# Series SV05





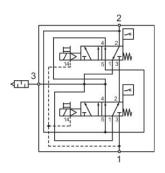
# 3/2 directional safety valve, Series SV05

## R412027216

General series information AVENTICS Series SV01/03/05 Safety valves

- The AVENTICS Series SV01/03/05 double valves are redundant 3/2 and 5/2 valves for external monitoring that are designed to meet the needs and requirements of safe air supply and exhaust 3/2 valves and safe cylinder return 5/2 valves applications for machinery with pneumatic controls according to the requirements of ISO 13849-1-2 for safety functions.
- According to ISO 13849-1, Cat. 4, PL e





#### Technical data

Sealing principle

Industry Industrial Activation Electrically

Switching principle 3/2
Compressed air connection output G 1/2

DC operating voltage 24 V
Voltage tolerance DC -10% / +10%
Actuating control Single Solenoid

Standards ISO 13849-1, category 4, performance level: e

soft seal

(possible)

Valve type Double spool valve Return With spring return



Compressed air connection input G 1/2 Power consumption DC 1.5 W Working pressure min. internal 3 bar Working pressure max. internal 10 bar Working pressure min. external 0 bar Working pressure max. external 10 bar Control pressure min. 3 bar 10 bar Control pressure max. 4°C Min. ambient temperature 50 °C Max. ambient temperature Min. medium temperature 4°C 50 °C Max. medium temperature

Medium Compressed air

Connector standard EN 175301-803, form C

Nominal flow Qn 1 to 2 2100 l/min
Nominal flow Qn 2 to 3 6500 l/min
Protection class with connection IP65

100 % Duty cycle Typ. switch-on time 42 ms 178 ms Typ. switch-off time **PNP** Type sensor Electrical connection for sensor Plug Sensor port size M8x1 Sensor number of poles 3-pin Weight 3.25 kg

Housing material Die-cast aluminum

Seal material Acrylonitrile butadiene rubber

Part No. R412027216



#### **Technical information**

silencer (not included in scope of delivery)

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

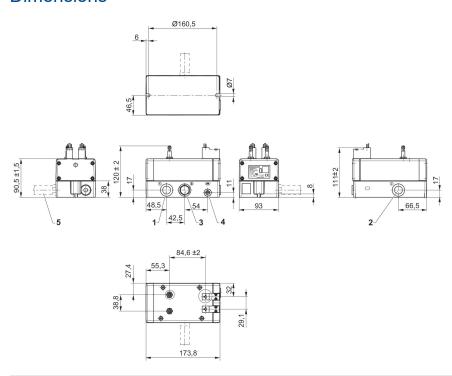
The pressure dew point must be at least 15 °C less than ambient and medium temperature and may not exceed 3 °C.

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

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

Directional safety valve series SV is delivered and configured for internal control pressure. It can easily be converted to external control pressure. Please refer to the operating instructions. The control pressure must be > 3 bar.

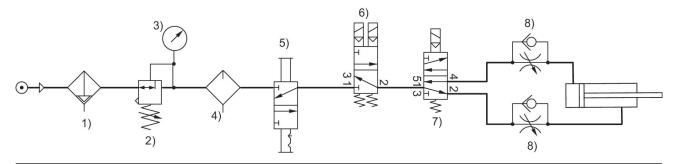
#### **Dimensions**



- 1) Port 1 (Input)
- 2) Port 2 (Working pressure)
- 3) Port 3 (Exhaust)
- 4) External pilot G1/8
- 5) silencer (not included in scope of delivery)

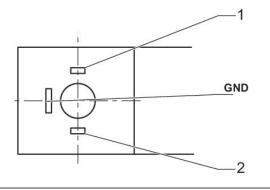


# Safe air supply and exhaust via 3/2 directional valve



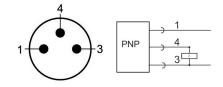
1) Filter 2) Pressure regulator 3) Pressure gauge 4) Lubricator 5) Lockout valve 6) Safety exhaust valve, SV series 7) 5/2 pilot valve 8) Check-choke valve

# Valve plug connector form C



#### 1) + 24 / 0 VDC 2) 0 / + 24 VDC

## PIN assignment sensor, plug M8 3-pin



<sup>1) + 20 ... + 28</sup> VDC 3) 0 VDC 4) OUT



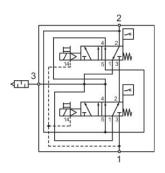
# 3/2 directional safety valve, Series SV05

## R412027217

General series information AVENTICS Series SV01/03/05 Safety valves

- The AVENTICS Series SV01/03/05 double valves are redundant 3/2 and 5/2 valves for external monitoring that are designed to meet the needs and requirements of safe air supply and exhaust 3/2 valves and safe cylinder return 5/2 valves applications for machinery with pneumatic controls according to the requirements of ISO 13849-1-2 for safety functions.
- According to ISO 13849-1, Cat. 4, PL e





#### Technical data

Industry Activation

Switching principle

Compressed air connection output

DC operating voltage Voltage tolerance DC Actuating control Sealing principle

Standards

Valve type Return Industrial

Electrically

3/2

1/2 NPT

24 V

-10% / +10%

Single Solenoid

soft seal

ISO 13849-1, category 4, performance level: e

(possible)

Double spool valve With spring return



Compressed air connection input 1/2 NPT Power consumption DC 1.5 W 3 bar Working pressure min. internal Working pressure max. internal 10 bar Working pressure min. external 0 bar Working pressure max. external 10 bar Control pressure min. 3 bar 10 bar Control pressure max. 4°C Min. ambient temperature 50 °C Max. ambient temperature Min. medium temperature 4°C 50 °C Max. medium temperature

Medium Compressed air

Max. particle size  $5 \mu m$ Oil content of compressed air min.  $0 mg/m^3$ Oil content of compressed air max.  $5 mg/m^3$ 

Connector standard EN 175301-803, form C

Nominal flow Qn 1 to 2 2100 l/min Nominal flow Qn 2 to 3 6500 l/min

**IP65** Protection class with connection 100 % Duty cycle Typ. switch-on time 42 ms 178 ms Typ. switch-off time **PNP** Type sensor Electrical connection for sensor Plug Sensor port size M8x1 Sensor number of poles 3-pin Weight 3.25 kg

Housing material Die-cast aluminum

Seal material Acrylonitrile butadiene rubber

Part No. R412027217



#### **Technical information**

silencer (not included in scope of delivery)

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

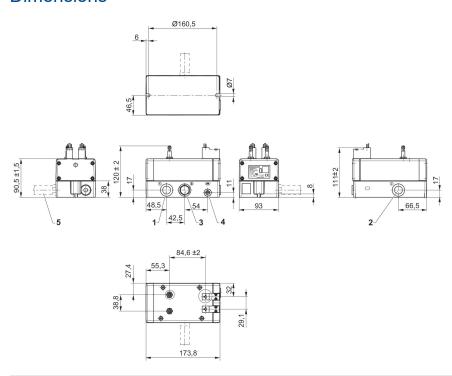
The pressure dew point must be at least 15 °C less than ambient and medium temperature and may not exceed 3 °C.

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

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

Directional safety valve series SV is delivered and configured for internal control pressure. It can easily be converted to external control pressure. Please refer to the operating instructions. The control pressure must be > 3 bar.

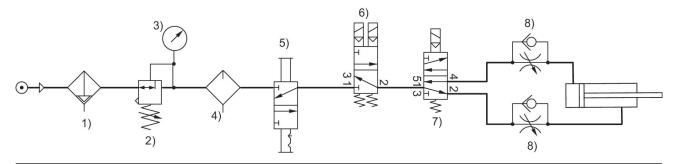
#### **Dimensions**



- 1) Port 1 (Input)
- 2) Port 2 (Working pressure)
- 3) Port 3 (Exhaust)
- 4) External pilot G1/8
- 5) silencer (not included in scope of delivery)

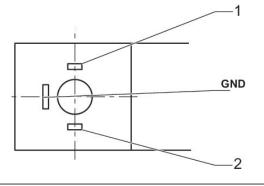


# Safe air supply and exhaust via 3/2 directional valve



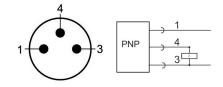
1) Filter 2) Pressure regulator 3) Pressure gauge 4) Lubricator 5) Lockout valve 6) Safety exhaust valve, SV series 7) 5/2 pilot valve 8) Check-choke valve

# Valve plug connector form C



#### 1) + 24 / 0 VDC 2) 0 / + 24 VDC

## PIN assignment sensor, plug M8 3-pin



<sup>1) + 20 ... + 28</sup> VDC 3) 0 VDC 4) OUT



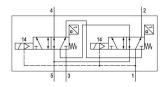
# 5/2 directional safety valve, Series SV05

## R412027218

## General series information AVENTICS Series SV01/03/05 Safety valves

- The AVENTICS Series SV01/03/05 double valves are redundant 3/2 and 5/2 valves for external monitoring that are designed to meet the needs and requirements of safe air supply and exhaust 3/2 valves and safe cylinder return 5/2 valves applications for machinery with pneumatic controls according to the requirements of ISO 13849-1-2 for safety functions.
- According to ISO 13849-1, Cat. 4, PL e





#### Technical data

Industry Industrial Activation Electrically

Switching principle 5/2
Compressed air connection output G 1/2

Voltage tolerance DC -10% / +10%
Actuating control Single Solenoid

Sealing principle soft seal Pilot Internal

Standards ISO 13849-1, category 4, performance level: e

(possible)

Valve type Double spool valve Return With spring return

Compressed air connection input G 1/2
Power consumption DC 1.5 W
Working pressure min. internal 3 bar
Working pressure max. internal 10 bar



0 bar Working pressure min. external Working pressure max. external 10 bar Control pressure min. 3 bar 10 bar Control pressure max. 4°C Min. ambient temperature 50 °C Max. ambient temperature 4°C Min. medium temperature 50 °C Max. medium temperature

Medium Compressed air

Max. particle size
 Oil content of compressed air min.
 Oil content of compressed air max.
 5 μm
 0 mg/m³
 5 mg/m³

Connector standard EN 175301-803, form C

Nominal flow Qn 1 to 2 3400 I/min 1970 I/min Nominal flow Qn 1 to 4 Nominal flow Qn 2 to 3 2000 I/min Nominal flow Qn 4 to 5 3200 I/min Protection class with connection **IP65** 100 % Duty cycle Typ. switch-on time 42 ms 178 ms Typ. switch-off time **PNP** Type sensor Electrical connection for sensor Plug

Sensor port size M8x1
Sensor number of poles 3-pin
Weight 3.27 kg

Housing material Die-cast aluminum

Seal material Acrylonitrile butadiene rubber

Part No. R412027218

#### 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 less than ambient and medium temperature and may not exceed 3 °C.

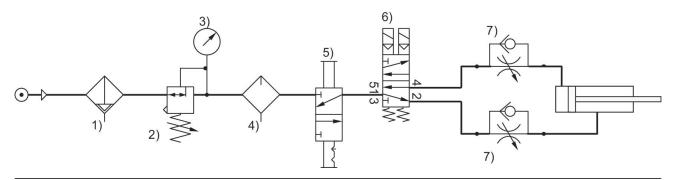
The oil content of compressed air must remain constant during the life cycle.

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

Directional safety valve series SV is delivered and configured for internal control pressure. It can easily be converted to external control pressure. Please refer to the operating instructions. The control pressure must be > 3 bar.

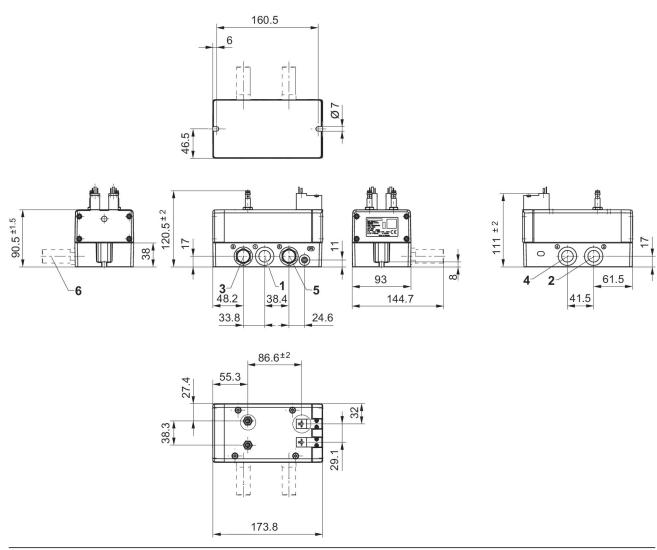


# Safe air supply and cylinder return via 5/2 directional valve



1) Filter 2) Pressure regulator 3) Pressure gauge 4) Lubricator 5) Lockout valve 6) Safety valve, Series SV 7) Check-choke valve

## **Dimensions**

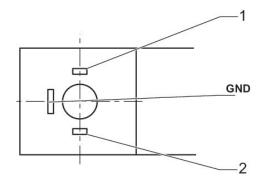




<sup>1)</sup> Port 1 (Input) 2) Port 2 (Output) 3) Port 3 (Exhaust) 4) Port 4 (Output) 5) Port 5 (Exhaust)

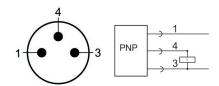
<sup>6)</sup> silencer (not included in scope of delivery)

# Valve plug connector form C



1) + 24 / 0 VDC 2) 0 / + 24 VDC

## PIN assignment sensor, plug M8 3-pin



1) + 20 ... + 28 VDC 3) 0 VDC 4) OUT



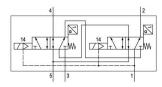
# 5/2 directional safety valve, Series SV05

## R412027219

General series information AVENTICS Series SV01/03/05 Safety valves

- The AVENTICS Series SV01/03/05 double valves are redundant 3/2 and 5/2 valves for external monitoring that are designed to meet the needs and requirements of safe air supply and exhaust 3/2 valves and safe cylinder return 5/2 valves applications for machinery with pneumatic controls according to the requirements of ISO 13849-1-2 for safety functions.
- According to ISO 13849-1, Cat. 4, PL e





#### Technical data

Industry Industrial Activation Electrically

Switching principle 5/2

Compressed air connection output 1/2 NPT

Voltage tolerance DC -10% / +10%
Actuating control Single Solenoid

Sealing principle soft seal Pilot Internal

Standards ISO 13849-1, category 4, performance level: e

(possible)

Valve type

Double spool valve

With spring return

Return With spring return

Compressed air connection input 1/2 NPT
Power consumption DC 1.5 W
Working pressure min. internal 3 bar

Working pressure min. internal 3 bar Working pressure max. internal 10 bar



0 bar Working pressure min. external Working pressure max. external 10 bar Control pressure min. 3 bar 10 bar Control pressure max. 4°C Min. ambient temperature 50 °C Max. ambient temperature 4°C Min. medium temperature 50 °C Max. medium temperature

Medium Compressed air

Connector standard EN 175301-803, form C

Nominal flow Qn 1 to 2 3400 I/min 1970 I/min Nominal flow Qn 1 to 4 Nominal flow Qn 2 to 3 2000 I/min Nominal flow Qn 4 to 5 3200 I/min Protection class with connection **IP65** 100 % Duty cycle Typ. switch-on time 42 ms 178 ms Typ. switch-off time **PNP** Type sensor Electrical connection for sensor Plug Sensor port size M8x1

Weight 3.27 kg
Housing material Die-cast aluminum

Seal material Acrylonitrile butadiene rubber

Part No. R412027219

#### Technical information

Sensor number of poles

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

3-pin

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

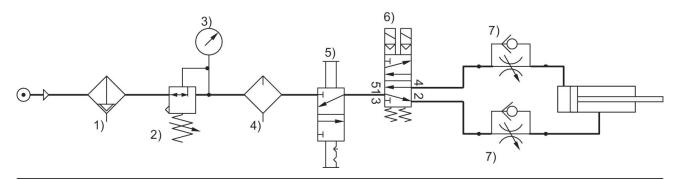
The oil content of compressed air must remain constant during the life cycle.

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

Directional safety valve series SV is delivered and configured for internal control pressure. It can easily be converted to external control pressure. Please refer to the operating instructions. The control pressure must be > 3 bar.

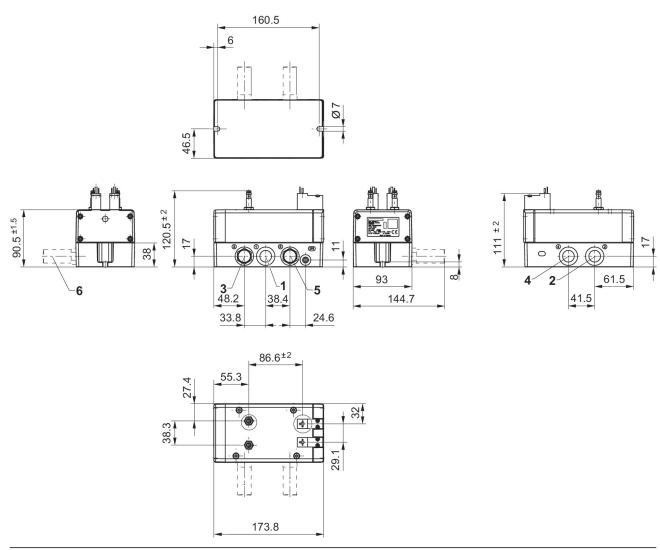


# Safe air supply and cylinder return via 5/2 directional valve



1) Filter 2) Pressure regulator 3) Pressure gauge 4) Lubricator 5) Lockout valve 6) Safety valve, Series SV 7) Check-choke valve

#### **Dimensions**

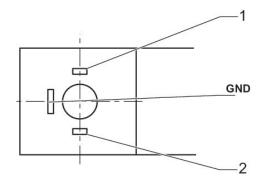




<sup>1)</sup> Port 1 (Input) 2) Port 2 (Output) 3) Port 3 (Exhaust) 4) Port 4 (Output) 5) Port 5 (Exhaust)

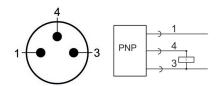
<sup>6)</sup> silencer (not included in scope of delivery)

# Valve plug connector form C



1) + 24 / 0 VDC 2) 0 / + 24 VDC

## PIN assignment sensor, plug M8 3-pin



1) + 20 ... + 28 VDC 3) 0 VDC 4) OUT







# Valve plug connector, series CON-VP

- Socket, form C, 2+E, angled, 90°
- ISO 15217
- unshielded
- with LED Green



Connection type Screws

Ambient temperature min./max. -40 ... 90 °C

Operational See table below

voltage

Protection class IP65
Mounting screw tightening torque 0.4 Nm

Weight See table below

## Technical data

Part No.		Operational voltage	Max. current	Protective circuit	Contact assignment
1834484187	1 ) 1	250 / 300 V AC/DC	6 A	-	2+E
8941012202	1 )1	250 / 300 V AC/DC	6 A	-	2+E
4402050330	1) 2) 2) 2) 2) 2) 2)	24 V AC/DC	-	Z-diode	2+E

Part No.	LED status display	suitable cable-Ø min./max	Seal	Weight
1834484187	-	4 / 8 mm	caoutchouc/butadiene caoutchouc	0.012 kg
8941012202	-	4 / 8 mm	-	0.012 kg
4402050330	Green	-	-	0.014 kg

Part No.	Fig.	
1834484187	Fig. 1	-
8941012202	Fig. 2	-
4402050330	Fig. 3	1)

1)

## Technical information

The specified protection class is only valid in assembled and tested state.

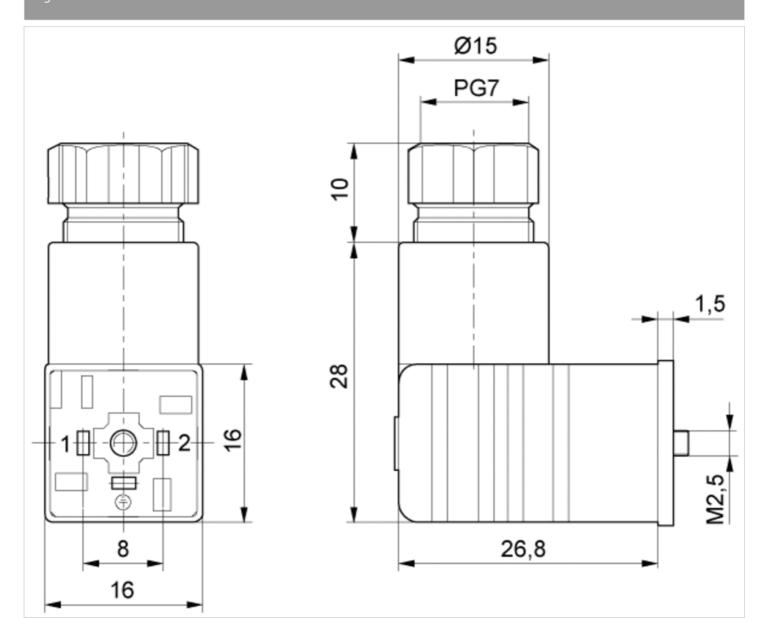




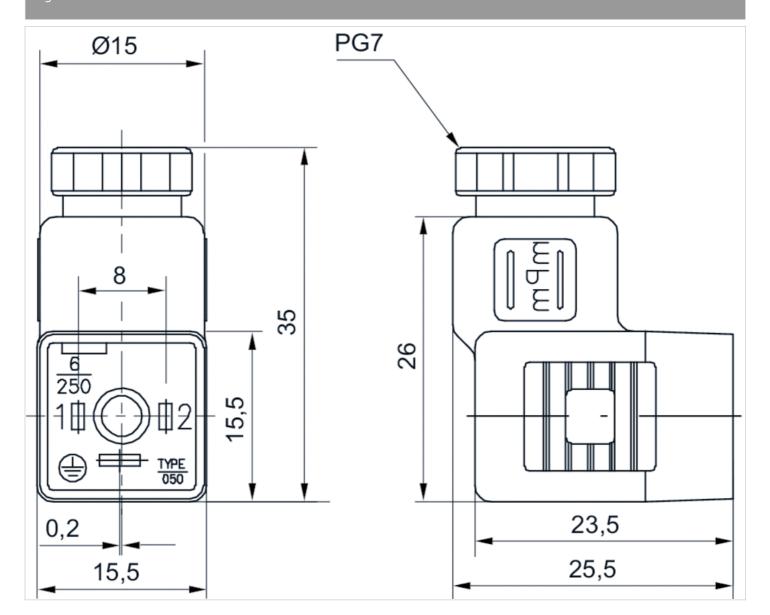
# Technical information

Material	
Seals	caoutchouc/butadiene caoutchouc

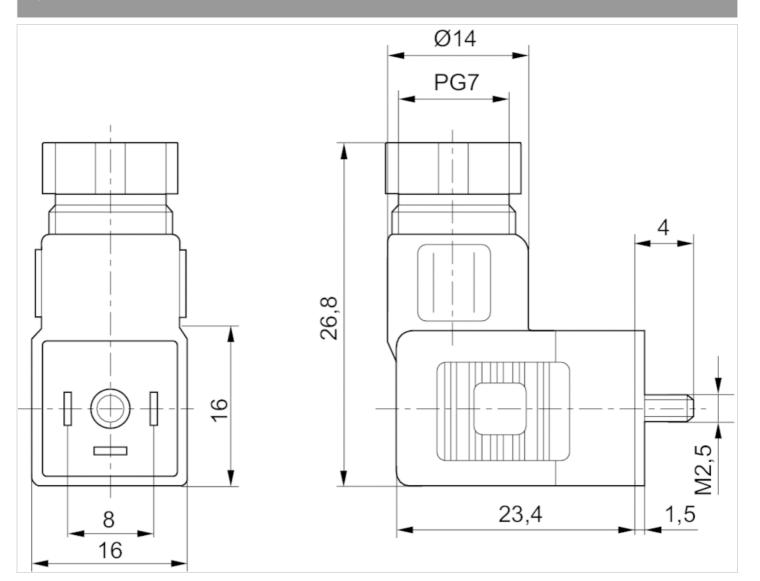
# Dimensions















# Round plug connector, Series CON-RD

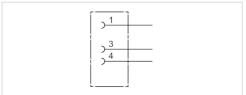
- Socket, M8x1, 3-pin, A-coded, straight, 180°
- UL (Underwriters Laboratories)
- unshielded



Connection type Soldering
Ambient temperature min./max. -25 ... 80 °C
Operational 48 V AC/DC

voltage

Protection class IP67
Weight 0.009 kg



## Technical data

Part No.	Max. current	suitable cable-Ø min./max
1834484173	4 A	3.5 / 5 mm

## Technical information

The specified protection class is only valid in assembled and tested state.

# Technical information

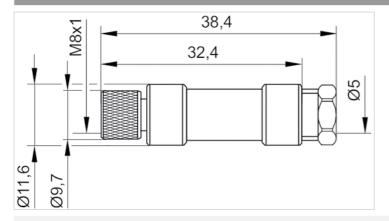
Ma	aterial	
Но	pusing	Polyamide





# Dimensions

#### Dimensions



# Pin assignments

# Pin assignment, socket







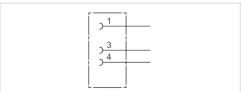
# Round plug connector, Series CON-RD

- Socket, M8x1, 3-pin, A-coded, angled, 90°
- UL (Underwriters Laboratories)
- unshielded



Connection type Soldering
Ambient temperature min./max. -40 ... 85 °C
Operational 48 V AC/DC
voltage

Protection class IP67
Weight 0.01 kg



## Technical data

Part No.	Max. current	Contact assignment	suitable cable-Ø min./max
1834484174	4 A	3	3.5 / 5 mm

## Technical information

The specified protection class is only valid in assembled and tested state.

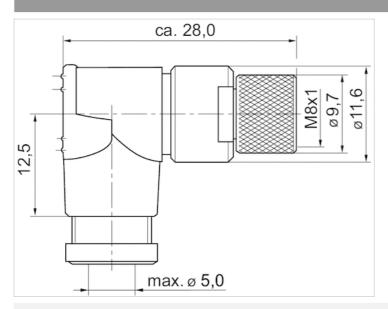
# Technical information

Material	
Housing	Polyamide



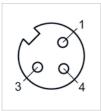
# Dimensions

#### Dimensions



# Pin assignments

# Pin assignment, socket







# Round plug connector, Series CON-RD

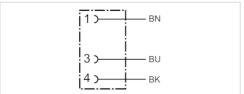
- Socket M8x1 3-pin A-coded straight 180°
- open cable ends
- with cable
- unshielded



Operational 30 / 36 V AC/DC voltage

Protection class IP67
Wire cross-section 0.34 mm²

Weight See table below



## Technical data

Part No.	Max. current	Number of wires	Cable-Ø	Cable length	Weight
8946201312	2.5 A	3	3.5 mm	2 m	0.066 kg
8946201332	2.5 A	3	3.5 mm	15 m	0.466 kg

## Technical information

The specified protection class is only valid in assembled and tested state.

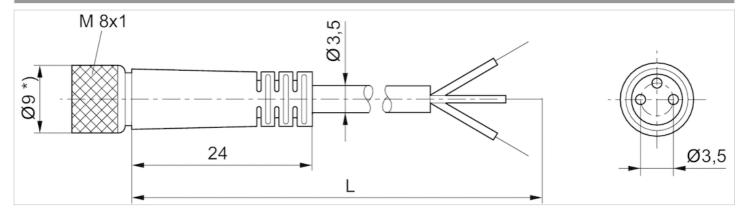
# Technical information

Material	
Cable sheath	Polyvinyl chloride



# Dimensions

#### Dimensions

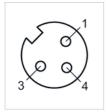


L = length

\*) With 15 m cable length Ø12

# Pin assignments

## Pin assignment, socket



- (1) BN=brown
- (3) BU=blue
- (4) BK=black





# Round plug connector, Series CON-RD

- Socket M8x1 3-pin A-coded angled 90°
- open cable ends
- with cable
- unshielded

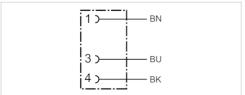


Ambient temperature min./max. -40 ... 85 °C
Operational 48 V AC/DC

voltage

Protection class IP67
Wire cross-section 0.24 mm²

Weight See table below



## Technical data

Part No.	Max. current	Number of wires	Cable-Ø	Cable length	Weight
1834484167	4 A	3	4.5 mm	3 m	0.087 kg
1834484169	4 A	3	4.5 mm	5 m	0.139 kg
1834484248	4 A	3	4.5 mm	10 m	0.279 kg

## Technical information

The specified protection class is only valid in assembled and tested state.

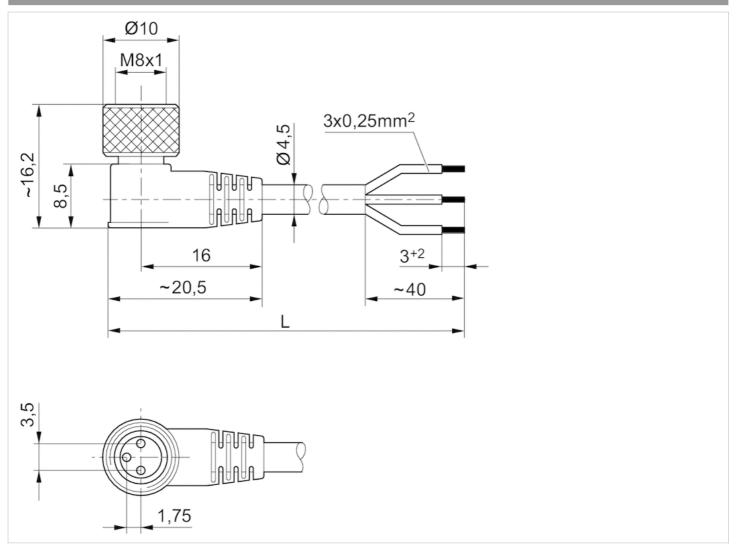
## Technical information

Material	
Housing	Polyurethane
Cable sheath	Polyurethane



## Dimensions

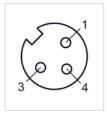
#### Dimensions



L = length

# Pin assignments

## Pin assignment, socket



- (1) BN=brown
- (3) BU=blue
- (4) BK=black





# Valve plug connector, series CON-VP

- Socket form C 2+E angled 90°
- open cable ends 3-pin
- with cable
- unshielded



Ambient temperature min./max. -20 ... 80 °C

Operational See table below

voltage

Protection class IP67
Wire cross-section 0.75 mm²
Mounting screw tightening torque 0.4 Nm

Weight See table below

## Technical data

Part No.		Operational voltage	Max. current	Protective circuit	Contact assignment
1834484212	1)————1 2)—————2 ®)————————————————————————————	230 V AC/DC	6 A	-	2+E
1834484213	1)————1 2)————2 ®)—————————————————————————————	230 V AC/DC	6 A	-	2+E
1834484214	1)————1 2)—————2 ®)————————————————————————————	230 V AC/DC	6 A	-	2+E
1834484215	1)————1 2)————2 ®)—————gn/ge	230 V AC/DC	6 A	-	2+E
1834484204	2 ( )	24 V AC/DC	6 A	Z-diode	2+E
1834484205	1 de	24 V AC/DC	6 A	Z-diode	2+E
1834484206	1)	24 V AC/DC	6 A	Z-diode	2+E
1834484207	1	24 V AC/DC	6 A	Z-diode	2+E
1834484208	1)	230 V AC/DC	6 A	Varistor	2+E
1834484209	2 (	230 V AC/DC	6 A	Varistor	2+E
1834484210	1)	230 V AC/DC	6 A	Varistor	2+E
1834484211	* * * * * * * * * * * * * * * * * * *	230 V AC/DC	6 A	Varistor	2+E
1834484236	1)	24 V AC/DC	6 A	Z-diode	2+E

Part No.	LED status display	Number of wires	Cable-Ø	Cable length	Weight	Fig.	
1834484212	-	3	5.9 mm	3 m	0.183 kg	Fig. 1	-
1834484213	-	3	5.9 mm	3 m	0.183 kg	Fig. 2	-
1834484214	-	3	5.9 mm	5 m	0.308 kg	Fig. 1	-
1834484215	-	3	5.9 mm	5 m	0.308 kg	Fig. 2	-
1834484204	Yellow	3	5.9 mm	3 m	0.185 kg	Fig. 1	1)
1834484205	Yellow	3	5.9 mm	3 m	0.185 kg	Fig. 2	1)
1834484206	Yellow	3	5.9 mm	5 m	0.292 kg	Fig. 1	1)
1834484207	Yellow	3	5.9 mm	5 m	0.298 kg	Fig. 2	1)
1834484208	Yellow	3	5.9 mm	3 m	0.171 kg	Fig. 1	1)
1834484209	Yellow	3	5.9 mm	3 m	0.194 kg	Fig. 2	1)
1834484210	Yellow	3	5.9 mm	5 m	0.297 kg	Fig. 1	1)

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20.06.2020





Part No.	LED status display	Number of wires	Cable-Ø	Cable length	Weight	Fig.	
1834484211	Yellow	3	5.9 mm	5 m	0.285 kg	Fig. 2	1)
1834484236	Yellow	3	5.9 mm	10 m	0.571 kg	Fig. 2	1)

<sup>1)</sup> Scope of delivery incl. flat gasket

# Technical information

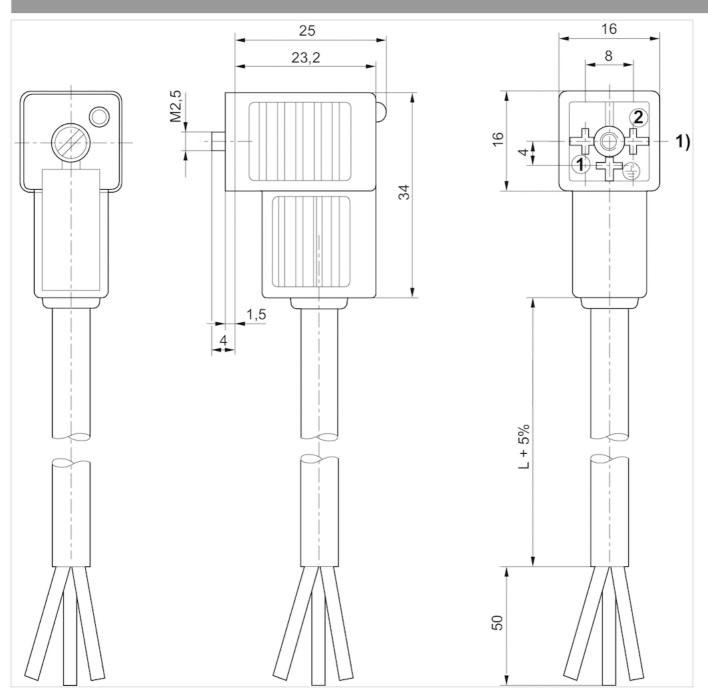
The specified protection class is only valid in assembled and tested state.

# Technical information

Material	
Seals	caoutchouc/butadiene caoutchouc
Cable sheath	Polyvinyl chloride

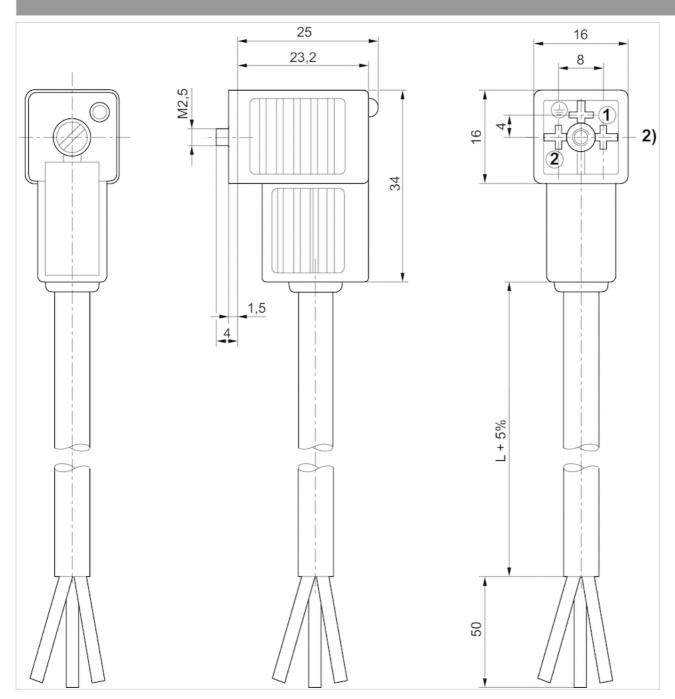


# Dimensions



1) 0° female insert





2) 180° female insert



# Silencers, series SI1

- G 1/2
- Metal braiding



Working pressure min./max. 0 ... 15 bar

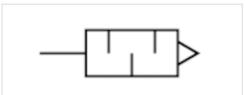
Ambient temperature min./max. -10 ... 150 °C

Medium Compressed air

Sound pressure level 100 dB

Comment Flow characteristic curves can be found

under "Diagrams".



## Technical data

Part No.	Compressed air connection	Flow	Delivery unit	
		Qn		
R412010247	G 1/2	6285 l/min	5 piece	

Nominal flow Qn at p1 = 6 bar (absolute) freely discharged. Sound pressure level measured at 6 bar against atmosphere at 1 m distance.

## Technical information

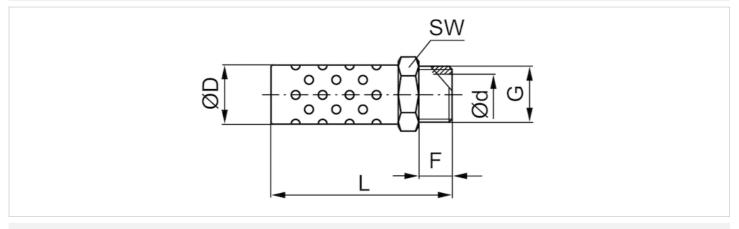
Material	
Silencer	Metal braiding
Thread	Aluminum





## Dimensions

#### Dimensions



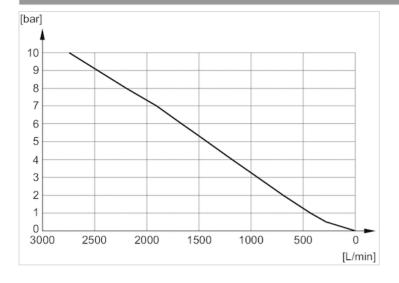
## Dimensions

Part No.	Port G	L	F	D	d	SW
R412010247	G 1/2	65.2	11	21.5	15	22

Sound pressure level measured at 6 bar at 1 m distance

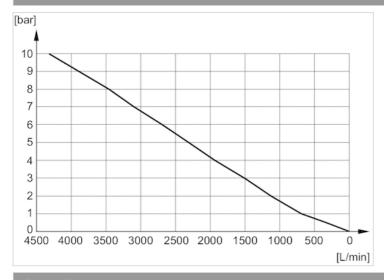
## Diagrams

#### Flow diagram, R412010283

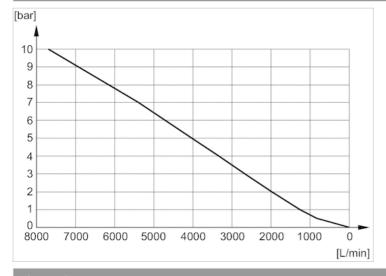




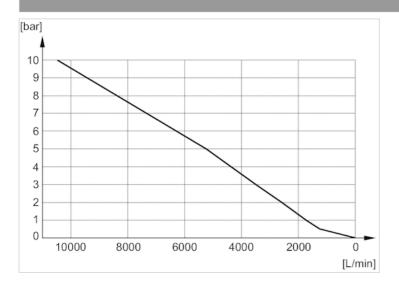
### Flow diagram, R412010245



#### Flow diagram, R412010246

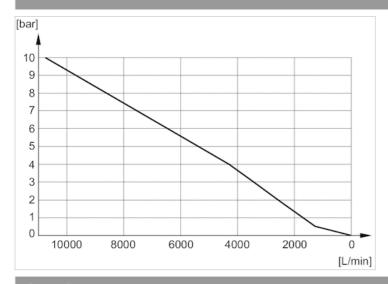


#### Flow diagram, R412010247

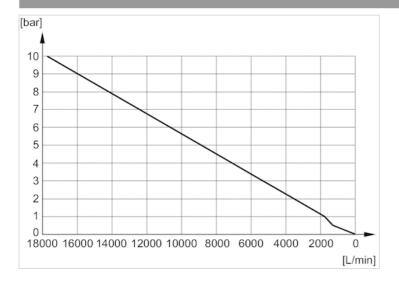




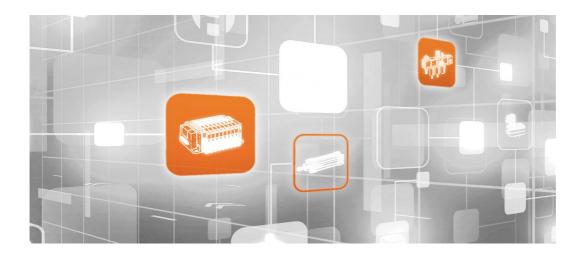
#### Flow diagram, R412010248



#### Flow diagram, R412010249



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