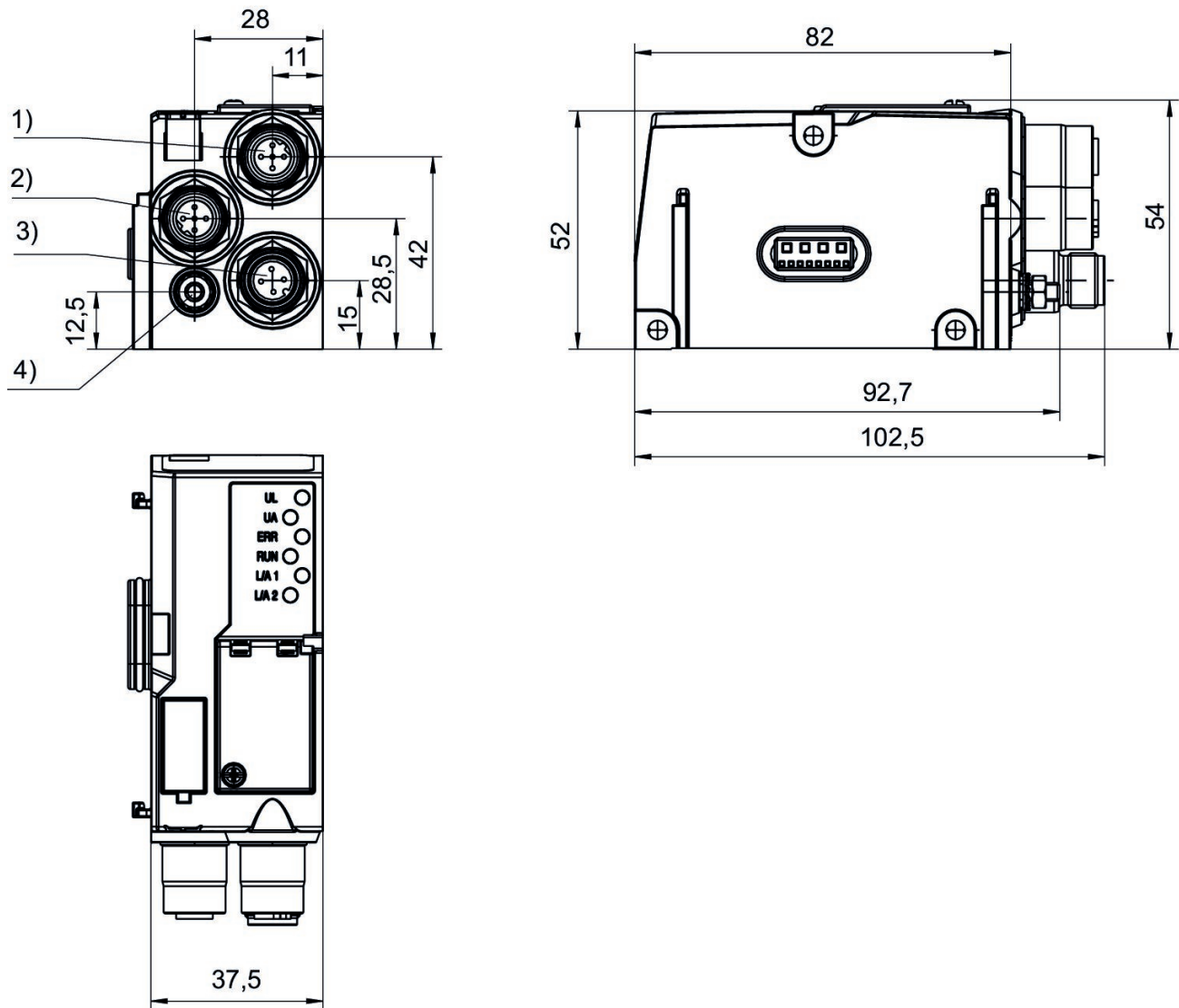
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

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

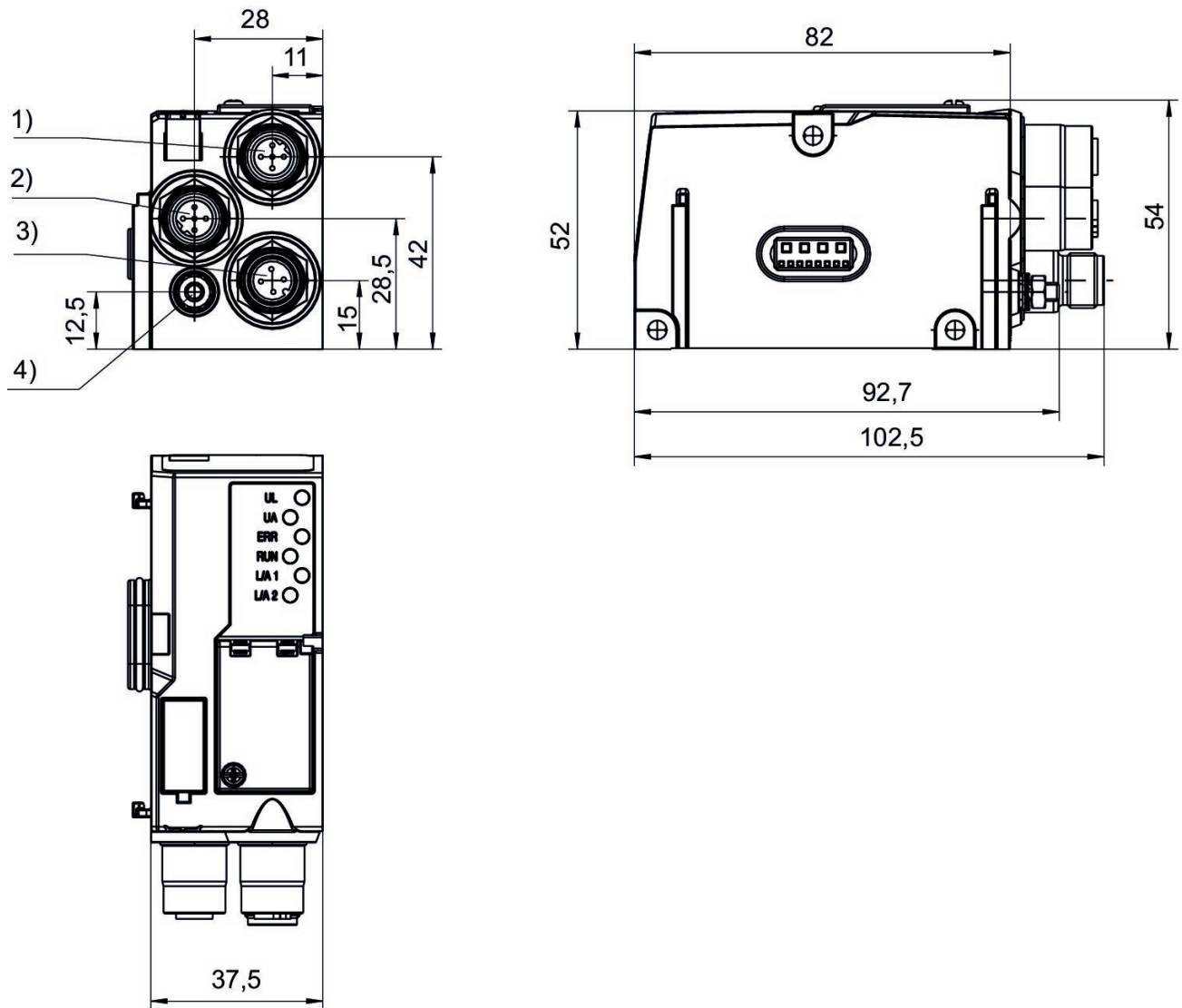
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

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

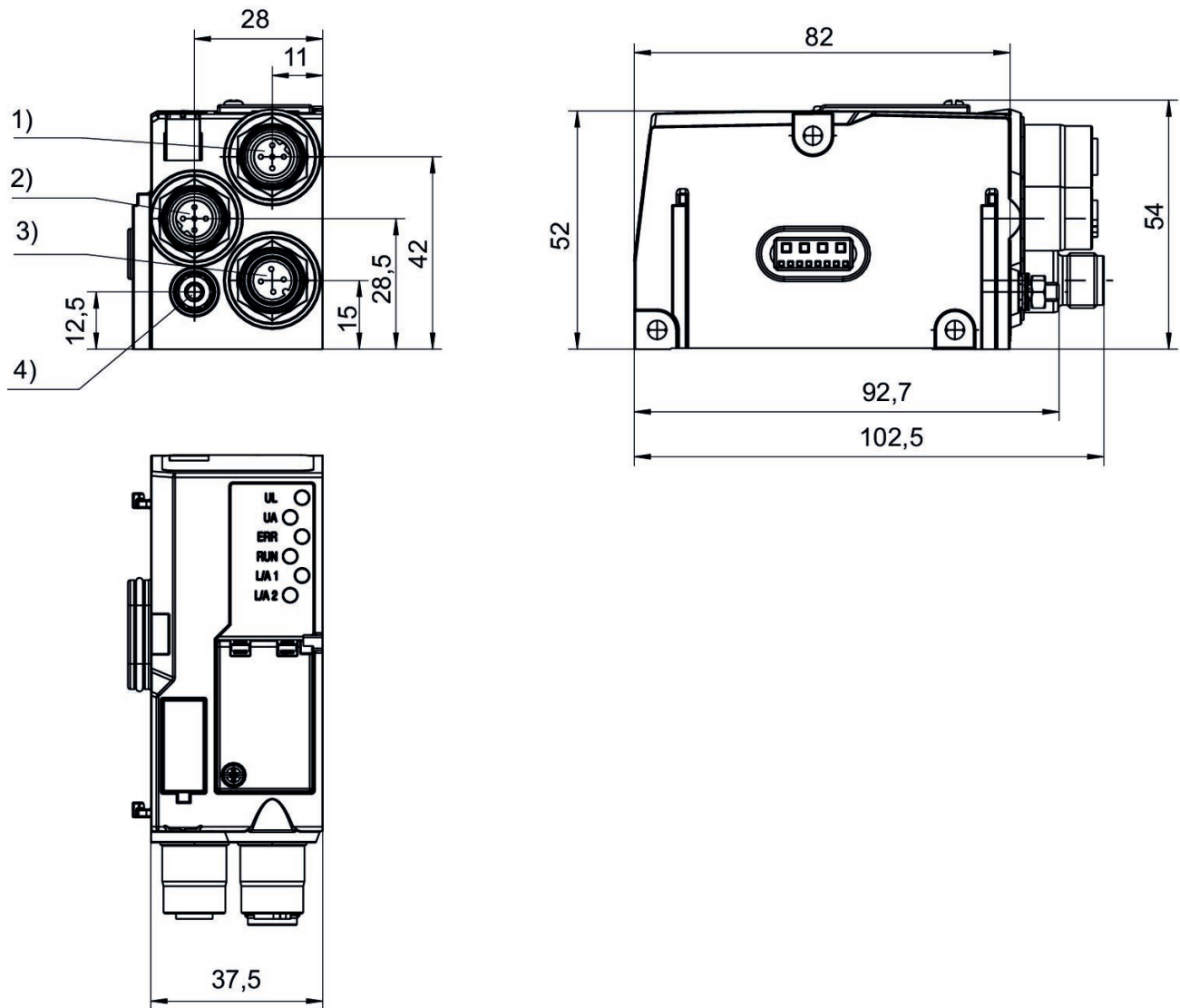
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

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

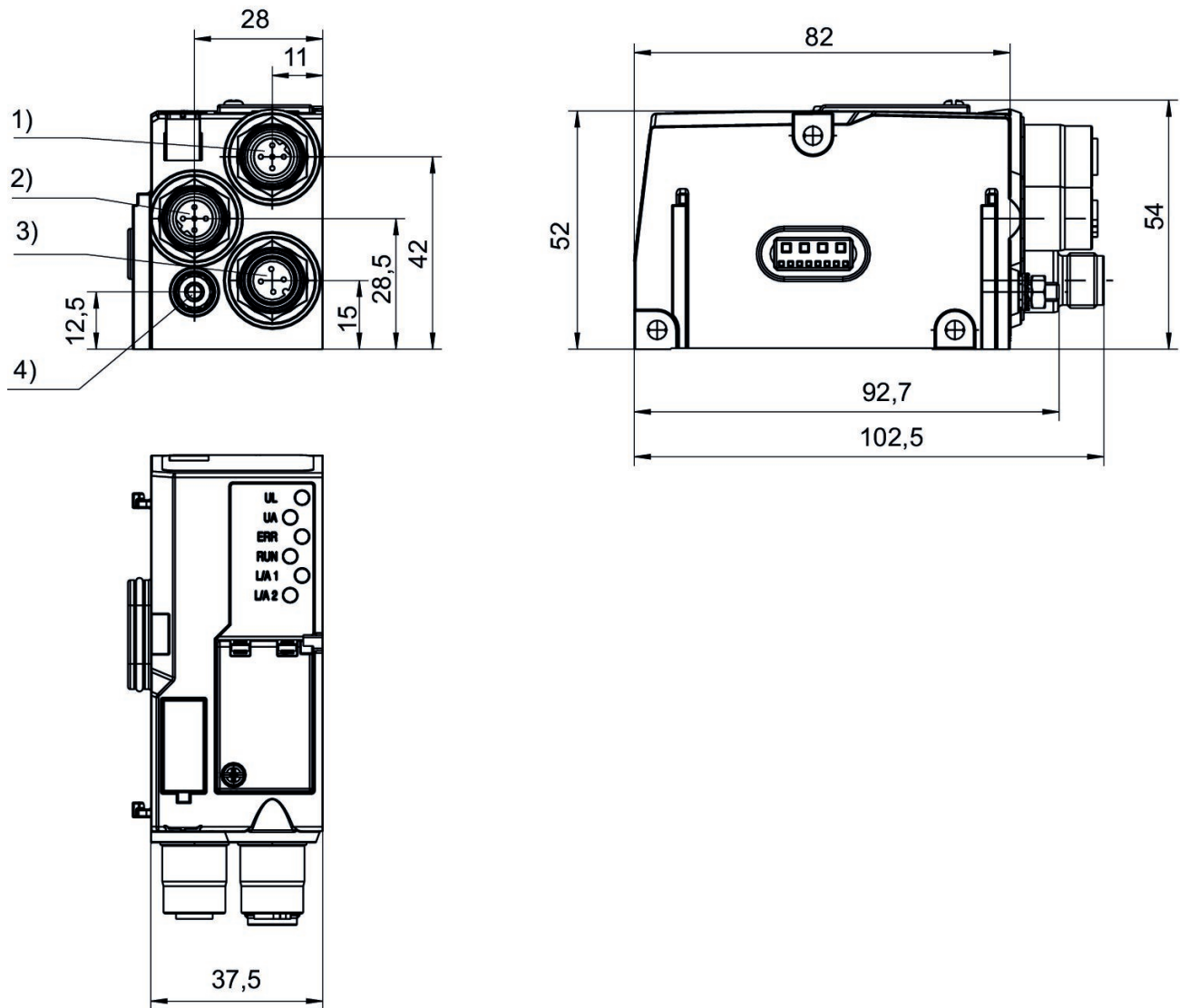
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

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

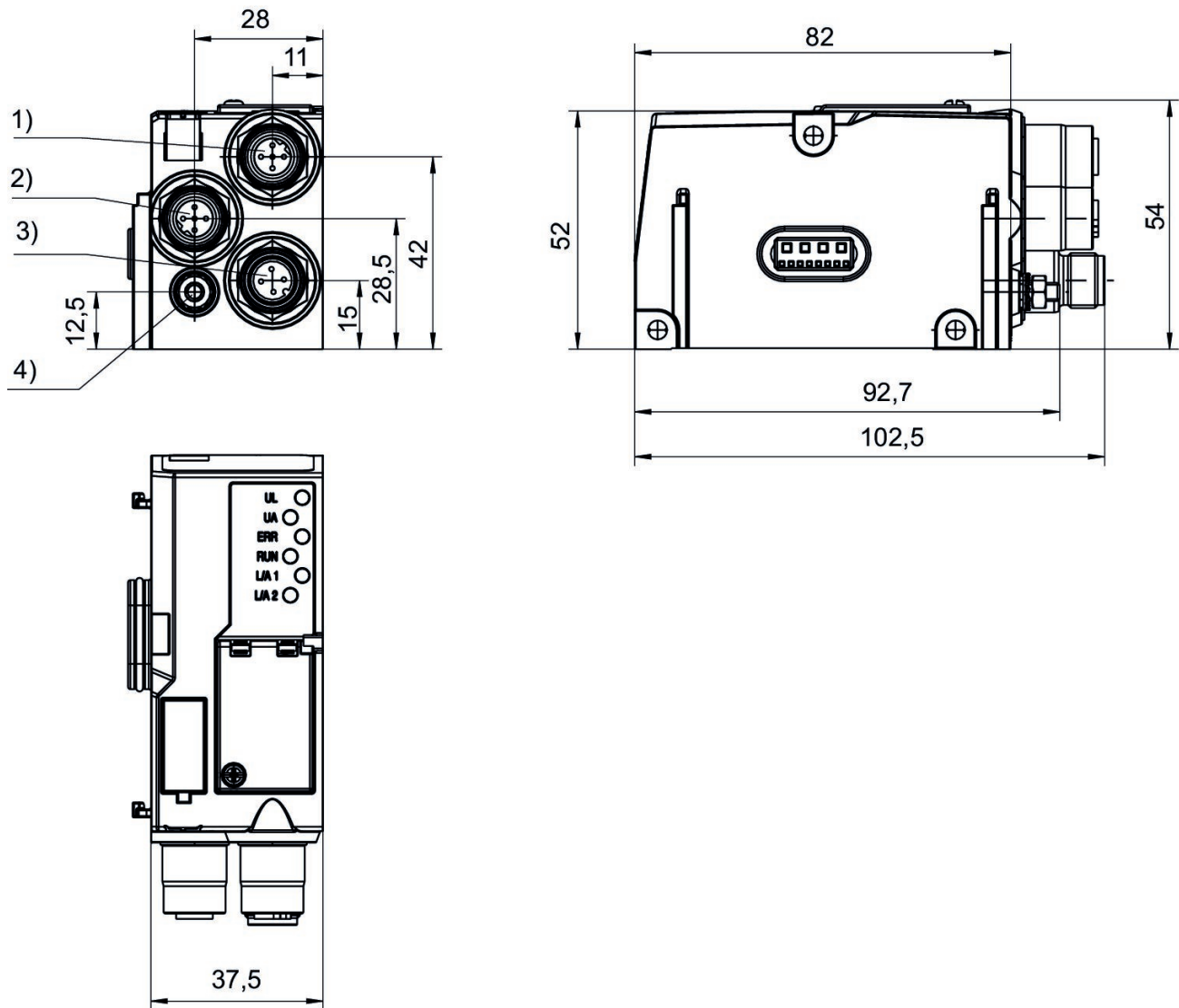
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

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

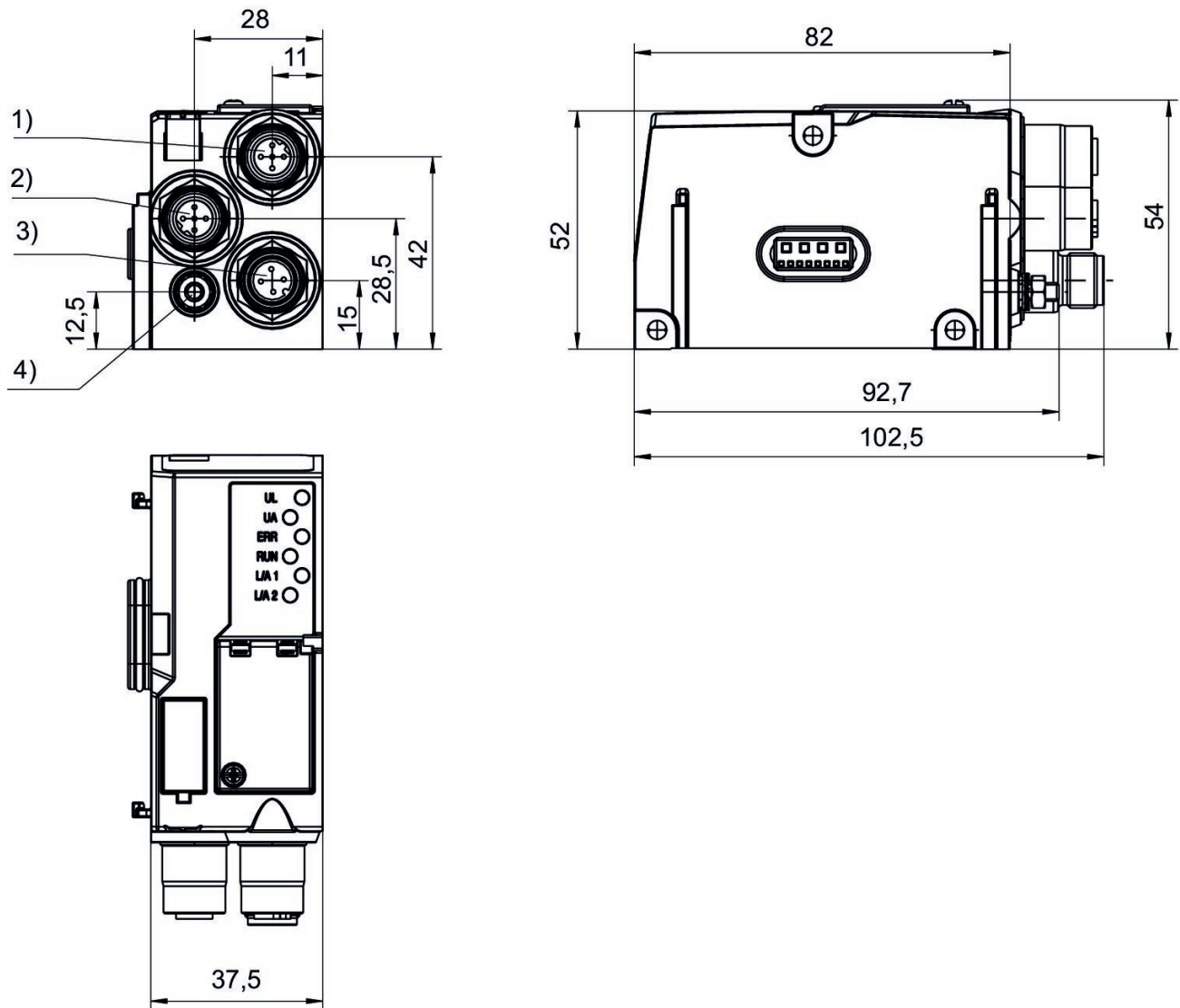
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

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

Material

Housing material
Polyamide fiber-glass reinforced

Part No.
R412018225

Technical information

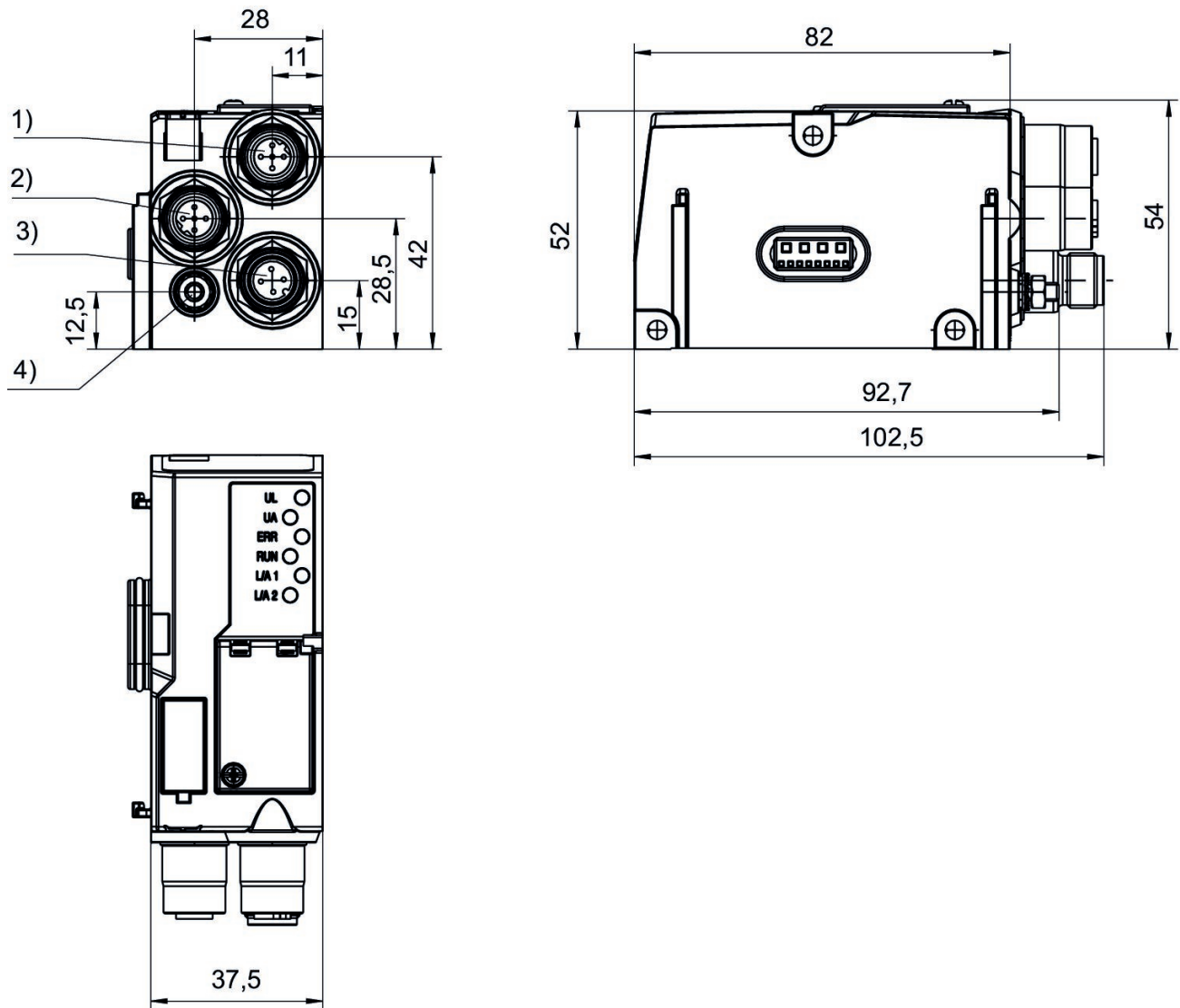
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

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

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.

R412088226

Technical information

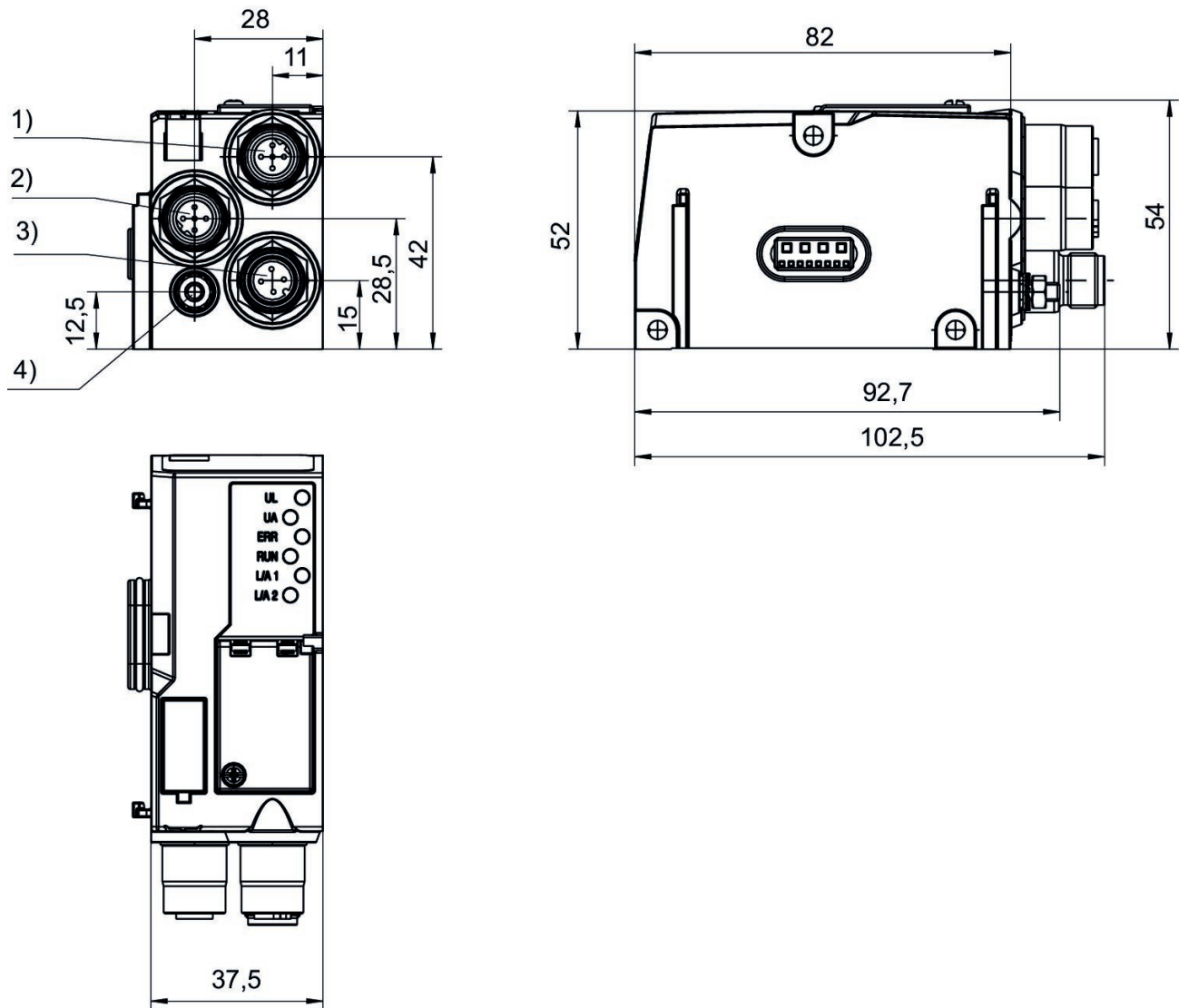
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

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

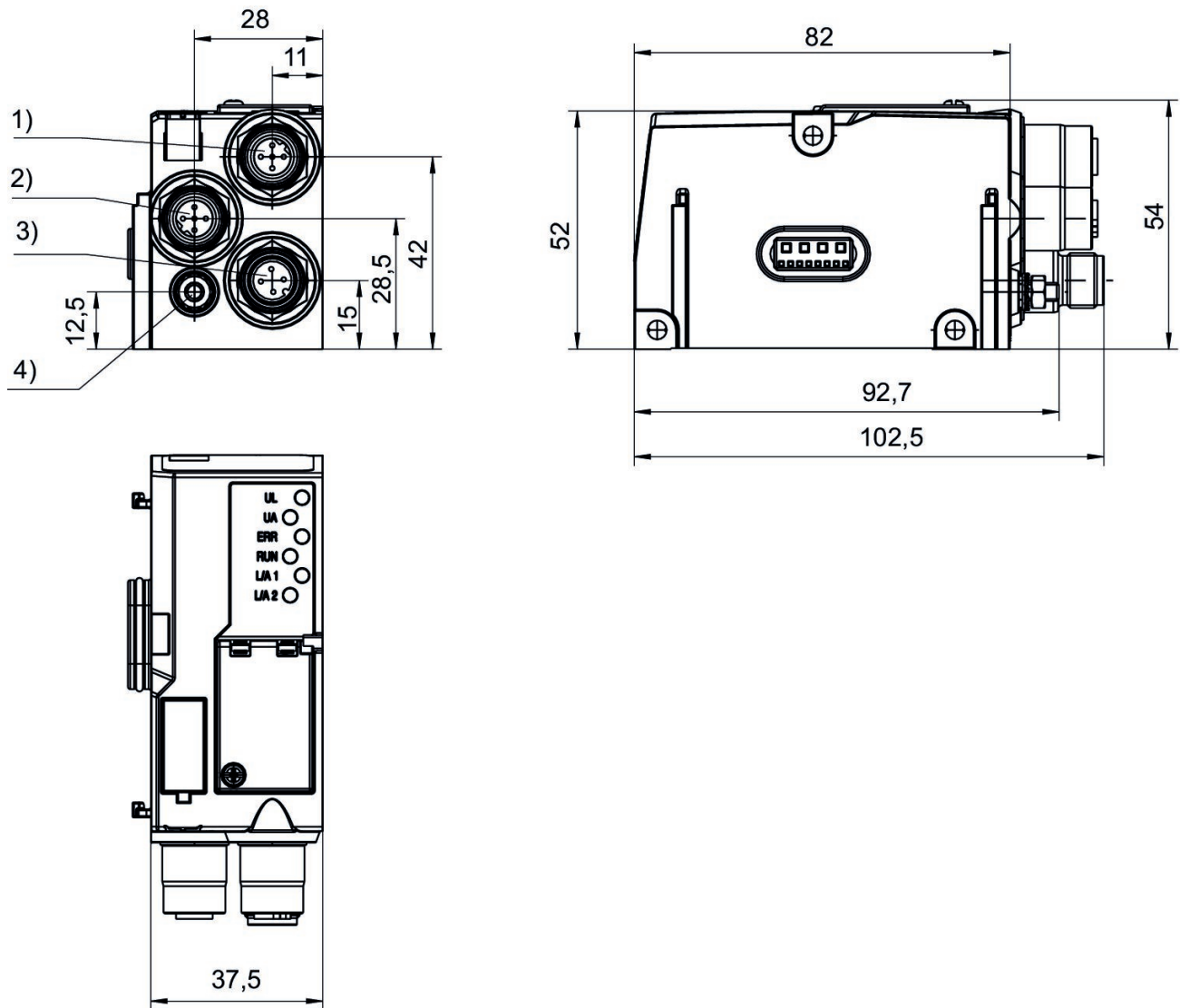
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

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

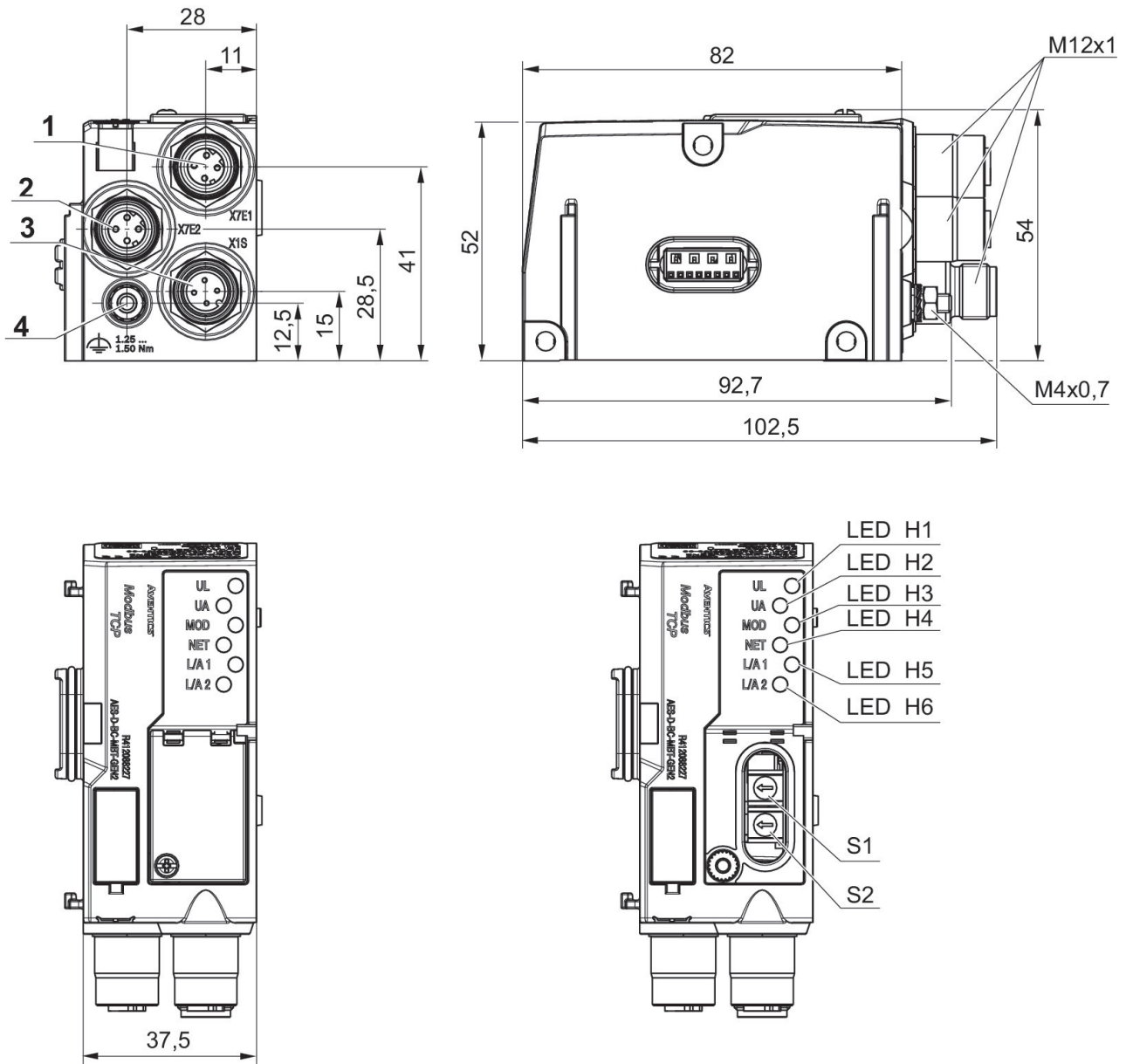
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

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.

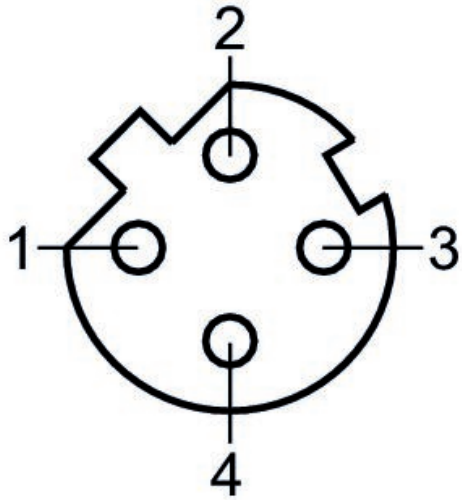
Scope of delivery: Incl. mounting screws 3x

Dimensions

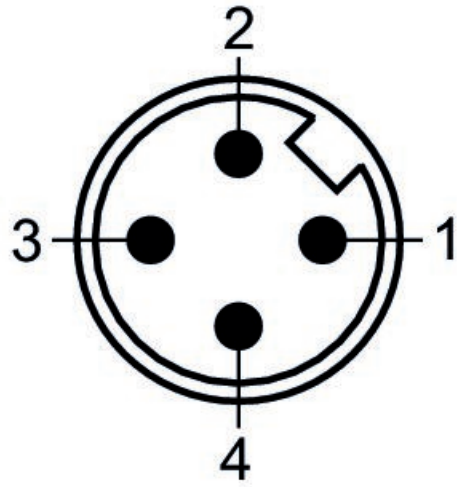


1) Fieldbus connection 2) Fieldbus connection 3) Power supply 4) Functional ground

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

Material

Housing material Polyamide fiber-glass reinforced	Part No. R412018269
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Technical information

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

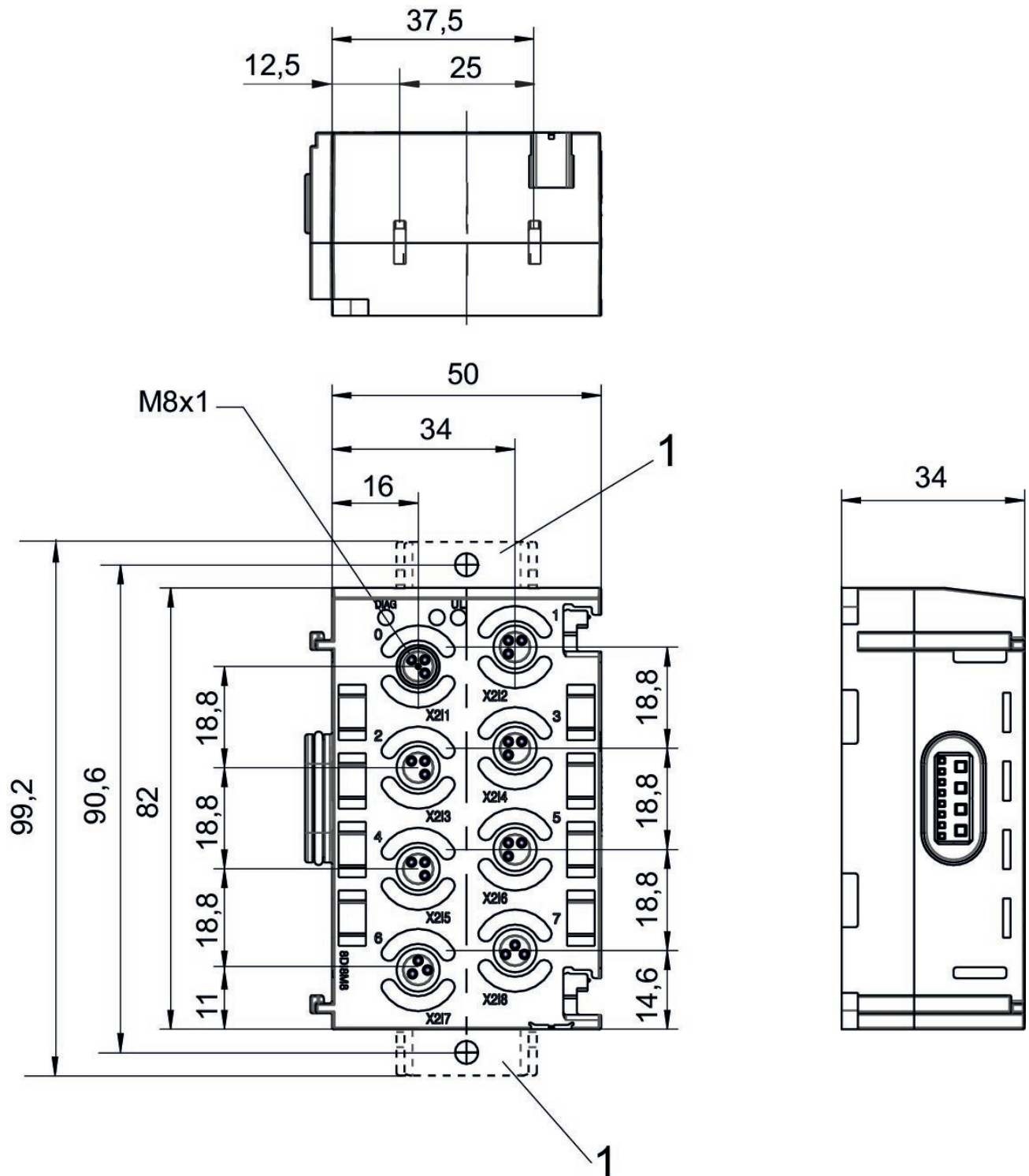
The total current of all outputs (including valves) must not exceed 4 A in the overall system.

Voltage and short-circuit monitoring per LED.

Delivery contents: incl. 2 spring clamp elements and seal

Function specification for fieldbus configuration.

Dimensions

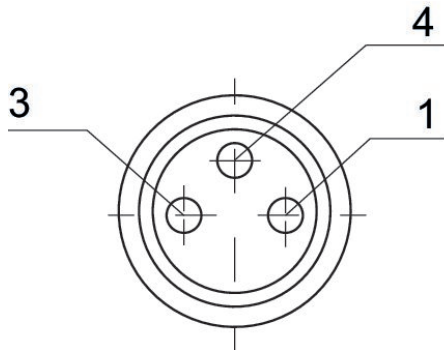


1) Retaining bracket (optional)
Pin assignment M8x1 (3-pin)

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

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

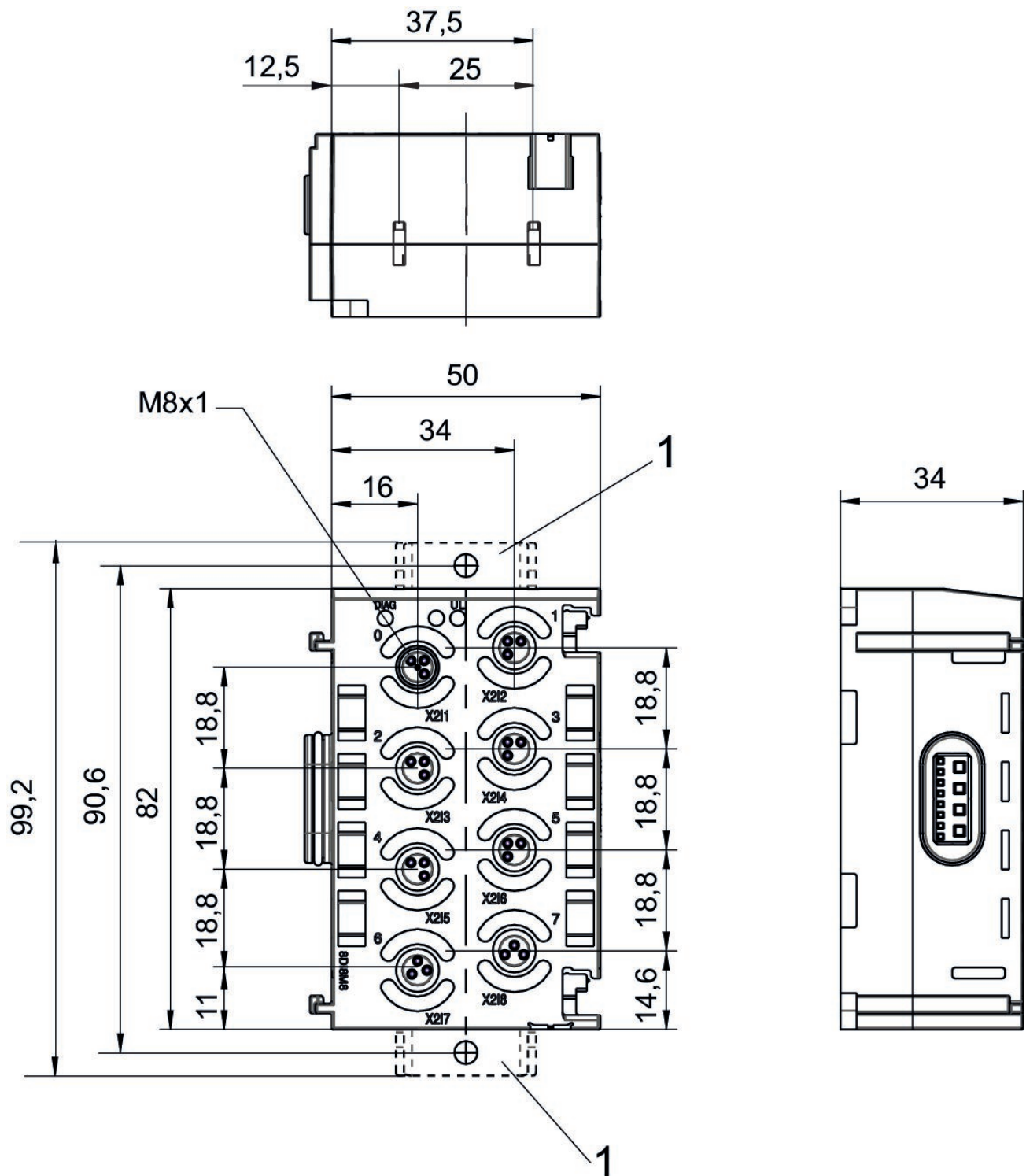
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

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

Dimensions

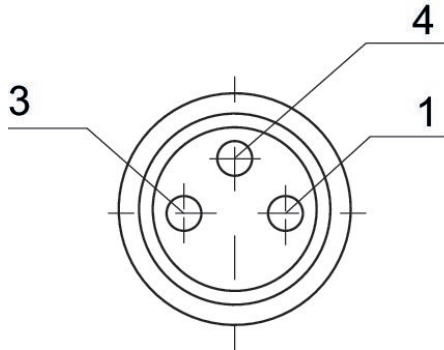


1) Retaining bracket (optional)
Pin assignment M8x1 (3-pin)

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

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

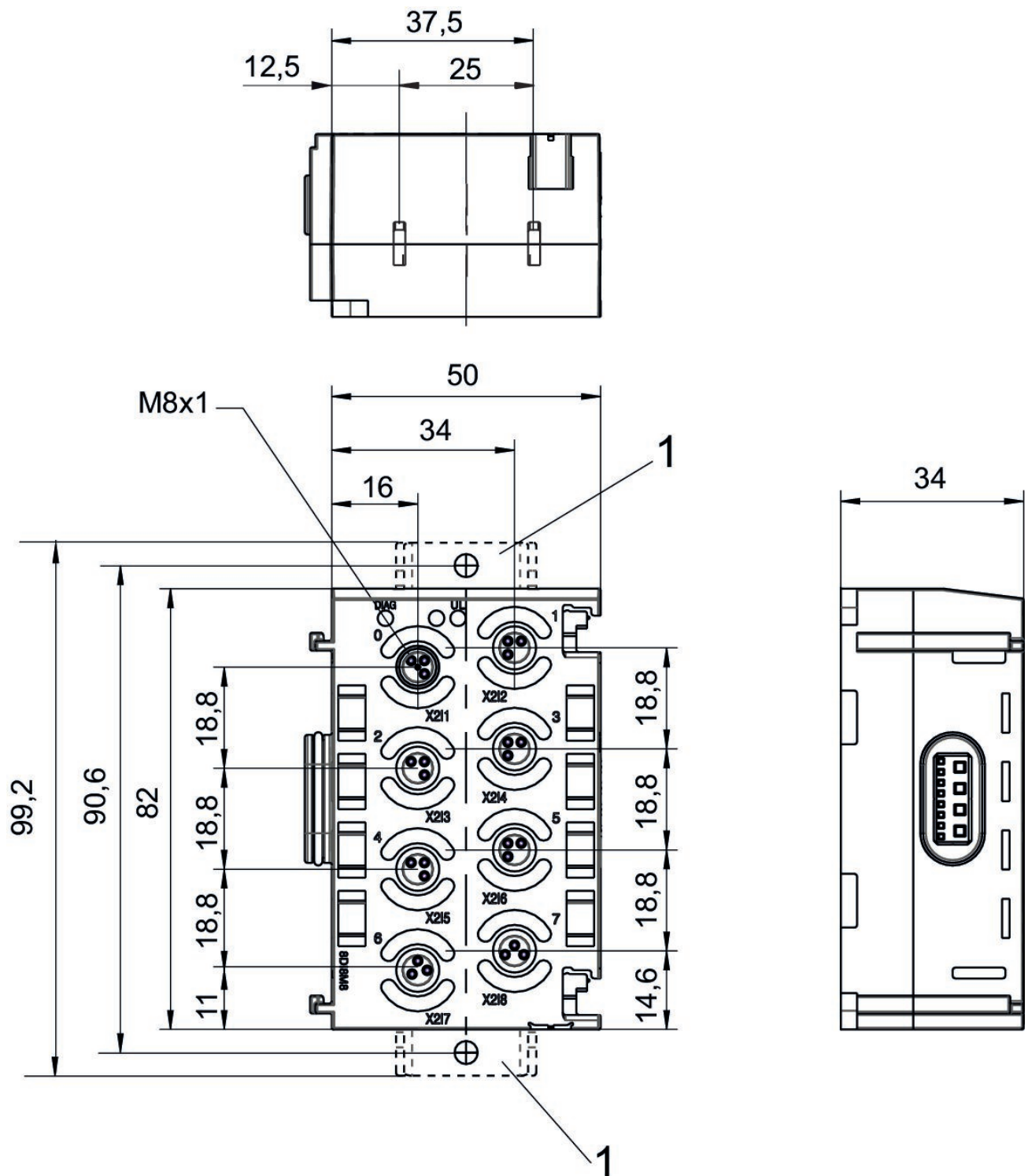
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

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

Dimensions

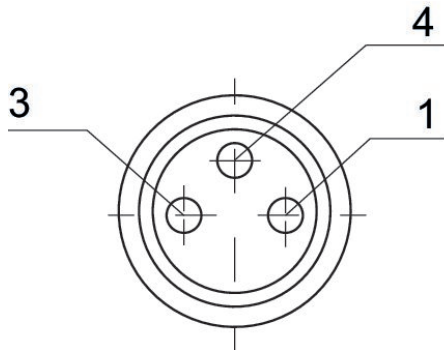


1) Retaining bracket (optional)
Pin assignment M8x1 (3-pin)

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

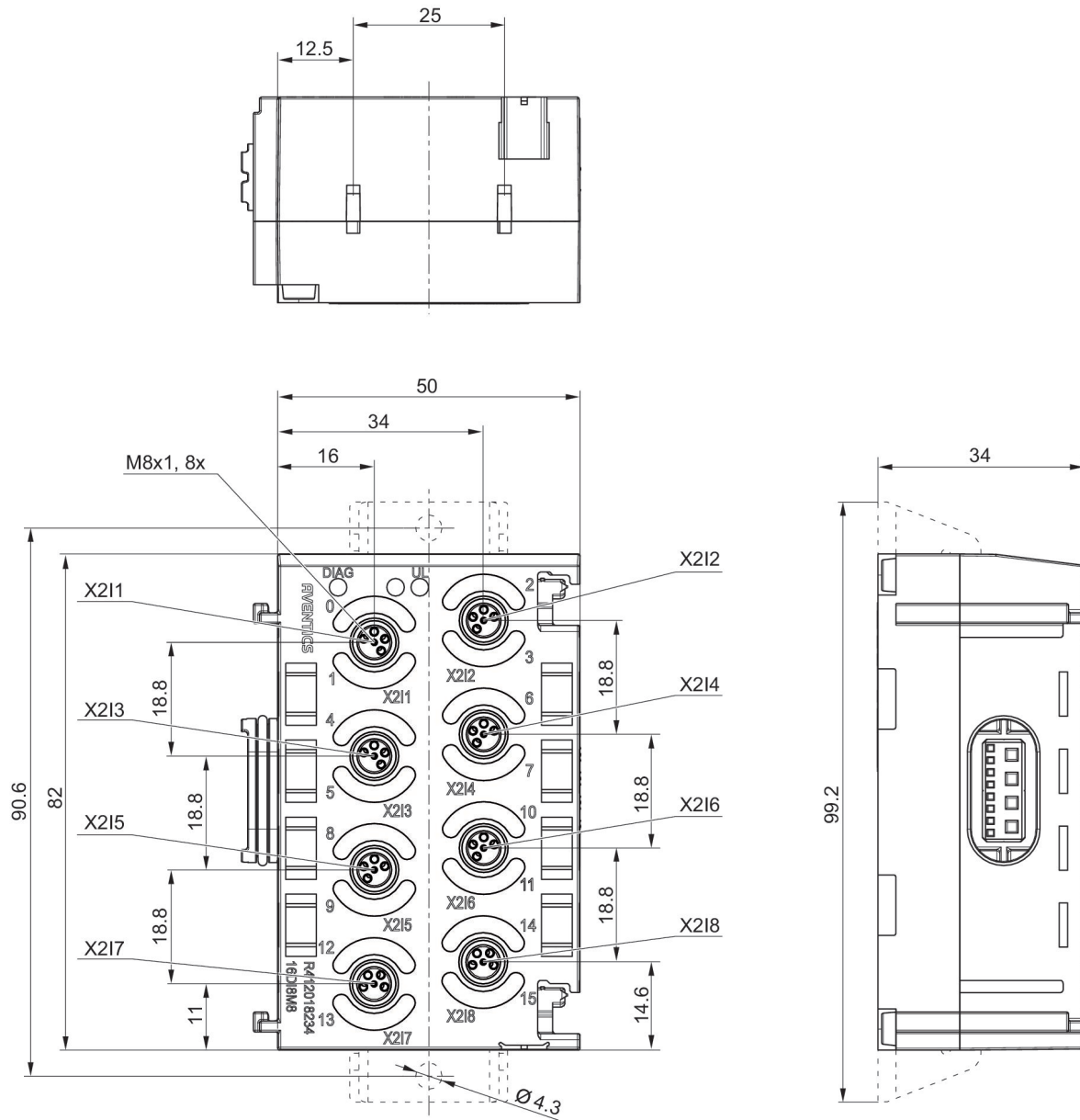
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

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

Dimensions

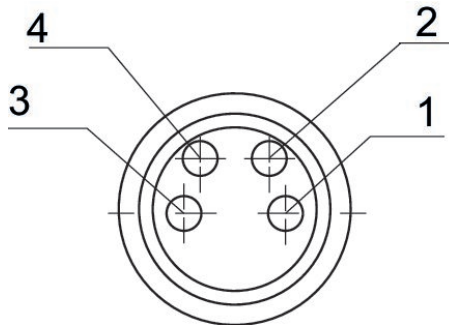


1) Retaining bracket (optional)
Pin assignment M8x1 (4-pin)

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.

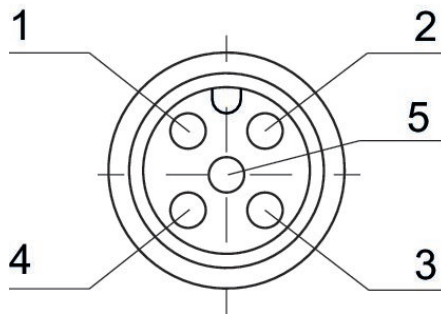
The total current of all outputs (including valves) must not exceed 4 A in the overall system.

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

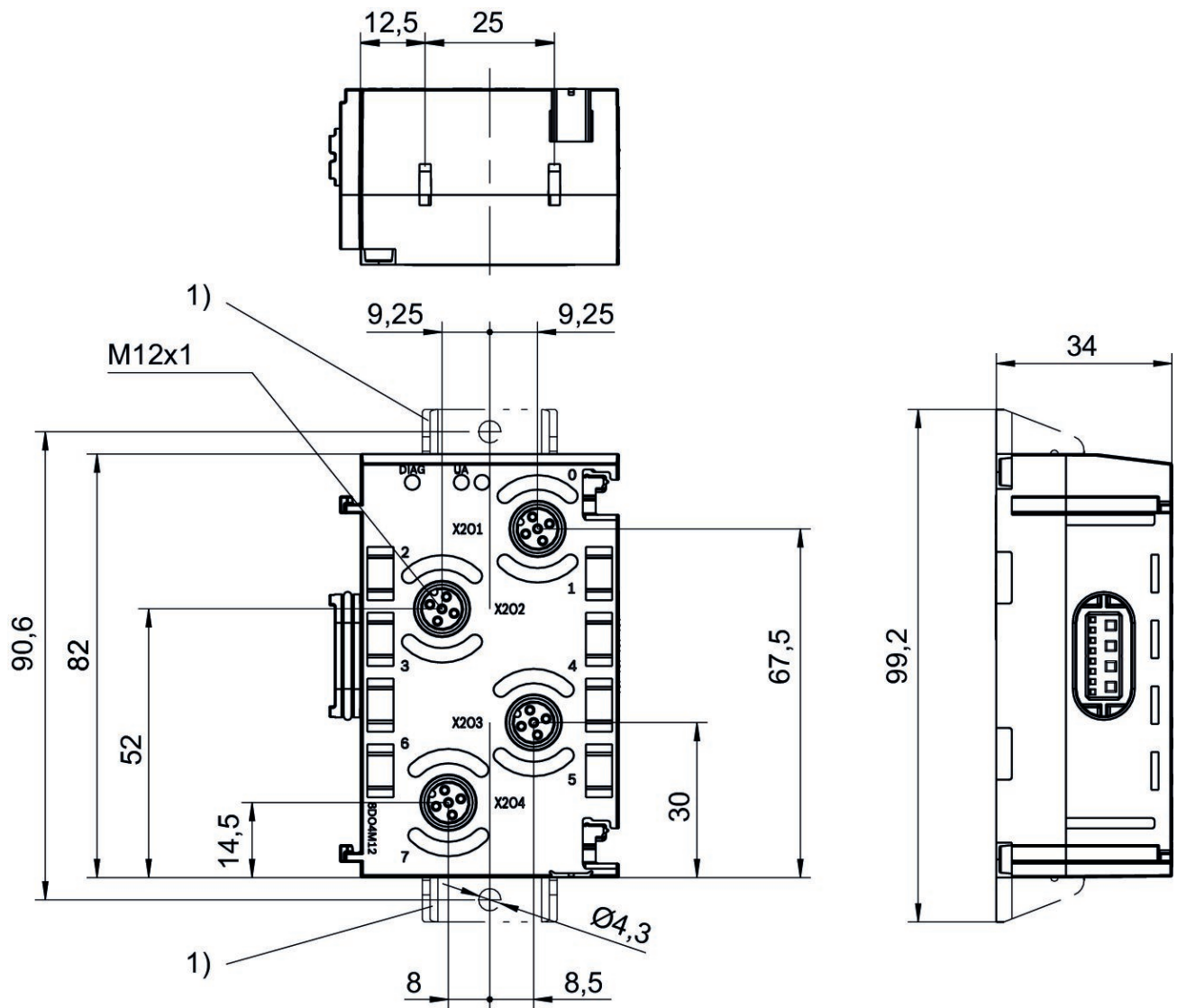
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

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

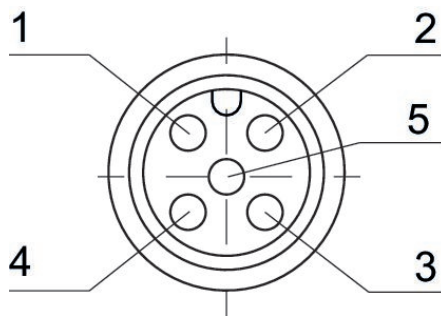
Dimensions



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.

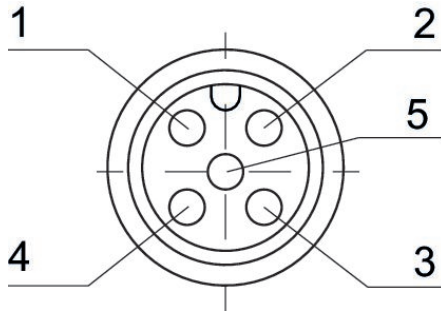
The total current of all outputs (including valves) must not exceed 4 A in the overall system.

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

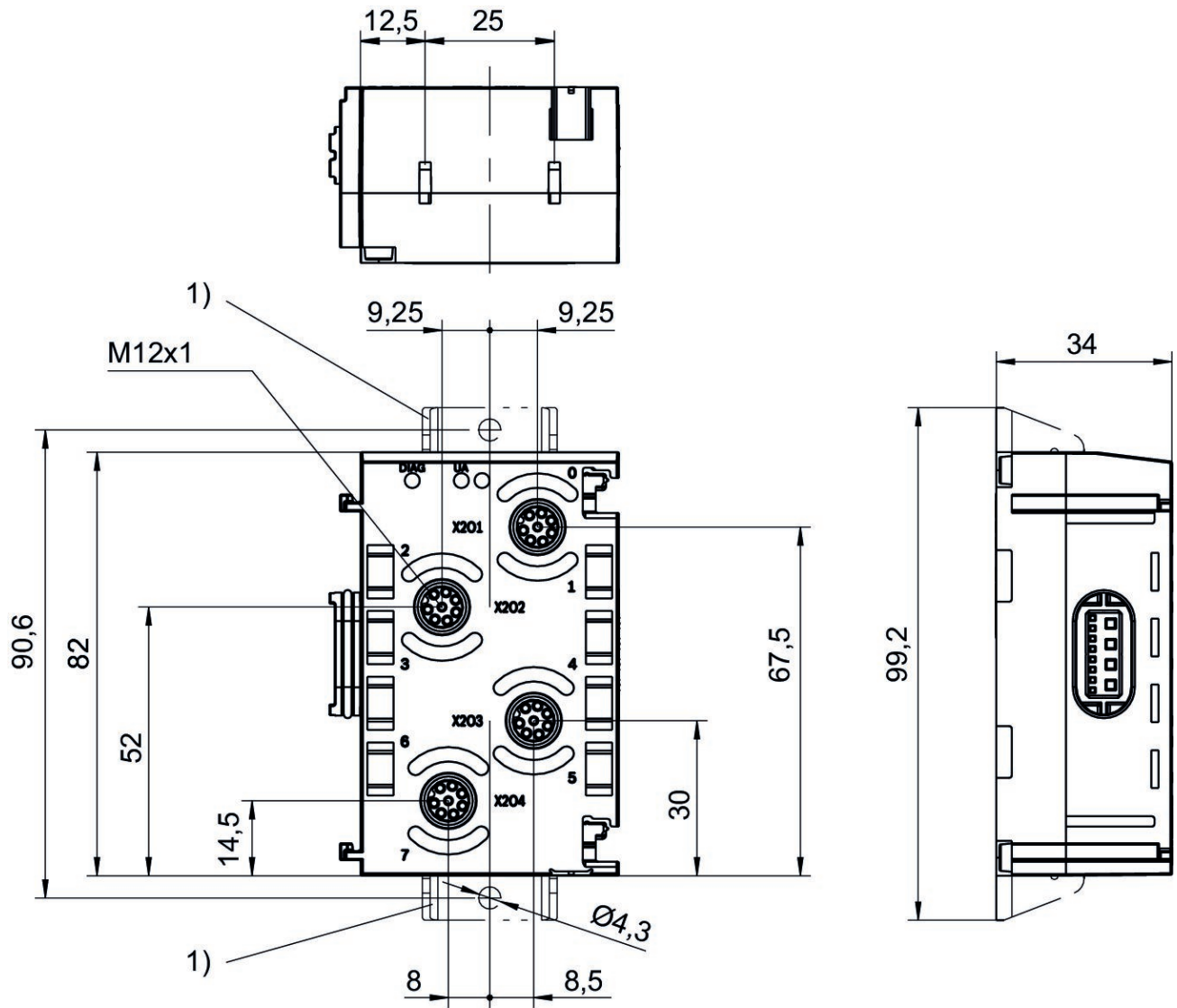
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

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

Voltage and short-circuit monitoring per LED.

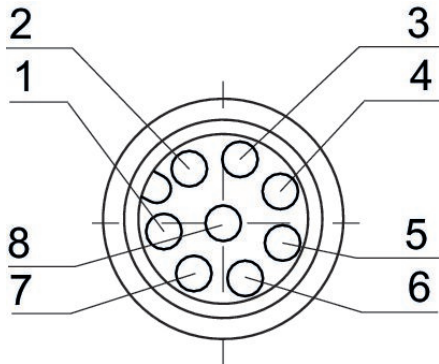
Delivery contents: incl. 2 spring clamp elements and seal

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

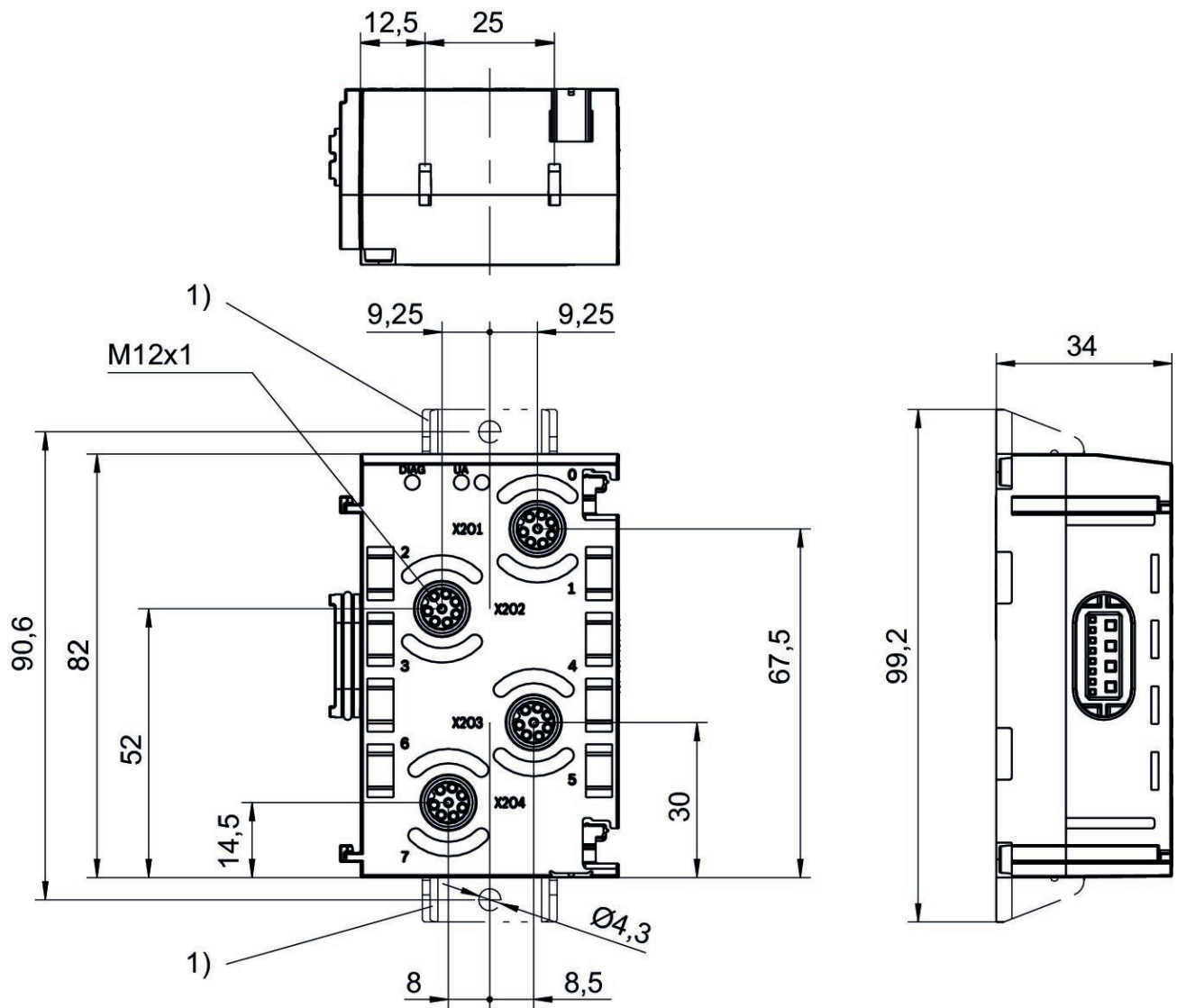
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

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

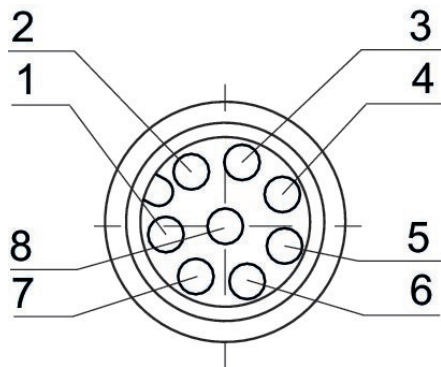
Dimensions



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		

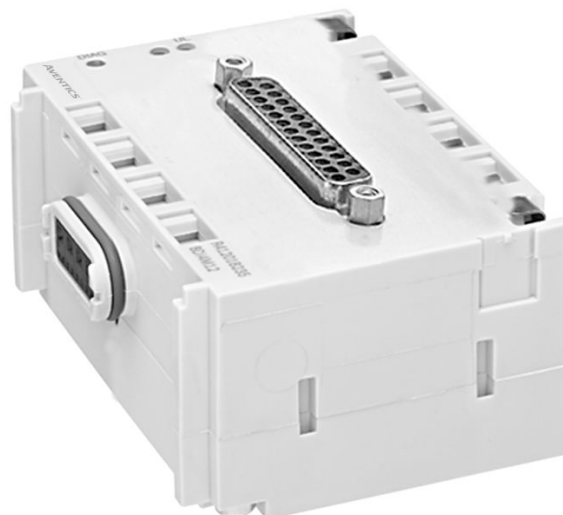
X = bit value

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

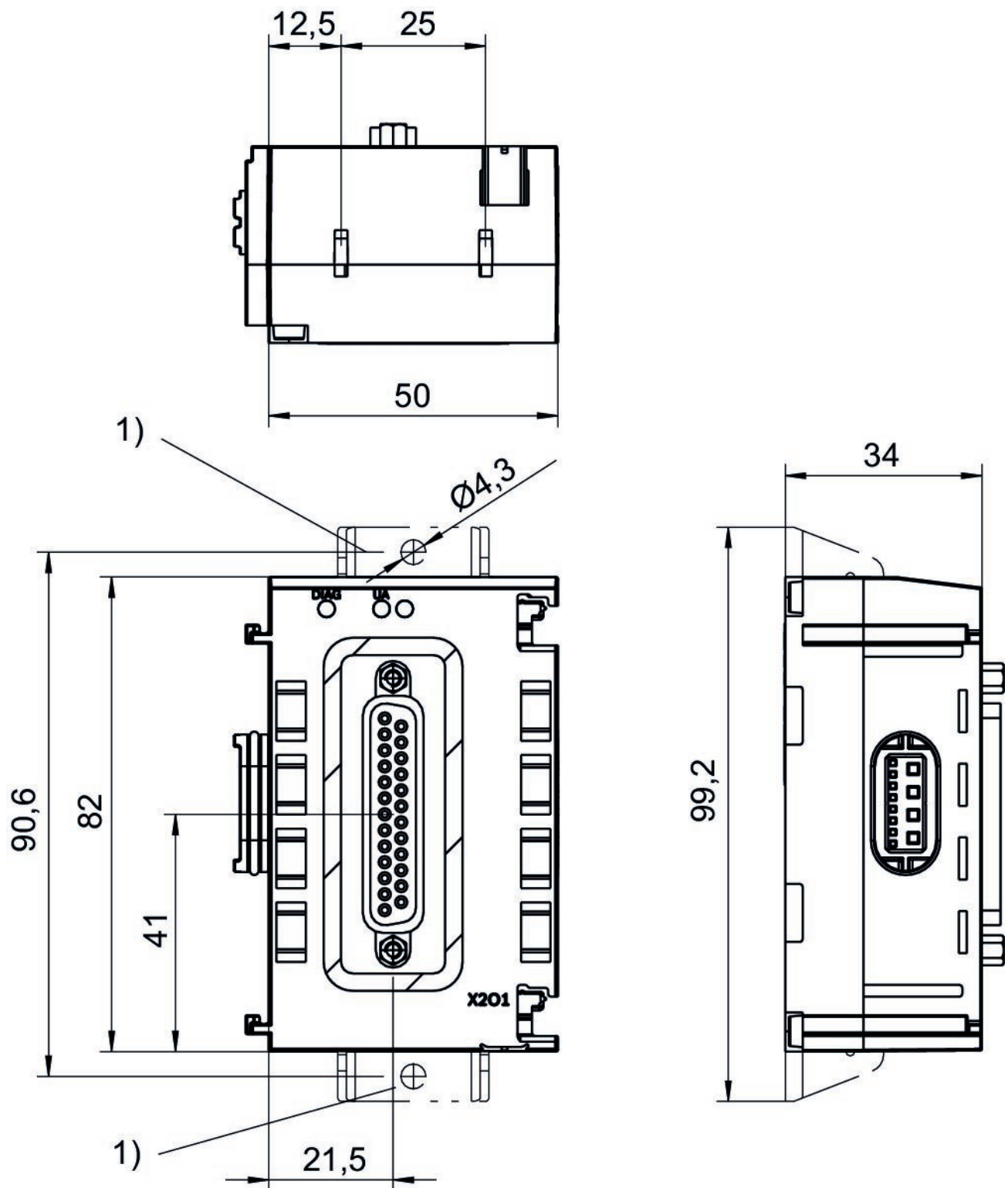
Technical information

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.

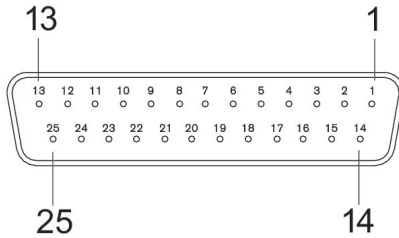
Delivery contents: incl. 2 spring clamp elements and seal

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

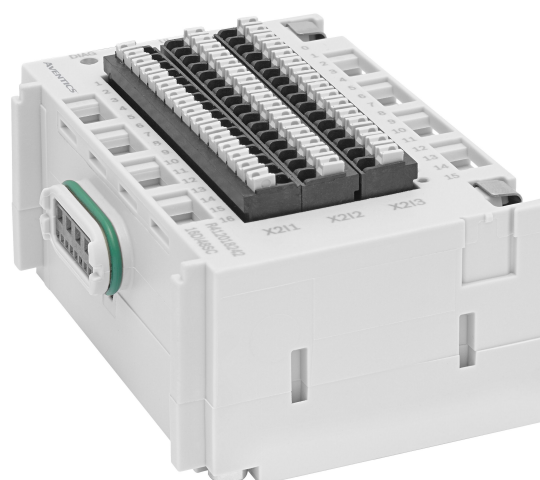
X = bit value

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

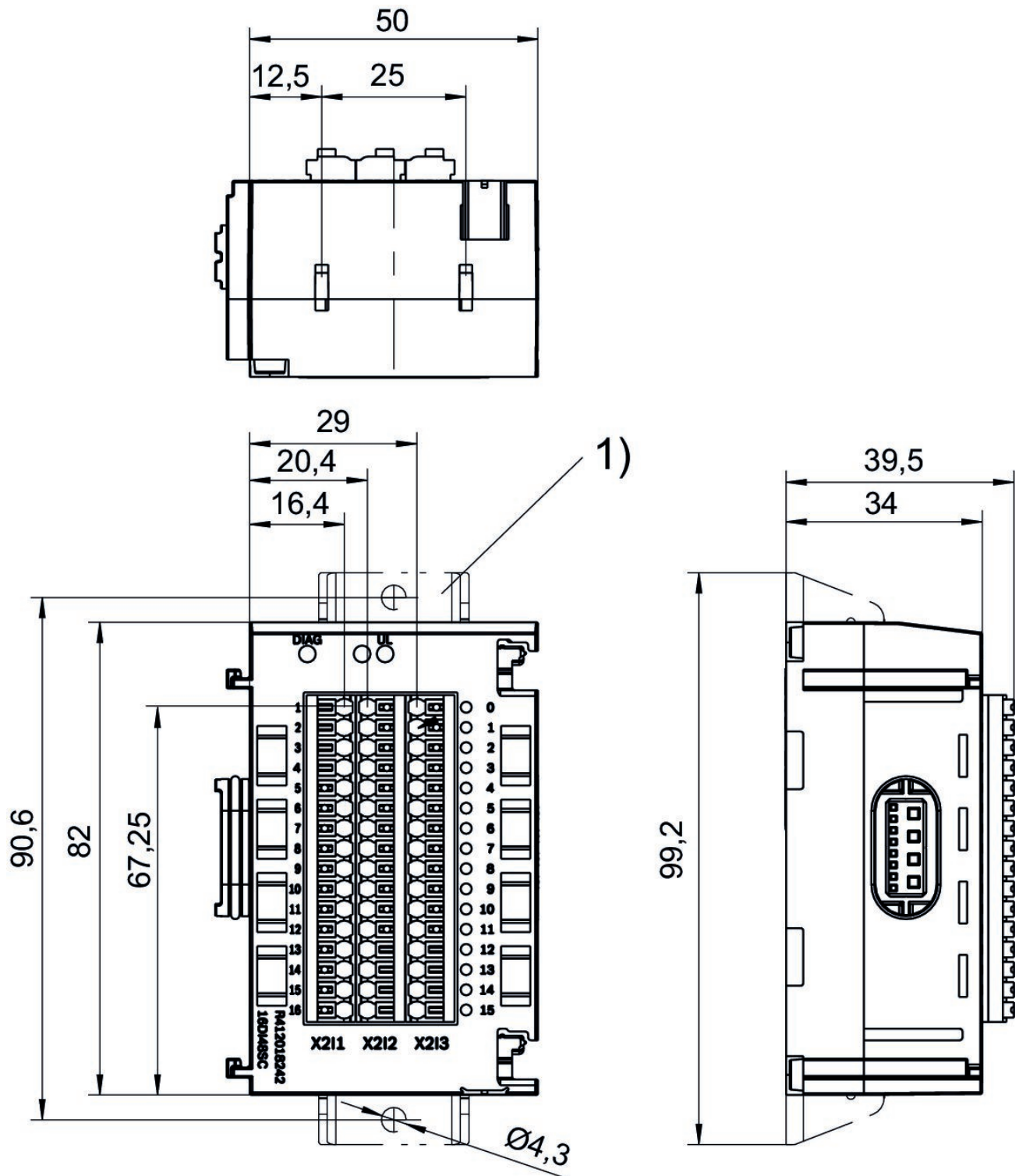
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

Voltage and short-circuit monitoring per LED.

The clamp area for stranded wires is between 0.2 and 1.5 mm².

Delivery contents: incl. 2 spring clamp elements and seal

Dimensions



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

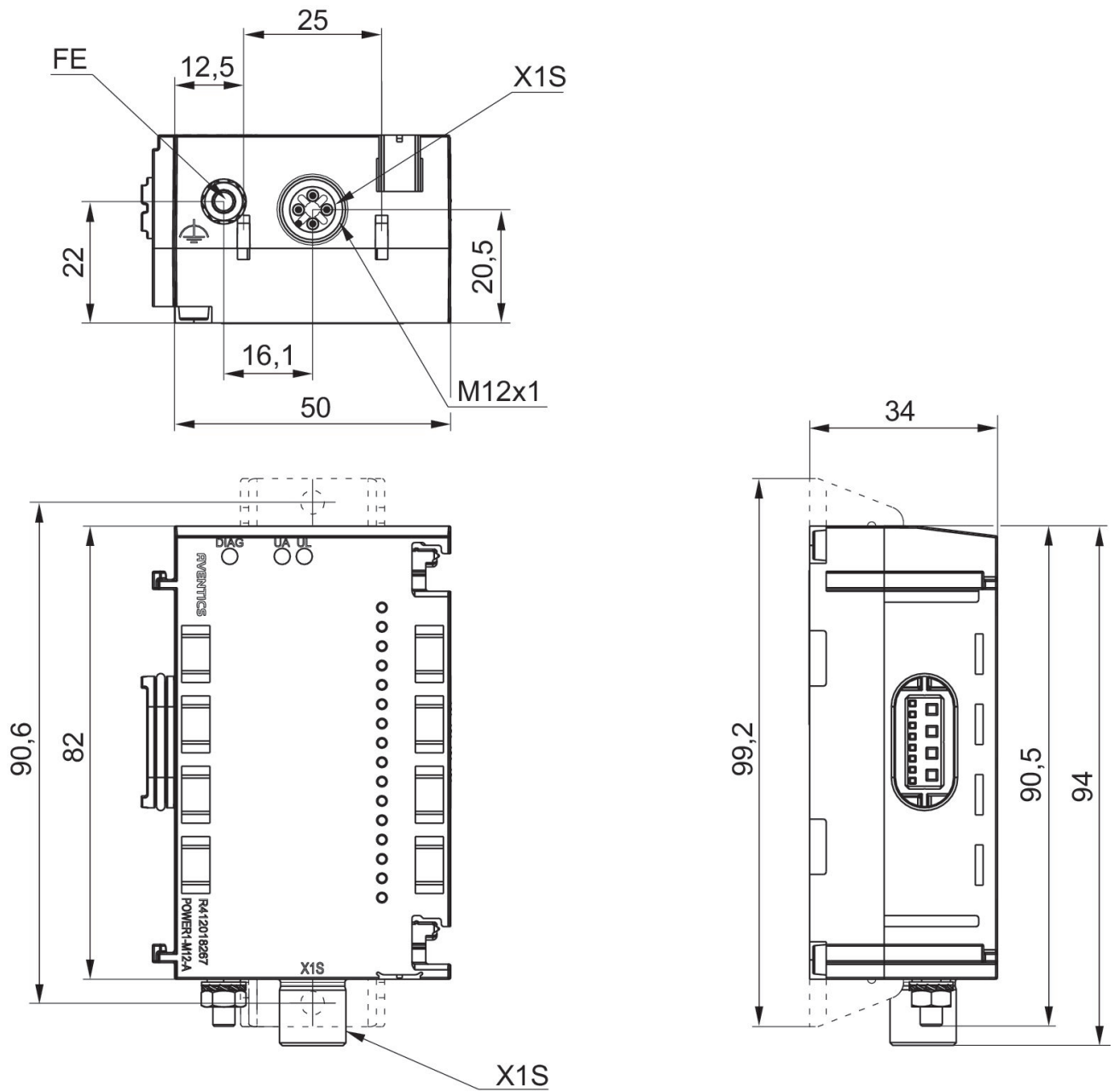
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

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

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

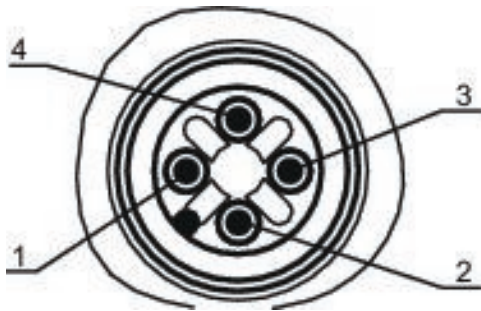
The supply voltage is galvanically isolated from the right-hand module.

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

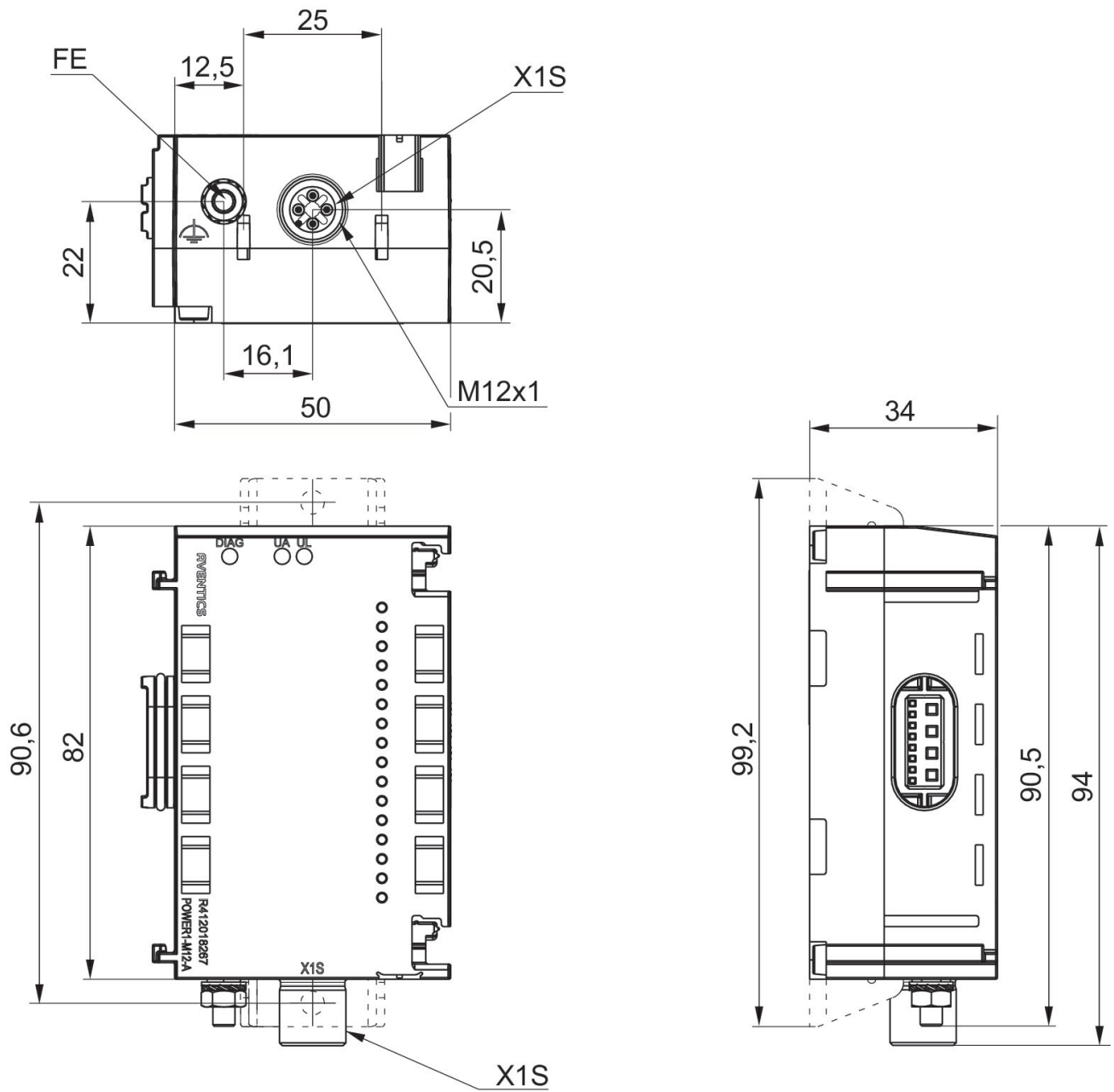
You will find assignment schemes for the product in the operating instructions, or contact the nearest AVENTICS sales office.

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

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

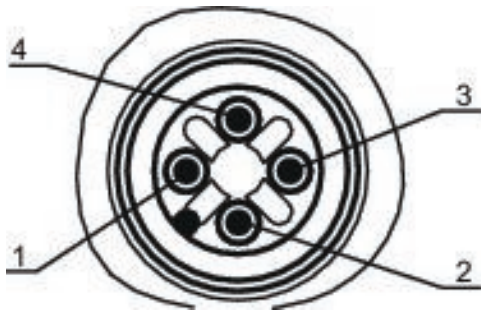
The supply voltage is galvanically isolated from the right-hand module.

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

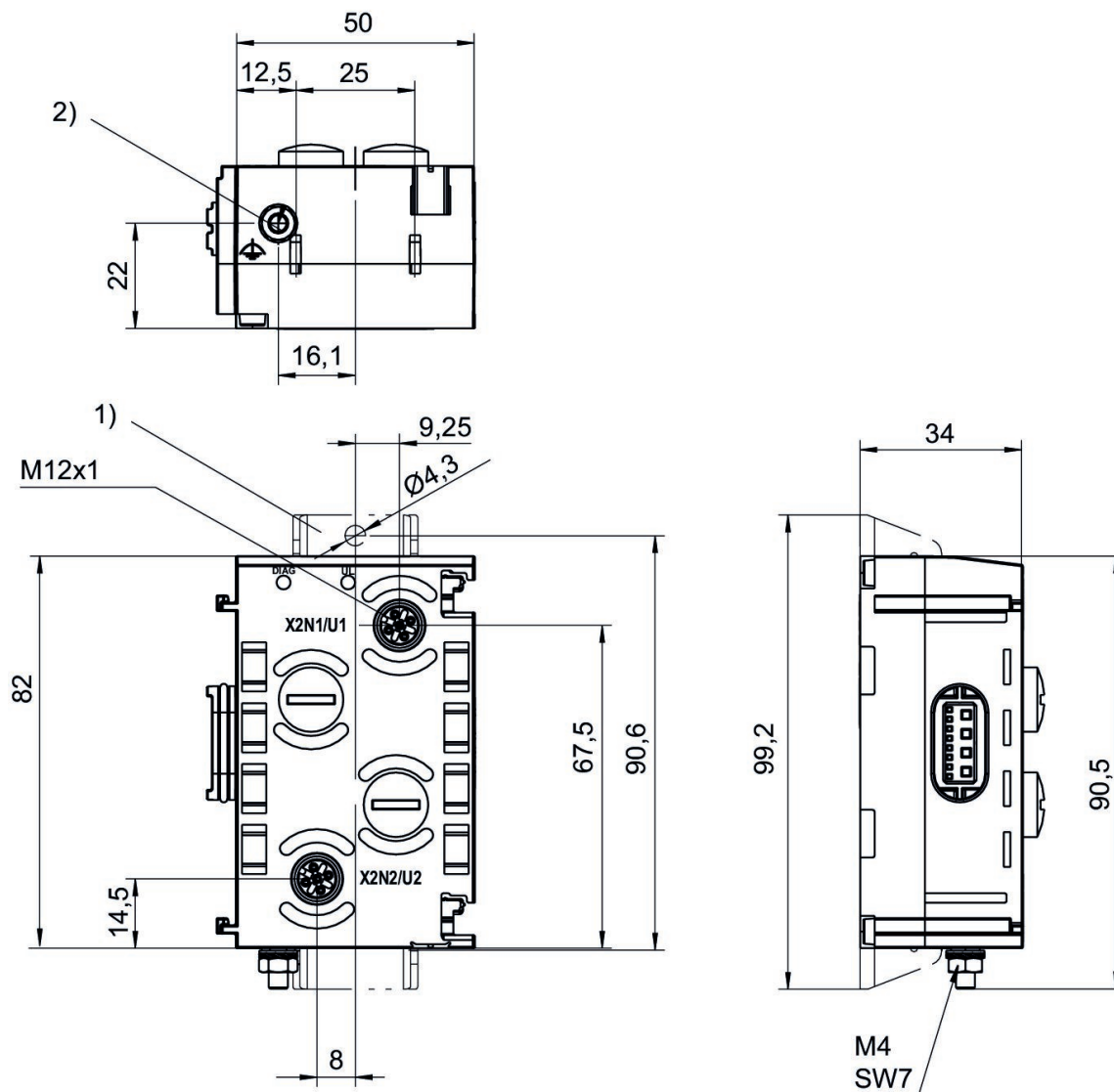
Voltage and short-circuit monitoring per LED.

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

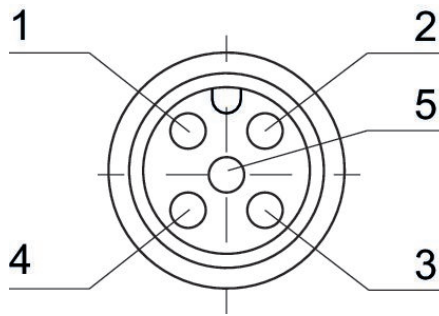
Dimensions



- 1) Retaining bracket (optional)
- 2) Ground

Pin assignments

Socket (female)



Pin	Socket (female) X2N1 - X2N2 2AI2M12-E	Socket (female) X2U1 - X2U4 4AI4M12-E	Socket (female) X2U1 - X2U2 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.

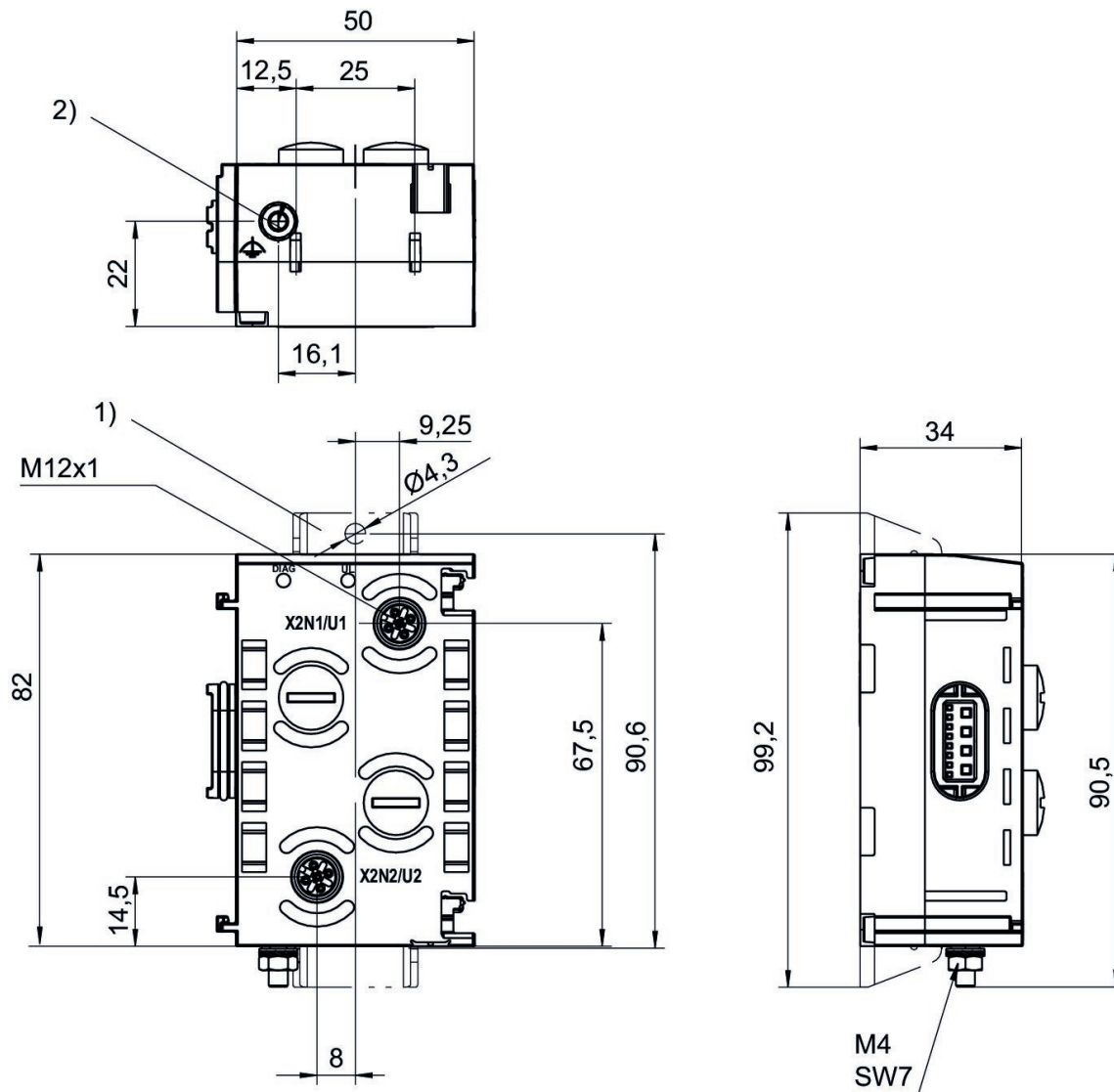
Voltage and short-circuit monitoring per LED.

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.

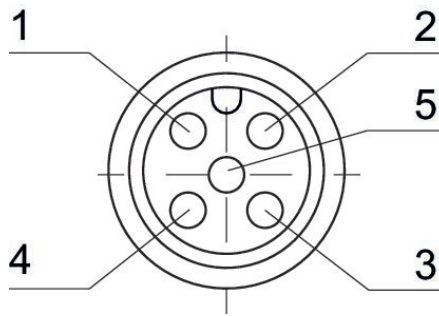
Dimensions



- 1) Retaining bracket (optional)
- 2) Ground

Pin assignments

Socket (female)



Pin	Socket (female) X2N1 - X2N2 2AI2M12-E	Socket (female) X2U1 - X2U4 4AI4M12-E	Socket (female) X2U1 - X2U2 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 / ± 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.

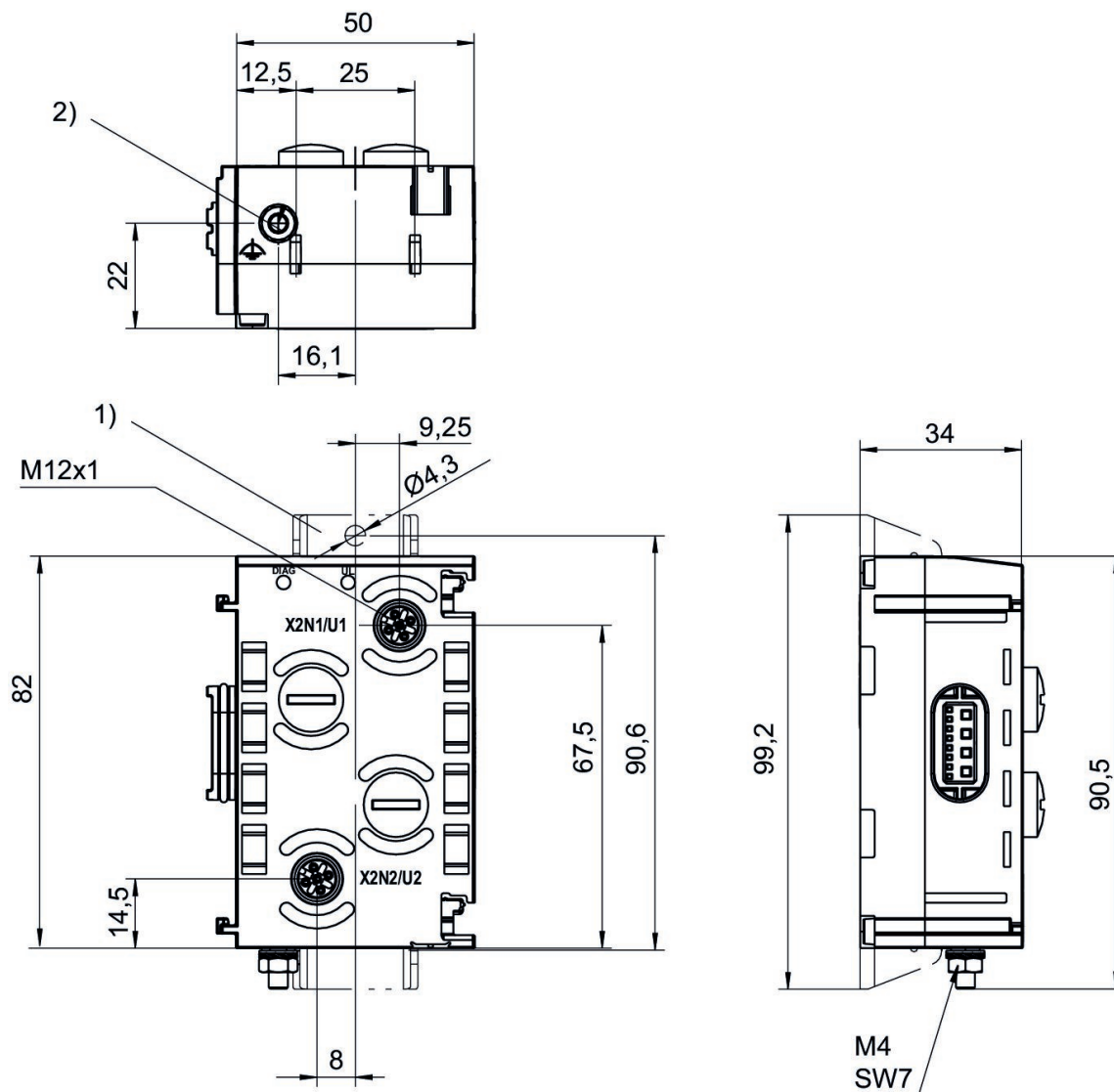
Voltage and short-circuit monitoring per LED.

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

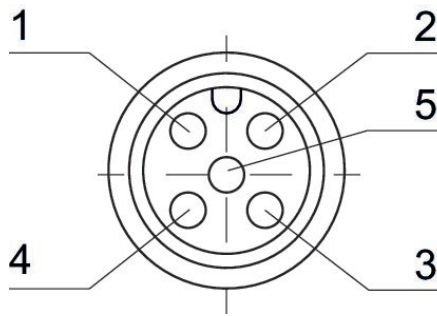
Dimensions



- 1) Retaining bracket (optional)
- 2) Ground

Pin assignments

Socket (female)



Pin	Socket (female) X2N1 - X2N2 2AI2M12-E	Socket (female) X2U1 - X2U4 4AI4M12-E	Socket (female) X2U1 - X2U2 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 / ± 10 V
2 - 10 V / ± 10 V
0 - 20 mA / ± 20 mA
4 - 20 mA / ± 20 mA

Analog outputs
0 - 10 V / ± 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 1.2 A	Generic emission standard in accordance with norm EN 61000-6-4
Protection class IP65	Generic immunity standard in accordance with norm EN 61000-6-2
Logic/actuator voltage Galvanically isolated	Weight 0.11 kg
Diagnosis Short circuit Undervoltage	

Material

Housing material Polyamide fiber-glass reinforced	Part No. R412018287
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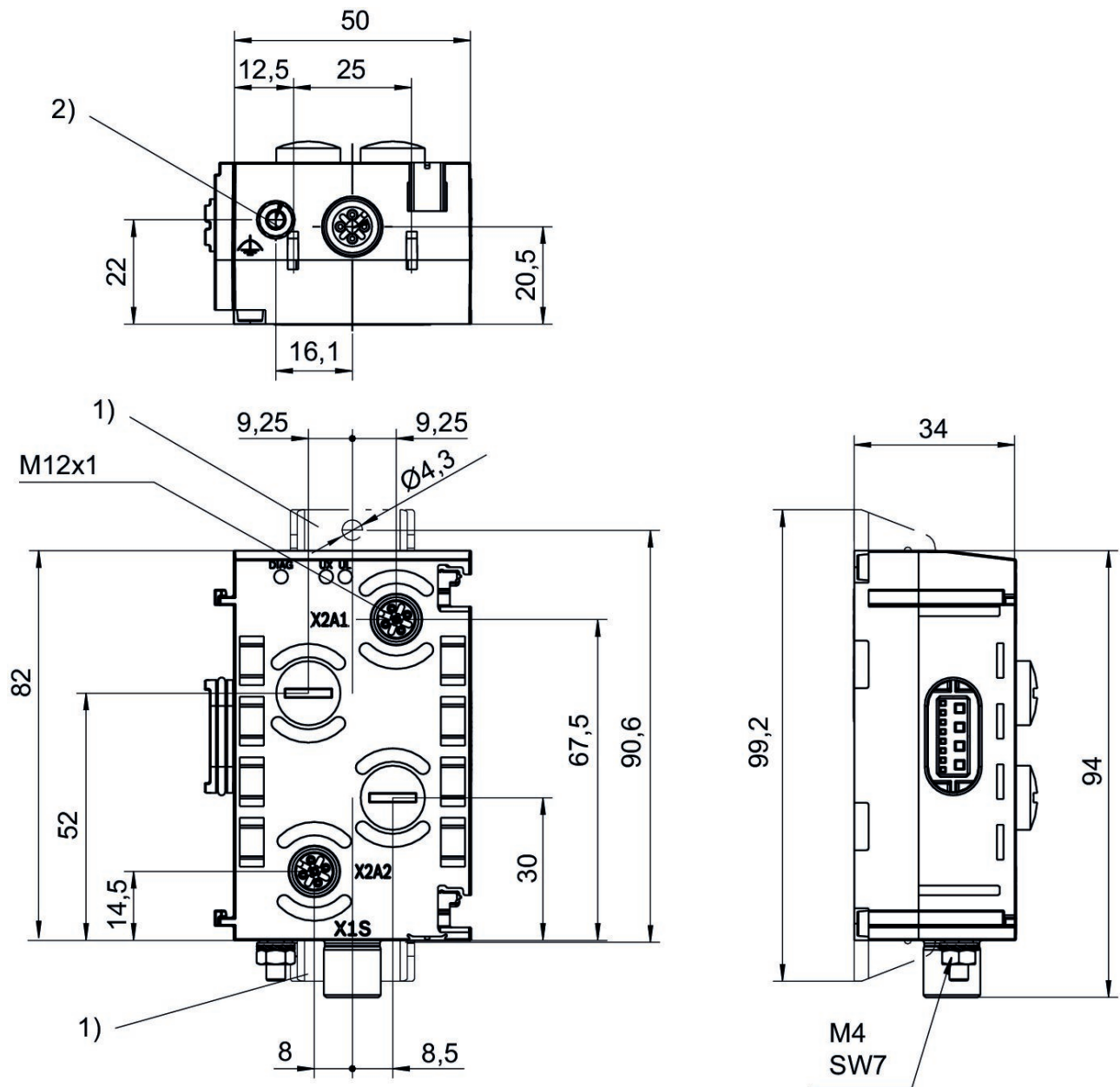
Technical information

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.

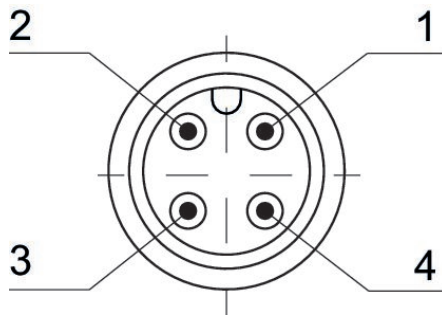
Delivery contents: incl. 2 spring clamp elements and seal
freely selectable signals, configurable

Dimensions



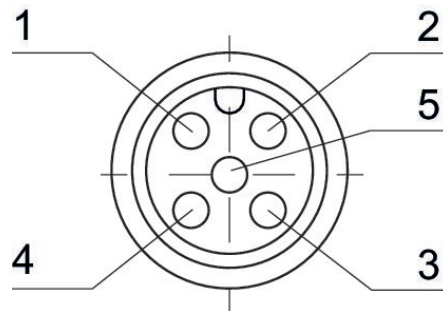
- 1) Retaining bracket (optional)
- 2) Ground

Plug (male)



Pin assignments

Socket (female)



Pin	Socket (female) X2A1 - 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 internally with ground 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 / ± 10 V
2 - 10 V / ± 10 V
0 - 20 mA / ± 20 mA
4 - 20 mA / ± 20 mA

Analog outputs
0 - 10 V / ± 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.

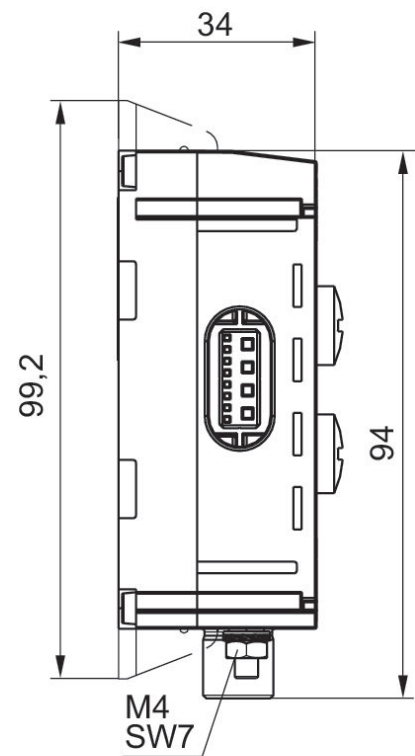
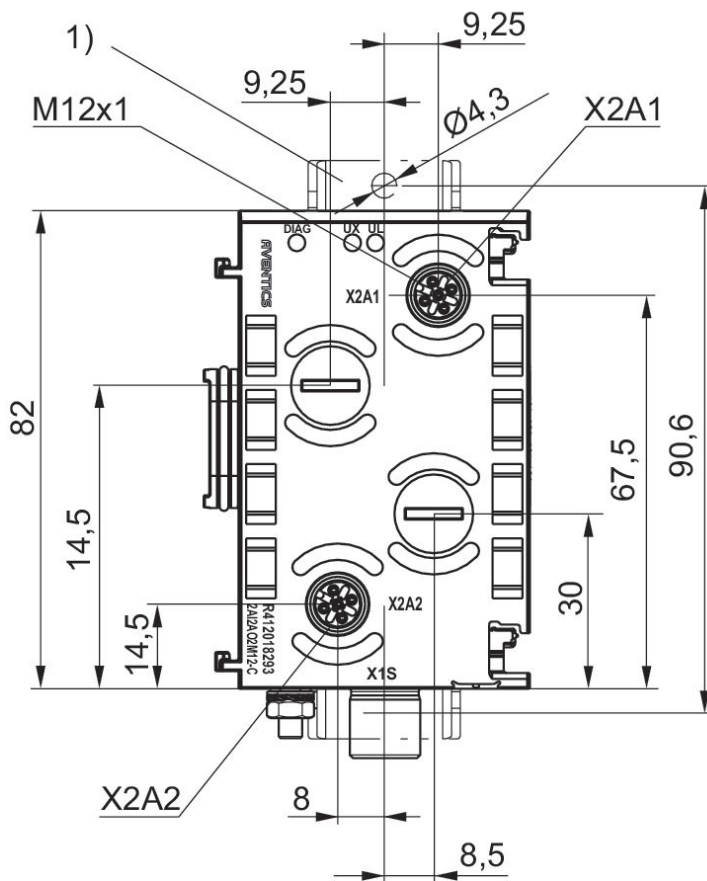
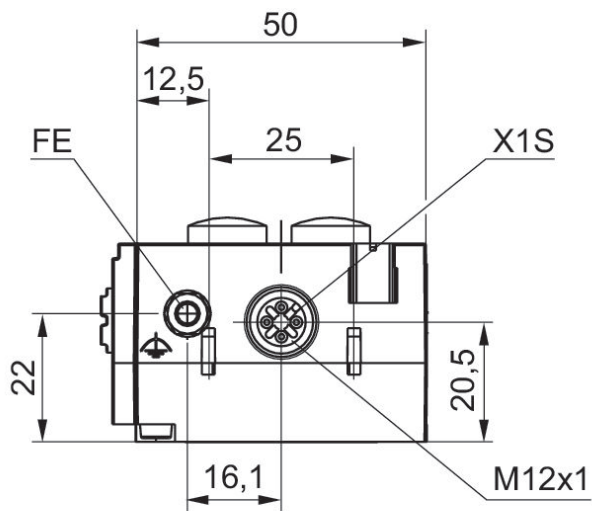
The total current of all outputs (including valves) must not exceed 4 A in the overall system.

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

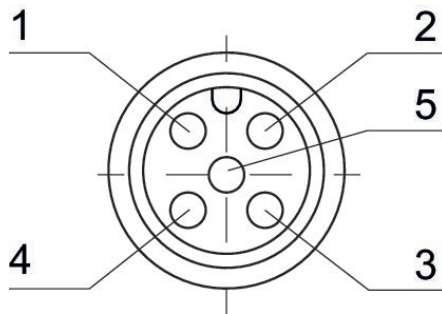
Dimensions



1) Retaining bracket (optional)

Pin assignments

Socket (female)



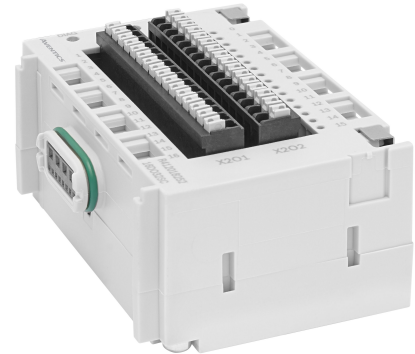
Pin	Socket (female) X2A1 - X2A2	Plug (male) X1S
1	24 V DC	-
2	Output signal	24 V DC
3	0 V DC	-
4	Input signal	0 V DC
5	Shield, connected internally with ground screw 2)	-

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.

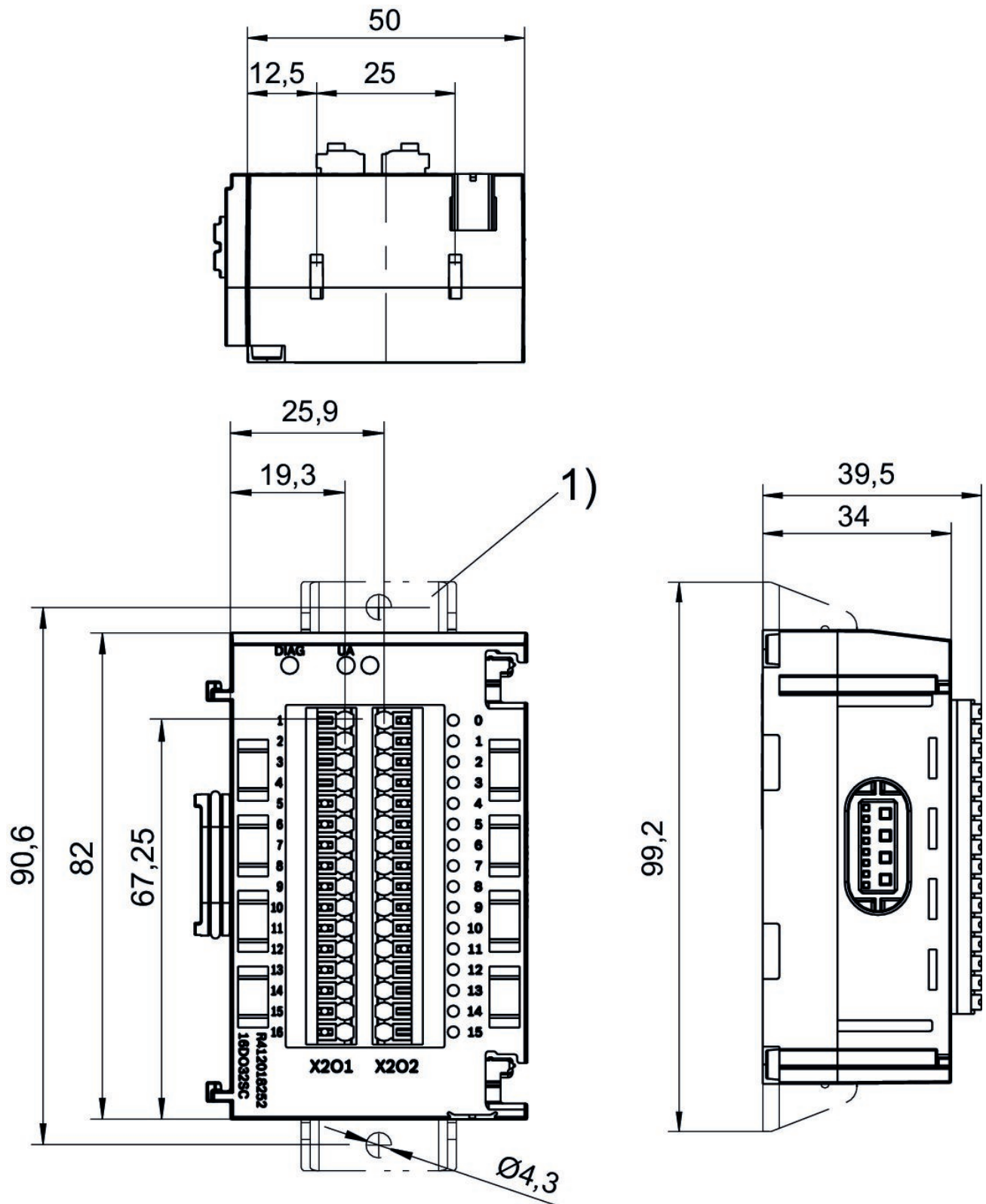
The total current of all outputs (including valves) must not exceed 4 A in the overall system.

Voltage and short-circuit monitoring per LED.

The clamp area for stranded wires is between 0.2 and 1.5 mm².

Delivery contents: incl. 2 spring clamp elements and seal

Dimensions



1) Retaining bracket (optional)

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

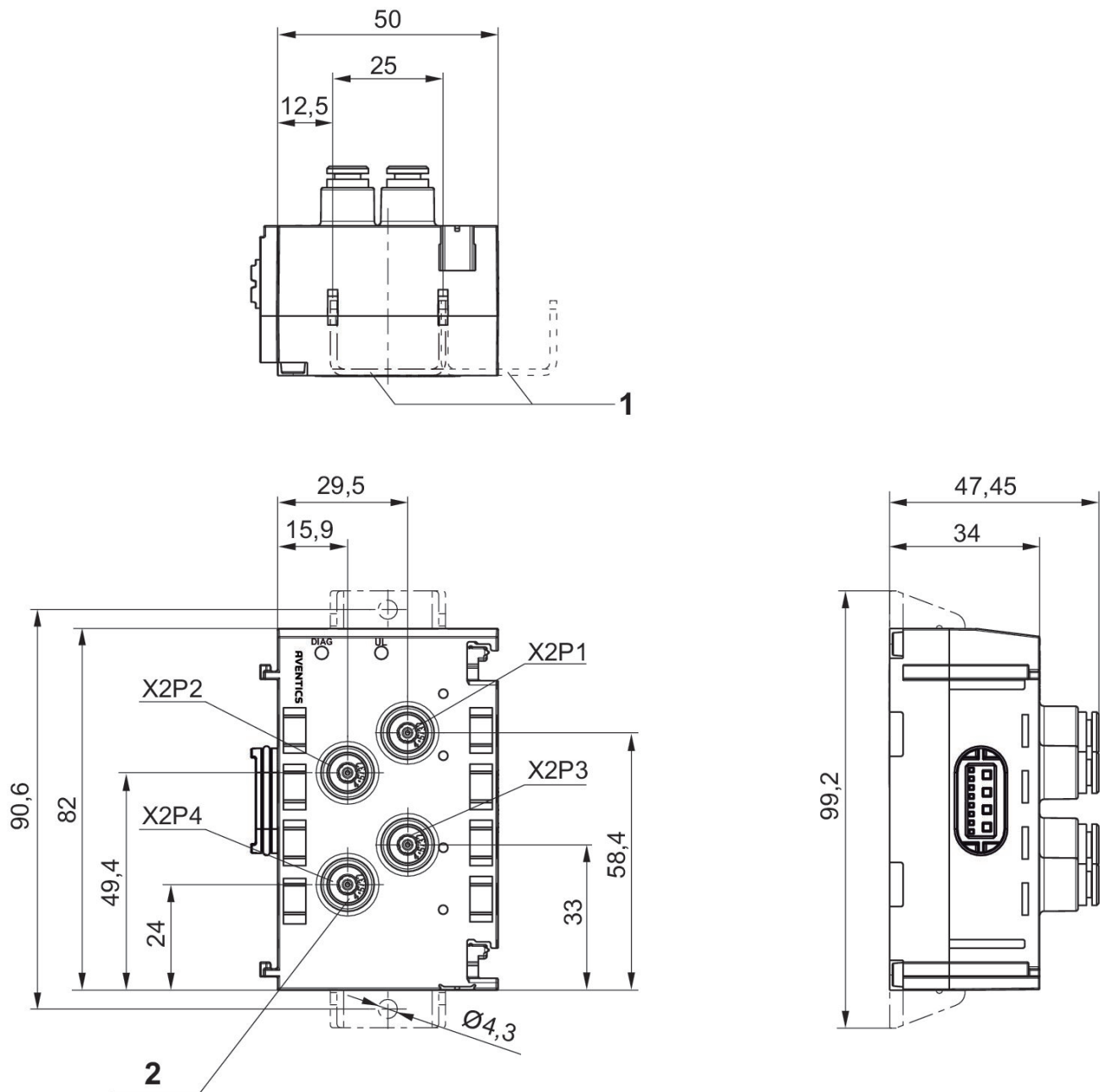
Technical information

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 .

Dimensions



- 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

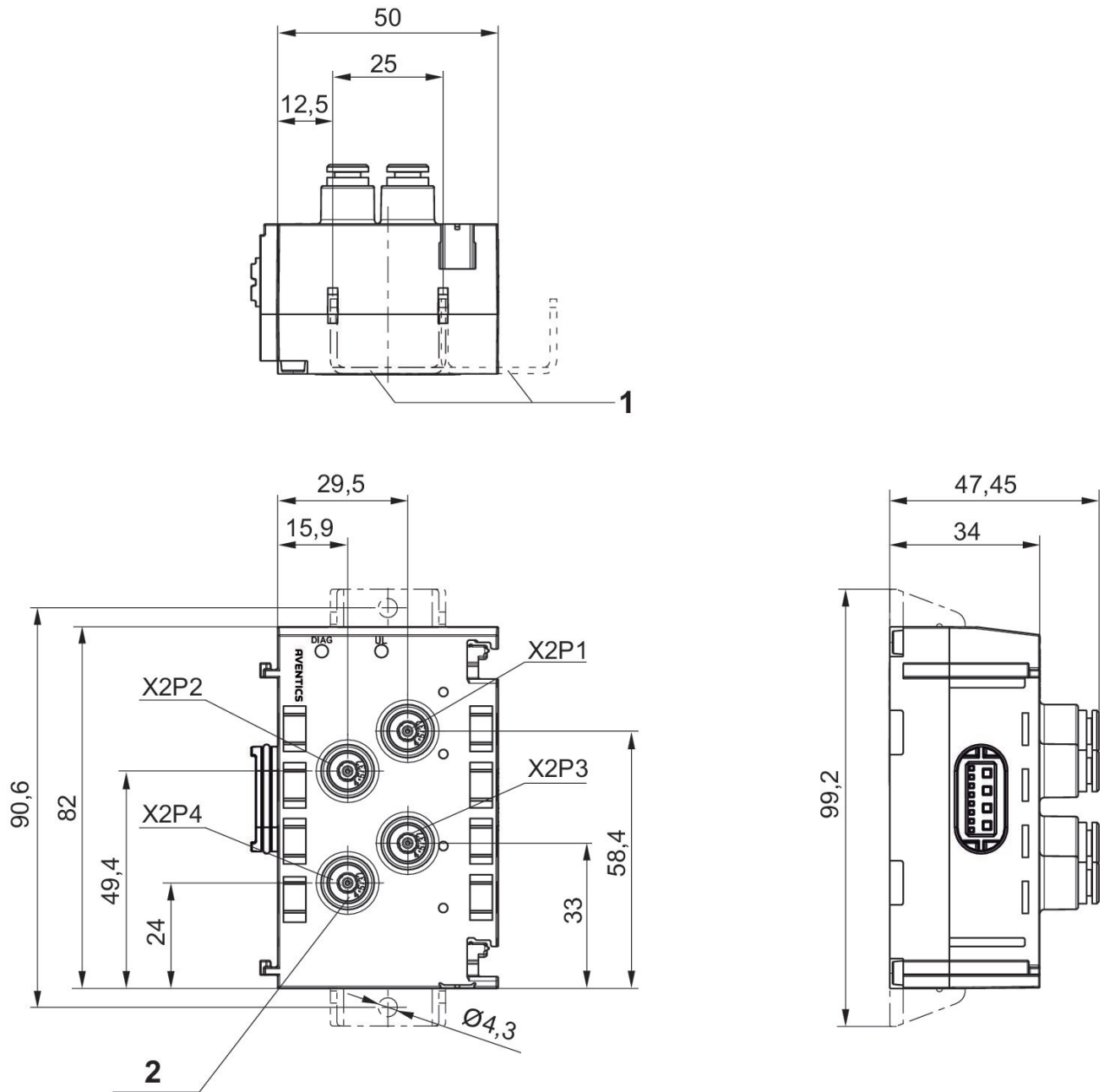
Technical information

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 .

Dimensions



- 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.

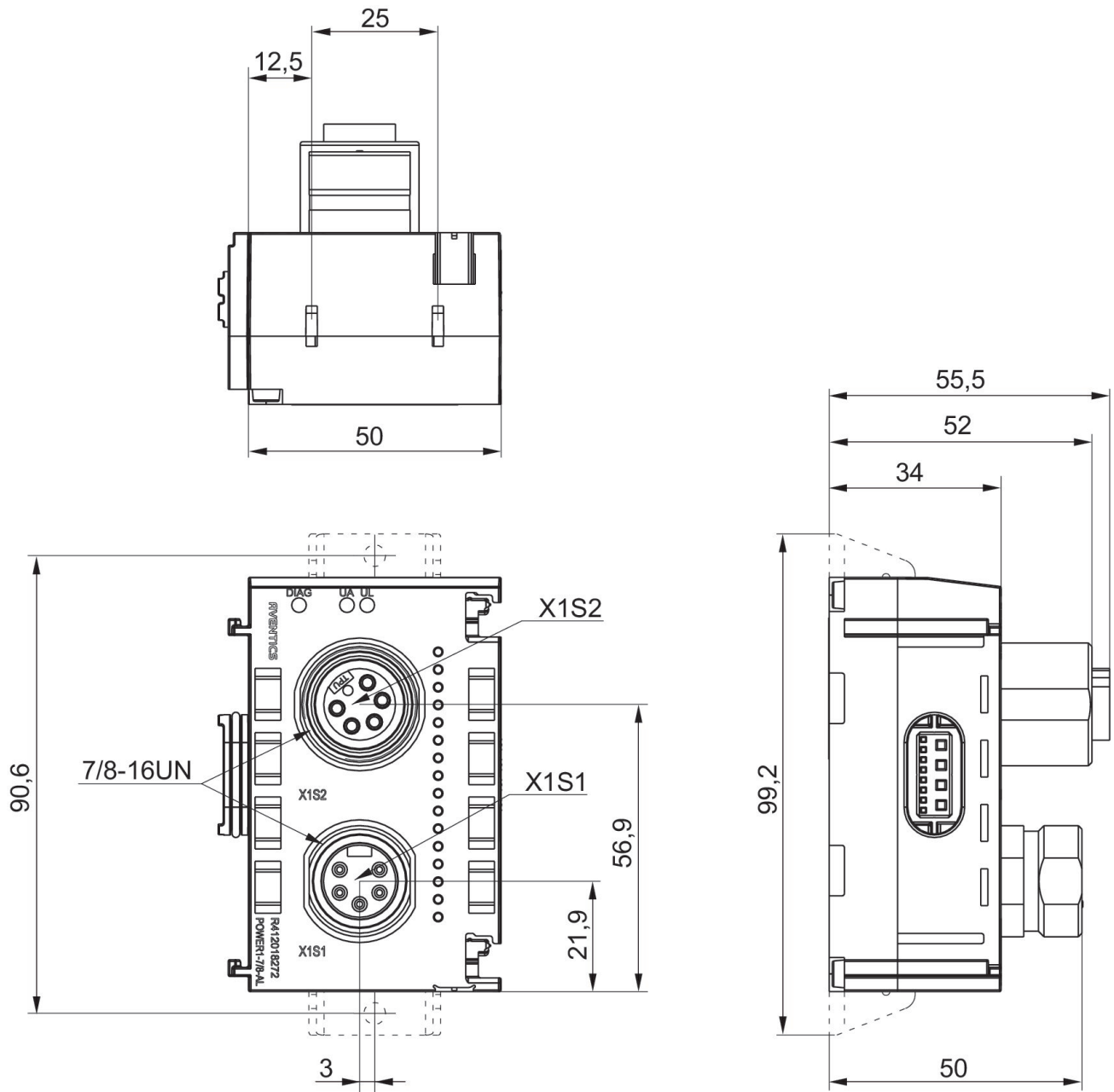
UL: Logic voltage (power supply for electronic components and sensors)

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.

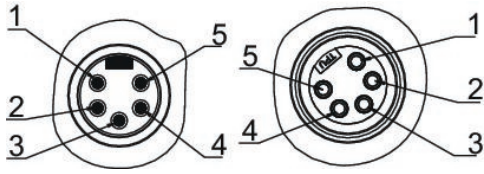
Power plug X1S on the bus coupler must be closed with sealing cap R412024837.

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

Distributor, Series AES

- 4x passive distributor, M12x1, 8-pin / 4x M8x1, 3-pin
- Plug (male), M12x1, 8-pin



Ambient temperature min./max.	-30 ... 80 °C
Operational voltage electronics	24 V DC
Power consumption electronics	2 A
Protection class	IP67
Weight	0.07 kg

Technical data

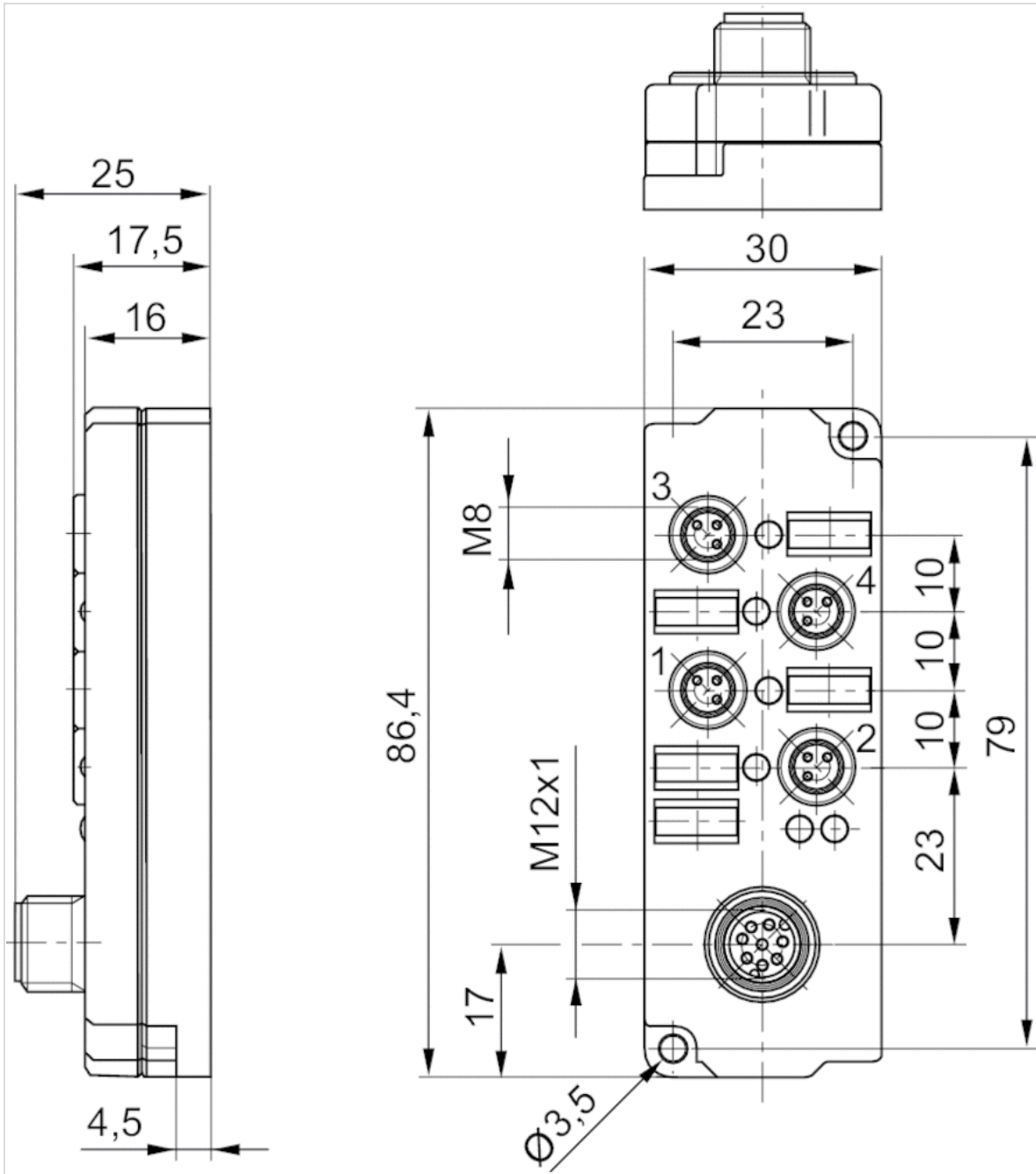
Part No.	Type	Port	
		1	2
R402001810	16DI4M12 16DI8M8	Plug (male), M12x1, 8-pin	Socket (female), M8x1, 3-pin

Technical information

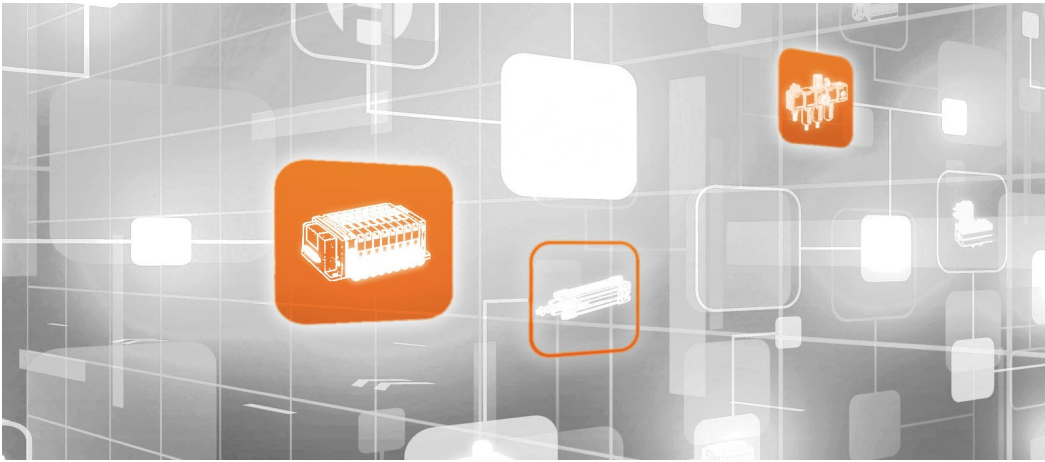
Material	
Housing	Polyamide

Dimensions

Dimensions



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