

# SAC-3P-MS-CI-1L-V SCO/.../... - Sensor/actuator cable



1400889

<https://www.phoenixcontact.com/us/products/1400889>

Please be informed that the data shown in this PDF document is generated from our online catalog. Please find the complete data in the user documentation. Our general terms of use for downloads are valid.



Sensor/actuator cable, 3-position, Variable cable type, Plug straight M12 SPEEDCON, coding: A, on Valve connector CI (9.4 mm), with 1 LED, Wiring: Varistor, cable length: Free input (0.2 ... 40.0 m)

## Your advantages

- Easy and safe: 100 % electrically tested plug-in components
- Save time, thanks to installation with SPEEDCON fast locking system
- Convenient: increased machine availability thanks to quick and easy diagnostics
- Flexible solutions - configurable materials with variable cable types and cable lengths

## Commercial data

Item number	1400889
Packing unit	1 pc
Minimum order quantity	1 pc
Note	Made to order (non-returnable)
Sales key	BF17
Product key	AF1DOA
Customs tariff number	85444290
Country of origin	PL

## Technical data

### Product properties

Product type	Sensor/actuator cable with valve connector
Application	Standard
	Robots and drag chains
Number of positions	3
No. of cable outlets	1
Shielded	no
Coding	A

### Insulation characteristics

Overvoltage category	III
Degree of pollution	3

### Connection data

#### Conductor connection

Tightening torque	0.4 Nm (M12 connector)
	0.6 Nm (Valve connector)

### Material specifications

Flammability rating according to UL 94	HB
Seal material	TPU
Material housing valve plug	TPU
Material of grip body	TPU
Contact material	CuSn
Contact surface material	Ni/Au
Contact carrier material	TPU GF
Contact material	CuSn
Valve plug contact insert material	PA 6.6
Contact surface material	Sn
Material for screw connection	Zinc die-cast, nickel-plated

### Electrical properties

Insulation resistance	$\geq 100 \text{ M}\Omega$
Nominal voltage $U_N$	24 V AC
	24 V DC
Nominal current $I_N$	4 A

#### Valve connector characteristics

Fixing screws	M3 x 29
---------------	---------

### Mechanical properties

#### Mechanical data

# SAC-3P-MS-CI-1L-V SCO/.../... - Sensor/actuator cable



1400889

<https://www.phoenixcontact.com/us/products/1400889>

Insertion/withdrawal cycles	≥ 100 (M12 connector)
-----------------------------	-----------------------

## Signaling

Status display	1 LED
Status display present	yes

## Connector

### Connection 1

Type	Plug straight M12 SPEEDCON
Locking type	SPEEDCON
Coding type	A

### Connection 2

Type	Valve connector CI (9.4 mm)
Material	CuSn (Contact)
	Sn (Contact surface)
	PA 6.6 (Contact carrier)
	TPU (Housing)
Protective circuit	Varistor

## Cable/line

Cable length	Free input (0.2 ... 40.0 m)
--------------	-----------------------------

### PUR halogen-free black [PUR]

Cable weight	30 kg/km
UL AWM Style	20549
Number of positions	3
Shielded	no
Cable type	PUR halogen-free black [PUR]
	PUR halogen-free black PUR
Conductor structure signal line	28x 0.15 mm
AWG signal line	20
Conductor cross-section	3x 0.5 mm <sup>2</sup>
Wire diameter incl. insulation	1.5 mm ±0.05 mm (Signal line)
External cable diameter	4.50 mm ±0.2 mm
Outer sheath, material	PUR
External sheath, color	black-gray RAL 7021
Conductor material	Bare Cu litz wires
Material wire insulation	PP
Single wire, color	black 1, black 2, green/yellow
Overall twist	3 wires, twisted
Max. conductor resistance	39 Ω/km (at 20 °C)
Insulation resistance	min. 20 MΩ*km
Nominal voltage, cable	≤ 300 V
Test voltage	≥ 1200 V

# SAC-3P-MS-CI-1L-V SCO/.../... - Sensor/actuator cable



1400889

<https://www.phoenixcontact.com/us/products/1400889>

Minimum bending radius, fixed installation	5 x D
Minimum bending radius, flexible installation	10 x D
Smallest bending radius, fixed installation	22.5 mm
Smallest bending radius, movable installation	45 mm
Dynamic load capacity (bending)	Max. bending cycles: 15000000, Bending radius: 50 mm, Traversing path: 0.9 m, Traversing rate: 5 m/s, Acceleration: 30 m/s <sup>2</sup>
Halogen-free	in accordance with DIN VDE 0472 part 815
Flame resistance	according to DIN VDE 0482 According to DIN EN 50265-2-1
Resistance to oil	in accordance with DIN EN 60811-2-1
Other resistance	largely oil-resistant partly UV-resistant (in accordance with DIN EN ISO 4892-2-A)
Ambient temperature (operation)	-40 °C ... 80 °C (cable, fixed installation) -20 °C ... 80 °C (Cable, flexible installation)

PUR/PVC, 0.75 mm<sup>2</sup>, black [116]

Cable weight	53.4 kg/km
UL AWM Style	20549
Number of positions	3
Shielded	no
Cable type	PUR/PVC, 0.75 mm <sup>2</sup> , black [116] PUR/PVC, 0.75 mm <sup>2</sup> , black 116
Conductor structure signal line	24x 0.20 mm
AWG signal line	18
Conductor cross-section	3x 0.75 mm <sup>2</sup>
Wire diameter incl. insulation	1.7 mm ±0.05 mm
External cable diameter	5.80 mm ±0.2 mm
Outer sheath, material	PUR
External sheath, color	black RAL 9005
Conductor material	Bare Cu litz wires
Material wire insulation	PVC
Single wire, color	black 1, black 2, green/yellow
Overall twist	3 wires, twisted
Max. conductor resistance	26 Ω/km (at 20 °C)
Insulation resistance	≥ 20 MΩ*km
Nominal voltage, cable	300 V
Test voltage	1200 V
Minimum bending radius, fixed installation	5 x D
Minimum bending radius, flexible installation	10 x D
Smallest bending radius, fixed installation	29 mm
Smallest bending radius, movable installation	58 mm
Dynamic load capacity (bending)	Max. bending cycles: 1000000, Traversing path: 10 m, Traversing rate: 2 m/s, Acceleration: 2.5 m/s <sup>2</sup> DIN VDE 0482

# SAC-3P-MS-CI-1L-V SCO/.../... - Sensor/actuator cable



1400889

<https://www.phoenixcontact.com/us/products/1400889>

Flame resistance	DIN EN 50265-2-1
	in acc. with UL FT-2
Resistance to oil	in accordance with DIN EN 60811-2-1
Other resistance	Low adhesion
Special properties	flexible
Ambient temperature (operation)	-40 °C ... 80 °C (cable, fixed installation)
	-5 °C ... 80 °C (Cable, flexible installation)

## PUR/PVC 0.75 mm<sup>2</sup> gray [117]

Cable weight	58.5 kg/km
UL AWM Style	20549
Number of positions	3
Shielded	no
Cable type	PUR/PVC 0.75 mm <sup>2</sup> gray [117]
	PUR/PVC 0.75 mm <sup>2</sup> gray 117
Conductor structure signal line	24x 0.20 mm
AWG signal line	18
Conductor cross-section	3x 0.75 mm <sup>2</sup> (Signal line)
Wire diameter incl. insulation	1.7 mm ±0.05 mm (Signal line)
External cable diameter	5.80 mm ±0.2 mm
Outer sheath, material	PUR
External sheath, color	gray RAL 7001
Conductor material	Bare Cu litz wires
Material wire insulation	PVC
Single wire, color	black 1, black 2, green/yellow
Overall twist	Wires twisted in layers
Max. conductor resistance	26 Ω/km (at 20 °C)
Insulation resistance	≥ 20 MΩ*km
Nominal voltage, cable	300 V
Test voltage	1200 V
Minimum bending radius, fixed installation	5 x D
Minimum bending radius, flexible installation	10 x D
Smallest bending radius, fixed installation	29 mm
Smallest bending radius, movable installation	58 mm
Dynamic load capacity (bending)	Max. bending cycles: 1000000, Traversing rate: 2 m/s, Acceleration: 2.5 m/s <sup>2</sup>
Flame resistance	according to DIN VDE 0482
	According to DIN EN 50265-2-1
	in acc. with UL FT-2
Ambient temperature (operation)	-40 °C ... 80 °C (cable, fixed installation)
	-5 °C ... 80 °C (Cable, flexible installation)

## PUR irradiated halogen-free orange [150]

Cable weight	31 kg/km
Number of positions	3

# SAC-3P-MS-CI-1L-V SCO/.../... - Sensor/actuator cable



1400889

<https://www.phoenixcontact.com/us/products/1400889>

Shielded	no
Cable type	PUR irradiated halogen-free orange [150]
	PUR irradiated halogen-free orange 150
Conductor structure signal line	28x 0.15 mm
AWG signal line	20
Conductor cross-section	3x 0.5 mm <sup>2</sup> (Signal line)
Wire diameter incl. insulation	1.46 mm ±0.02 mm (Signal line)
External cable diameter	4.50 mm ±0.15 mm
Outer sheath, material	PUR
External sheath, color	orange RAL 2003
Conductor material	Bare Cu litz wires
Material wire insulation	TPE-E
Single wire, color	black 1, black 2, green/yellow
Thickness, insulation	≥ 0.21 mm (Core insulation)
	approx. 0.60 mm (Outer cable sheath)
Overall twist	3 wires, twisted
Max. conductor resistance	max. 39 Ω/km (at 20 °C)
Insulation resistance	≥ 100 MΩ*km (at 20 °C)
Nominal voltage, cable	≤ 300 V
Test voltage	≥ 3000 V
Minimum bending radius, fixed installation	5 x D
Minimum bending radius, flexible installation	10 x D
Smallest bending radius, fixed installation	23 mm
Smallest bending radius, movable installation	45 mm
Dynamic load capacity (bending)	Max. bending cycles: 5000000, Bending radius: 45 mm, Traversing path: 10 m, Traversing rate: 3 m/s
Halogen-free	in accordance with DIN VDE 0472 part 815
Flame resistance	in accordance with DIN UL-Style 20549
Resistance to oil	in accordance with DIN EN 60811-2-1
Special properties	Silicone-free
	Irradiated
Ambient temperature (operation)	-25 °C ... 80 °C (cable, fixed installation)
	-5 °C ... 80 °C (Cable, flexible installation)

## PUR halogen-free yellow [240]

Cable weight	30 kg/km
UL AWM Style	20549 (80°C/300 V)
Number of positions	3
Shielded	no
Cable type	PUR halogen-free yellow [240]
	PUR halogen-free yellow 240
Conductor structure signal line	28x 0.15 mm
AWG signal line	20
Conductor cross-section	3x 0.5 mm <sup>2</sup>

# SAC-3P-MS-CI-1L-V SCO/.../... - Sensor/actuator cable



1400889

<https://www.phoenixcontact.com/us/products/1400889>

Wire diameter incl. insulation	1.46 mm ±0.02 mm
External cable diameter	4.50 mm ±0.15 mm
Outer sheath, material	PUR
External sheath, color	yellow
Conductor material	Bare Cu litz wires
Material wire insulation	PP
Single wire, color	black 1, black 2, green/yellow
Thickness, insulation	≥ 0.21 mm
Thickness, outer sheath	approx. 0.60 mm
Overall twist	3 wires, twisted
Max. conductor resistance	≤ 39 Ω/km
Insulation resistance	≥ 10 GΩ*km
Nominal voltage, cable	≤ 300 V
Test voltage	≥ 3000 V
Minimum bending radius, fixed installation	5 x D
Minimum bending radius, flexible installation	10 x D
Smallest bending radius, fixed installation	23 mm
Smallest bending radius, movable installation	45 mm
Halogen-free	in accordance with DIN VDE 0472 part 815
Flame resistance	in accordance with DIN UL-Style 20549
Resistance to oil	in accordance with DIN EN 60811-2-1
Ambient temperature (operation)	-15 °C ... 80 °C (cable, fixed installation)

## PUR halogen-free gray [280]

Cable weight	33.2 kg/km
UL AWM Style	20549
Number of positions	3
Shielded	no
Cable type	PUR halogen-free gray [280] PUR halogen-free gray 280
Conductor structure signal line	28x 0.15 mm
AWG signal line	20
Conductor cross-section	3x 0.5 mm <sup>2</sup> (Signal line)
Wire diameter incl. insulation	1.5 mm ±0.05 mm (Signal line)
External cable diameter	4.50 mm ±0.2 mm
Outer sheath, material	PUR
External sheath, color	gray RAL 7001
Conductor material	Bare Cu litz wires
Material wire insulation	PP
Single wire, color	black 1, black 2, green/yellow
Overall twist	Wires twisted in layers
Max. conductor resistance	39 Ω/km (at 20 °C)
Insulation resistance	≥ 20 MΩ*km
Nominal voltage, cable	300 V

# SAC-3P-MS-CI-1L-V SCO/.../... - Sensor/actuator cable



1400889

<https://www.phoenixcontact.com/us/products/1400889>

Test voltage	1200 V
Minimum bending radius, fixed installation	5 x D
Minimum bending radius, flexible installation	10 x D
Smallest bending radius, fixed installation	22.5 mm
Dynamic load capacity (bending)	Max. bending cycles: 15000000, Bending radius: 50 mm, Traversing path: 0.9 m, Traversing rate: 5 m/s, Acceleration: 30 m/s <sup>2</sup>
Halogen-free	in accordance with DIN VDE 0472 part 815
Flame resistance	according to DIN VDE 0482 According to DIN EN 50265-2-1
Resistance to oil	in accordance with DIN EN 60811-2-1
Ambient temperature (operation)	-40 °C ... 80 °C (cable, fixed installation) -20 °C ... 80 °C (Cable, flexible installation)

## PVC black [PVC]

Cable weight	38.6 kg/km
UL AWM Style	2464
Number of positions	3
Shielded	no
Cable type	PVC black [PVC] PVC black PVC
Conductor structure signal line	16x 0.20 mm
AWG signal line	20
Conductor cross-section	3x 0.5 mm <sup>2</sup>
Wire diameter incl. insulation	1.5 mm ±0.05 mm
External cable diameter	4.80 mm ±0.2 mm
Outer sheath, material	PVC
External sheath, color	black RAL 9005
Conductor material	Bare Cu litz wires
Material wire insulation	PVC
Single wire, color	black 1, black 2, green/yellow
Overall twist	3 wires, twisted
Max. conductor resistance	39 Ω/km (at 20 °C)
Insulation resistance	≥ 20 MΩ*km
Nominal voltage, cable	300 V
Test voltage	1200 V
Minimum bending radius, fixed installation	5 x D
Smallest bending radius, fixed installation	24 mm
Flame resistance	DIN VDE 0482 DIN EN 50265-2-1
Resistance to oil	in accordance with DIN EN 60811-2-1
Ambient temperature (operation)	-40 °C ... 80 °C (cable, fixed installation) -5 °C ... 80 °C (Cable, flexible installation)

## PVC gray [500]

# SAC-3P-MS-CI-1L-V SCO/.../... - Sensor/actuator cable



1400889

<https://www.phoenixcontact.com/us/products/1400889>

Cable weight	39.2 kg/km
Number of positions	3
Shielded	no
Cable type	PVC gray [500] PVC gray 500
Conductor type	Round cable
Conductor structure signal line	16x 0.20 mm
AWG signal line	20
Conductor cross-section	3x 0.5 mm <sup>2</sup> (Signal line)
Wire diameter incl. insulation	1.5 mm ±0.05 mm (Signal line)
External cable diameter	4.80 mm ±0.2 mm
Outer sheath, material	PVC
External sheath, color	gray RAL 7001
Conductor material	Bare Cu litz wires
Material wire insulation	PVC
Single wire, color	black 1, black 2, green/yellow
Overall twist	Wires twisted in layers
Max. conductor resistance	39 Ω/km (at 20 °C)
Insulation resistance	min. 20 MΩ*km
Nominal voltage, cable	300 V
Test voltage	1200 V
Minimum bending radius, fixed installation	5 x D
Smallest bending radius, fixed installation	24 mm
Flame resistance	DIN EN 50265-2-1
Resistance to oil	in accordance with DIN EN 60811-2-1
Ambient temperature (operation)	-40 °C ... 80 °C (cable, fixed installation) -5 °C ... 80 °C (Cable, flexible installation)

## PVC, 0.75 mm<sup>2</sup>, black [534]

Cable weight	49.1 kg/km
Number of positions	3
Shielded	no
Cable type	PVC, 0.75 mm <sup>2</sup> , black [534] PVC, 0.75 mm <sup>2</sup> , black 534
Conductor structure signal line	24x 0.20 mm
AWG signal line	18
Conductor cross-section	3x 0.75 mm <sup>2</sup>
Wire diameter incl. insulation	1.7 mm ±0.1 mm
External cable diameter	5.30 mm ±0.2 mm
Outer sheath, material	PVC
External sheath, color	black
Conductor material	Bare Cu litz wires
Material wire insulation	PVC
Single wire, color	black 1, black 2, green/yellow

# SAC-3P-MS-CI-1L-V SCO/.../... - Sensor/actuator cable



1400889

<https://www.phoenixcontact.com/us/products/1400889>

Overall twist	3 wires, twisted
Max. conductor resistance	26 Ω/km (at 20 °C)
Insulation resistance	min. 20 MΩ*km (at 20 °C)
Nominal voltage, cable	300 V
Test voltage	1200 V
Minimum bending radius, fixed installation	5 x D
Smallest bending radius, fixed installation	27 mm
Flame resistance	DIN VDE 0482
	DIN EN 50265-2-1
	in acc. to UL VW1
Resistance to oil	in accordance with DIN EN 60811-2-1
Ambient temperature (operation)	-40 °C ... 80 °C (cable, fixed installation)
	-5 °C ... 80 °C (Cable, flexible installation)

PUR, halogen-free, highly stranded, resistant to welding sparks, gray [800]

Note	Due to the extremely robust outer sheath, this cable should only be stripped in 5 cm increments.
Cable weight	31 kg/km
UL AWM Style	20549
Number of positions	3
Shielded	no
Cable type	PUR, halogen-free, highly stranded, resistant to welding sparks, gray [800]
	PUR, halogen-free, highly stranded, resistant to welding sparks, gray 800
Conductor structure signal line	28x 0.15 mm
AWG signal line	20
Conductor cross-section	3x 0.5 mm <sup>2</sup> (Signal line)
Wire diameter incl. insulation	1.5 mm ±0.05 mm (Signal line)
External cable diameter	4.50 mm ±0.2 mm
Outer sheath, material	PUR
External sheath, color	gray RAL 7001
Conductor material	Bare Cu litz wires
Material wire insulation	PP
Single wire, color	black 1, black 2, green/yellow
Overall twist	Wires twisted in layers
Max. conductor resistance	39 Ω/km (at 20 °C)
Insulation resistance	≥ 20 MΩ*km
Nominal voltage, cable	300 V
Test voltage	1200 V
Minimum bending radius, fixed installation	5 x D
Minimum bending radius, flexible installation	10 x D
Smallest bending radius, fixed installation	23 mm
Smallest bending radius, movable installation	45 mm
Dynamic load capacity (bending)	Max. bending cycles: 15000000, Bending radius: 50 mm,

1400889

<https://www.phoenixcontact.com/us/products/1400889>

	Traversing path: 0.9 m, Traversing rate: 5 m/s, Acceleration: 30 m/s <sup>2</sup>
Dynamic load capacity (torsion)	Torsion: ±360 °/m
Halogen-free	The cable is halogen-free
Flame resistance	in accordance with UL 758/1581 FT2
Resistance to oil	in accordance with DIN EN 60811-2-1
Other resistance	Highly resistant to acids, alkaline solutions and solvents
Special properties	Cable jacket is welding spark-resistant, recyclable, matt, low-adhesion, abrasion-resistant, flame-retardant, and self-extinguishing
	Free from silicone and cadmium
	Free of substances which would hinder coating with paint or varnish
Ambient temperature (operation)	-40 °C ... 80 °C (cable, fixed installation)
	-25 °C ... 80 °C (Cable, flexible installation)

## Environmental and real-life conditions

### Ambient conditions

Degree of protection	IP65
	IP67
Ambient temperature (operation) (male connector/female connector)	-25 °C ... 90 °C (Plug / socket)
Ambient temperature (operation) (Valve connector)	-20 °C ... 85 °C (Valve connector)

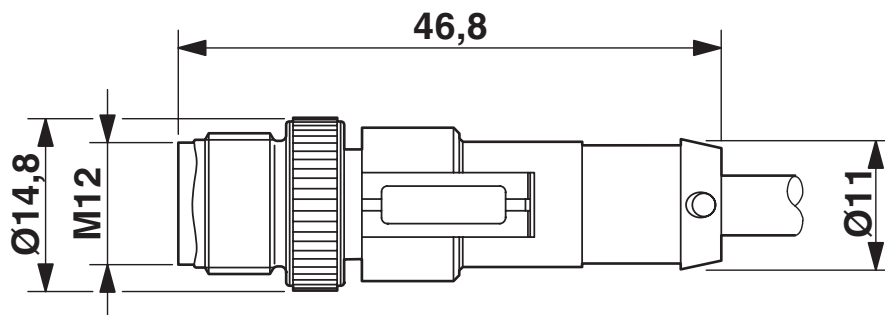
## Standards and regulations

### M12

Standard designation	M12 connector
Standards/specifications	IEC 61076-2-101

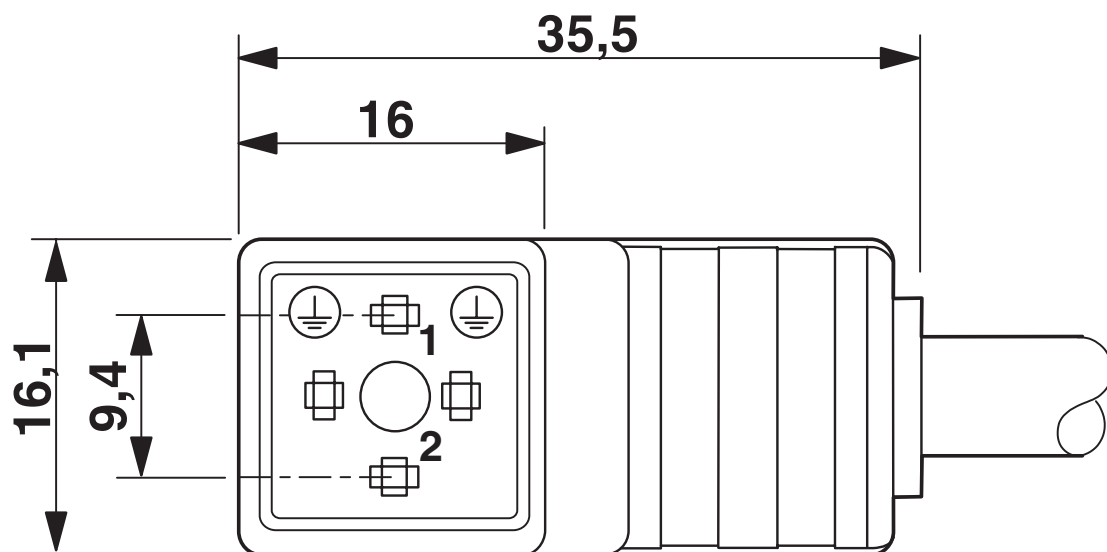
Drawings

Dimensional drawing



Plug, M12 x 1, straight, shielded

Dimensional drawing

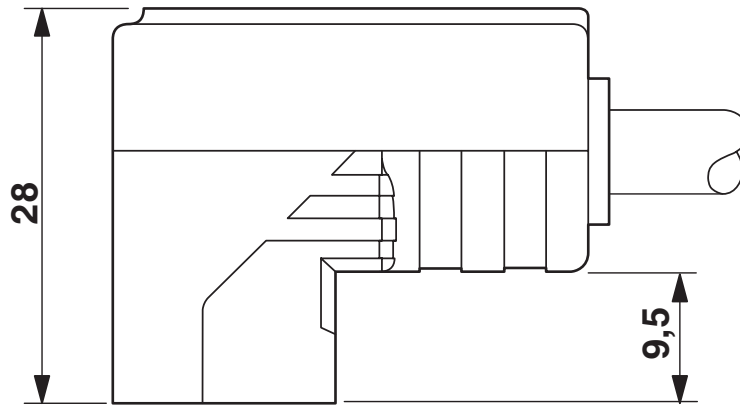


Valve connector, type CI

1400889

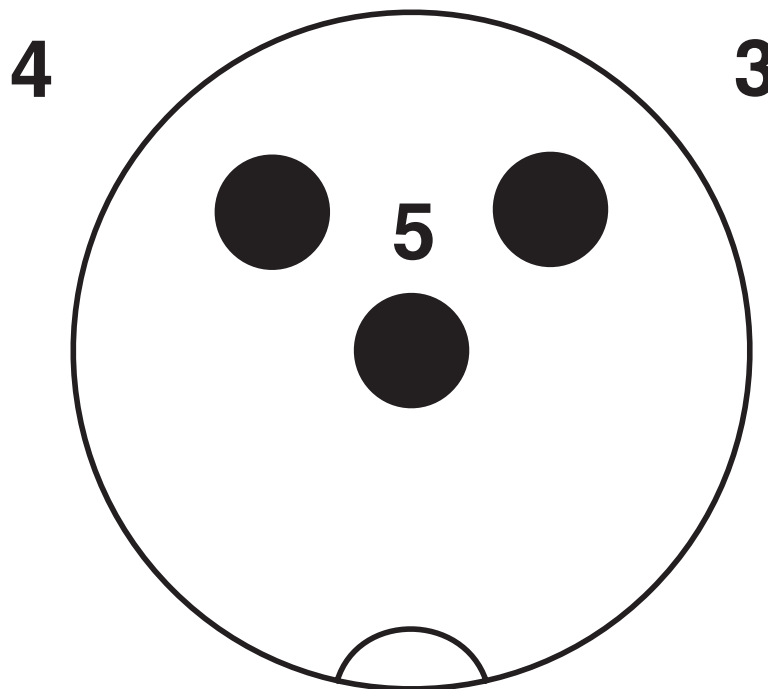
<https://www.phoenixcontact.com/us/products/1400889>

Dimensional drawing



Valve connector, type CI, side view

Schematic diagram

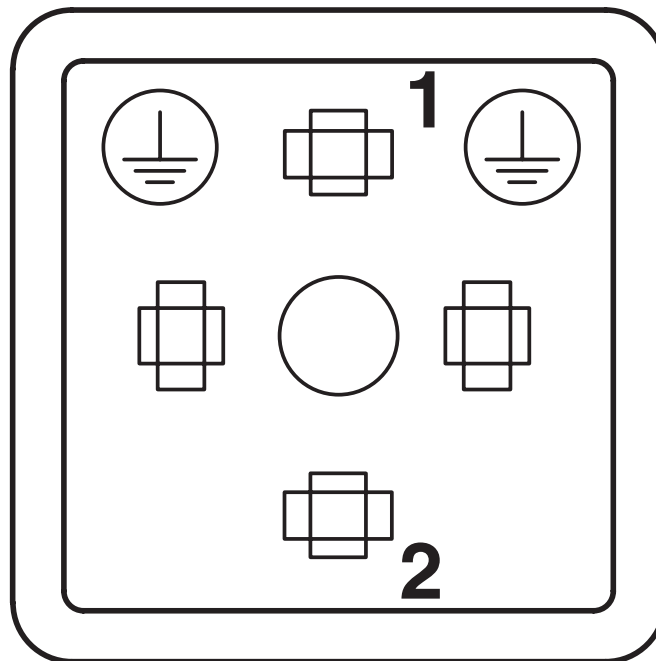


Pin assignment M12 plug, 3-pos., valve connector

1400889

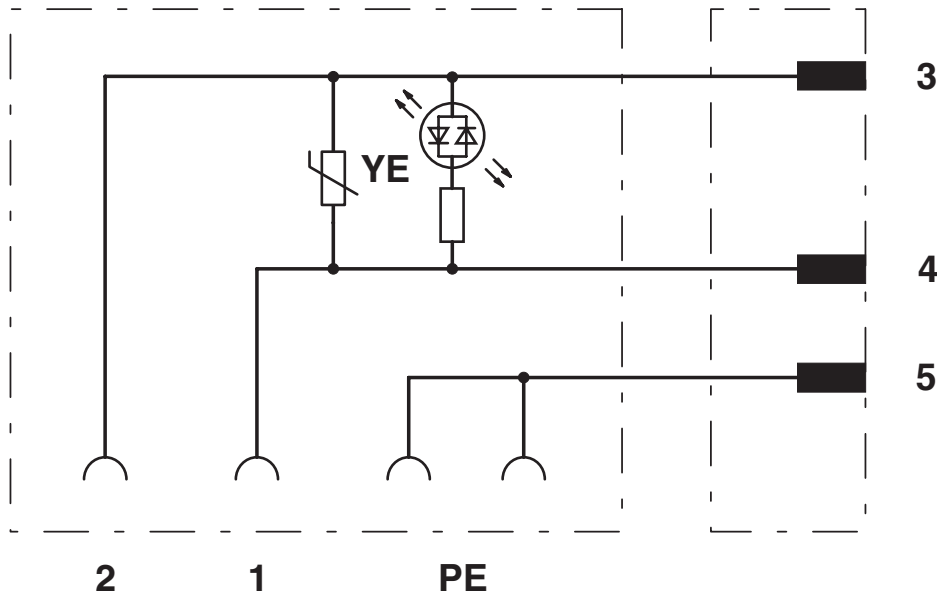
<https://www.phoenixcontact.com/us/products/1400889>

Schematic diagram



Valve connector connector pin assignment, type CI

Circuit diagram



Contact assignment of M12 plug and valve connector

# SAC-3P-MS-CI-1L-V SCO/.../... - Sensor/actuator cable




1400889

<https://www.phoenixcontact.com/us/products/1400889>

## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1400889>

 <b>CSAus</b> Approval ID: 13631				
	Nominal voltage $U_N$	Nominal current $I_N$	Cross section AWG	Cross section $\text{mm}^2$
keine				
	24 V	4 A	-	-

1400889

<https://www.phoenixcontact.com/us/products/1400889>

## Classifications

### ECLASS

ECLASS-13.0	27060312
ECLASS-15.0	27060312

### ETIM

ETIM 10.0	EC001855
-----------	----------

### UNSPSC

UNSPSC 21.0	31251500
-------------	----------

1400889

<https://www.phoenixcontact.com/us/products/1400889>

## Environmental product compliance

### EU RoHS

Fulfills EU RoHS substance requirements	Yes, No exemptions
---	--------------------

### China RoHS

Environment friendly use period (EFUP)	EFUP-E
	No hazardous substances above the limits

### EU REACH SVHC

REACH candidate substance (CAS No.)	No substance above 0.1 wt%
-------------------------------------	----------------------------

Phoenix Contact 2026 © - all rights reserved  
<https://www.phoenixcontact.com>

Phoenix Contact USA  
586 Fulling Mill Road  
Middletown, PA 17057, United States  
(+717) 944-1300  
[info@phoenixcon.com](mailto:info@phoenixcon.com)