



■ Connectivity Solutions

# LÜTZE Connectivity Solutions

Cable Assemblies  
Actuator Sensor Interface  
Suppression Technology

# Efficiency in Automation

Cable • Connectivity • Cabinet • Control





# Welcome to LÜTZE

## Cable Solutions



**Efficiency in Automation** - A reflection of our company philosophy

As an experienced specialist in automation technology, with solutions for flexible and high flexing cables, cable assemblies, interfaces, current control and cabinet wiring, we have had a focus on efficiency for many years.

## Connectivity Solutions



LÜTZE defines Efficiency in Automation field as the use of sustainable products and solutions to further increase the performance of our products in our customers applications.

We realise this by using components for highly efficient control systems, products with above average life cycles and raising energy efficiency in control cabinets by means of the LSC wiring system.

## Cabinet Solutions



Efficiency in Automation reflects our efforts in striving for efficient working relationships with our customers: in a medium sized family owned company we have short communication channels and a high level of manufacturing competence.

The value of a product or a solution from LÜTZE is determined by its sustainable qualities. Every innovation will only be successful in the future if it has a long term positive effect. Therefore, we provide long lasting as well as highly efficient components.

## Control Solutions



Thus LÜTZE creates value through efficiency. LÜTZE provides answers and demonstrates how to handle resources responsibly, with our environment and our future in mind.  
**LÜTZE - Efficiency in Automation**

For more information on our solutions, please visit [www.lutze.com](http://www.lutze.com)

## Transportation Solutions





# Business Management: Sustainable and forw



## The future is blue

Sustainable enterprise means thinking and planning ahead, understanding and embedding the belief that long lasting success is more important than short-term profit maximisation.

This is an attitude that has existed within LÜTZE for quite some time. Economic and environmental responsibilities complement each other well and are reflected in the sustainable management and

product policy - and from now in the **SkyBLUE** campaign.

We manufacture our products in a resourceful and energy-conscious manner. We use long lasting, environmentally-friendly materials.

And our products, in turn, help our customers save energy and resources.

Good for everyone: for us, for the environment, for our customers a win-win-win situation.

# ard-looking

*„The competitiveness of our industry and of its suppliers depends quite substantially on how we succeed in developing practical results. The results that we produce together today, are our competitive advantages in the future.“*

*Udo LÜTZE,*

*Member of the Executive Committee of  
the Green Carbody Innovation Alliance*



## Goods with real value

The value of a product or a solution from LÜTZE is determined by its sustainable qualities as well. Every innovation is only as successful in the future if it has a long-term positive effect. Therefore, we provide long lasting as well as highly efficient components.

We are incorporating the necessary knowledge and manufacturing competence in numerous joint projects with the objective of improving energy efficiency and

sustainable technologies and industries. Thus, LÜTZE provides answers and demonstrates how to handle resources responsibly, with our environment and our future in mind.



# RoHS



# What moves us: Quality, innovation, eff



## The people at LÜTZE

Quality, innovation and efficiency begin with people. We would not be where we are today without our highly qualified and motivated employees. An uncompromising focus on quality, 60 years of experience in automation technology and of course a common desire for greater innovation and efficiency – that's what makes LÜTZE so successful.

The people at LÜTZE are familiar with automation applications and technologies across all disciplines, as they are involved with our broad range of products comprising four product areas Cable, Connectivity, Cabinet and Control.





# iciency

**A prime example of competence in cables:** In addition to manufacturing expertise, our cable assembly specialists are familiar with all cable types and offer genuine added value. The decisive advantage: We're cable experts – since 1958.



# INDUSTRY 4.0

## IIoT - Industrial Intern

### What is Industry 4.0?

**A German government memo released way back in 2013 was one of the first times that 'Industrie 4.0' was mentioned.**

The high-tech strategy document outlined a plan to almost fully computerise the manufacturing industry without the need for human involvement.

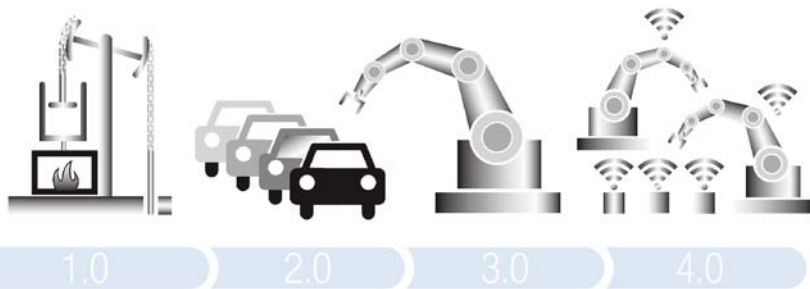


Industry 4.0 is another area where the Internet of Things looks to play a huge role thanks to the sheer volume of sensors and "things" that have the potential to feed information into it and add value to manufacturing processes. Projections on the industry have mentioned the IoT alongside cyber-physical systems

as ways in which a combination of software, sensors, processors and communications technology will underpin the very development of Industry 4.0.



# et of Things



The first industrial revolution was the one that saw the transition from farming to factory production in the 19th Century. The second ran from around the 1850s, and began with the introduction of steel, culminating in the early electrification of factories and the first signs of mass production.

In more recent times is the third industrial revolution that refers to the change from analogue, mechanical, and electronic technology to digital technology that took place from the late 1950s to the late 1970s.



## LÜTZE Connectivity

The smart machines of the future need reliable connections. Lütze has a large range of industrial ethernet cables and connectors and is capable of producing cable assemblies that provide users of automation equipment with the connections they need, using either RJ45, M12 or M8 connectors.

## Smart electronic fuses from Lütze

The control equipment on machines needs DC voltage, so the monitoring of these circuits is a logical next step as part of the IIoT concept.

The LOCC Box range from Lütze can provide complete information from the machine load circuits and communicate this information via

Ethercat/Profinet to facilitate external monitoring at either the machine level and or remotely.

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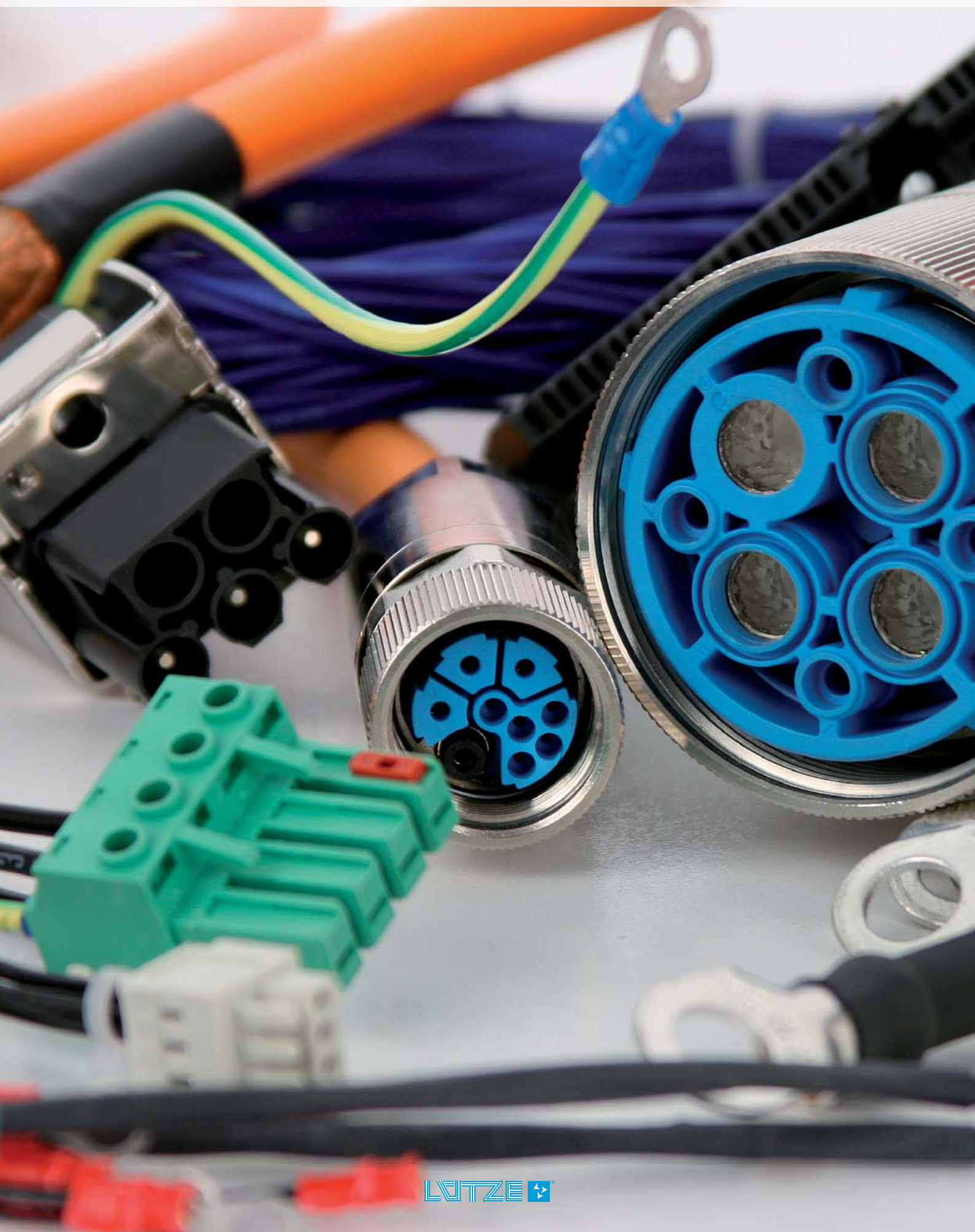
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# 1. Cable assemblies





# 1. Cable assemblies



## Allen-Bradley® according to 2090 Standard for stationary applications wiring

Servo motor cable	1.9
Feedback cable	1.10

## for c-tracks

Hybrid cables OTC	1.11
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## Bosch Rexroth® Standard for c-tracks

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Feedback cable DRIVE-CLIQ®, Base cable	1.35 - 1.37
Feedback cable, Base cable or Extension	1.38

# 1. Cable assemblies

## Pre-assembled cables for different applications



Siemens Simatic SPS / S7 connector

1.39

### Ordering instructions

The LÜTZE Art.no. consists of two blocks that are separated by a dot:

6-digits before the dot: technical design

4-digits after the dot: length code in cm

### Special features:

- No minimum order quantity
- All intermediate lengths in steps of 0.5 m are available within a short time
- When ordering, please specify serial number and length key
- Additional types on request



Customer-specific solutions on request

Our project planning sheet for cable assemblies can be found in the download area under [www.luetze.de](http://www.luetze.de)



# Always the right connect **LÜTZE** cable assemb



## Moduled closed

LÜTZE SAFECON plastic moulded round plug connectors M23 for industrial use offer the user an economical and, at the same time, safe solution for the electrical connection of machines and systems.

The LÜTZE program contains various termination numbers and cable lengths. This means terminations of 6 - 28 and transfer outputs of up to 30 A at 630 V, and

therefore robust, safe cabling is available for numerous signal and power applications.

The integrated protection against kinking and the inner metal housing with 360° EMC shielding ensure the cable assemblies meet the requirements for the industrial sector - **they really are sealed shut!**

### Other benefits:

- Tamper-proof: unauthorised opening of the connector housing and incorrect connection in the connector are therefore excluded
- 100 % compatible with SIEMENS<sup>®</sup>, BOSCH REXROTH<sup>®</sup>, ALLEN BRADLEY<sup>®</sup>
- Manufacture from a batch size of 1
- Available at short notice
- Protection class IP66/67



# ction: lies

**Helical cables** - Manufactured to meet your specifications, our helical cables are suitable for high mechanical loads such as high-performance machines, lifting



platforms and lots of other moving applications. Also highly suited for use outside for millions of load changes without failure!



## Customer-specific solutions

Each installation is different. Therefore, make use of our cable assembly expertise; experts will plan your project and document your application making use of a

product range containing more than 1700 cables, connectors, strain relief elements and protective hoses.



# Construction questionnaire for LÜTZE SAFECON

Company: \_\_\_\_\_

Contact person: \_\_\_\_\_


Department: \_\_\_\_\_

Street address: \_\_\_\_\_

Postal code, city/town: \_\_\_\_\_

Telephone: \_\_\_\_\_

Fax: \_\_\_\_\_



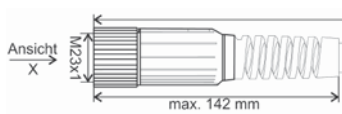
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 Tel.: +44 1827 31333-0  
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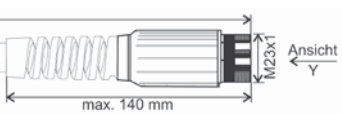
**Please tell us your requirements by filling in this construction questionnaire:**

**Batch size:** \_\_\_\_\_ pieces

Page 1



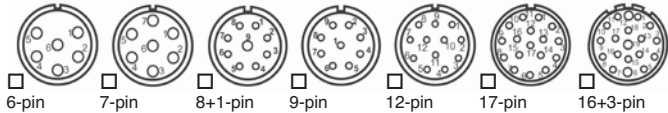
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**Page 1 / View X**

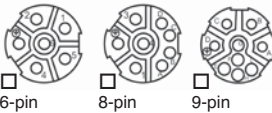
clockwise  
 counterclockwise

**Signal**



Pin layouts (more on request)

**Power**



**Options**

Connector – inner thread M23 x 1  
 Connector – speedtec quick release fastener  
 Coupling – outer thread M23 x 1  
 Coupling – speedtec quick release fastener  
 Socket contacts     pin contacts

Signal coding:  0°    80°    120°    20°

**Cable**

Assembly length L: \_\_\_\_\_ mm

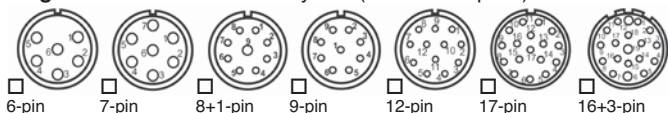
LÜTZE cable part number: \_\_\_\_\_

Description / Requirement / Purpose / Specification:  
 \_\_\_\_\_  
 \_\_\_\_\_

**Page 2 / View Y**

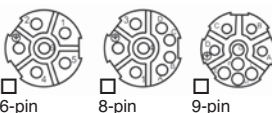
clockwise  
 counterclockwise

**Signal**



Pin layouts (more on request)

**Power**



**Options**

Connector – inner thread M23 x 1  
 Connector – speedtec quick release fastener  
 Coupling – outer thread M23 x 1  
 Coupling – speedtec quick release fastener  
 Socket contacts     pin contacts

Signal coding:  0°    80°    120°    20°

Other connectors Type/Version: \_\_\_\_\_

Manufacturer: \_\_\_\_\_

Manufacturer part number: \_\_\_\_\_

Manipulation cable end (strip, remove insulation, change screen, shrink tubing, copper tape etc.) –

Description: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Cable end cut smoothly

**Labelling**

Wrap-round label printing text distance to connector: \_\_\_\_\_

Cable printing text distance to connector: \_\_\_\_\_

Other labelling – Description: \_\_\_\_\_

No labelling

**Note: Please indicate pin assignment!**

# PUR Coil cables unshielded

## LÜTZE PURFLEX



### Application

- Machine and device construction, transport and conveyor technology
- Especially for industrial environments, machines and plants
- Lifting platforms, test benches and measuring systems as well as door drives

### Properties

- Very good restoring force
- Low adhesion, abrasion-proof, nick-resistant, tear-propagation-resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Weatherproof, ozone and UV resistant (normal lighting conditions)
- Good industrial- and salt water resistance
- Resistant to most oils, greases, alcohol-free benzines and kerosene
- Free from paint wetting disruptive substances (LABS-free), RoHS-compliant

### Technical data

Rated voltage $U_0/U$	300/500 V
Insulation resistance at 20 °C	$\geq 20 \text{ M}\Omega \times \text{km}$
Temperature range fixed	-40 °C ... +80 °C
Temperature range moving	-20 °C ... +80 °C
Design	Cable outlet radial
Product photo	The product photos are not to scale and do not represent detailed images of the respective products.

### Construction

- Conductor: CU-wire bare
- Conductor category: Finely stranded DIN VDE 0295, IEC 60228, Class 5
- Conductor insulation: Special PVC
- Conductor marking: Colour coded
- 2-wire: brown, blue
- 3-wire: green/yellow, brown, blue
- 4-wire: green/yellow, brown, black, grey
- 5-wire: green/yellow, brown, blue, black, grey
- starting with 6 conductors black with white number print according to DIN EN 50334
- Ground conductor green/yellow according to DIN EN 50334 in the top layer
- Jacket material: PUR
- Surface: matt, adhesion-free
- Jacket color: up to 7-wires orange RAL 2003 starting with 12-wires black RAL 9005

Part-No.	Number of conductors/ cross-section	Spiral diameter mm	Spiral length mm	Max. extension length mm	Connection ends L1/L2 mm
<b>PURFLEX</b>					
190003	A* 3G1.5	30	500	2250	250/250
190007	A* 3G1.5	30	1000	4000	250/250
190012	A* 3G1.5	30	1500	5750	250/250
190016	A* 3G1.5	30	2000	7500	250/250
190004	A* 4G1.5	33	500	2250	250/250
190008	A* 4G1.5	33	1000	4000	250/250
190013	A* 4G1.5	33	1500	5750	250/250
190017	A* 4G1.5	33	2000	7500	250/250
190005	A* 5G1.5	40	500	2250	250/250
190009	A* 5G1.5	40	1000	4000	250/250
190014	A* 5G1.5	40	1500	5750	250/250
190018	A* 5G1.5	40	2000	7500	250/250
190560	A* 7G1.5	46	2000	7000	600/600
190006	A* 12G1.5	70	500	2250	250/250
190010	A* 12G1.5	70	1000	4000	250/250
190015	A* 12G1.5	70	1500	5750	250/250
190019	A* 12G1.5	70	2000	0.0	250/250

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC



# Construction questionnaire for Coil cables

Company: \_\_\_\_\_  
 Contact person: \_\_\_\_\_  
 Department: \_\_\_\_\_  
 Street address: \_\_\_\_\_  
 Postal code, city/town: \_\_\_\_\_  
 Telephone: \_\_\_\_\_  
 Fax: \_\_\_\_\_



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 sales.gb@lutze.co.uk

**Please let us know your requirements using this design questionnaire for coil cables:**

L: \_\_\_\_\_ mm      L0: \_\_\_\_\_ mm  
 Ø AD: \_\_\_\_\_ mm      Ø WD: \_\_\_\_\_ mm  
 L1: \_\_\_\_\_ mm      L2: \_\_\_\_\_ mm  
 L3: \_\_\_\_\_ mm      L4: \_\_\_\_\_ mm  
 L5: \_\_\_\_\_ mm      L6: \_\_\_\_\_ mm  
 Quantity: \_\_\_\_\_ pcs.

**Purpose**

Installation situation: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Winding direction: \_\_\_\_\_

Standard cable art. no.: \_\_\_\_\_

Jacket insulation material: \_\_\_\_\_

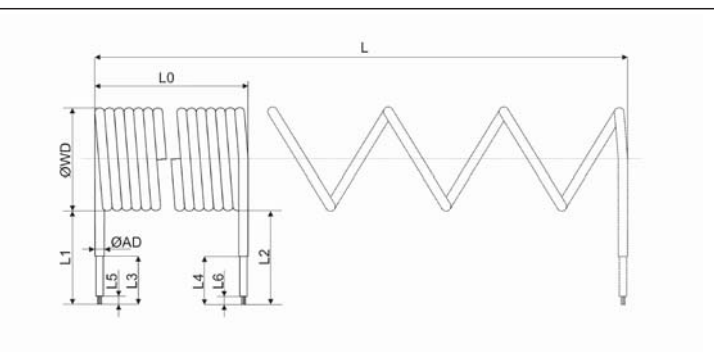
Number of strands: \_\_\_\_\_

Strand cross-section: \_\_\_\_\_ mm<sup>2</sup>

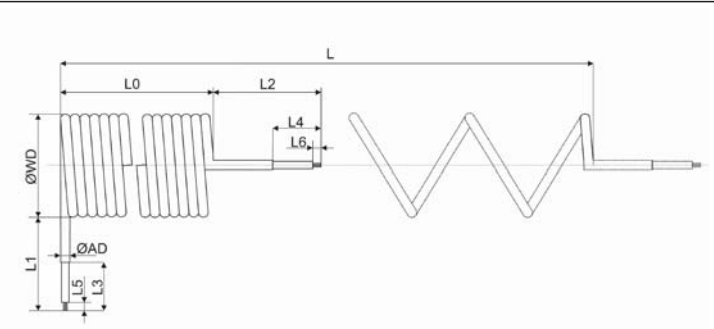
Shielding:     yes       no

**Please fill out this questionnaire and fax it back to us. We will be happy to give you a quotation.**

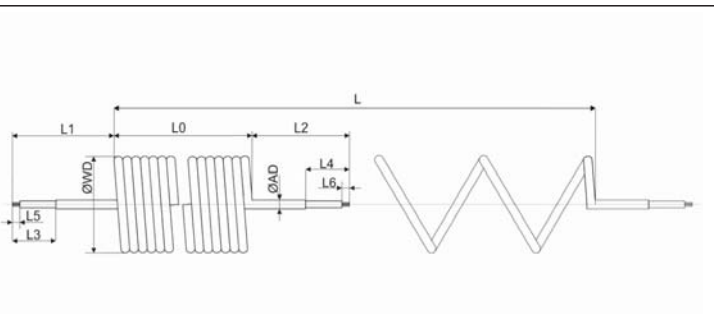
**Thank you!**



Cable outlets, radial



Cable outlets, radial and axial



Cable outlets, axial

**Comments**

\_\_\_\_\_

# Servomotor Cable Assemblies for fixed installation

According to Allen-Bradley 2090 standard



## Application

- Especially for industrial environments in mechanical and system engineering
- Reinforced insulation with additional relief layer
- Based on NFPA 79 standards
- „TC-ER“ for use in machines and open cable ducts
- UL Type 1000V Flexible Motor Supply Cable for connection to motors
- In dry, moist and wet rooms

## Properties

- Wire insulation reinforcing layer protects against premature cable failure due to reduced corona effect and therefore improves reliability and the life span
- Flexible wires with nylon for better resistance to pressure and impacts as per UL 1277
- High flexibility for complex installation distances and small bending radii
- Improved oil resistance due to specifically developed TPE jacket
- UV-resistant
- Silicone free
- RoHS compliant

## Technical data

Rated voltage	1000 V Flexible Motor Supply 1000 V WTTC 600 V UL TC 600 V UL MTW 600 V UL AWM 105 °C
Test voltage	4000 V
Insulation resistance at 20 °C	≥ 500 MΩ×km
Temperature range fixed	-40 °C ... +90 °C (105 °C)
Temperature range moving	-5 °C ... +90 °C
Minimum bending radius fixed	6×D
Minimum bending radius moving	15×D
Approvals	UL Flexible Motor Supply Cable UL Type WTTC 1000 V UL Type TC-ER MTW 600 V UL AWM Style 20328 CE RoHS REACH Class 1 Div. 2 per NEC Art. 336, 392, 501 C(UL) TC and CIC FT4 UL 1277 Oil Res I and II
Product photo	The product photos are not to scale and do not represent detailed images of the respective products.

## Construction

- Conductor: AWG conductor, CU-wire bare
- Conductor insulation: PVC/Nylon
- Conductor marking: brown, black, blue
- Ground conductor green/yellow
- Control pair: colour-coded black, white, with foil tape and braided shield
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: TPE
- Jacket color: orange RAL 2003

Part-No.	Allen Bradley designation*	Cable length m	Number of conductors/ cross-section	Outer ∅ mm
<b>Base cable SpeedTec</b>				
193966.1000	A* 2090-CPWM7DF-16AA10	10 m	(4GAWG16)	10.5
193956.1000	A* 2090-CPWM7DF-14AA10	10 m	(4GAWG14)	11.6
193352.1000	A* 2090-CPWM7DF-12AA10	10 m	(4GAWG12)	13.1
193306.1000	A* 2090-CPWM7DF-10AA10	10 m	(4GAWG10)	16.5
193353.1000	A* 2090-CPWM7DF-08AA10	10 m	(4GAWG8)	21.0
193960.1000	A* 2090-CPBM7DF-16AA10	10 m	(4GAWG16+(2×AWG18))	12.1
193990.1000	A* 2090-CPBM7DF-14AA10	10 m	(4GAWG14+(2×AWG18))	12.8
193356.1000	A* 2090-CPBM7DF-12AA10	10 m	(4GAWG12+(2×AWG18))	14.2
193962.1000	A* 2090-CPBM7DF-10AA10	10 m	(4GAWG10+(2×AWG18))	18.1
193357.1000	A* 2090-CPBM7DF-08AA10	10 m	(4GAWG8+(2×AWG18))	22.5
193961.1000	A* 2090-CPBM7DF-06AA10	10 m	(4GAWG6+(2×AWG18))	24.6
193362.1000	A* 2090-CPBM7DF-04AA10	10 m	(4GAWG4+(2×AWG18))	29.5
193369.1000	A* 2090-CPBM7DF-02AA10	10 m	(4GAWG2+(2×AWG18))	34.1
<b>DIN thread</b>				
193984.1000	A* 2090-CPBM4DF-16AA10	10 m	(4GAWG16+(2×AWG18))	12.1
193982.1000	A* 2090-CPBM4DF-14AA10	10 m	(4GAWG14+(2×AWG18))	12.8

\* Allen-Bradley article designations are registered trademarks of Rockwell Allen Bradley, and are for reference purposes only

# Signal Cable Assemblies for fixed installation

According to Allen-Bradley 2090 standard



Part-No.	Allen Bradley designation*	Cable length m	Number of conductors/ cross-section	Outer Ø mm
<b>Base cable SpeedTec</b>				
193959.1000	A* 2090-CFBM7DF-CEAA10	10	(5×2×AWG22)	9.9
193358.1000	A* 2090-CFBM7DF-CEAA10	10	(5×2×AWG22)	9.9
<b>DIN thread</b>				
193337.1000	A* 2090-XXNFMF-S10	10	(2×AWG16+2×AWG22+ 6×2×AWG26)	13.6

## Application

- Feedback cables for Allen Bradley drives
- Conform with NFPA79 for machine tool wiring
- Very suitable for extreme operating conditions and high interference signals
- In dry, damp and wet environment
- Especially for industrial environments in mechanical and system engineering

## Properties

- High active and passive interference resistance (EMC)
- Easy installation
- Specially developed TPE jacket for superior oil-resistance according to UL 1581
- Resistant to most mineral and vegetable-based cutting oils
- UV-resistant
- Silicone and talcum-free
- RoHS compliant

## Technical data

Rated voltage	300 V UL PLTC-ER 300 V UL CM 600 V UL AWM 90 °C
Test Voltage	1500 V
Temperature range fixed	-40 °C ... +90 °C (105 °C)
Temperature range moving	-5 °C ... +90 °C
Burning behavior according to	UL Vertical-Tray UL VW-1
Oil resistant according to	UL 1581
Oil resistance	4 days in oil at 100 °C 60 days in oil at 75 °C
Approvals	PLTC-ER NEC 725, 760, 800 Class 1 Div. 2 per NEC CE UL cULus
Product photo	The product photos are not to scale and do not represent detailed images of the respective products.

## Construction

- Conductor: AWG conductor, CU-wire tin-plated
- Conductor insulation: Special PVC
- Conductor marking: Colour coded
- Overall shield: Aluminium laminate, Foil shield, Braid shield, Tinned copper wires, optical cover approx. 85%, drain wire
- Jacket material: TPE
- Jacket color: green RAL 6018

\* Allen-Bradley article designations are registered trademarks of Rockwell Allen Bradley, and are for reference purposes only



# Single Cable Assemblies for C-tracks

According to Allen-Bradley 2090 standard



## Application

- Combined power supply cable with motor supply, brake and digital feedback especially for SERVO drives in machine and plant construction, transport and conveyor technology
- Due to special PUR jacket and TPE / HGI conductor insulation optimally suited for c-tracks, extremely rough operating conditions and aggressive coolants and lubricants
- Especially for industrial environments in mechanical and system engineering

## Properties

- High active and passive interference resistance (EMC)
- Braided shield optimised for continuous flexible use
- Very good alternating bending strength
- Low adhesion, abrasion-resistant, nick-resistant, tear-propagation-resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Weatherproof, ozone and UV resistant (normal lighting conditions)
- Good ruggedness and salt water resistance
- Excellent coolant and lubricant resistance
- Resistant to most oils, greases, alcohol-free benzines and kerosene
- Halogen free
- Silicone and talcum free
- RoHS compliant

## Technical data

Rated voltage	1000 V 80 °C
Rated voltage $U_0/U$	600/1000 V
Test voltage	3000 V
Temperature range fixed	-40 °C ... +80 °C
Temperature range moving	-25 °C ... +80 °C
Minimum bending radius fixed	5×D
Minimum bending radius moving	7.5×D
Burning behavior according to	IEC 60332-1 DIN EN 50265-2 VDE 0482 Part 265-2 UL 1581 Part 1080 VW-1 UL FT1
Halogen free according to	EN 50267-2-1
Approvals	cURus UL AWM 21223
Note	<b>max. cable length according to Allen-Bradley specifications</b> Base cable for Kinetix 5500 Drives max. 50 m Base cable for Kinetix 5700 Drives max. 90 m Extension cable max. 30 m
Product photo	The product photos are not to scale and do not represent detailed images of the respective products.

## Construction

- Conductor: CU-wire bare
- Conductor category: Finely stranded DIN VDE 0295, IEC 60228, Class 6
- Conductor insulation: Special TPE
- Conductor marking: Power conductors black with numbered print U/L1/C/L+, V/L2, W/L3/D/L-
- Ground conductor green/yellow according to DIN EN 50334  
G = with green/yellow ground conductor, × = without ground conductor
- Control pair: colour-coded black, white, with foil tape and braided shield
- Overall stranding: Strands braided together
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: Special PUR
- Surface: matt, adhesion-free
- Jacket color: orange RAL 2003

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Part-No.	Allen Bradley designation*	Cable length m	Number of conductors/ cross-section	Outer Ø mm
<b>Base cable SpeedTec</b>				
193366.1000	A* 2090-CSBM1DF-18AF10	10	(4G1.0+(2×0.75)+(2×AWG22))	11.8
193364.1000	A* 2090-CSBM1DF-14AF10	10	(4G2.5+(2×1.0)+(2×AWG22))	14.0
193371.1000	A* 2090-CSWM1DF-18AF10	10	(4G1.0+(2×AWG22))	11.8
193370.1000	A* 2090-CSWM1DF-14AF10	10	(4G2.5+(2×AWG22))	14.0
193375.1000	A* 2090-CSBM1DF-10AF10	10	(4G6+(2×1.0)+(2×AWG22))	17.8
193376.1000	A* 2090-CSWM1DF-10AF10	10	(4G6+(2×AWG22))	17.8
193300.1000	A* 2090-CSBM1DG-18AF10	10	(4G1.0+(2×0.75)+(2×AWG22))	11.8
193302.1000	A* 2090-CSBM1DG-14AF10	10	(4G2.5+(2×1.0)+(2×AWG22))	14.0
193304.1000	A* 2090-CSBM1DG-10AF10	10	(4G6+(2×1.0)+(2×AWG22))	17.8
193305.1000	A* 2090-CSWM1DG-18AF10	10	(4G1.0+(2×0.75)+(2×AWG22))	11.8
193310.1000	A* 2090-CSWM1DG-14AF10	10	(4G2.5+(2×1.0)+(2×AWG22))	14.0
<b>Base cable with 2198-KITCON-DSL</b>				
193952.1000	A* 2090-CSBM1DE-18AF10	10	(4G1.0+(2×0.75)+(2×AWG22))	11.8
193963.1000	A* 2090-CSBM1DE-14AF10	10	(4G2.5+(2×1.0)+(2×AWG22))	14.0
193379.1000	A* 2090-CSWM1DE-18AF10	10	(4G1.0+(2×0.75)+(2×AWG22))	11.8
193955.1000	A* 2090-CSWM1DE-14AF10	10	(4G2.5+(2×1.0)+(2×AWG22))	14.0
193968.1000	A* 2090-CSBM1DE-10AF10	10	(4G6+(2×1.0)+(2×AWG22))	17.8
193967.1000	A* 2090-CSWM1DE-10AF10	10	(4G6+(2×1.0)+(2×AWG22))	17.8
<b>Extension SpeedTec</b>				
193373.1000	A* 2090-CSBM1E1-18AF10	10	(4G1.0+(2×0.75)+(2×AWG22))	11.8
193374.1000	A* 2090-CSBM1E1-14AF10	10	(4G2.5+(2×1.0)+(2×AWG22))	14.0
193377.1000	A* 2090-CSBM1E1-10AF10	10	(4G6+(2×1.0)+(2×AWG22))	17.8

# Servomotor Cable Assemblies for C-tracks

According to Allen-Bradley 2090 standard



## Application

- Servo cables for Allen Bradley drives
- Due to optimized cable construction optimally suited for continuous flexing applications in C-tracks
- Very good resistance against aggressive coolants and lubricants
- Especially for industrial environments in machines and plants

## Properties

- High active and passive interference resistance (EMC)
- Silicone free
- RoHS compliant

## Technical data

Rated voltage	1000 V 80 °C
Rated voltage $U_0/U$	600/1000 V
Test voltage	4000 V
Temperature range fixed	-40 °C ... +80 °C
Temperature range moving	-25 °C ... +80 °C
Minimum bending radius fixed	6×D
Minimum bending radius moving	10×D
Burning behavior according to	IEC 60332-1 VDE 0482 Part 265-2 UL 1581 Part 1080 VW-1 UL FT1
Halogen free according to	EN 50267-2-1
Approvals	cURus UL AWM 21223
Product photo	The product photos are not to scale and do not represent detailed images of the respective products.

## Construction

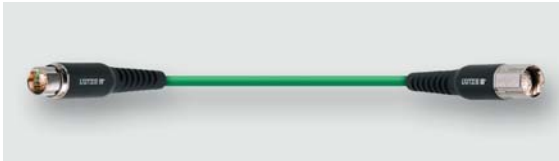
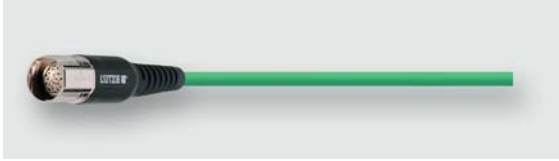
- Conductor: CU-wire bare
- Conductor category: Superfinely stranded DIN VDE 0295, IEC 60228, Class 6
- Conductor marking: Power conductors black with numbered print U/L1/C/L+, V/L2, W/L3/D/L-
- Ground conductor green/yellow according to DIN EN 50334
- Control pair: colour-coded (bw, wb) or numbered (5/6/7/8), with foil tape and braided shield
- Overall stranding: Conductors twisted without mechanical stress
- Overall wrapping: Non-woven material, over the cable core
- Overall shield:
- Jacket material: PUR
- Surface: matt, adhesion-free
- Jacket color: orange RAL 2003

Part-No.	Allen Bradley designation*	Cable length m	Number of conductors/ cross-section	Outer Ø mm
<b>Base cable SpeedTec</b>				
193309.1000	A* 2090-CPWM7DF-16AF10	10	(4G1.5)	8.6
193307.1000	A* 2090-CPWM7DF-10AF10	10	(4G6.0)	14.0
193989.1000	A* 2090-CPBM7DF-10AF10	10	(4G6.0+(2×1.5))	16.1
193991.1000	A* 2090-CPBM7DF-16AF10	10	(4G1.5+(2×1.5))	11.4
193308.1000	A* 2090-CPWM7DF-14AF10	10	(4G2.5)	10.8
193957.1000	A* 2090-CPBM7DF-14AF10	10	(4G2.5+(2×1.5))	12.9
193311.1000	A* 2090-CPWM7DF-08AF10	10	(4G10)	17.6
193355.1000	A* 2090-CPBM7DF-08AF10	10	(4G10+(2×1.5))	19.5
<b>DIN thread</b>				
193985.1000	A* 2090-CPBM4DF-16AF10	10	(4G1.5+(2×1.5))	12.9
193303.1000	A* 2090-CPWM4DF-16AF10	10	(4G1.5)	8.6
193983.1000	A* 2090-CPBM4DF-14AF10	10	(4G2.5+(2×1.5))	14.2
193301.1000	A* 2090-CPWM4DF-14AF10	10	(4G2.5)	10.8
<b>Extension SpeedTec</b>				
193996.1000	A* 2090-CPBM7E7-16AF10	10	(4G1.5+(2×1.5))	11.4
193994.1000	A* 2090-CPBM7E7-10AF10	10	(4G6.0+(2×1.5))	16.1
193360.1000	A* 2090-CPBM7E7-14AF10	10	(4G2.5+(2×1.5))	12.9
193361.1000	A* 2090-CPBM7E7-08AF10	10	(4G10+(2×1.5))	19.5

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# Signal Cable Assemblies for C-tracks

According to Allen-Bradley 2090 standard



## Application

- Servo feedback cables for Allen Bradley drives
- Due to optimized cable construction optimally suited for continuous flexing applications in C-tracks
- Very good resistance against aggressive coolants and lubricants
- Especially for industrial environments in machines and plants

## Properties

- High active and passive interference resistance (EMC)
- Silicone free
- RoHS compliant

## Technical data

Rated voltage	1000 V 80 °C
Temperature range fixed	-40 °C ... +80 °C
Temperature range moving	-25 °C ... +80 °C
Minimum bending radius fixed	6×D
Minimum bending radius moving	12×D
Burning behavior according to	IEC 60332-1 VDE 0482 Part 265-2 UL 1581 Part 1080 VW-1 UL FT1
Halogen free according to	EN 50267-2-1
Approvals	cULus UL AWM 21223
Product photo	The product photos are not to scale and do not represent detailed images of the respective products.

## Construction

- Conductor: CU-wire bare
- Conductor category: Superfinely stranded DIN VDE 0295, IEC 60228, Class 6
- Conductor marking: Colour coded
- Ground conductor green/yellow according to DIN EN 50334
- G = with green/yellow ground conductor, × = without ground conductor
- Control pair:
- Overall stranding: Conductors stranded layers
- Overall wrapping: Non-woven material, over the cable core
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: PUR
- Surface: matt, adhesion-free
- Jacket color: green RAL 6018

Part-No.	Allen Bradley designation*	Cable length m	Number of conductors/ cross-section	Outer Ø mm
<b>Base cable SpeedTec</b>				
193977.1000	A* 2090-CFBM7DF-CEAF10	10	(5×2×AWG22)	9.2
193958.1000	A* 2090-CFBM7DF-CDAF10	10	(2×AWG16+2×AWG22+ 6×2×AWG26)	10.8
193350.1000	A* 2090-CFBM7DD-CEAF10	10	(5×2×AWG22)	9.2
<b>DIN thread</b>				
193973.1000	A* 2090-CFBM4DF-CDAF10	10	(2×AWG16+2×AWG22+ 6×2×AWG26)	10.8
<b>Extension SpeedTec</b>				
193979.1000	A* 2090-CFBM7E7-CEAF10	10	(5×2×AWG22)	9.2
193978.1000	A* 2090-CFBM7E7-CDAF10	10	(2×AWG16+2×AWG22+ 6×2×AWG26)	10.8

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# Servomotor cables for C-tracks

According to Bosch Rexroth IKG standard



## Application

- Motor cable for Bosch Rexroth SERVO drives
- Full PUR jacket and TPE conductor insulation optimally suited for c-tracks, extremely rough operating conditions, aggressive coolants and lubricants

## Properties

- Silicone free
- RoHS-compliant

## Technical data

Rated voltage	1000 V 80 °C
Rated voltage $U_p/U$	600/1000 V
Insulation resistance at 20 °C	$\geq 500 \text{ M}\Omega \times \text{km}$
Temperature range fixed	-40 °C ... +80 °C
Temperature range moving	-25 °C ... +80 °C
Minimum bending radius fixed	6xD
Minimum bending radius moving	10xD
Burning behavior according to	IEC 60332-1 DIN EN 50265-2 VDE 0482 Part 265-2 UL 1581 Part 1080 VVW-1 UL FT1
Halogen free according to	EN 50267-2-1
Approvals	cURus
Product photo	The product photos are not to scale and do not represent detailed images of the respective products.

## Construction

- Jacket color: orange RAL 2003

Part-No.	BOSCH REXROTH designation*	Cable length m	Number of conductors/ cross-section	Outer $\varnothing$ mm
<b>Base cable</b>				
193028.1000	A* IKG4115/010.0	10	(4G1.5+2×(2×0.75))	12.9
193029.1000	A* IKG4116/010.0	10	(4G2.5+2×(2×1.0))	14.2
193054.1000	A* IKG4117/010.0	10	(4G4+2×(2×1.5))	16.3
193055.1000	A* IKG4118/010.0	10	(4G6+2×(2×0.75))	18.4
193037.1000	A* IKG4175/010.0	10	(4G10+(2×1.0)+(2×1.5))	22.3
193030.1000	A* IKG4136/010.0	10	(4G6+(2×1.0)+(2×1.5))	18.4
193062.1000	A* IKG4176/010.0	10	(4G10+2×(2×1.5))	22.3
193031.1000	A* IKG4140/010.0	10	(4G1.5+2×(2×0.75))	18.4
193060.1000	A* IKG4139/010.0	10	(4G2.5+2×(2×0.75))	22.3
193038.1000	A* IKG4177/010.0	10	(4G4+(2×1.0)+(2×1.5))	12.9
193039.1000	A* IKG4215/010.0	10	(4G6+(2×1.0)+(2×1.5))	14.2
193077.1000	A* IKG4169/010.0	10	(4G10+(2×1.0)+(2×1.5))	16.3
193032.1000	A* IKG4155/010.0	10	(4G6+(2×1.0)+(2×1.5))	18.4
193078.1000	A* IKG4168/010.0	10	(4G10+(2×1.0)+(2×1.5))	22.3
193061.1000	A* IKG4172/010.0	10	(4G16+2×(2×1.5))	26.8
193035.1000	A* IKG4173/010.0	10	(4G25+2×(2×1.5))	29.3
193036.1000	A* IKG4174/010.0	10	(4G35+2×(2×1.5))	32.5
193033.1000	A* IKG4620/010.0	10	(4G25+2×(2×1.5))	29.3
193079.1000	A* IKG4621/010.0	10	(4G35+2×(2×1.5))	32.5

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# Servomotor cables for C-tracks

According to Bosch Rexroth RKL standard



## Application

- Motor cable for Bosch Rexroth SERVO drives
- Full PUR jacket and TPE conductor insulation optimally suited for c-tracks, extremely rough operating conditions, aggressive coolants and lubricants

## Properties

- Silicone free
- RoHS-compliant

## Technical data

Rated voltage	1000 V 80 °C
Rated voltage $U_0/U$	600/1000 V
Insulation resistance at 20 °C	$\geq 500 \text{ M}\Omega \times \text{km}$
Temperature range fixed	-40 °C ... +80 °C
Temperature range moving	-25 °C ... +80 °C
Burning behavior according to	IEC 60332-1 DIN EN 50265-2 VDE 0482 Part 265-2 UL 1581 Part 1080 VW-1 UL FT1
Halogen free according to	EN 50267-2-1
Approvals	cURus
Product photo	The product photos are not to scale and do not represent detailed images of the respective products.

## Construction

- Jacket color: orange RAL 2003

Part-No.	BOSCH REXROTH designation*	Cable length m	Number of conductors/ cross-section	Outer $\varnothing$ mm
<b>Base cable</b>				
193262.1000	A* RKL0014/010.0	10	(4G1.0+2×(2×0.75))	12.5
193089.1000	A* RKL0015/010.0	10	(4G1.5+2×(2×0.75))	12.9
193090.1000	A* RKL0016/010.0	10	(4G1.5+2×(2×0.75))	12.9
193091.1000	A* RKL0017/010.0	10	(4G1.5+2×(2×0.75))	12.9
193092.1000	A* RKL0018/010.0	10	(4G2.5+2×(2×1.0))	14.2
193093.1000	A* RKL0019/010.0	10	(4G1.0+2×(2×0.75))	12.5
193095.1000	A* RKL0046/010.0	10	(4G2.5+2×(2×1.0))	14.2
193097.1000	A* RKL0049/010.0	10	(4G6+(2×1.0)+(2×1.5))	18.4
193098.1000	A* RKL0050/010.0	10	(4G1.5+2×(2×0.75))	12.9
193100.1000	A* RKL0052/010.0	10	(4G2.5+2×(2×1.0))	14.2
193101.1000	A* RKL0053/010.0	10	(4G1.0+2×(2×0.75))	12.5
193105.1000	A* RKL0057/010.0	10	(4G2.5+2×(2×1.0))	14.2
193106.1000	A* RKL0058/010.0	10	(4G4+(2×1.0)+(2×1.5))	16.3
193125.1000	A* RKL4300/010.0	10	(4G1.5+2×(2×0.75))	12.9
193107.1000	A* RKL4301/010.0	10	(4G1.5+2×(2×0.75))	12.9
193240.1000	A* RKL4302/010.0	10	(4G1.0+2×(2×0.75))	12.5
193258.1000	A* RKL4303/010.0	10	(4G1.0+2×(2×0.75))	12.5
193241.1000	A* RKL4306/010.0	10	(4G1.5+2×(2×0.75))	12.9
193273.1000	A* RKL4307/010.0	10	(4G1.5+2×(2×0.75))	12.9
193242.1000	A* RKL4308/010.0	10	(4G2.5+2×(2×0.75))	14.2
193243.1000	A* RKL4309/010.0	10	(4G2.5+2×(2×0.75))	14.2
193244.1000	A* RKL4310/010.0	10	(4G2.5+2×(2×0.75))	14.2
193108.1000	A* RKL4313/010.0	10	(4G4+(2×1.0)+(2×1.5))	16.3
193257.1000	A* RKL4314/010.0	10	(4G4+(2×1.0)+(2×1.5))	16.3
193109.1000	A* RKL4315/010.0	10	(4G4+(2×1.0)+(2×1.5))	16.3
193246.1000	A* RKL4317/010.0	10	(4G6+(2×1.0)+(2×1.5))	18.4
193247.1000	A* RKL4318/010.0	10	(4G6+(2×1.0)+(2×1.5))	18.4
193276.1000	A* RKL4345/010.0	10	(4G2.5+2×(2×1.0))	14.2
193119.1000	A* RKL4346/010.0	10	(4G2.5+2×(2×1.0))	14.2
<b>Extension</b>				
193263.1000	A* RKL4311/010.0	10	(4G1.5+2×(2×0.75))	12.9
193278.1000	A* RKL4304/010.0	10	(4G1.5+2×(2×0.75))	12.9
193616.1000	A* RKL4305/010.0	10	(4G1.0+2×(2×0.75))	12.5
193245.1000	A* RKL4312/010.0	10	(4G2.5+2×(2×0.75))	14.2
193110.1000	A* RKL4316/010.0	10	(4G4+(2×1.0)+(2×1.5))	16.3
193279.1000	A* RKL4319/010.0	10	(4G6+(2×1.0)+(2×1.5))	18.4
193120.1000	A* RKL4347/010.0	10	(4G2.5+2×(2×1.0))	14.2

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# Servomotor cables for C-tracks

According to Bosch Rexroth RKL standard



## Application

- Motor cable for Bosch Rexroth SERVO drives
- Full PUR jacket and TPE conductor insulation optimally suited for c-tracks, extremely rough operating conditions, aggressive coolants and lubricants

## Properties

- Silicone free
- RoHS-compliant

## Technical data

Rated voltage	1000 V 80 °C
Rated voltage $U_0/U$	600/1000 V
Insulation resistance at 20 °C	$\geq 500 \text{ M}\Omega \times \text{km}$
Temperature range fixed	-40 °C ... +80 °C
Temperature range moving	-25 °C ... +80 °C
Minimum bending radius fixed	6×D
Minimum bending radius moving	10×D
Burning behavior according to	IEC 60332-1 DIN EN 50265-2 VDE 0482 Part 265-2 UL 1581 Part 1080 VW-1 UL FT1
Halogen free according to	EN 50267-2-1
Approvals	cURus
Product photo	The product photos are not to scale and do not represent detailed images of the respective products.

## Construction

- Jacket color: orange RAL 2003

Part-No.	BOSCH REXROTH designation*	Cable length m	Number of conductors/ cross-section	Outer $\varnothing$ mm
<b>Base cable</b>				
193094.1000	A* RKL0045/010.0	10	(4G1.5+2×(2×0.75))	12.9
193099.1000	A* RKL0051/010.0	10	(4G2.5+2×(2×1.0))	14.2
193102.1000	A* RKL4354/010.0	10	(4G1.5+2×(2×0.75))	12.9
193103.1000	A* RKL0055/010.0	10	(4G6+(2×1.0)+(2×1.5))	18.4
193104.1000	A* RKL0056/010.0	10	(4G4+(2×1.0)+(2×1.5))	16.3
193259.1000	A* RKL4320/010.0	10	(4G1.5+2×(2×0.75))	12.9
193252.1000	A* RKL4321/010.0	10	(4G2.5+2×(2×0.75))	14.2
193282.1000	A* RKL4322/010.0	10	(4G4+(2×1.0)+(2×1.5))	16.3
193248.1000	A* RKL4323/010.0	10	(4G6+(2×1.0)+(2×1.5))	18.4
193249.1000	A* RKL4324/010.0	10	(4G10+(2×1.0)+(2×1.5))	22.3
193272.1000	A* RKL4325/010.0	10	(4G1.5+2×(2×0.75))	12.9
193111.1000	A* RKL4326/010.0	10	(4G2.5+2×(2×1.0))	14.2
193112.1000	A* RKL4327/010.0	10	(4G4+(2×1.0)+(2×1.5))	16.3
193250.1000	A* RKL4328/010.0	10	(4G6+(2×1.0)+(2×1.5))	18.4
193251.1000	A* RKL4329/010.0	10	(4G10+(2×1.0)+(2×1.5))	22.3
193253.1000	A* RKL4330/010.0	10	(4G16+2×(2×1.5))	23.0
193254.1000	A* RKL4331/010.0	10	(4G25+2×(2×1.5))	29.3
193113.1000	A* RKL4332/010.0	10	(4G35+2×(2×1.5))	32.5
193114.1000	A* RKL4333/010.0	10	(4G25+2×(2×1.5))	29.3
193115.1000	A* RKL4334/010.0	10	(4G35+2×(2×1.5))	32.5
193260.1000	A* RKL4343/010.0	10	(4G2.5+2×(2×0.75))	14.2
193118.1000	A* RKL4344/010.0	10	(4G16+2×(2×1.5))	26.8
193121.1000	A* RKL4349/010.0	10	(4G16+2×(2×1.5))	26.8
193122.1000	A* RKL4387/010.0	10	(4G35+2×(2×1.5))	32.5
193123.1000	A* RKL4778/010.0	10	(4G35+2×(2×1.5))	32.5
193124.1000	A* RKL4785/010.0	10	(4G25+2×(2×1.5))	29.3
<b>Extension</b>				
193116.1000	A* RKL4335/010.0	10	(4G1.5+2×(2×0.75))	12.9
193004.1000	A* RKL4336/010.0	10	(4G2.5+2×(2×1.0))	14.2
193255.1000	A* RKL4337/010.0	10	(4G4+(2×1.0)+(2×1.5))	16.3
193256.1000	A* RKL4338/010.0	10	(4G6+(2×1.0)+(2×1.5))	18.4
193270.1000	A* RKL4339/010.0	10	(4G10+(2×1.0)+(2×1.5))	22.3
193271.1000	A* RKL4340/010.0	10	(4G16+2×(2×1.5))	26.8
193264.1000	A* RKL4341/010.0	10	(4G25+2×(2×1.5))	29.3
193117.1000	A* RKL4342/010.0	10	(4G35+2×(2×1.5))	32.5

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# Signal cables for C-tracks

According to Bosch Rexroth IKS standard



## Application

- Signal cables
- Due to full PUR jacket and TPE conductor insulation optimally suited for c-track, extremely rough operating conditions, aggressive coolants and lubricants

## Properties

- Silicone free
- RoHS-compliant

## Technical data

Rated voltage	300 V 80 °C
Rated voltage $U_0/U$	600/1000 V
Insulation resistance at 20 °C	$\geq 200 \text{ M}\Omega \times \text{km}$
Temperature range fixed	-40 °C ... +80 °C
Temperature range moving	-25 °C ... +80 °C
Minimum bending radius fixed	6×D
Minimum bending radius moving	12×D
Burning behavior according to	IEC 60332-1 DIN EN 50265-2 VDE 0482 Part 265-2 UL 1581 Part 1080 VW-1 UL FT1
Halogen free according to	EN 50267-2-1
Approvals	cURus
Product photo	The product photos are not to scale and do not represent detailed images of the respective products.

## Construction

- Jacket color: orange RAL 2003

Part-No.	BOSCH REXROTH designation*	Cable length m	Number of conductors/ cross-section	Outer $\varnothing$ mm
<b>Base cable</b>				
193126.1000	A* RKG0030/010.0	10	(2×1.0+4×2×0.25)	8.9
193034.1000	A* RKG4200/010.0	10	(2×0.5+4×2×0.25)	8.7
193088.1000	A* RKG4202/010.0	10	(2×0.5+4×2×0.25)	8.7
193146.1000	A* IKS4038/010.0	10	(4×1.0 + 4×2×0.14 + (4×0.14))	9.5
<b>Extension</b>				
193001.1000	A* RKG4201/010.0	10	(2×0.5+4×2×0.25)	8.7

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# Servo cable assemblies for fixed wiring

## According to SIEMENS-6FX5002 standard Base cable



### Application

- Base cable for Siemens servo drives
- For flexible application without compulsory guide
- More cost-effective alternative to the cable carrier suitable 6FX8002 version

### Properties

- PVC Flame-retardant, self-extinguishing
- Sans silicone
- RoHS compliant

### Technical data

Rated voltage	1000 V 80 °C
Rated voltage $U_0/U$	600/1000 V
Test voltage	4000 V
Insulation resistance at 20 °C	$\geq 500 \text{ M}\Omega \times \text{km}$
Temperature range fixed	-25 °C ... +80 °C
Temperature range moving	-5 °C ... +80 °C
Minimum bending radius fixed	6xD
Minimum bending radius moving	10xD
Burning behavior according to	IEC 60332-1 DIN EN 50265-2 VDE 0482 Part 265-2 UL 1581 Part 1080 VW-1 UL FT1
Approvals	cURus
Product photo	The product photos are not to scale and do not represent detailed images of the respective products.

### Construction

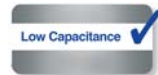
- Conductor: CU-wire bare
- Conductor category: Finely stranded DIN VDE 0295, DIN EN 60228, class 5
- Conductor insulation: Special PP
- Conductor marking: Power conductors black with numbered print U/L1/C/L+, V/L2, W/L3/D/L-
- Ground conductor green/yellow according to DIN EN 50334
- Overall wrapping: Non-woven material, over the cable core
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket color: orange RAL 2003

Part-No.	SIEMENS designation*	Cable length m	Number of conductors/ cross-section	Outer $\varnothing$ mm
<b>SINAMICS, speed-connect / Booksize without brake pairs</b>				
198406.1000	A* 6FX5002-5CN06-1BA0	10.0	(4G1.5)	8.4
198408.1000	A* 6FX5002-5CN26-1BA0	10.0	(4G1.5)	8.4
198411.1000	A* 6FX5002-5CS06-1BA0	10.0	(4G1.5)	8.4
198413.1000	A* 6FX5002-5CS26-1BA0	10.0	(4G1.5)	8.4
198422.1000	A* 6FX5002-5CN16-1BA0	10.0	(4G1.5)	8.4
198423.1000	A* 6FX5002-5CN36-1BA0	10.0	(4G2.5)	10.6
198425.1000	A* 6FX5002-5CS16-1BA0	10.0	(4G2.5)	10.6
198427.1000	A* 6FX5002-5CS36-1BA0	10.0	(4G2.5)	10.6
198438.1000	A* 6FX5002-5CN46-1BA0	10.0	(4G4)	11.5
198441.1000	A* 6FX5002-5CS46-1BA0	10.0	(4G4)	11.5
198447.1000	A* 6FX5002-5CN56-1BA0	10.0	(4G6)	13.2
198449.1000	A* 6FX5002-5CS56-1BA0	10.0	(4G6)	13.2
198456.1000	A* 6FX5002-5CN66-1BA0	10.0	(4G10)	16.5
198458.1000	A* 6FX5002-5CS17-1BA0	10.0	(4G10)	16.5
198463.1000	A* 6FX5002-5CS66-1BA0	10.0	(4G10)	16.5
<b>SINAMICS, speed-connect / Booksize with brake pairs</b>				
198407.1000	A* 6FX5002-5DN06-1BA0	10.0	(4G1.5+(2x1.5))	11.6
198415.1000	A* 6FX5002-5DN26-1BA0	10.0	(4G1.5+(2x1.5))	11.6
198417.1000	A* 6FX5002-5DS06-1BA0	10.0	(4G1.5+(2x1.5))	11.6
198419.1000	A* 6FX5002-5DS26-1BA0	10.0	(4G1.5+(2x1.5))	11.6
198429.1000	A* 6FX5002-5DN16-1BA0	10.0	(4G2.5+(2x1.5))	13.0
198432.1000	A* 6FX5002-5DN36-1BA0	10.0	(4G2.5+(2x1.5))	13.0
198434.1000	A* 6FX5002-5DS16-1BA0	10.0	(4G2.5+(2x1.5))	13.0
198436.1000	A* 6FX5002-5DS36-1BA0	10.0	(4G2.5+(2x1.5))	13.0
198443.1000	A* 6FX5002-5DN46-1BA0	10.0	(4G4+(2x1.5))	14.0
198445.1000	A* 6FX5002-5DS46-1BA0	10.0	(4G4+(2x1.5))	14.0
198452.1000	A* 6FX5002-5DN56-1BA0	10.0	(4G6+(2x1.5))	15.8
198454.1000	A* 6FX5002-5DS56-1BA0	10.0	(4G6+(2x1.5))	15.8
198465.1000	A* 6FX5002-5DN66-1BA0	10.0	(4G10+(2x1.5))	18.5
198467.1000	A* 6FX5002-5DS66-1BA0	10.0	(4G10+(2x1.5))	18.5
198469.1000	A* 6FX5002-5DS17-1BA0	10.0	(4G10+(2x1.5))	18.5

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# Servo cable assemblies without brake pairs for fixed installation

## According to SIEMENS-6FX5002 standard Base cable



### Application

- Base cable for Siemens servo drives
- For flexible applications without continuous flexing
- More cost-effective alternative to the cable chain version 6FX8002

### Properties

- PVC Flame-retardant, self-extinguishing
- Silicone free
- RoHS-compliant

### Technical data

Rated voltage	1000 V 80 °C
Rated voltage $U_0/U$	600/1000 V
Test voltage	4000 V
Insulation resistance at 20 °C	$\geq 500 \text{ M}\Omega \times \text{km}$
Temperature range fixed	-25 °C ... +80 °C
Temperature range moving	-5 °C ... +80 °C
Minimum bending radius fixed	6×D
Minimum bending radius moving	10×D
Burning behavior according to	IEC 60332-1 DIN EN 50265-2 VDE 0482 Part 265-2 UL 1581 Part 1080 VW-1 UL FT1
Approvals	cURus
Product photo	The product photos are not to scale and do not represent detailed images of the respective products.

### Construction

- Conductor: CU-wire bare
- Conductor category: Finely stranded DIN VDE 0295, IEC 60228, Class 5
- Conductor insulation: Special PP
- Conductor marking: Power conductors black with numbered print U/L1/C/L+, V/L2, W/L3/D/L-
- Ground conductor green/yellow according to DIN EN 50334
- Overall wrapping: Non-woven material, over the cable core
- Overall shield:
- Jacket color: orange RAL 2003

Part-No.	SIEMENS designation*	Cable length m	Number of conductors/ cross-section	Outer $\varnothing$ mm
<b>SINAMICS, speed-connect/Booksize</b>				
198098.1000	A* 6FX5002-5CN01-1BA0	10	(4G1.5)	8.4
198103.1000	A* 6FX5002-5CN11-1BA0	10	(4G2.5)	10.6
198104.1000	A* 6FX5002-5CN21-1BA0	10	(4G1.5)	8.4
198106.1000	A* 6FX5002-5CN31-1BA0	10	(4G2.5)	10.6
198107.1000	A* 6FX5002-5CN41-1BA0	10	(4G4)	11.5
198108.1000	A* 6FX5002-5CN51-1BA0	10	(4G6)	13.2
198109.1000	A* 6FX5002-5CN61-1BA0	10	(4G10)	16.5
<b>SINAMICS, full thread/Booksize</b>				
198205.1000	A* 6FX5002-5CS01-1BA0	10	(4G1.5)	8.4
198124.1000	A* 6FX5002-5CS11-1BA0	10	(4G2.5)	10.6
198128.1000	A* 6FX5002-5CS13-1BA0	10	(4G10)	16.5
198129.1000	A* 6FX5002-5CS21-1BA0	10	(4G1.5)	8.4
198132.1000	A* 6FX5002-5CS31-1BA0	10	(4G2.5)	10.6
198133.1000	A* 6FX5002-5CS41-1BA0	10	(4G4)	11.5
198136.1000	A* 6FX5002-5CS51-1BA0	10	(4G6)	13.2
198139.1000	A* 6FX5002-5CS61-1BA0	10	(4G10)	16.5
<b>SINAMICS, open end/Booksize</b>				
198123.1000	A* 6FX5002-5CS02-1BA0	10	(4G1.5)	8.4
198126.1000	A* 6FX5002-5CS12-1BA0	10	(4G2.5)	10.6
198321.1000	A* 6FX5002-5CS42-1BA0	10	(4G4)	16.5
198322.1000	A* 6FX5002-5CS52-1BA0	10	(4G6)	14.0
198323.1000	A* 6FX5002-5CS62-1BA0	10	(4G10)	16.5

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# Servo cable assemblies without brake pairs for fixed installation

## According to SIEMENS-6FX5002 standard Base cable



### Application

- Base cable for Siemens servo drives
- For flexible applications without continuous flexing
- More cost-effective alternative to the cable chain version 6FX8002

### Properties

- PVC Flame-retardant, self-extinguishing
- Silicone free
- RoHS-compliant

### Technical data

Rated voltage	1000 V 80 °C
Rated voltage $U_0/U$	600/1000 V
Test voltage	4000 V
Insulation resistance at 20 °C	$\geq 500 \text{ M}\Omega \times \text{km}$
Temperature range fixed	-25 °C ... +80 °C
Temperature range moving	-5 °C ... +80 °C
Minimum bending radius fixed	6×D
Minimum bending radius moving	10×D
Burning behavior according to	IEC 60332-1 DIN EN 50265-2 VDE 0482 Part 265-2 UL 1581 Part 1080 VW-1 UL FT1
Approvals	cURus
Product photo	The product photos are not to scale and do not represent detailed images of the respective products.

### Construction

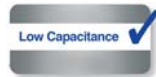
- Conductor: CU-wire bare
- Conductor category: Finely stranded DIN VDE 0295, IEC 60228, Class 5
- Conductor insulation: Special PP
- Conductor marking: Power conductors black with numbered print U/L1/C/L+, V/L2, W/L3/D/L-
- Ground conductor green/yellow according to DIN EN 50334
- Overall wrapping: Non-woven material, over the cable core
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket color: orange RAL 2003

Part-No.	SIEMENS designation*	Cable length m	Number of conductors/cross-section	Outer $\varnothing$ mm
<b>SIMODRIVE, full thread/open end</b>				
198042.1000	A* 6FX5002-5CA01-1BA0	10	(4G1.5)	8.4
198046.1000	A* 6FX5002-5CA11-1BA0	10	(4G2.5)	10.6
198048.1000	A* 6FX5002-5CA13-1BA0	10	(4G10)	16.5
198051.1000	A* 6FX5002-5CA21-1BA0	10	(4G1.5)	8.4
198052.1000	A* 6FX5002-5CA23-1BA0	10	(4G16)	21.2
198054.1000	A* 6FX5002-5CA31-1BA0	10	(4G2.5)	10.6
198059.1000	A* 6FX5002-5CA41-1BA0	10	(4G4)	11.5
198063.1000	A* 6FX5002-5CA51-1BA0	10	(4G6)	13.2
198066.1000	A* 6FX5002-5CA61-1BA0	10	(4G10)	16.5
<b>SINAMICS, full thread/open end</b>				
198068.1000	A* 6FX5002-5CG01-1BA0	10	(4G1.5)	8.4
198071.1000	A* 6FX5002-5CG11-1BA0	10	(4G2.5)	10.6
198292.1000	A* 6FX5002-5CG13-1BA0	10	(4G10)	16.5
198073.1000	A* 6FX5002-5CG21-1BA0	10	(4G1.5)	8.4
198293.1000	A* 6FX5002-5CG23-1BA0	10	(4G16)	21.2
198078.1000	A* 6FX5002-5CG31-1BA0	10	(4G2.5)	10.6
198083.1000	A* 6FX5002-5CG41-1BA0	10	(4G4)	11.5
198088.1000	A* 6FX5002-5CG51-1BA0	10	(4G6)	14.0
198093.1000	A* 6FX5002-5CG61-1BA0	10	(4G10)	16.5
198273.1000	A* 6FX5002-5CS14-1BA0	10	(4G10)	16.5
198294.1000	A* 6FX5002-5CS23-1BA0	10	(4G16)	21.2
198299.1000	A* 6FX5002-5CS54-1BA0	10	(4G6)	14.0
198309.1000	A* 6FX5002-5CS64-1BA0	10	(4G10)	16.5
198353.1000	A* 6FX5002-5CG32-1BA0	10	(4G2.5)	10.6

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# Servo cable assemblies with brake pairs for fixed installation

## According to SIEMENS-6FX5002 standard Base cable



### Application

- Base cable for Siemens servo drives
- For flexible applications without continuous flexing
- More cost-effective alternative to the cable chain version 6FX8002

### Properties

- PVC Flame-retardant, self-extinguishing
- Silicone free
- RoHS-compliant

### Technical data

Rated voltage	1000 V 80 °C
Rated voltage $U_0/U$	600/1000 V
Test voltage	4000 V
Insulation resistance at 20 °C	$\geq 500 \text{ M}\Omega \times \text{km}$
Temperature range fixed	-25 °C ... +80 °C
Temperature range moving	-5 °C ... +80 °C
Minimum bending radius fixed	6xD
Minimum bending radius moving	10xD
Burning behavior according to	VDE 0482 Part 265-2 DIN EN 50265-2 IEC 60332-1 UL 1581 Part 1080 VW-1 UL FT1
Approvals	cURus
Product photo	The product photos are not to scale and do not represent detailed images of the respective products.

### Construction

- Conductor: CU-wire bare
- Conductor category: Finely stranded DIN VDE 0295, IEC 60228, Class 5
- Conductor insulation: Special PP
- Conductor marking: Power conductors black with numbered print U/L1/C/L+, V/L2, W/L3/D/L-
- Ground conductor green/yellow according to DIN EN 50334
- Overall wrapping: Non-woven material, over the cable core
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket color: orange RAL 2003

Part-No.	SIEMENS designation*	Cable length m	Number of conductors/ cross-section	Outer $\varnothing$ mm
<b>SINAMICS, speed-connect/Booksize</b>				
198340.1000	A* 6FX5002-5DN01-1BA0	10	(4G1.5+(2x1.5))	11.6
198341.1000	A* 6FX5002-5DN11-1BA0	10	(4G2.5+(2x1.5))	13.0
198342.1000	A* 6FX5002-5DN21-1BA0	10	(4G1.5+(2x1.5))	11.6
198343.1000	A* 6FX5002-5DN31-1BA0	10	(4G2.5+(2x1.5))	13.0
198344.1000	A* 6FX5002-5DN41-1BA0	10	(4G4+(2x1.5))	14.0
198345.1000	A* 6FX5002-5DN51-1BA0	10	(4G6+(2x1.5))	15.8
198346.1000	A* 6FX5002-5DN61-1BA0	10	(4G10+(2x1.5))	18.5
<b>SINAMICS, full thread/Booksize</b>				
198320.1000	A* 6FX5002-5DS01-1BA0	10	(4G1.5+(2x1.5))	11.6
198325.1000	A* 6FX5002-5DS11-1BA0	10	(4G2.5+(2x1.5))	13.0
198176.1000	A* 6FX5002-5DS13-1BA0	10	(4G10+(2x1.5))	18.5
198177.1000	A* 6FX5002-5DS21-1BA0	10	(4G1.5+(2x1.5))	11.6
198245.1000	A* 6FX5002-5DS31-1BA0	10	(4G2.5+(2x1.5))	13.0
198178.1000	A* 6FX5002-5DS41-1BA0	10	(4G4+(2x1.5))	14.0
198179.1000	A* 6FX5002-5DS51-1BA0	10	(4G6+(2x1.5))	15.8
198182.1000	A* 6FX5002-5DS61-1BA0	10	(4G10+(2x1.5))	18.5

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# Servo cable assemblies with brake pairs for fixed installation

## According to SIEMENS-6FX5002 standard Base cable



### Application

- Base cable for Siemens servo drives
- For flexible applications without continuous flexing
- More cost-effective alternative to the cable chain version 6FX8002

### Properties

- PVC Flame-retardant, self-extinguishing
- Silicone free
- RoHS-compliant

### Technical data

Rated voltage	1000 V 80 °C
Rated voltage $U_0/U$	600/1000 V
Test voltage	4000 V
Insulation resistance at 20 °C	$\geq 500 \text{ M}\Omega \times \text{km}$
Temperature range fixed	-25 °C ... +80 °C
Temperature range moving	-5 °C ... +80 °C
Minimum bending radius fixed	6xD
Minimum bending radius moving	10xD
Burning behavior according to	IEC 60332-1 DIN EN 50265-2 VDE 0482 Part 265-2 UL 1581 Part 1080 VW-1 UL FT1
Approvals	cURus
Product photo	The product photos are not to scale and do not represent detailed images of the respective products.

### Construction

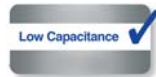
- Conductor: CU-wire bare
- Conductor category: Finely stranded DIN VDE 0295, IEC 60228, Class 5
- Conductor insulation: Special PP
- Conductor marking: Power conductors black with numbered print U/L1/C/L+, V/L2, W/L3/D/L-
- Ground conductor green/yellow according to DIN EN 50334
- Overall wrapping: Non-woven material, over the cable core
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket color: orange RAL 2003

Part-No.	SIEMENS designation*	Cable length m	Number of conductors/ cross-section	Outer $\varnothing$ mm
<b>SIMODRIVE, full thread/open end</b>				
198461.1000	A* 6FX5002-5DA01-1BA0	10	(4G1.5+(2x1.5))	11.6
198481.1000	A* 6FX5002-5DA11-1BA0	10	(4G2.5+(2x1.5))	13.0
198146.1000	A* 6FX5002-5DA13-1BA0	10	(4G10+(2x1.5))	18.5
198501.1000	A* 6FX5002-5DA21-1BA0	10	(4G1.5+(2x1.5))	11.6
198871.1000	A* 6FX5002-5DA23-1BA0	10	(4G16+(2x1.5))	23.6
198531.1000	A* 6FX5002-5DA31-1BA0	10	(4G2.5+(2x1.5))	13.0
198881.1000	A* 6FX5002-5DA33-1BA0	10	(4G25+(2x1.5))	28.5
198561.1000	A* 6FX5002-5DA41-1BA0	10	(4G4+(2x1.5))	14.0
198571.1000	A* 6FX5002-5DA51-1BA0	10	(4G6+(2x1.5))	15.8
198581.1000	A* 6FX5002-5DA61-1BA0	10	(4G10+(2x1.5))	18.5
<b>SINAMICS, full thread/open end</b>				
198076.1000	A* 6FX5002-5DG01-1BA0	10	(4G1.5+(2x1.5))	11.6
198086.1000	A* 6FX5002-5DG11-1BA0	10	(4G2.5+(2x1.5))	13.0
198287.1000	A* 6FX5002-5DG13-1BA0	10	(4G10+(2x1.5))	18.5
198081.1000	A* 6FX5002-5DG21-1BA0	10	(4G1.5+(2x1.5))	11.6
198288.1000	A* 6FX5002-5DG23-1BA0	10	(4G16+(2x1.5))	23.6
198091.1000	A* 6FX5002-5DG31-1BA0	10	(4G2.5+(2x1.5))	13.0
198289.1000	A* 6FX5002-5DG33-1BA0	10	(4G25+(2x1.5))	28.6
198096.1000	A* 6FX5002-5DG41-1BA0	10	(4G4+(2x1.5))	14.0
198101.1000	A* 6FX5002-5DG51-1BA0	10	(4G6+(2x1.5))	15.8
198116.1000	A* 6FX5002-5DG61-1BA0	10	(4G10+(2x1.5))	18.5
198296.1000	A* 6FX5002-5DS14-1BA0	10	(4G10+(2x1.5))	18.5
198264.1000	A* 6FX5002-5DS23-1BA0	10	(4G16+(2x1.5))	23.6
198297.1000	A* 6FX5002-5DS54-1BA0	10	(4G6+(2x1.5))	15.8
198298.1000	A* 6FX5002-5DS64-1BA0	10	(4G10+(2x1.5))	18.5

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# Servo cable assemblies without brake pairs for fixed installation

## According to SIEMENS-6FX5002 standard Extension



### Application

- Extension cable for Siemens servo drives
- For flexible applications without continuous flexing
- More cost-effective alternative to the cable chain version 6FX8002

### Properties

- PVC Flame-retardant, self-extinguishing
- Silicone free
- RoHS-compliant

### Notes:

- The extension can also be used for **SPEED-CONNECT** plug connection, for this the O-ring must be removed on the outer thread. This does not affect the tightness of the plug connection.

### Technical data

Rated voltage	1000 V 80 °C
Rated voltage $U_0/U$	600/1000 V
Test voltage	4000 V
Insulation resistance at 20 °C	$\geq 500 \text{ M}\Omega \times \text{km}$
Temperature range fixed	-25 °C ... +80 °C
Temperature range moving	-5 °C ... +80 °C
Minimum bending radius fixed	6×D
Minimum bending radius moving	10×D
Burning behavior according to	IEC 60332-1 DIN EN 50265-2 VDE 0482 Part 265-2 UL 1581 Part 1080 VW-1 UL FT1
Approvals	cURus
Product photo	The product photos are not to scale and do not represent detailed images of the respective products.

### Construction

- Conductor: CU-wire bare
- Conductor category: Finely stranded DIN VDE 0295, IEC 60228, Class 5
- Conductor insulation: Special PP
- Conductor marking: Power conductors black with numbered print U/L1/C/L+, V/L2, W/L3/D/L-
- Ground conductor green/yellow according to DIN EN 50334
- Overall wrapping: Non-woven material, over the cable core
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket color: orange RAL 2003

Part-No.	SIEMENS designation*	Cable length m	Number of conductors/ cross-section	Outer $\varnothing$ mm
<b>SINAMICS/SIMODRIVE, full thread</b>				
198044.1000	A* 6FX5002-5CA05-1BA0	10	(4G1.5)	8.4
198049.1000	A* 6FX5002-5CA15-1BA0	10	(4G2.5)	10.6
198053.1000	A* 6FX5002-5CA28-1BA0	10	(4G1.5)	8.4
198058.1000	A* 6FX5002-5CA38-1BA0	10	(4G2.5)	10.6
198062.1000	A* 6FX5002-5CA48-1BA0	10	(4G4)	11.5
198064.1000	A* 6FX5002-5CA58-1BA0	10	(4G6)	13.2
198067.1000	A* 6FX5002-5CA68-1BA0	10	(4G10)	16.5
198144.1000	A* 6FX5002-5CX28-1BA0	10	(4G16)	21.2

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# Servo cable assemblies with brake pairs for fixed installation

## According to SIEMENS-6FX5002 standard Extension



### Application

- Extension cable for Siemens servo drives
- For flexible application without continuous flexing
- More cost-effective alternative to the cable chain version 6FX8002

### Properties

- PVC Flame-retardant, self-extinguishing
- Silicone free
- RoHS-compliant

### Notes:

- The extension can also be used for **SPEED-CONNECT** plug connection, for this the O-ring must be removed on the outer thread. This does not affect the tightness of the plug connection.

### Technical data

Rated voltage	1000 V 80 °C
Rated voltage $U_0/U$	600/1000 V
Test voltage	4000 V
Insulation resistance at 20 °C	$\geq 500 \text{ M}\Omega \times \text{km}$
Temperature range fixed	-25 °C ... +80 °C
Temperature range moving	-5 °C ... +80 °C
Minimum bending radius fixed	6×D
Minimum bending radius moving	10×D
Burning behavior according to	IEC 60332-1 DIN EN 50265-2 VDE 0482 Part 265-2 UL 1581 Part 1080 VW-1 UL FT1

Approvals

cURus

Product photo

The product photos are not to scale and do not represent detailed images of the respective products.

### Construction

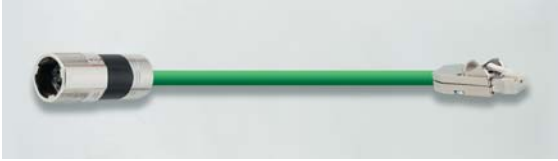
- Conductor: CU-wire bare
- Conductor category: Finely stranded DIN VDE 0295, IEC 60228, Class 5
- Conductor insulation: Special PP
- Conductor marking: Power conductors black with numbered print U/L1/C/L+, V/L2, W/L3/D/L-
- Ground conductor green/yellow according to DIN EN 50334
- Control pair: colour coded (bw, wb), with foil tape and braided shield
- Overall wrapping: Non-woven material, over the cable core
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket color: orange RAL 2003

Part-No.	SIEMENS designation*	Cable length m	Number of conductors/ cross-section	Outer $\varnothing$ mm
<b>SINAMICS/SIMODRIVE, full thread</b>				
198731.1000	A* 6FX5002-5DA05-1BA0	10	(4G1.5+(2×1.5))	11.6
198991.1000	A* 6FX5002-5DA15-1BA0	10	(4G2.5+(2×1.5))	13.0
198791.1000	A* 6FX5002-5DA28-1BA0	10	(4G1.5+(2×1.5))	11.6
198801.1000	A* 6FX5002-5DA38-1BA0	10	(4G2.5+(2×1.5))	13.0
198006.1000	A* 6FX5002-5DA48-1BA0	10	(4G4+(2×1.5))	14.0
198011.1000	A* 6FX5002-5DA58-1BA0	10	(4G6+(2×1.5))	15.8
198026.1000	A* 6FX5002-5DA68-1BA0	10	(4G10+(2×1.5))	18.5
198184.1000	A* 6FX5002-5DX28-1BA0	10	(4G16+(2×1.5))	23.6
198186.1000	A* 6FX5002-5DX38-1BA0	10	(4G25+(2×1.5))	28.5

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# Signal cable for fixed wiring

## According to SIEMENS-6FX5002 standard Base cable DRIVE-CLIQ



### Application

- Signal cable for SIEMENS SERVO drives
- For flexible application without compulsory guide
- More cost-effective alternative to the cable carrier suitable 6FX8002 version

### Properties

- PVC Flame-retardant, self-extinguishing
- Silicone free
- RoHS-compliant

### Technical data

Rated voltage	30 V 80 °C
Test voltage	500 V
Insulation resistance at 20 °C	≥ 200 MΩ×km
Temperature range fixed	-25 °C ... +80 °C
Temperature range moving	-5 °C ... +80 °C
Minimum bending radius fixed	7.5×D
Minimum bending radius moving	15×D
Burning behavior according to	IEC 60332-1 DIN EN 50265-2 VDE 0482 Part 265-2 UL VW-1 UL FT1
Approvals	cURus
Product photo	The product photos are not to scale and do not represent detailed images of the respective products.
Note	Permitted total cable length ≤ 100 m (6FX5...) or ≤ 75 m (6FX8...)

### Construction

- Conductor: CU-wire bare
- Conductor category: Finely stranded DIN VDE 0295, IEC 60228, Class 5
- Conductor insulation: Special PP
- Conductor marking: Colour coded
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: Special PVC TM2 according to VDE 0281-1
- Surface: matt, adhesion-free
- Jacket color: green RAL 6018

Part-No.	SIEMENS designation*	Cable length m	Number of conductors/ cross-section	Outer Ø mm
<b>SINAMICS</b>				
198475.1000	A* 6FX5002-2DC40-1BA0	10.0	(2×2×AWG26+1×2×AWG22)	7.2
198477.1000	A* 6FX5002-2DC42-1BA0	10.0	(2×2×AWG26+1×2×AWG22)	7.2
198479.1000	A* 6FX5002-2DC44-1BA0	10.0	(2×2×AWG26+1×2×AWG22)	7.2
198484.1000	A* 6FX5002-2DD40-1BA0	10.0	(2×2×AWG26+1×2×AWG22)	7.2
198486.1000	A* 6FX5002-2DD42-1BA0	10.0	(2×2×AWG26+1×2×AWG22)	7.2
198488.1000	A* 6FX5002-2DD44-1BA0	10.0	(2×2×AWG26+1×2×AWG22)	7.2
198499.1000	A* 6FX5002-2DC48-1BA0	10.0	(2×2×AWG26+1×2×AWG22)	7.2
198504.1000	A* 6FX5002-2DD48-1BA0	10.0	(2×2×AWG26+1×2×AWG22)	7.2

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# Signal cable for fixed wiring

## According to SIEMENS-6FX5002 Base cable DRIVE-CLIQ



Part-No.	SIEMENS designation*	Cable length m	Number of conductors/ cross-section	Outer Ø mm
<b>SINAMICS</b>				
198493.1000	A* 6FX5002-2DC46-1BA0	10.0	(2×2×AWG26+1×2×AWG22)	7.2
198495.1000	A* 6FX5002-2DC30-1BA0	10.0	(2×2×AWG26+1×2×AWG22)	7.2
198497.0300	A* 6FX5002-2DC34-1AD0	3.0	(2×2×AWG26+1×2×AWG22)	7.2
198497.0600	A* 6FX5002-2DC34-1AG0	6.0	(2×2×AWG26+1×2×AWG22)	7.2
198506.1000	A* 6FX5002-2DC36-1BA0	10.0	(2×2×AWG26+1×2×AWG22)	7.2

### Application

- Signal cable for SIEMENS SERVO drives
- For flexible application without compulsory guide
- Cost-effective alternative to the cable carrier suitable 6FX8002 version

### Properties

- PVC Flame-retardant, self-extinguishing
- Silicone free
- RoHS compliant

### Technical data

Rated voltage	30 V 80 °C
Test voltage	500 V
Insulation resistance at 20 °C	≥ 200 MΩ×km
Temperature range fixed	-25 °C ... +80 °C
Temperature range moving	-5 °C ... +80 °C
Minimum bending radius fixed	7.5×D
Minimum bending radius moving	15×D
Burning behavior according to	IEC 60332-1 DIN EN 50265-2 VDE 0482 Part 265-2 UL VW-1 UL FT1
Approvals	cURus
Product photo	The product photos are not to scale and do not represent detailed images of the respective products.
Note	The total length of the DRIVE-CLIQ train does not exceed more than 30 m.

### Construction

- Conductor: CU-wire bare
- Conductor category: Finely stranded DIN VDE 0295, IEC 60228, Class 5
- Conductor insulation: Special PP
- Conductor marking: Colour coded
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: Special PVC TM2 according to VDE 0281-1
- Surface: matt, adhesion-free
- Jacket color: green RAL 6018

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# Signal cable assemblies for fixed installation

## According to SIEMENS-6FX5002 standard Base cable DRIVE-CLIQ®



### Application

- Resolver cable
- For flexible application without continuous flexing
- Cost-effective alternative to the c-tracks suitable 6FX8002 version

### Properties

- Silicone free
- RoHS-compliant

### Technical data

Rated voltage	30 V 80 °C
Test voltage	500 V
Insulation resistance at 20 °C	≥ 20 MΩ×km
Temperature range fixed	-25 °C ... +80 °C
Temperature range moving	-5 °C ... +80 °C
Minimum bending radius fixed	7.5×D
Minimum bending radius moving	15×D
Burning behavior according to	IEC 60332-1 DIN EN 50265-2 VDE 0482 Part 265-2
Approvals	cURus
Product photo	The product photos are not to scale and do not represent detailed images of the respective products.

Part-No.	SIEMENS designation*	Cable length m	Outer ∅ mm
<b>SINAMICS</b>			
198036.1000	A* 6FX5002-2DC00-1BA0	10	7.2
198037.1000	A* 6FX5002-2DC10-1BA0	10	7.2
198038.1000	A* 6FX5002-2DC20-1BA0	10	7.2

### Construction

- Conductor: CU-wire bare
- Conductor category: Finely stranded DIN VDE 0295, IEC 60228, Class 5
- Conductor insulation: Special PP
- Conductor marking: Colour coded
- Ground conductor green/yellow according to DIN EN 50334
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket color: green RAL 6018

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# Servo cable assemblies for C-tracks

## According to SIEMENS-6FX8002 standard Base cable



### Application

- Base cable for Siemens servo drives
- As a result of the special PUR jacket and the TPE conductor insulation, best suited for drag chains, extremely rough operating conditions, aggressive coolants and lubricants.
- Especially for industrial environments, machines and plants

### Properties

- Very good alternating bending strength
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Weathering, ozone and UV resistant (normal lighting conditions)
- Good resistance to use and salt water
- Largely resistant to oils, greases, alcohol-free benzines and kerosene
- Silicone free
- RoHS compliant

### Technical data

Rated voltage	1000 V 80 °C
Rated voltage $U_0/U$	600/1000 V
Test voltage	4000 V
Insulation resistance at 20 °C	≥ 500 MΩ×km
Temperature range fixed	-40 °C ... +80 °C
Temperature range moving	-25 °C ... +80 °C
Minimum bending radius fixed	6×D
Minimum bending radius moving	10×D
Burning behavior according to	IEC 60332-1 DIN EN 50265-2 VDE 0482 Part 265-2 UL 1581 Part 1080 VW-1 UL FT1
Halogen free according to Approvals	EN 50267-2-1 cURus
Product photo	The product photos are not to scale and do not represent detailed images of the respective products.

### Construction

- Conductor: CU-wire bare
- Conductor category: Finely stranded DIN VDE 0295, IEC 60228, Class 6
- Conductor insulation: Special PP
- Conductor marking: Power conductors black with numbered print U/L1/C/L+, V/L2, W/L3/D/L-
- Ground conductor green/yellow according to DIN EN 50334
- Overall wrapping: Non-woven material, over the cable core
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: Special PUR
- Surface: matt, adhesion-free
- Jacket color: orange RAL 2003

Part-No.	SIEMENS designation*	Cable length m	Number of conductors/ cross-section	Outer ∅ mm
<b>SINAMICS, speed-connect / Booksize without brake pairs</b>				
198398.1000	A* 6FX8002-5CN06-1BA0	10.0	(4G1.5)	8.4
198409.1000	A* 6FX8002-5CN26-1BA0	10.0	(4G1.5)	8.4
198412.1000	A* 6FX8002-5CS06-1BA0	10.0	(4G1.5)	8.4
198414.1000	A* 6FX8002-5CS26-1BA0	10.0	(4G1.5)	8.4
198399.1000	A* 6FX8002-5CN16-1BA0	10.0	(4G2.5)	10.6
198424.1000	A* 6FX8002-5CN36-1BA0	10.0	(4G2.5)	10.6
198426.1000	A* 6FX8002-5CS16-1BA0	10.0	(4G2.5)	10.6
198428.1000	A* 6FX8002-5CS36-1BA0	10.0	(4G2.5)	10.6
198439.1000	A* 6FX8002-5CN46-1BA0	10.0	(4G4)	12.2
198442.1000	A* 6FX8002-5CS46-1BA0	10.0	(4G4)	12.2
198448.1000	A* 6FX8002-5CN56-1BA0	10.0	(4G6)	14.0
198451.1000	A* 6FX8002-5CS56-1BA0	10.0	(4G6)	14.0
198401.1000	A* 6FX8002-5CN56-1BA0	10.0	(4G6)	13.2
198457.1000	A* 6FX8002-5CN66-1BA0	10.0	(4G10)	17.6
198459.1000	A* 6FX8002-5CS17-1BA0	10.0	(4G10)	17.6
198464.1000	A* 6FX8002-5CS66-1BA0	10.0	(4G10)	17.6
<b>SINAMICS, speed-connect / Booksize with brake pairs</b>				
198403.1000	A* 6FX8002-5DN06-1BA0	10.0	(4G1.5+(2×1.5))	11.4
198416.1000	A* 6FX8002-5DN26-1BA0	10.0	(4G1.5+(2×1.5))	11.4
198418.1000	A* 6FX8002-5DS06-1BA0	10.0	(4G1.5+(2×1.5))	11.4
198421.1000	A* 6FX8002-5DS26-1BA0	10.0	(4G1.5+(2×1.5))	11.4
198431.1000	A* 6FX8002-5DN16-1BA0	10.0	(4G2.5+(2×1.5))	12.9
198433.1000	A* 6FX8002-5DN36-1BA0	10.0	(4G2.5+(2×1.5))	12.9
198435.1000	A* 6FX8002-5DS16-1BA0	10.0	(4G2.5+(2×1.5))	12.9
198437.1000	A* 6FX8002-5DS36-1BA0	10.0	(4G2.5+(2×1.5))	12.9
198444.1000	A* 6FX8002-5DN46-1BA0	10.0	(4G4+(2×1.5))	14.5
198446.1000	A* 6FX8002-5DS46-1BA0	10.0	(4G4+(2×1.5))	14.5
198453.1000	A* 6FX8002-5DN56-1BA0	10.0	(4G6+(2×1.5))	16.1
198455.1000	A* 6FX8002-5DS56-1BA0	10.0	(4G6+(2×1.5))	16.1
198466.1000	A* 6FX8002-5DN66-1BA0	10.0	(4G10+(2×1.5))	19.5
198468.1000	A* 6FX8002-5DS66-1BA0	10.0	(4G10+(2×1.5))	19.5
198473.1000	A* 6FX8002-5DS17-1BA0	10.0	(4G10+(2×1.5))	19.5

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# Servo cable assemblies without brake pairs for C-tracks

## According to SIEMENS-6FX8002 standard Base cable



### Application

- Base cable DRIVE-CLIQ®, for SIEMENS SERVO drives
- Due to full PUR jacket and TPE conductor insulation optimally suited for c-tracks, extremely rough operating conditions, aggressive coolants and lubricants
- Especially for industrial environments, machines and plants

### Properties

- Silicone free
- RoHS-compliant

### Technical data

Rated voltage	1000 V 80 °C
Rated voltage U <sub>0</sub> /U	600/1000 V
Test voltage	4000 V
Temperature range fixed	-40 °C ... +80 °C
Temperature range moving	-25 °C ... +80 °C
Minimum bending radius fixed	6×D
Minimum bending radius moving	10×D

Burning behavior according to IEC 60332-1  
DIN EN 50265-2  
VDE 0482 Part 265-2  
UL 1581 Part 1080 VW-1  
UL FT1

Halogen free according to EN 50267-2-1

Approvals cURus

Product photo The product photos are not to scale and do not represent detailed images of the respective products.

### Construction

- Conductor: CU-wire bare
- Conductor category: Finely stranded DIN VDE 0295, IEC 60228, Class 5
- Conductor insulation: Special TPE
- Conductor marking: Power conductors black with numbered print U/L1/C/L+, V/L2, W/L3/D/L-
- Ground conductor green/yellow according to DIN EN 50334
- Overall stranding: Conductors twisted without mechanical stress
- Overall wrapping: Non-woven material, over the cable core
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: PUR
- Surface: matt, adhesion-free
- Jacket color: orange RAL 2003

Part-No.	SIEMENS designation*	Cable length m	Number of conductors/cross-section	Outer Ø mm
<b>SINAMICS, speed-connect/Booksize</b>				
198326.1000	A* 6FX8002-5CN01-1BA0	10	(4G1.5)	8.6
198327.1000	A* 6FX8002-5CN11-1BA0	10	(4G2.5)	10.8
198328.1000	A* 6FX8002-5CN21-1BA0	10	(4G1.5)	8.6
198329.1000	A* 6FX8002-5CN31-1BA0	10	(4G2.5)	10.8
198330.1000	A* 6FX8002-5CN41-1BA0	10	(4G4)	12.2
198331.1000	A* 6FX8002-5CN51-1BA0	10	(4G6)	14.0
198332.1000	A* 6FX8002-5CN61-1BA0	10	(4G10)	17.6
<b>SINAMICS, full thread/Booksize</b>				
198300.1000	A* 6FX8002-5CS01-1BA0	10	(4G1.5)	8.6
198302.1000	A* 6FX8002-5CS11-1BA0	10	(4G2.5)	10.8
198214.1000	A* 6FX8002-5CS13-1BA0	10	(4G10)	17.6
198304.1000	A* 6FX8002-5CS21-1BA0	10	(4G1.5)	8.6
198305.1000	A* 6FX8002-5CS31-1BA0	10	(4G2.5)	10.8
198317.1000	A* 6FX8002-5CS41-1BA0	10	(4G4)	12.2
198318.1000	A* 6FX8002-5CS51-1BA0	10	(4G6)	14.0
198319.1000	A* 6FX8002-5CS61-1BA0	10	(4G10)	17.6
<b>SINAMICS, open end/Booksize</b>				
198303.1000	A* 6FX8002-5CS12-1BA0	10	(4G2.5)	10.6
198306.1000	A* 6FX8002-5CS42-1BA0	10	(4G4)	12.2

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# Servo cable assemblies without brake pairs for C-tracks

## According to SIEMENS-6FX8002 standard Base cable



### Application

- Base cable, for Siemens servo drives
- Due to full PUR jacket and TPE conductor insulation optimally suited for c-tracks, extremely rough operating conditions, aggressive coolants and lubricants

### Properties

- Silicone free
- RoHS-compliant

### Technical data

Rated voltage	1000 V 80 °C
Rated voltage $U_0/U$	600/1000 V
Test voltage	4000 V
Insulation resistance at 20 °C	$\geq 500 \text{ M}\Omega \times \text{km}$
Temperature range fixed	-40 °C ... +85 °C
Temperature range moving	-25 °C ... +80 °C
Minimum bending radius fixed	6xD
Minimum bending radius moving	10xD
Burning behavior according to	IEC 60332-1 DIN EN 50265-2 VDE 0482 Part 265-2 UL 1581 Part 1080 VVW-1 UL FT1
Halogen free according to	EN 50267-2-1
Approvals	cURus
Product photo	The product photos are not to scale and do not represent detailed images of the respective products.

### Construction

- Conductor: CU-wire bare
- Conductor category: Finely stranded DIN VDE 0295, DIN EN 60228, class 6
- Conductor insulation: Special TPE
- Conductor marking: Power conductors black with numbered print U/L1/C/L+, V/L2, W/L3/D/L-
- Ground conductor green/yellow according to DIN EN 50334
- Overall stranding: Conductors twisted without mechanical stress
- Overall wrapping: Non-woven material, over the cable core
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: PUR
- Surface: matt, adhesion-free
- Jacket color: orange RAL 2003

Part-No.	SIEMENS designation*	Cable length m	Number of conductors/ cross-section	Outer $\varnothing$ mm
<b>SIMODRIVE, full thread/open end</b>				
198360.1000	A* 6FX8002-5CA01-1BA0	10	(4G1.5)	8.6
198380.1000	A* 6FX8002-5CA11-1BA0	10	(4G2.5)	10.8
198845.1000	A* 6FX8002-5CA13-1BA0	10	(4G10)	17.6
198400.1000	A* 6FX8002-5CA21-1BA0	10	(4G1.5)	8.6
198810.1000	A* 6FX8002-5CA23-1BA0	10	(4G16)	21.2
198410.1000	A* 6FX8002-5CA31-1BA0	10	(4G2.5)	10.8
198430.1000	A* 6FX8002-5CA41-1BA0	10	(4G4)	12.2
198440.1000	A* 6FX8002-5CA51-1BA0	10	(4G6)	14.0
198450.1000	A* 6FX8002-5CA61-1BA0	10	(4G10)	17.6
<b>SINAMICS, full thread/open end</b>				
198950.1000	A* 6FX8002-5CG01-1BA0	10	(4G1.5)	8.6
198040.1000	A* 6FX8002-5CG11-1BA0	10	(4G2.5)	10.8
198283.1000	A* 6FX8002-5CG13-1BA0	10	(4G10)	17.6
198035.1000	A* 6FX8002-5CG21-1BA0	10	(4G1.5)	8.6
198803.1000	A* 6FX8002-5CG23-1BA0	10	(4G16)	21.2
198045.1000	A* 6FX8002-5CG31-1BA0	10	(4G2.5)	10.8
198198.1000	A* 6FX8002-5CG32-1BA0	10	(4G2.5)	10.8
198050.1000	A* 6FX8002-5CG41-1BA0	10	(4G4)	12.2
198055.1000	A* 6FX8002-5CG51-1BA0	10	(4G6)	14.0
198060.1000	A* 6FX8002-5CG61-1BA0	10	(4G10)	17.6
198284.1000	A* 6FX8002-5CS14-1BA0	10	(4G10)	17.6
198285.1000	A* 6FX8002-5CS23-1BA0	10	(4G16)	21.2
198980.1000	A* 6FX8002-5CS54-1BA0	10	(4G6)	14.0
198286.1000	A* 6FX8002-5CS64-1BA0	10	(4G10)	17.6

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# Servo cable assemblies with brake pairs for C-tracks

## According to SIEMENS-6FX8002 standard Base cable



### Application

- Base cable for Siemens servo drives
- Full PUR jacket and TPE conductor insulation optimally suited for c-tracks, extremely rough operating conditions, aggressive coolants and lubricants
- Especially for industrial environments, machines and plants

### Properties

- Silicone free
- RoHS-compliant

### Technical data

Rated voltage	1000 V 80 °C
Rated voltage $U_0/U$	600/1000 V
Test voltage	4000 V
Insulation resistance at 20 °C	$\geq 500 \text{ M}\Omega \times \text{km}$
Temperature range fixed	-40 °C ... +80 °C
Temperature range moving	-25 °C ... +80 °C
Minimum bending radius fixed	6xD
Minimum bending radius moving	10xD
Burning behavior according to	IEC 60332-1 DIN EN 50265-2 VDE 0482 Part 265-2 UL 1581 Part 1080 VW-1 UL FT1
Halogen free according to	EN 50267-2-1
Approvals	cURus
Product photo	The product photos are not to scale and do not represent detailed images of the respective products.

### Construction

- Conductor: CU-wire bare
- Conductor category: Finely stranded DIN VDE 0295, IEC 60228, Class 6
- Conductor insulation: Special HGI
- Conductor marking: Power conductors black with numbered print U/L1/C/L+, V/L2, W/L3/D/L-
- Ground conductor green/yellow according to DIN EN 50334
- Control pair: colour coded (bw, wb), with foil tape and braided shield
- Overall stranding: Conductors twisted without mechanical stress
- Overall wrapping: Non-woven material, over the cable core
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: PUR
- Surface: matt, adhesion-free
- Jacket color: orange RAL 2003

Part-No.	SIEMENS designation*	Cable length m	Number of conductors/ cross-section	Outer $\varnothing$ mm
<b>SINAMICS, speed-connect/Booksize</b>				
198333.1000	A* 6FX8002-5DN01-1BA0	10	(4G1.5+(2×1.5))	11.4
198334.1000	A* 6FX8002-5DN11-1BA0	10	(4G2.5+(2×1.5))	12.9
198335.1000	A* 6FX8002-5DN21-1BA0	10	(4G1.5+(2×1.5))	11.4
198336.1000	A* 6FX8002-5DN31-1BA0	10	(4G2.5+(2×1.5))	12.9
198337.1000	A* 6FX8002-5DN41-1BA0	10	(4G4+(2×1.5))	14.5
198338.1000	A* 6FX8002-5DN51-1BA0	10	(4G6+(2×1.5))	16.1
198339.1000	A* 6FX8002-5DN61-1BA0	10	(4G10+(2×1.5))	19.5
<b>SINAMICS, full thread/Booksize</b>				
198310.1000	A* 6FX8002-5DS01-1BA0	10	(4G1.5+(2×1.5))	11.4
198311.1000	A* 6FX8002-5DS11-1BA0	10	(4G2.5+(2×1.5))	12.9
198312.1000	A* 6FX8002-5DS21-1BA0	10	(4G1.5+(2×1.5))	11.4
198313.1000	A* 6FX8002-5DS31-1BA0	10	(4G2.5+(2×1.5))	12.9
198314.1000	A* 6FX8002-5DS41-1BA0	10	(4G4+(2×1.5))	14.5
198315.1000	A* 6FX8002-5DS51-1BA0	10	(4G6+(2×1.5))	16.1
198316.1000	A* 6FX8002-5DS61-1BA0	10	(4G10+(2×1.5))	19.5
198247.1000	A* 6FX8002-5DS13-1BA0	10	(4G10+(2×1.5))	19.5

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# Servo cable assemblies with brake pairs for C-tracks

## According to SIEMENS-6FX8002 standard Base cable



### Application

- Base cable, for Siemens servo drives
- Due to full PUR jacket and TPE conductor insulation optimally suited for c-tracks, extremely rough operating conditions, aggressive coolants and lubricants
- Especially for industrial environments, machines and plants

### Properties

- Silicone free
- RoHS-compliant

### Technical data

Rated voltage	1000 V 80 °C
Rated voltage $U_0/U$	600/1000 V
Test voltage	4000 V
Insulation resistance at 20 °C	$\geq 500 \text{ M}\Omega \times \text{km}$
Temperature range fixed	-40 °C ... +80 °C
Temperature range moving	-25 °C ... +80 °C
Minimum bending radius fixed	6×D
Minimum bending radius moving	10×D
Burning behavior according to	IEC 60332-1 DIN EN 50265-2 VDE 0482 Part 265-2 UL 1581 Part 1080 VW-1 UL FT1
Halogen free according to	EN 50267-2-1 EN 60684-2
Approvals	cURus
Product photo	The product photos are not to scale and do not represent detailed images of the respective products.

### Construction

- Conductor:
- Conductor category:
- Conductor insulation: Special HGI
- Conductor marking: Power conductors black with numbered print U/L1/C/L+, V/L2, W/L3/D/L-
- Ground conductor green/yellow according to DIN EN 50334
- Control pair: colour coded (bw, wb), with foil tape and braided shield
- Overall stranding: Conductors twisted without mechanical stress
- Overall wrapping: Non-woven material, over the cable core
- Overall shield:
- Jacket material: PUR
- Surface: matt, adhesion-free
- Jacket color: orange RAL 2003

Part-No.	SIEMENS designation*	Cable length m	Number of conductors/ cross-section	Outer $\varnothing$ mm
<b>SIMODRIVE, full thread/open end</b>				
198460.1000	A* 6FX8002-5DA01-1BA0	10	(4G1.5+(2×1.5))	11.4
198480.1000	A* 6FX8002-5DA11-1BA0	10	(4G2.5+(2×1.5))	12.9
198840.1000	A* 6FX8002-5DA13-1BA0	10	(4G10+(2×1.5))	19.5
198500.1000	A* 6FX8002-5DA21-1BA0	10	(4G1.5+(2×1.5))	11.4
198870.1000	A* 6FX8002-5DA23-1BA0	10	(4G16+(2×1.5))	23.6
198530.1000	A* 6FX8002-5DA31-1BA0	10	(4G2.5+(2×1.5))	12.9
198880.1000	A* 6FX8002-5DA33-1BA0	10	(4G25+(2×1.5))	28.5
198560.1000	A* 6FX8002-5DA41-1BA0	10	(4G4+(2×1.5))	14.5
198349.1000	A* 6FX8002-5DA43-1BA0	10	(4G35+(2×1.5))	32.0
198570.1000	A* 6FX8002-5DA51-1BA0	10	(4G6+(2×1.5))	16.1
198580.1000	A* 6FX8002-5DA61-1BA0	10	(4G10+(2×1.5))	19.5
<b>SINAMICS, full thread/open end</b>				
198075.1000	A* 6FX8002-5DG01-1BA0	10	(4G1.5+(2×1.5))	11.4
198085.1000	A* 6FX8002-5DG11-1BA0	10	(4G2.5+(2×1.5))	11.4
198275.1000	A* 6FX8002-5DG13-1BA0	10	(4G10+(2×1.5))	19.5
198080.1000	A* 6FX8002-5DG21-1BA0	10	(4G1.5+(2×1.5))	11.4
198276.1000	A* 6FX8002-5DG23-1BA0	10	(4G16+(2×1.5))	23.6
198090.1000	A* 6FX8002-5DG31-1BA0	10	(4G2.5+(2×1.5))	12.9
198277.1000	A* 6FX8002-5DG33-1BA0	10	(4G25+(2×1.5))	28.5
198095.1000	A* 6FX8002-5DG41-1BA0	10	(4G4+(2×1.5))	14.5
198278.1000	A* 6FX8002-5DG43-1BA0	10	(4G35+(2×1.5))	32.0
198100.1000	A* 6FX8002-5DG51-1BA0	10	(4G6+(2×1.5))	16.1
198279.1000	A* 6FX8002-5DG53-1BA0	10	(4G50+(2×1.5))	37.3
198115.1000	A* 6FX8002-5DG61-1BA0	10	(4G10+(2×1.5))	19.5
198263.1000	A* 6FX8002-5DS14-1BA0	10	(4G10+(2×1.5))	19.5
198267.1000	A* 6FX8002-5DS23-1BA0	10	(4G16+(2×1.5))	23.6
198259.1000	A* 6FX8002-5DS54-1BA0	10	(4G6+(2×1.5))	16.1
198262.1000	A* 6FX8002-5DS64-1BA0	10	(4G10+(2×1.5))	19.5

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# Servo cable assemblies without brake pairs for C-tracks

## According to SIEMENS-6FX8002 standard Extension



### Application

- Extension cable for Siemens servo drives
- Due to full PUR jacket and TPE conductor insulation optimally suited for c-tracks, extremely rough operating conditions, aggressive coolants and lubricants

### Properties

- Silicone free
- RoHS-compliant

### Notes:

- The extension can also be used for **SPEED-CONNECT** plug connection, for this the O-ring must be removed on the outer thread. This does not affect the tightness of the plug connection.

### Technical data

Rated voltage	1000 V 80 °C
Rated voltage $U_0/U$	600/1000 V
Test voltage	4000 V
Insulation resistance at 20 °C	$\geq 500 \text{ M}\Omega \times \text{km}$
Temperature range fixed	-40 °C ... +80 °C
Temperature range moving	-25 °C ... +80 °C
Minimum bending radius fixed	6×D
Minimum bending radius moving	10×D
Burning behavior according to	IEC 60332-1 DIN EN 50265-2 VDE 0482 Part 265-2 UL 1581 Part 1080 VW-1 UL FT1
Halogen free according to	EN 50267-2-1 EN 60684-2
Approvals	cURus
Product photo	The product photos are not to scale and do not represent detailed images of the respective products.

### Construction

- Conductor: CU-wire bare
- Conductor category: Finely stranded DIN VDE 0295, IEC 60228, Class 6
- Conductor insulation: Special HGI
- Conductor marking: Power conductors black with numbered print U/L1/C/L+, V/L2, W/L3/D/L-
- Ground conductor green/yellow according to DIN EN 50334
- Overall stranding: Conductors twisted without mechanical stress
- Overall wrapping:
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: PUR
- Surface: matt, adhesion-free
- Jacket color: orange RAL 2003

Part-No.	SIEMENS designation*	Cable length m	Number of conductors/ cross-section	Outer $\varnothing$ mm
<b>SINAMICS/SIMODRIVE, full thread</b>				
198820.1000	A* 6FX8002-5CA05-1BA0	10	(4G1.5)	8.6
198985.1000	A* 6FX8002-5CA15-1BA0	10	(4G2.5)	10.8
198765.1000	A* 6FX8002-5CA28-1BA0	10	(4G1.5)	8.6
198995.1000	A* 6FX8002-5CA38-1BA0	10	(4G2.5)	10.8
198015.1000	A* 6FX8002-5CA48-1BA0	10	(4G4)	12.2
198020.1000	A* 6FX8002-5CA58-1BA0	10	(4G6)	14.0
198030.1000	A* 6FX8002-5CA68-1BA0	10	(4G10)	17.6
198216.1000	A* 6FX8002-5CX18-1BA0	10	(4G10)	17.6
198217.1000	A* 6FX8002-5CX28-1BA0	10	(4G16)	21.2
<b>SINAMICS, speed-connect</b>				
198204.1000	A* 6FX8002-5CN05-1BA0	10	(4G1.5)	8.6

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# Servo cable assemblies with brake pairs for C-tracks

## According to SIEMENS-6FX8002 standard Extension



### Application

- Extension cable for Siemens servo drives
- Due to full PUR jacket and TPE conductor insulation optimally suited for c-tracks, extremely rough operating conditions, aggressive coolants and lubricants
- Especially for industrial environments, machines and plants

### Properties

- Silicone free
- RoHS-compliant

### Notes:

- The extension can also be used for **SPEED-CONNECT** plug connection, for this the O-ring must be removed on the outer thread. This does not affect the tightness of the plug connection.

### Technical data

Rated voltage	1000 V 80 °C
Rated voltage $U_0/U$	600/1000 V
Test voltage	4000 V
Insulation resistance at 20 °C	$\geq 500 \text{ M}\Omega \times \text{km}$
Temperature range fixed	-40 °C ... +80 °C
Temperature range moving	-25 °C ... +80 °C
Minimum bending radius fixed	6×D
Minimum bending radius moving	10×D
Burning behavior according to	IEC 60332-1 DIN EN 50265-2 VDE 0482 Part 265-2 UL 1581 Part 1080 VW-1 UL FT1
Halogen free according to	EN 50267-2-1
Approvals	cURus
Product photo	The product photos are not to scale and do not represent detailed images of the respective products.

### Construction

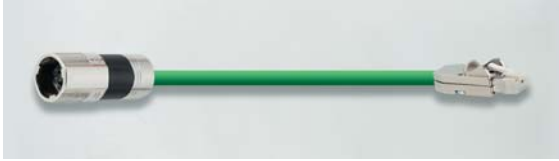
- Conductor: CU-wire bare
- Conductor category: Finely stranded DIN VDE 0295, IEC 60228, Class 6
- Conductor insulation: Special HGI
- Conductor marking: Power conductors black with numbered print U/L1/C/L+, V/L2, W/L3/D/L-
- Ground conductor green/yellow according to DIN EN 50334
- Control pair: colour coded (bw, wb), with foil tape and braided shield
- Overall stranding: Conductors twisted without mechanical stress
- Overall wrapping: Non-woven material, over the cable core
- Overall shield:
- Jacket material: PUR
- Surface: matt, adhesion-free
- Jacket color: orange RAL 2003

Part-No.	SIEMENS designation*	Cable length m	Number of conductors/ cross-section	Outer $\varnothing$ mm
<b>SINAMICS/SIMODRIVE, full thread</b>				
198730.1000	A* 6FX8002-5DA05-1BA0	10	(4G1.5+(2×1.5))	11.4
198990.1000	A* 6FX8002-5DA15-1BA0	10	(4G2.5+(2×1.5))	12.9
198790.1000	A* 6FX8002-5DA28-1BA0	10	(4G1.5+(2×1.5))	11.4
198800.1000	A* 6FX8002-5DA38-1BA0	10	(4G2.5+(2×1.5))	12.9
198005.1000	A* 6FX8002-5DA48-1BA0	10	(4G4+(2×1.5))	14.5
198010.1000	A* 6FX8002-5DA58-1BA0	10	(4G6+(2×1.5))	16.1
198025.1000	A* 6FX8002-5DA68-1BA0	10	(4G10+(2×1.5))	19.5
198248.1000	A* 6FX8002-5DX18-1BA0	10	(4G10+(2×1.5))	19.5
198249.1000	A* 6FX8002-5DX28-1BA0	10	(4G16+(2×1.5))	23.6
198252.1000	A* 6FX8002-5DX38-1BA0	10	(4G25+(2×1.5))	28.5
198187.1000	A* 6FX8002-5DX48-1BA0	10	(4G35+(2×1.5))	32.0
198254.1000	A* 6FX8002-5DX58-1BA0	10	(4G50+(2×1.5))	37.3
<b>SINAMICS, speed-connect</b>				
198735.1000	A* 6FX8002-5DN05-1BA0	10	(4G1.5+(2×1.5))	11.4

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# Signal cables for C-tracks

## According to SIEMENS-6FX8002 standard Base cable DRIVE-CLIQ



### Application

- Signal cable for SIEMENS SERVO drives
- As a result of the special PUR jacket and the TPE conductor insulation, best suited for drag chains, extremely rough operating conditions, aggressive coolants and lubricants.
- Especially for industrial environments, machines and plants

### Properties

- Very good alternating bending strength
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Weathering, ozone and UV resistant (normal lighting conditions)
- Good resistance to use and salt water
- Largely resistant to oils, greases, alcohol-free benzines and kerosene
- Silicone free
- RoHS compliant

### Technical data

Rated voltage	30 V 80 °C
Test voltage	500 V
Insulation resistance at 20 °C	≥ 200 MΩ×km
Temperature range fixed	-40 °C ... +80 °C
Temperature range moving	-25 °C ... +80 °C
Minimum bending radius fixed	6×D
Minimum bending radius moving	12×D
Burning behavior according to	IEC 60332-1 DIN EN 50265-2 VDE 0482 Part 265-2 UL VW-1 UL FT1
Approvals	cURus
Product photo	The product photos are not to scale and do not represent detailed images of the respective products.
Note	Permitted total cable length ≤ 100 m (6FX5...) or ≤ 75 m (6FX8...)

### Construction

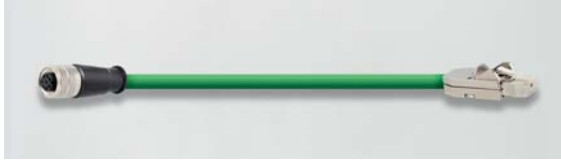
- Conductor: CU-wire bare
- Conductor category: Finely stranded DIN VDE 0295, IEC 60228, Class 6
- Conductor insulation: Special TPE
- Conductor marking: Colour coded
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: Special PUR
- Surface: matt, adhesion-free
- Jacket color: green RAL 6018

Part-No.	SIEMENS designation*	Cable length m	Number of conductors/ cross-section	Outer Ø mm
<b>SINAMICS</b>				
198476.1000	A* 6FX8002-2DC40-1BA0	10.0	(2×2×AWG26+1× 2×AWG22)	6.8
198478.1000	A* 6FX8002-2DC42-1BA0	10.0	(2×2×AWG26+1× 2×AWG22)	6.8
198483.1000	A* 6FX8002-2DC44-1BA0	10.0	(2×2×AWG26+1× 2×AWG22)	6.8
198485.1000	A* 6FX8002-2DD40-1BA0	10.0	(2×2×AWG26+1× 2×AWG22)	6.8
198487.1000	A* 6FX8002-2DD42-1BA0	10.0	(2×2×AWG26+1× 2×AWG22)	6.8
198489.1000	A* 6FX8002-2DD44-1BA0	10.0	(2×2×AWG26+1× 2×AWG22)	6.8
198503.1000	A* 6FX8002-2DC48-1BA0	10.0	(2×2×AWG26+1× 2×AWG22)	6.8
198505.1000	A* 6FX8002-2DD48-1BA0	10.0	(2×2×AWG26+1× 2×AWG22)	6.8

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# Signal cables for C-tracks

## According to SIEMENS-6FX8002 standard Base cable DRIVE-CLIQ



Part-No.	SIEMENS designation*	Cable length m	Number of conductors/ cross-section	Outer Ø mm
<b>SINAMICS</b>				
198494.1000	A* 6FX8002-2DC46-1BA0	10.0	(2×2×AWG26+1× 2×AWG22)	6.8
198496.1000	A* 6FX8002-2DC30-1BA0	10.0	(2×2×AWG26+1× 2×AWG22)	6.8
198498.0300	A* 6FX8002-2DC34-1AD0	3.0	(2×2×AWG26+1× 2×AWG22)	6.8
198498.0600	A* 6FX8002-2DC34-1AG0	6.0	(2×2×AWG26+1× 2×AWG22)	6.8
198507.1000	A* 6FX8002-2DC36-1BA0	10.0	(2×2×AWG26+1× 2×AWG22)	6.8

### Application

- Signal cable for SIEMENS SERVO drives
- As a result of the special PUR jacket and the TPE conductor insulation, best suited for drag chains, extremely rough operating conditions, aggressive coolants and lubricants.
- Especially for industrial environments, machines and plants

### Properties

- Very good alternating bending strength
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Weathering, ozone and UV resistant (normal lighting conditions)
- Good resistance to use and salt water
- Largely resistant to oils, greases, alcohol-free benzines and kerosene
- Silicone free
- RoHS compliant

### Technical data

Rated voltage	30 V 80 °C
Test voltage	500 V
Insulation resistance at 20 °C	≥ 200 MΩ×km
Temperature range fixed	-40 °C ... +80 °C
Temperature range moving	-25 °C ... +80 °C
Minimum bending radius fixed	6×D
Minimum bending radius moving	12×D
Burning behavior according to	IEC 60332-1 DIN EN 50265-2 VDE 0482 Part 265-2 UL VW-1 UL FT1
Approvals	cURus
Product photo	The product photos are not to scale and do not represent detailed images of the respective products.
Note	The total length of the DRIVE-CLIQ train does not exceed more than 30 m.

### Construction

- Conductor: CU-wire bare
- Conductor category: Finely stranded DIN VDE 0295, IEC 60228, Class 6
- Conductor insulation: Special TPE
- Conductor marking: Colour coded
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: Special PUR
- Surface: matt, adhesion-free
- Jacket color: green RAL 6018

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# Signal cable assemblies for C-tracks

## According to SIEMENS-6FX8002 standard Base cable DRIVE-CLIQ®



LÜTZE SUPERFLEX®  
← connected



### Application

- Resolver cable
- Due to full PUR jacket and TPE conductor insulation optimally suited for c-tracks, extremely rough operating conditions, aggressive coolants and lubricants

### Properties

- Silicone free
- RoHS-compliant

### Technical data

Rated voltage	30 V 80 °C
Test voltage	500 V
Insulation resistance at 20 °C	≥ 2000 MΩ×km
Temperature range fixed	-40 °C ... +80 °C
Temperature range moving	-25 °C ... +80 °C
Minimum bending radius fixed	6×D
Minimum bending radius moving	12×D
Burning behavior according to	IEC 60332-1 DIN EN 50265-2 VDE 0482 Part 265-2 UL 1581 Part 1080 VW-1 UL FT1
Halogen free according to	EN 50267-2-1
Approvals	cURus
Product photo	The product photos are not to scale and do not represent detailed images of the respective products.

Part-No.	SIEMENS designation*	Cable length m	Outer ∅ mm
<b>SINAMICS</b>			
198890.1000	A* 6FX8002-2DC00-1BA0	10	6.8
198900.1000	A* 6FX8002-2DC10-1BA0	10	6.8
198910.1000	A* 6FX8002-2DC20-1BA0	10	6.8

### Construction

- Conductor: CU-wire bare
- Conductor category: Finely stranded DIN VDE 0295, IEC 60228, Class 6
- Conductor insulation: Special TPE
- Conductor marking: Colour coded
- Overall stranding: Conductors twisted without mechanical stress
- Overall wrapping: Non-woven material , over the cable core
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: PUR
- Surface: matt, adhesion-free
- Jacket color: green RAL 6018

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# Signal cable assemblies for C-tracks

According to SIEMENS-6FX8002 standard  
base cable and extension



LÜTZE SUPERFLEX<sup>®</sup>  
connected

halogen free  
flame retardant



cRU<sup>®</sup> US

RoHS

## Application

- Resolver cable
- Due to full PUR jacket and TPE conductor insulation optimally suited for c-tracks, extremely rough operating conditions, aggressive coolants and lubricants

## Properties

- Silicone free
- RoHS-compliant

## Technical data

Rated voltage	30 V 80 °C
Test voltage	500 V
Insulation resistance at 20 °C	≥ 2000 MΩ×km
Temperature range fixed	-40 °C ... +80 °C
Temperature range moving	-25 °C ... +80 °C
Minimum bending radius fixed	6×D
Minimum bending radius moving	12×D
Burning behavior according to	IEC 60332-1 DIN EN 50265-2 VDE 0482 Part 265-2 UL 1581 Part 1080 VW-1 UL FT1
Halogen free according to	EN 50267-2-1
Approvals	cURus
Product photo	The product photos are not to scale and do not represent detailed images of the respective products.

## Construction

- Conductor: CU-wire bare
- Conductor category: Finely stranded DIN VDE 0295, IEC 60228, Class 5
- Conductor insulation: Special TPE
- Conductor marking: Colour coded
- Overall stranding: Conductors twisted without mechanical stress
- Overall wrapping: Non-woven material, over the cable core
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: PUR
- Surface: matt, adhesion-free
- Jacket color: green RAL 6018

Part-No.	SIEMENS designation*	Cable length m	Outer Ø mm
<b>SIMODRIVE base cable</b>			
198110.1000	A* 6FX8002-2AD00-1BA0	10	8.6
198830.1000	A* 6FX8002-2AH00-1BA0	10	9.0
198120.1000	A* 6FX8002-2CA11-1BA0	10	9.0
198130.1000	A* 6FX8002-2CA15-1BA0	10	8.6
198628.1000	A* 6FX8002-2CA31-1BA0	10	9.5
198850.1000	A* 6FX8002-2CA51-1BA0	10	8.6
198150.1000	A* 6FX8002-2CA61-1BA0	10	8.6
198200.1000	A* 6FX8002-2CB51-1BA0	10	9.0
198210.1000	A* 6FX8002-2CC11-1BA0	10	9.0
198220.1000	A* 6FX8002-2CD01-1BA0	10	9.0
198240.1000	A* 6FX8002-2CF02-1BA0	10	8.6
198170.1000	A* 6FX8002-2CG00-1BA0	10	9.0
198250.1000	A* 6FX8002-2CH00-1BA0	10	8.6
198280.1000	A* 6FX8002-2EQ10-1BA0	10	9.5
198140.1000	A* 6FX8002-2CA21-1BA0	10	8.6
198260.1000	A* 6FX8002-2CE07-1BA0	10	9.0
<b>SIMODRIVE extension</b>			
198160.1000	A* 6FX8002-2CA34-1BA0	10	9.5
198740.1000	A* 6FX8002-2CF04-1BA0	10	8.6
198700.1000	A* 6FX8002-2EQ14-1BA0	10	9.5
198105.1000	A* 6FX8002-2AD04-1BA0	10	8.6
198295.1000	A* 6FX8002-2CB54-1BA0	10	9.0

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# Pre-fabricated front-end plug S7

## S7 Plug For Siemens Simatic PLC/S7



### Application

- Wiring from Siemens Simatic PLC/S7

### Properties

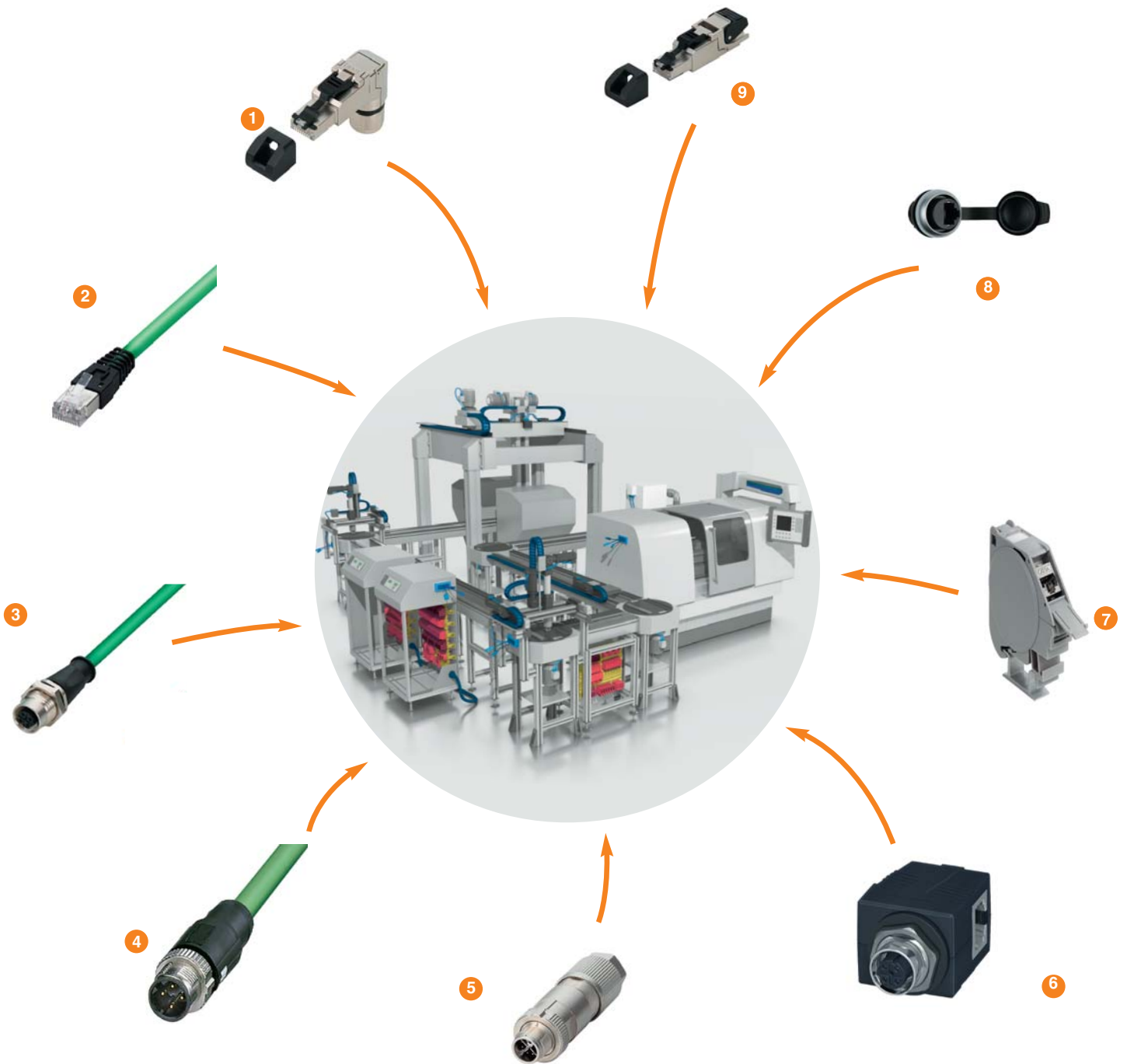
- Cable core with S7 connector
- Completely wired, 2. cables run at 90° to connector

### Technical data

Packaging	3 m or 5 m Other lengths are available upon request
Compatibility	Fully compatible to Siemens
Jacket color	dark blue RAL 5010
Conductor marking	with white number print

Part-No.	Type	Cable core	Number of conductors/ cross-section	Cable length m
<b>S7 Plug with screw termination</b>				
197455	A* 392 1AJ	20-pin	20x0.5	3
197456	A* 392 1AJ	20-pin	20x0.5	5
197457	A* 392 1AJ	20-pin	20x0.75	3
197458	A* 392 1AJ	20-pin	20x0.75	5
<b>S7 Plug with Easy-Connect</b>				
197500	A* 392 1AM	40-pin	(40x0.5)	3
197501	A* 392 1AM	40-pin	(40x0.5)	5
197502	A* 392 1AM	40-pin	(40x0.75)	3
197503	A* 392 1AM	40-pin	(40x0.75)	5

# Internet of things

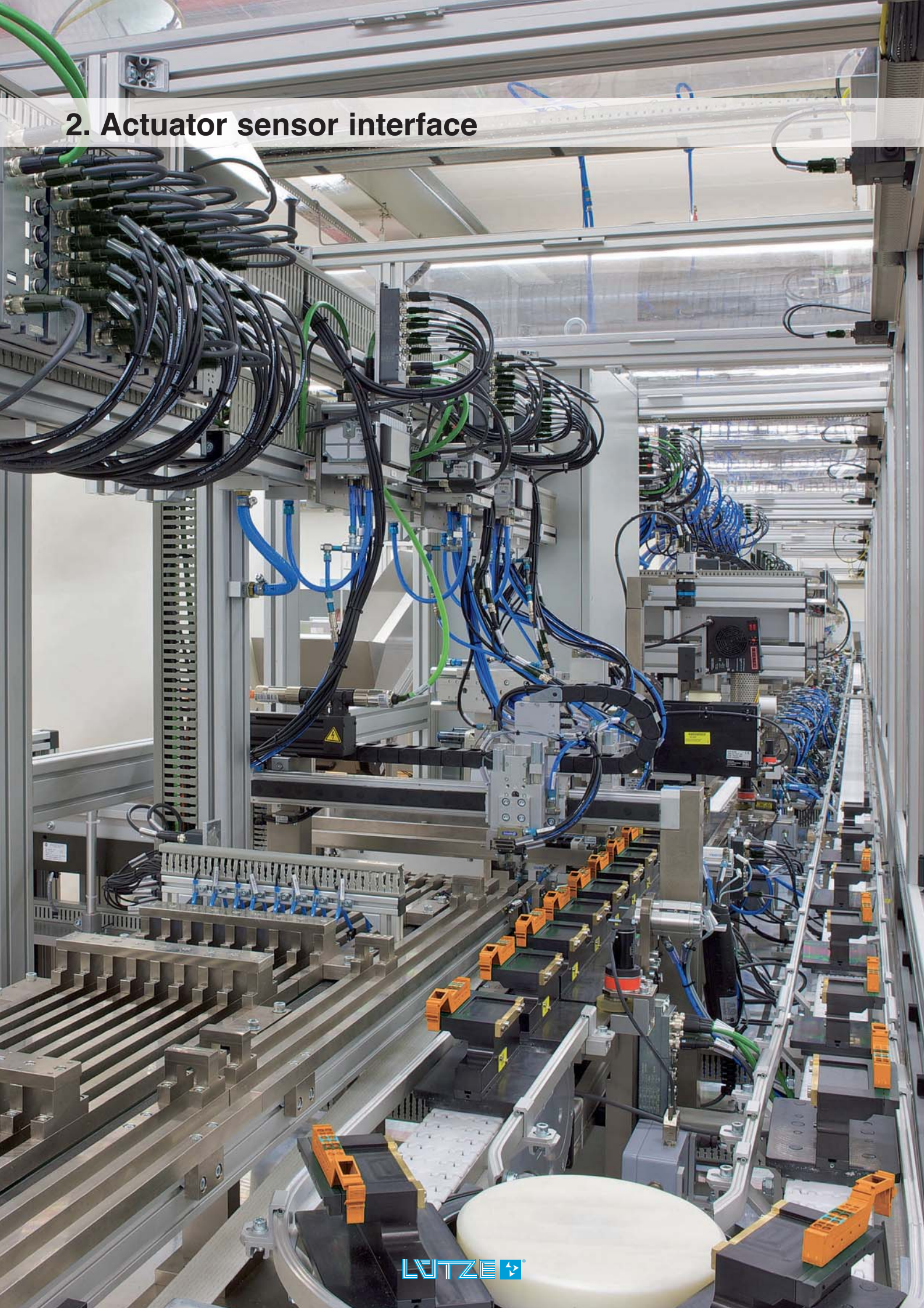


- 1 RJ45 industrial connector, angled
- 2 RJ45 connector
- 3 M12 panel connector
- 4 M12 connector

- 5 M12 Male X-coded
- 6 M12 / RJ45 control cabinet bushing
- 7 RJ45 Module holder
- 8 RJ45 panel connector for front installation
- 9 RJ45 connector



## 2. Actuator sensor interface





## 2. Actuator sensor interface



### Actuator sensor cables

M12, RJ45 - Network cables (PROFINET, Ethernet)	2.3 - 2.5
RJ45 Ethernet Patch cable Cat. 5e / Cat. 6	2.6
M12, RJ45 - Network cables (PROFINET, Ethernet)	2.7 - 2.12
M8 / open End - Cables	2.13 - 2.16
M8 / M8 - Cables	2.17 - 2.18
M12 / open End - Cables	2.19 - 2.30
M12 / M12 - Cables	2.31 - 2.33
M12 - Valve connector	2.34 - 2.35



### Connector, field assembly

M8 - Connector	2.36 - 2.37
M12 - Connector	2.38 - 2.42
M12, M12/M8 - Connector T piece	2.43
M12 - Connector for Field and netsystems, shielded	2.44 - 2.49
RJ45 Connector	2.50 - 2.52
RJ45 Module holder	2.53



### Panel connectors

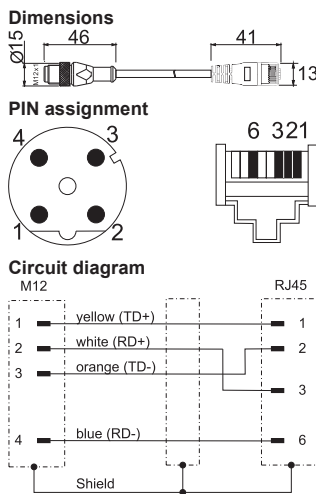
M8 and M12 Panel connectors	2.54 - 2.55
USB - Panel connectors	2.56 - 2.57
RJ45 - Panel connectors	2.58
M12 - RJ45 Control cabinet bushing	2.59

### Accessories

M8, M12 Protective cover	2.60
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# Actuator sensor interface · Network cables PROFINET

## Male RJ45 straight to female M 12 straight with PVC cable, Cat 5e self-locking screwed connection



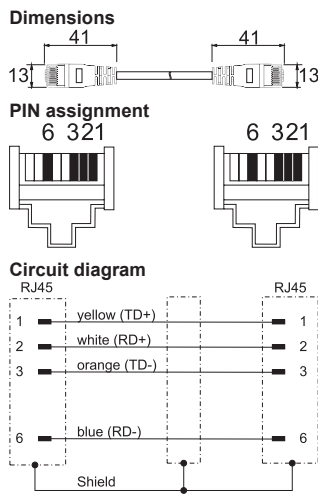
Description	Part-No.	Type	PU
Cable length	0.3 m	192014.0030 S* STG4-RJ45/STG4-M12/PN PVC 0,3M	1
	0.6 m	192014.0060 S* STG4-RJ45/STG4-M12/PN PVC 0,6M	1
	1.0 m	192014.0100 S* STG4-RJ45/STG4-M12/PN PVC 1,0M	1
	1.5 m	192014.0150 S* STG4-RJ45/STG4-M12/PN PVC 1,5M	1
	2.0 m	192014.0200 S* STG4-RJ45/STG4-M12/PN PVC 2,0M	1
	5.0 m	192014.0500 S* STG4-RJ45/STG4-M12/PN PVC 5,0M	1

Technical data						
Rated voltage $U_N$	DC 24 V					
Rated voltage max.	30 V					
Rated current	1.5 A					
Pole number	4					
Cable length (m)	0.3	0.6	1.0	1.5	2.0	5.0
Coding	D					
Shielding	360°					
General						
Form male 1	RJ45					
Form male 2	M 12					
Test voltage	1000 V					
Degree of pollution	-					
Insulation resistance at 20 °C	$\geq 1000 \text{ M}\Omega \times \text{km}$					
Contact resistance	$< 20 \text{ m}\Omega$					
Protection class	IP20					
Housing material	TPU PA					
Color of the housing	black					
Contact material	CuSn, gold-plated					
Thread material	Zinc die-casting, nickel-plated					
Number of conductors/cross-section	$(2 \times 2 \times \text{AWG} 22/7)$					
Number of conductors	4					
Conductor color	various					
Jacket material	PVC					
Jacket color	green RAL 6018					
Conductor insulation	TPE-O					
Cable diameter	6.5 mm					
Minimum bending radius fixed	$6 \times D$					
Minimum bending radius moving	$12 \times D$					
Mounting	Breakaway torque 0.4 Nm					
Temperature range connector	$-25 \text{ }^\circ\text{C} \dots +85 \text{ }^\circ\text{C}$					
Temperature range fixed	$-30 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$					
Temperature range moving	$-5 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$					
Weight (kg/piece)	0.035	0.055	0.083	0.117	0.151	0.340

Accessories	Part-No.	Type	PU
Torque setting tool M 12	490091	DM-SET M12	1

# Actuator sensor interface · Network cables PROFINET

## Male RJ45 straight to female RJ45 straight with PVC cable, Cat 5e 4-pin

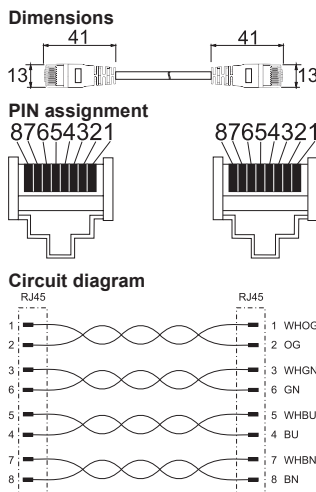


Description	Part-No.	Type	PU
Cable length	0.3 m	192016.0030 S* STG4-RJ45/STG4-RJ45/PN PVC 0,3M	1
	0.6 m	192016.0060 S* STG4-RJ45/STG4-RJ45/PN PVC 0,6M	1
	1.0 m	192016.0100 S* STG4-RJ45/STG4-RJ45/PN PVC 1,0M	1
	1.5 m	192016.0150 S* STG4-RJ45/STG4-RJ45/PN PVC 1,5M	1
	2.0 m	192016.0200 S* STG4-RJ45/STG4-RJ45/PN PVC 2,0M	1
	5.0 m	192016.0500 S* STG4-RJ45/STG4-RJ45/PN PVC 5,0M	1

Technical data	
Rated voltage $U_N$	DC 50 V
Rated voltage max.	- V
Rated current	1.5 A
Pole number	4
Cable length (m)	0.3 0.6 1.0 1.5 2.0 5.0
Coding	-
Shielding	360°
General	
Form male 1	RJ45 male straight
Form male 2	RJ45 male straight
Test voltage	1000 V
Degree of pollution	-
Insulation resistance at 20 °C	≥ 1000 MΩ×km
Contact resistance	< 20 mΩ
Protection class	IP20
Housing material	PA
Color of the housing	black
Contact material	CuSn, gold-plated
Thread material	-
Number of conductors/cross-section	(2×2×AWG22/7)
Number of conductors	4
Conductor color	various
Jacket material	PVC
Jacket color	green RAL 6018
Conductor insulation	TPE-O
Cable diameter	6.5 mm
Minimum bending radius fixed	6×D
Minimum bending radius moving	12×D
Mounting	-
Temperature range connector	-25 °C ... +85 °C
Temperature range fixed	-30 °C ... +80 °C
Temperature range moving	-5 °C ... +70 °C
Weight (kg/piece)	0.035 0.055 0.083 0.117 0.151 0.340

# Actuator sensor interface - Network cables Ethernet

## Male RJ45 straight to female RJ45 straight with PVC cable, Cat 5e 8-pin



Description	Part-No.	Type	PU
Cable length	0.3 m	192018.0030 S*	STG8-RJ45/STG8-RJ45/ET PVC 0,3M 1
	0.6 m	192018.0060 S*	STG8-RJ45/STG8-RJ45/ET PVC 0,6M 1
	1.0 m	192018.0100 S*	STG8-RJ45/STG8-RJ45/ET PVC 1,0M 1
	1.5 m	192018.0150 S*	STG8-RJ45/STG8-RJ45/ET PVC 1,5M 1
	2.0 m	192018.0200 S*	STG8-RJ45/STG8-RJ45/ET PVC 2,0M 1
	5.0 m	192018.0500 S*	STG8-RJ45/STG8-RJ45/ET PVC 5,0M 1

### Technical data

Rated voltage $U_N$	DC 50 V					
Rated voltage max.	- V					
Rated current	1.5 A					
Pole number	8					
Cable length (m)	0.3	0.6	1.0	1.5	2.0	5.0
Coding	-					
Shielding	360°					
<b>General</b>						
Form male 1	RJ45 male straight					
Form male 2	RJ45 male straight					
Test voltage	1000 V					
Degree of pollution	-					
Insulation resistance at 20 °C	$\geq 1000 \text{ M}\Omega \times \text{km}$					
Contact resistance	$< 20 \text{ m}\Omega$					
Protection class	IP20					
Housing material	PA					
Color of the housing	black					
Contact material	CuSn, gold-plated					
Thread material	-					
Number of conductors/cross-section	$(4 \times 2 \times \text{AWG} 26/7)$					
Number of conductors	8					
Conductor color	various					
Jacket material	PVC					
Jacket color	green RAL 6018					
Conductor insulation	TPE-O					
Cable diameter	6.3 mm					
Minimum bending radius fixed	$6 \times D$					
Minimum bending radius moving	$12 \times D$					
Mounting	-					
Temperature range connector	$-25 \text{ }^\circ\text{C} \dots +85 \text{ }^\circ\text{C}$					
Temperature range fixed	$-30 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$					
Temperature range moving	$-5 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$					
Weight (kg/piece)	0.032	0.049	0.071	0.098	0.126	0.279

# Actuator sensor interface · Patch cable, shielded

## Patch cable Cat.5e/Cat.6



### Application

- Ethernet network wiring

### Properties

- Straight connector
- Assignment according to EIA/TIA 568B
- Moulded sleeve with length imprint (not for cable carrier suitable and industrial design)
- Various colors available (not for cable carrier suitable and industrial design)
- **Cat.5e PVC:**  
PVC (4x2xAWG26/7) SF/UTP  
assignment according to TIA/EIA 568B  
flame-retardant IEC 60332-1  
extruded anti-kink sleeve with catch protection
- **Cat.5e cable carrier suitable PUR:**  
PUR yellow (4x2xAWG26/19) S/UTP  
prefabricated RJ45 male  
Oil resistance in accordance with EN60811-2-1  
Alternating bending stress test (with load) in accordance with VDE 0472 T603
- **Cat.6 LSZH:**  
(4x2xAWG27/7) S/FTP  
flame-retardant IEC 60332-1  
halogen-free IEC 60754-2  
silicone free  
extruded anti-kink sleeve with catch protection
- **Cat.6 industrial design PUR:**  
PUR red (4x2xAWG27/7) S/FTP  
Pre-fabricated RJ45 male  
Resistant to mineral oil, ASTM oil and UV radiation,  
highly abrasion-resistant  
flame-retardant IEC60332-1  
halogen-free IEC 60754  
low-smoke IEC61034  
UV-resistant IEC60068-2-5  
ozone resistant EN60811-2-1  
suitable for outdoor areas, not for laying directly in earth

### Technical data

Connector	Shielded RJ45, 3μ–50μ AU
Wiring	according to EIA/TIA 568B 1:1 or crossover
Compatibility	Fully plug compatible to IEC 60603-7
Note	Standard lengths: 0.5 m / 1.0 m / 2.0 m / 3.0 m / 5.0 m / 10.0 m

Part-No.	Number of conductors/ cross-section	Jacket color	Sleeve color	Wiring	Cable length m
<b>Cat.5e PVC</b>					
192000.0100	S* (4x2xAWG26)	grey	grey	1:1	1
192022.0100	S* (4x2xAWG26)	blue	blue	1:1	1
192030.0100	S* (4x2xAWG26)	green	green	1:1	1
192010.0100	S* (4x2xAWG26)	grey/UL cable	grey	1:1	1
<b>Cat.5e PVC</b>					
192050.0100	S* (4x2xAWG26/19)	grey	red	Crossover	1
<b>Cat.5E C-track compatible PUR</b>					
192300.0100	S* (4x2xAWG27)	yellow	yellow	1:1	1
<b>Cat.6 LSZH</b>					
192100.0100	S* (4x2xAWG27)	grey	grey	1:1	1
192112.0100	S* (4x2xAWG27)	yellow	yellow	1:1	1
192130.0100	S* (4x2xAWG27)	green	green	1:1	1
<b>Cat.6 industrial version PUR</b>					
192201.0100	S* (4x2xAWG27/7)	red	black	1:1	1

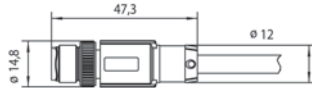


# Actuator sensor interface - Network cables PROFINET

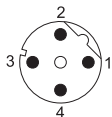
Male M12 straight with PUR cable, shielded 360°, open end self-locking screwed connection  
c-track compatible, halogen free



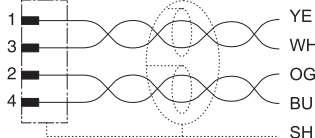
### Dimensions



### PIN assignment



### Circuit diagram



Description	Part-No.	Type	PU
Cable length	2.0 m	475300.0200 S*	STG4-M12/PN 2M-PUR 1
	5.0 m	475300.0500 S*	STG4-M12/PN 5M-PUR 1
	10.0 m	475300.1000 S*	STG4-M12/PN 10M-PUR 1

### Technical data

Rated voltage $U_N$	AC/DC 24 V		
Rated voltage max.	30 V		
Rated current	4 A		
Pole number	4		
Cable length (m)	2.0	5.0	10.0
Status indication	-		
Current Consumption	- mA		
Coding	D		
Shielding	360°		

### General

Form male 1	M 12 male straight		
Nominal insulation voltage	250 V		
Test voltage	1500 V		
Degree of pollution	3		
Insulation resistance at 20 °C	$\geq 1000 \text{ M}\Omega \times \text{km}$		
Contact resistance	$< 5 \text{ m}\Omega$		
Flamability according to UL 94	V0		
Protection class	IP65/67		
Housing material	TPU		
Contact material	CuSn, gold-plated		
Thread material	Zinc die-casting, nickel-plated		
Material sealing ring	-		
Number of conductors/cross-section	$1 \times 4 \times \text{AWG } 22/7$		
Jacket material	PUR		
Jacket color	green RAL 6018		
Conductor insulation	PO		
Cable diameter	6.5 mm		
Bending radius	$10 \times D$		
Storage temperature range	$-40 \text{ }^\circ\text{C} \dots +90 \text{ }^\circ\text{C}$		
Temperature range connector	$-25 \text{ }^\circ\text{C} \dots +90 \text{ }^\circ\text{C}$		
Temperature range fixed	$-40 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$		
Temperature range moving	$-40 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$		
Mechanical service life	-		
Weight (kg/piece)	0.140	0.330	0.640
Approvals	-		

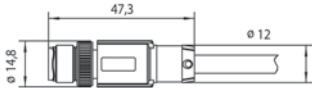
Accessories	Part-No.	Type	PU
Torque setting tool M 12	490091	DM-SET M12	1

# Actuator sensor interface · Network cables PROFINET

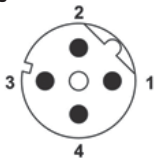
Male M12 straight on male M12 straight with PUR cable, shielded 360°  
self-locking screwed connection  
c-track compatible, halogen free



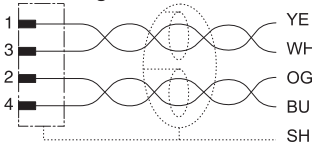
### Dimensions



### PIN assignment



### Circuit diagram



Description	Part-No.	Type	PU
Cable length			
0.3 m	475400.0030	S* STG4-M12/STG4-M12/PN 0,3M PUR	1
0.6 m	475400.0060	S* STG4-M12/STG4-M12/PN 0,6M PUR	1
1.0 m	475400.0100	S* STG4-M12/STG4-M12/PN 1,0M PUR	1
1.5 m	475400.0150	S* STG4-M12/STG4-M12/PN 1,5M PUR	1
2.0 m	475400.0200	S* STG4-M12/STG4-M12/PN 2,0M PUR	1
5.0 m	475400.0500	S* STG4-M12/STG4-M12/PN 5,0M PUR	1

### Technical data

Rated voltage $U_N$	AC/DC 24 V					
Rated voltage max.	30 V					
Rated current	4 A					
Pole number	4					
Cable length (m)	0.3	0.6	1.0	1.5	2.0	5.0
Status indication	-					
Current Consumption	- mA					
Coding	D					
Shielding	360°					

### General

Form male 1	M 12 male straight					
Form male 2	M 12 male straight					
Nominal insulation voltage	250 V					
Test voltage	1500 V					
Degree of pollution	3					
Insulation resistance at 20 °C	$\geq 1000 \text{ M}\Omega \times \text{km}$					
Contact resistance	$< 5 \text{ m}\Omega$					
Flamability according to UL 94	V0					
Protection class	IP65/67					
Housing material	TPU					
Contact material	CuSn, gold-plated					
Thread material	Zinc die-casting, nickel-plated					
Material sealing ring	-					
Number of conductors/cross-section	$1 \times 4 \times \text{AWG } 22/7$					
Jacket material	PUR					
Jacket color	green RAL 6018					
Conductor insulation	PP					
Cable diameter	6.5 mm					
Bending radius	$10 \times D$					
Storage temperature range	$-30 \text{ °C} \dots +90 \text{ °C}$					
Temperature range connector	$-25 \text{ °C} \dots +90 \text{ °C}$					
Temperature range fixed	$-40 \text{ °C} \dots +80 \text{ °C}$					
Temperature range moving	$-30 \text{ °C} \dots +70 \text{ °C}$					
Mechanical service life	-					
Weight (kg/piece)	0.060	0.070	0.090	0.110	0.150	0.325
Approvals	-					

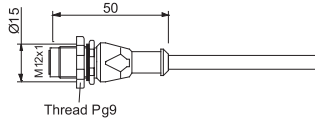
Accessories	Part-No.	Type	PU
Torque setting tool M 12	490091	DM-SET M12	1

# Actuator sensor interface · Network cables PROFINET

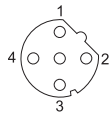
## M12 panel connectors using PG9 thread for rear panel installation, open end Female - D coded (Ethernet Cat. 5e) shielded



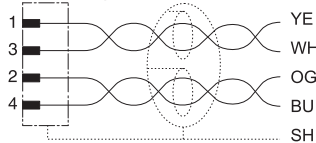
### Dimensions



### PIN assignment



### Circuit diagram



Description	Part-No.	Type	PU	
Cable length	2.0 m	475500.0200 S*	KUGE4-M12/PN 2M PUR	1
	5.0 m	475500.0500 S*	KUGE4-M12/PN 5M PUR	1
	10.0 m	475500.1000 S*	KUGE4-M12/PN 10M PUR	1

### Technical data

Rated voltage $U_N$	AC/DC 24 V		
Rated voltage max.	30 V		
Rated current	4 A		
Pole number	4		
Cable length (m)	2.0	5.0	10.0
Status indication	-		
Current Consumption	- mA		
Coding	D		
Shielding	360°		

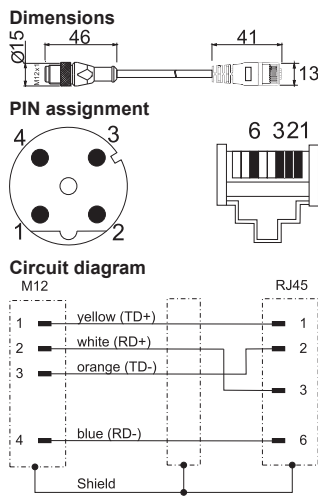
### General

Form male 1	M 12 female		
Nominal insulation voltage	250 V		
Test voltage	1500 V		
Degree of pollution	3		
Insulation resistance at 20 °C	$\geq 1000 \text{ M}\Omega \times \text{km}$		
Contact resistance	$< 5 \text{ m}\Omega$		
Flamability according to UL 94	-		
Protection class	IP65/67		
Housing material	TPU		
Contact material	CuSn, gold-plated		
Thread material	Zinc die-casting, nickel-plated		
Material sealing ring	-		
Number of conductors/cross-section	1×4×AWG22/7		
Jacket material	PUR		
Jacket color	green RAL 6018		
Conductor insulation	PP		
Cable diameter	6.5 mm		
Bending radius	10 × D		
Storage temperature range	-40 °C ... +90 °C		
Temperature range connector	-25 °C ... +90 °C		
Temperature range fixed	-40 °C ... +80 °C		
Temperature range moving	-30 °C ... +70 °C		
Mechanical service life	-		
Weight (kg/piece)	0.140	0.330	0.640
Approvals	-		

Accessories	Part-No.	Type	PU
Torque setting tool M 12	490091	DM-SET M12	1

# Actuator sensor interface · Network cables PROFINET

**Male RJ45 straight to female M12 straight with PUR cable, Cat 5e**  
**self-locking screwed connection**  
**c-track compatible, halogen free**

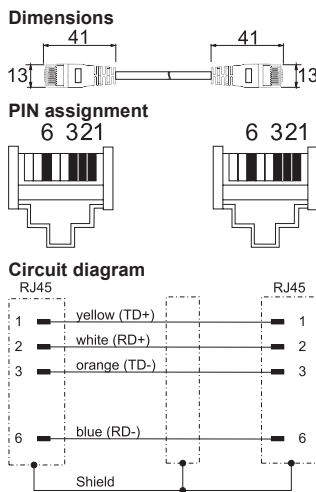


Description	Part-No.	Type	PU
Cable length	0.3 m	192013.0030 S* STG4-RJ45/STG4-M12/PN PUR 0,3M	1
	0.6 m	192013.0060 S* STG4-RJ45/STG4-M12/PN PUR 0,6M	1
	1.0 m	192013.0100 S* STG4-RJ45/STG4-M12/PN PUR 1,0M	1
	1.5 m	192013.0150 S* STG4-RJ45/STG4-M12/PN PUR 1,5M	1
	2.0 m	192013.0200 S* STG4-RJ45/STG4-M12/PN PUR 2,0M	1
	5.0 m	192013.0500 S* STG4-RJ45/STG4-M12/PN PUR 5,0M	1

Technical data						
Rated voltage $U_N$	DC 24 V					
Rated voltage max.	30 V					
Rated current	1.5 A					
Pole number	4					
Cable length (m)	0.3	0.6	1.0	1.5	2.0	5.0
Coding	D					
Shielding	360°					
General						
Form male 1	RJ45 male straight					
Form male 2	M 12 male straight					
Test voltage	1000 V					
Degree of pollution	-					
Insulation resistance at 20 °C	≥ 1000 MΩ×km					
Contact resistance	< 20 mΩ					
Protection class	IP20					
Housing material	TPU PA					
Color of the housing	black					
Contact material	CuSn, gold-plated					
Thread material	Zinc die-casting, nickel-plated					
Number of conductors/cross-section	(2×2×AWG22/7)					
Number of conductors	4					
Conductor color	various					
Jacket material	PUR					
Jacket color	green RAL 6018					
Conductor insulation	TPE-O					
Cable diameter	6.5 mm					
Minimum bending radius fixed	6×D					
Minimum bending radius moving	12×D					
Mounting	Breakaway torque 0.4 Nm					
Temperature range connector	-25 °C ... +85 °C					
Temperature range fixed	-40 °C ... +80 °C					
Temperature range moving	-30 °C ... +70 °C					
Weight (kg/piece)	0.035	0.054	0.080	0.113	0.145	0.340
Accessories						
Torque setting tool M 12	490091		DM-SET M12	1		

# Actuator sensor interface · Network cables PROFINET

## Male RJ45 straight to female RJ45 straight with PUR cable, Cat 5e c-track compatible, halogen free



Description	Part-No.	Type	PU
Cable length	0.3 m	192015.0030 S*	STG4-RJ45/STG4-RJ45/PN PUR 0,3M 1
	0.6 m	192015.0060 S*	STG4-RJ45/STG4-RJ45/PN PUR 0,6M 1
	1.0 m	192015.0100 S*	STG4-RJ45/STG4-RJ45/PN PUR 1,0M 1
	1.5 m	192015.0150 S*	STG4-RJ45/STG4-RJ45/PN PUR 1,5M 1
	2.0 m	192015.0200 S*	STG4-RJ45/STG4-RJ45/PN PUR 2,0M 1
	5.0 m	192015.0500 S*	STG8-RJ45/STG8-RJ45/PN 5,0M PUR 1

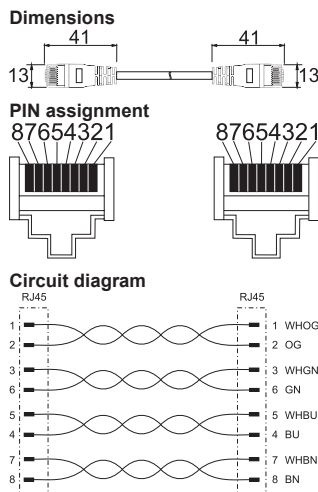
### Technical data

Rated voltage $U_N$	DC 50 V					
Rated voltage max.	- V					
Rated current	1.5 A					
Pole number	4					
Cable length (m)	0.3	0.6	1.0	1.5	2.0	5.0
Coding	-					
Shielding	360°					
<b>General</b>						
Form male 1	RJ45 male straight					
Form male 2	RJ45 male straight					
Test voltage	1000 V					
Degree of pollution	-					
Insulation resistance at 20 °C	$\geq 1000 \text{ M}\Omega \times \text{km}$					
Contact resistance	$< 20 \text{ m}\Omega$					
Protection class	IP20					
Housing material	PA					
Color of the housing	black					
Contact material	CuSn, gold-plated					
Thread material	-					
Number of conductors/cross-section	(2×2×AWG22/7)					
Number of conductors	4					
Conductor color	various					
Jacket material	PUR					
Jacket color	green RAL 6018					
Conductor insulation	TPE-O					
Cable diameter	6.5 mm					
Minimum bending radius fixed	6×D					
Minimum bending radius moving	12×D					
Mounting	-					
Temperature range connector	-25 °C ... +85 °C					
Temperature range fixed	-30 °C ... +80 °C					
Temperature range moving	-30 °C ... +70 °C					
Weight (kg/piece)	0.035	0.054	0.080	0.113	0.145	0.340



# Actuator sensor interface · Network cables Ethernet

## Male RJ45 straight to female RJ45 straight with PUR cable, Cat5e c-track compatible, halogen free



Description	Part-No.	Type	PU
Cable length	0.3 m	192017.0030 S* STG8-RJ45/STG8-RJ45/ET PUR 0,3M	1
	0.6 m	192017.0060 S* STG8-RJ45/STG8-RJ45/ET PUR 0,6M	1
	1.0 m	192017.0100 S* STG8-RJ45/STG8-RJ45/ET PUR 1,0M	1
	1.5 m	192017.0150 S* STG8-RJ45/STG8-RJ45/ET PUR 1,5M	1
	2.0 m	192017.0200 S* STG8-RJ45/STG8-RJ45/ET PUR 2,0M	1
	5.0 m	192017.0500 S* STG8-RJ45/STG8-RJ45/ET PUR 5,0M	1

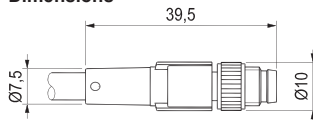
Technical data	
Rated voltage $U_N$	DC 50 V
Rated voltage max.	- V
Rated current	1.5 A
Pole number	8
Cable length (m)	0.3 0.6 1.0 1.5 2.0 5.0
Coding	-
Shielding	360°
General	
Form male 1	RJ45 male straight
Form male 2	RJ45 male straight
Test voltage	1000 V
Degree of pollution	-
Insulation resistance at 20 °C	$\geq 1000 \text{ M}\Omega \times \text{km}$
Contact resistance	$< 20 \text{ m}\Omega$
Protection class	IP20
Housing material	PA
Color of the housing	black
Contact material	CuSn, gold-plated
Thread material	-
Number of conductors/cross-section	(4×2×AWG26/19)
Number of conductors	8
Conductor color	various
Jacket material	PUR
Jacket color	green RAL 6018
Conductor insulation	TPE-O
Cable diameter	6.7 mm
Minimum bending radius fixed	6×D
Minimum bending radius moving	12×D
Mounting	-
Temperature range connector	-25 °C ... +85 °C
Temperature range fixed	-40 °C ... +80 °C
Temperature range moving	-30 °C ... +70 °C
Weight (kg/piece)	0.031 0.046 0.066 0.092 0.118 0.431

# Actuator sensor interface · M8 – cables

Male M8 straight with PUR cable, open end self-locking screwed connection c-track compatible, halogen free



### Dimensions



### PIN assignment

486020, 486050, 486100

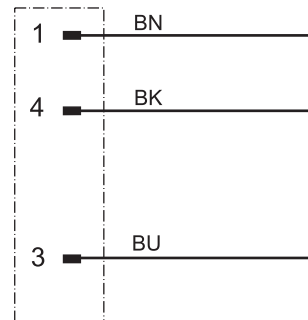


447020, 447050, 447100

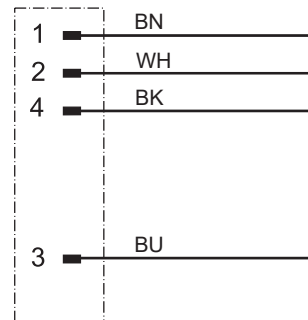


### Circuit diagram

486020, 486050, 486100



447020, 447050, 447100



Description	Part-No.	Type	PU	
<b>3-pole</b>				
Cable length	2.0 m	486020 S*	STG3-M8 2M PUR	1
	5.0 m	486050 S*	STG3-M8 5M PUR	1
	10.0 m	486100 S*	STG3-M8 10M PUR	1
<b>4-pole</b>				
Cable length	2.0 m	447020 S*	STG4-M8 2M PUR	1
	5.0 m	447050 S*	STG4-M8 5M PUR	1
	10.0 m	447100 S*	STG4-M8 10M PUR	1

Technical data	3-pole			4-pole		
Rated voltage $U_N$	AC/DC 24 V					
Rated voltage max.	30 V					
Rated current	4 A					
Pole number	3			4		
Cable length (m)	2.0	5.0	10.0	2.0	5.0	10.0
Status indication	-					
Current Consumption	- mA					
Coding	-					
Shielding	-					
<b>General</b>						
Form male 1	M 8 male straight					
Nominal insulation voltage	100 V					
Test voltage	1500 V					
Degree of pollution	3					
Insulation resistance at 20 °C	$\geq 1000 \text{ M}\Omega \times \text{km}$					
Contact resistance	$< 5 \text{ m}\Omega$					
Flamability according to UL 94	V0					
Protection class	IP65/67/68					
Housing material	TPU					
Contact material	CuSn, gold-plated					
Thread material	Zinc die-casting, nickel-plated					
Material sealing ring	-					
Number of conductors/cross-section	$3 \times 0.25 \text{ mm}^2 (32 \times 0.1)$			$4 \times 0.25 \text{ mm}^2 (32 \times 0.1)$		
Jacket material	PUR					
Jacket color	black					
Conductor insulation	PP					
Cable diameter	3.6 mm			3.9 mm		
Bending radius	$10 \times D$					
Storage temperature range	$-30 \text{ }^\circ\text{C} \dots +90 \text{ }^\circ\text{C}$					
Temperature range connector	$-25 \text{ }^\circ\text{C} \dots +90 \text{ }^\circ\text{C}$					
Temperature range fixed	$-40 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$					
Temperature range moving	$-25 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$					
Mechanical service life	-					
Weight (kg/piece)	0.500	0.140	0.270	0.070	0.160	0.320
Approvals	cULus (E224249)					

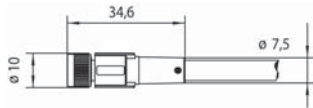
Accessories	Part-No.	Type	PU
Torque setting tool M 8	490090	DM-SET M8	1

# Actuator sensor interface · M8 – cables

Female M8 straight with PUR cable, open end  
self-locking screwed connection  
c-track compatible, halogen free



### Dimensions



### PIN assignment

481020, 481050, 481100

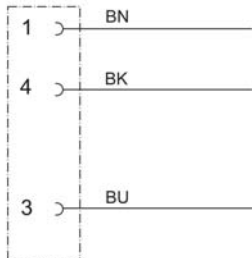


415020, 415050, 415100

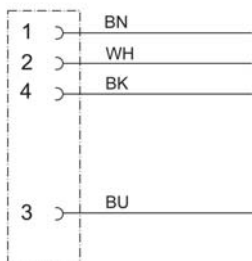


### Circuit diagram

481020, 481050, 481100



415020, 415050, 415100



Description	Part-No.	Type	PU	
<b>3-pole</b>				
Cable length	2.0 m	481020 S*	KUG3-M8 2M PUR	1
	5.0 m	481050 S*	KUG3-M8 5M PUR	1
	10.0 m	481100 S*	KUG3-M8 10M PUR	1
<b>4-pole</b>				
Cable length	2.0 m	415020 S*	KUG4-M8 2,0M PUR	1
	5.0 m	415050 S*	KUG4-M8 5,0M PUR	1
	10.0 m	415100 S*	KUG4-M8 10,0M PUR	1

Technical data	3-pole			4-pole		
Rated voltage $U_N$	AC/DC 24 V					
Rated voltage max.	30 V					
Rated current	4 A					
Pole number	3			4		
Cable length (m)	2.0	5.0	10.0	2.0	5.0	10.0
Status indication	-					
Current Consumption	- mA					
Coding	-					
Shielding	-					
<b>General</b>						
Form male 1	M 8 female straight					
Nominal insulation voltage	100 V					
Test voltage	1500 V					
Degree of pollution	3					
Insulation resistance at 20 °C	$\geq 1000 \text{ M}\Omega \times \text{km}$					
Contact resistance	$< 5 \text{ m}\Omega$					
Flamability according to UL 94	V0					
Protection class	IP65/67/68					
Housing material	TPU					
Contact material	CuSn, gold-plated		CuSn silver-plated		CuSn, gold-plated	
Thread material	Zinc die-casting, nickel-plated					
Material sealing ring	NBR					
Number of conductors/cross-section	$3 \times 0.25 \text{ mm}^2 (32 \times 0.1)$			$4 \times 0.25 \text{ mm}^2 (32 \times 0.1)$		
Jacket material	PUR					
Jacket color	black					
Conductor insulation	PP					
Cable diameter	3.6 mm			3.9 mm		
Bending radius	$10 \times D$					
Storage temperature range	$-30 \text{ }^\circ\text{C} \dots +90 \text{ }^\circ\text{C}$					
Temperature range connector	$-25 \text{ }^\circ\text{C} \dots +90 \text{ }^\circ\text{C}$					
Temperature range fixed	$-40 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$					
Temperature range moving	$-25 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$					
Mechanical service life	-					
Weight (kg/piece)	0.050	0.140	0.270	0.070	0.160	0.320
Approvals	cULus (E224249)					

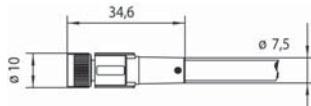
Accessories	Part-No.	Type	PU
Torque setting tool M 8	490090	DM-SET M8	1

# Actuator sensor interface · M8 – cables

Female M8 straight with PUR cable, shielded 360°, open end self-locking screwed connection  
c-track compatible, halogen free



### Dimensions



### PIN assignment

458302, 458305, 458310

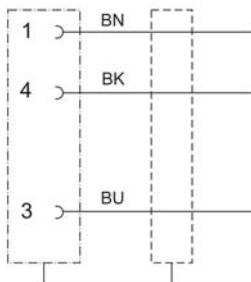


458402, 458405, 458410

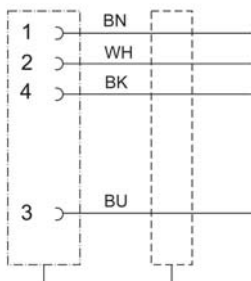


### Circuit diagram

458302, 458305, 458310



458402, 458405, 458410

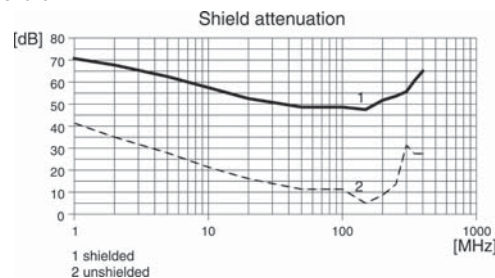


Description	Part-No.	Type	PU	
<b>3-pole</b>				
Cable length	2.0 m	458302 S*	KUG3-M8(C) 2M PUR	1
	5.0 m	458305 S*	KUG3-M8(C) 5M PUR	1
	10.0 m	458310 S*	KUG3-M8(C) 10M PUR	1
<b>4-pole</b>				
Cable length	2.0 m	458402 S*	KUG4-M8(C) 2,0M PUR	1
	5.0 m	458405 S*	KUG4-M8(C) 5,0M PUR	1
	10.0 m	458410 S*	KUG4-M8(C) 10M PUR	1

Technical data	3-pole			4-pole		
Rated voltage $U_N$	AC/DC 24 V					
Rated voltage max.	30 V					
Rated current	4 A					
Pole number	3			4		
Cable length (m)	2.0	5.0	10.0	2.0	5.0	10.0
Status indication	-					
Current Consumption	- mA					
Coding	-					
Shielding	360°					
<b>General</b>						
Form male 1	M 8 female straight					
Nominal insulation voltage	100 V					
Test voltage	1500 V					
Degree of pollution	3					
Insulation resistance at 20 °C	≥ 1000 MΩ×km					
Contact resistance	< 5 mΩ					
Flamability according to UL 94	V0					
Protection class	IP65/67					
Housing material	TPU					
Contact material	CuSn, gold-plated					
Thread material	Zinc die-casting, nickel-plated					
Material sealing ring	NBR					
Number of conductors/cross-section	3 × 0.25 mm <sup>2</sup> (32 × 0.1)			4 × 0.25 mm <sup>2</sup> (32 × 0.1)		
Jacket material	PUR					
Jacket color	black					
Conductor insulation	PP					
Cable diameter	4.3 mm			4.7 mm		
Bending radius	10 × D					
Storage temperature range	-30 °C ... +90 °C					
Temperature range connector	-25 °C ... +90 °C					
Temperature range fixed	-40 °C ... +80 °C					
Temperature range moving	-25 °C ... +80 °C					
Mechanical service life	-					
Weight (kg/piece)	0.080	0.190	0.380	0.090	0.210	0.420
Approvals	cULus (E224249)					

Accessories	Part-No.	Type	PU
Torque setting tool M 8	490090	DM-SET M8	1

### Action chart



\* S Article from stock  
A Available with a lead time  
R Available on request

# Actuator sensor interface · M8 – cables

Female M8 angled with PUR cable, open end  
self-locking screwed connection  
c-track compatible, halogen free



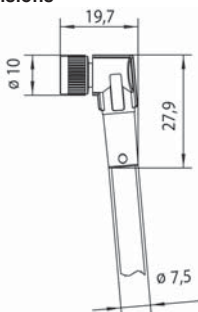
Description	Part-No.	Type	PU	
<b>3-pole</b>				
Cable length	2.0 m	474020 S*	KUW3-M8 2M PUR	1
	5.0 m	474050 S*	KUW3-M8 5M PUR	1
	10.0 m	474100 S*	KUW3-M8 10M PUR	1
<b>4-pole</b>				
Cable length	2.0 m	416020 S*	KUW4-M8 2,0M PUR	1
	5.0 m	416050 S*	KUW4-M8 5,0M PUR	1
	10.0 m	416100 S*	KUW4-M8 10,0M PUR	1

Technical data	3-pole			4-pole		
Rated voltage $U_N$	AC/DC 24 V					
Rated voltage max.	30 V					
Rated current	4 A					
Pole number	3			4		
Cable length (m)	2.0	5.0	10.0	2.0	5.0	10.0
Status indication	-					
Current Consumption	- mA					
Coding	-					
Shielding	-					

General	
Form male 1	M 8 female angle connector
Nominal insulation voltage	100 V
Test voltage	1500 V
Degree of pollution	3
Insulation resistance at 20 °C	$\geq 1000 \text{ M}\Omega \times \text{km}$
Contact resistance	$< 5 \text{ m}\Omega$
Flamability according to UL 94	V0
Protection class	IP65/67/68
Housing material	TPU
Contact material	CuSn, gold-plated
Thread material	Zinc die-casting, nickel-plated
Material sealing ring	NBR
Number of conductors/cross-section	$3 \times 0.25 \text{ mm}^2 (32 \times 0.1)$ $4 \times 0.25 \text{ mm}^2 (32 \times 0.1)$
Jacket material	PUR
Jacket color	black
Conductor insulation	PP
Cable diameter	3.6 mm      3.9 mm
Bending radius	$10 \times D$
Storage temperature range	-30 °C ... +90 °C
Temperature range connector	-25 °C ... +90 °C
Temperature range fixed	-40 °C ... +80 °C
Temperature range moving	-25 °C ... +80 °C
Mechanical service life	-
Weight (kg/piece)	0.054    0.135    0.263    0.063    0.160    0.309
Approvals	cULus (E224249)

Accessories	Part-No.	Type	PU
Torque setting tool M 8	490090	DM-SET M8	1

## Dimensions



## PIN assignment

474020, 474050, 474100

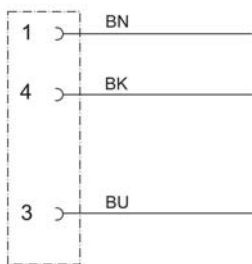


416020, 416050, 416100

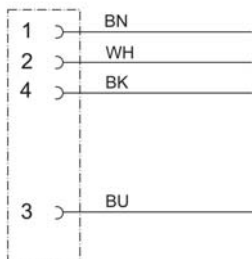


## Circuit diagram

474020, 474050, 474100



416020, 416050, 416100



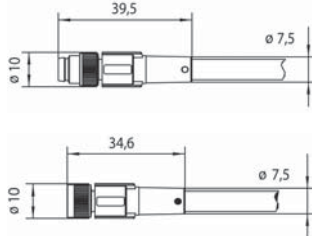


# Actuator sensor interface · M8 / M8 – cables

Male M8 straight to female M8 straight with PUR cable  
self-locking screwed connection  
c-track compatible, halogen free

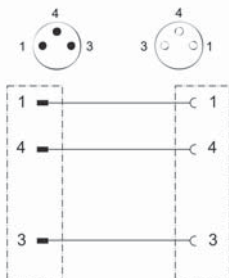


### Dimensions

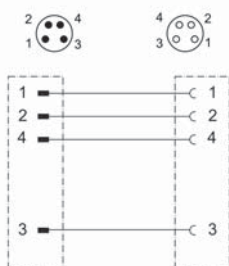


### PIN assignment

487003, 487006, 487010, 487015,  
487020, 487050



410003, 410006, 410010, 410015,  
410020, 410050



Description	Part-No.	Type	PU
<b>3-pole</b>			
Cable length	0.3 m	487003 S*	STG3-M8/KUG3-M8 0,3M PUR 1
	0.6 m	487006 S*	STG3-M8/KUG3-M8 0,6M PUR 1
	1.0 m	487010 S*	STG3-M8/KUG3-M8 1,0M PUR 1
	1.5 m	487015 S*	STG3-M8/KUG3-M8 1,5M PUR 1
	2.0 m	487020 S*	STG3-M8/KUG3-M8 2,0M PUR 1
	5.0 m	487050 S*	STG3-M8/KUG3-M8 5,0M PUR 1
<b>4-pole</b>			
Cable length	0.3 m	410003 S*	STG4-M8/KUG4-M8 0,3m PUR 1
	0.6 m	410006 S*	STG4-M8/KUG4-M8 0,6m PUR 1
	1.0 m	410010 S*	STG4-M8/KUG4-M8 1,0m PUR 1
	1.5 m	410015 S*	STG4-M8/KUG4-M8 1,5m PUR 1
	2.0 m	410020 S*	STG4-M8/KUG4-M8 2,0m PUR 1
	5.0 m	410050 S*	STG4-M8/KUG4-M8 5,0m PUR 1

### Technical data

	3-pole						4-pole					
Rated voltage $U_N$	AC/DC 24 V						30 V					
Rated voltage max.	60 V						30 V					
Rated current	4 A						4 A					
Pole number	3						4					
Cable length (m)	0.3	0.6	1.0	1.5	2.0	5.0	0.3	0.6	1.0	1.5	2.0	5.0
Status indication	-											
Current Consumption	4 mA											
Coding	-											
Shielding	-											

### General

Form male 1	M 8 male straight											
Form male 2	M 8 female straight											
Nominal insulation voltage	100 V											
Test voltage	1500 V											
Degree of pollution	3											
Insulation resistance at 20 °C	$\geq 1000 \text{ M}\Omega \times \text{km}$											
Contact resistance	$< 5 \text{ m}\Omega$											
Flamability according to UL 94	V0											
Protection class	IP65/67/68											
Housing material	TPU											
Contact material	CuSn, gold-plated											
Thread material	Zinc die-casting, nickel-plated											
Material sealing ring	NBR											
Number of conductors/cross-section	$3 \times 0.25 \text{ mm}^2 (32 \times 0.1)$						$4 \times 0.25 \text{ mm}^2 (32 \times 0.1)$					
Jacket material	PUR											
Jacket color	black											
Conductor insulation	PP											
Cable diameter	3.6 mm						3.9 mm					
Bending radius	$10 \times D$											
Storage temperature range	$-30 \text{ }^\circ\text{C} \dots +90 \text{ }^\circ\text{C}$											
Temperature range connector	$-25 \text{ }^\circ\text{C} \dots +90 \text{ }^\circ\text{C}$											
Temperature range fixed	$-40 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$											
Temperature range moving	$-25 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$											
Mechanical service life	-											
Weight (kg/piece)	0.02	0.03	0.04	0.05	0.06	0.16	0.05	0.06	0.08	0.10	0.13	0.31
Approvals	cULus (E224249)											

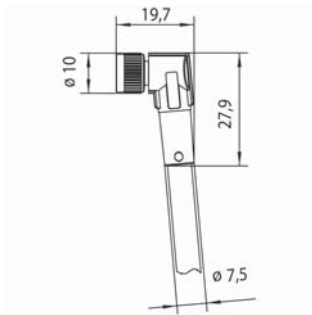
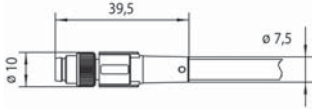
Accessories	Part-No.	Type	PU
Torque setting tool M 8	490090	DM-SET M8	1

# Actuator sensor interface · M8 / M8 – cables

Male M8 straight to female M8 angled with PUR cable  
self-locking screwed connection  
c-track compatible, halogen free

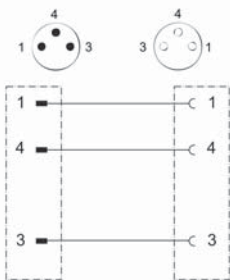


### Dimensions

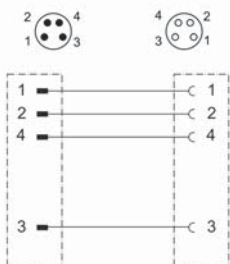


### PIN assignment

488003, 488006, 488010, 488015,  
488020, 488050



411003, 411006, 411010, 411015,  
411020, 411050



Description	Part-No.	Type	PU
<b>3-pole</b>			
Cable length	0.3 m	488003 S*	STG3-M8/KUW3-M8 0,3M PUR 1
	0.6 m	488006 S*	STG3-M8/KUW3-M8 0,6M PUR 1
	1.0 m	488010 S*	STG3-M8/KUW3-M8 1,0M PUR 1
	1.5 m	488015 S*	STG3-M8/KUW3-M8 1,5M PUR 1
	2.0 m	488020 S*	STG3-M8/KUW3-M8 2,0M PUR 1
	5.0 m	488050 S*	STG3-M8/KUW3-M8 5,0M PUR 1
<b>4-pole</b>			
Cable length	0.3 m	411003 S*	STG4-M8/KUW4-M8 0,3M PUR 1
	0.6 m	411006 S*	STG4-M8/KUW4-M8 0,6M PUR 1
	1.0 m	411010 S*	STG4-M8/KUW4-M8 1,0M PUR 1
	1.5 m	411015 S*	STG4-M8/KUW4-M8 1,5M PUR 1
	2.0 m	411020 S*	STG4-M8/KUW4-M8 2,0M PUR 1
	5.0 m	411050 S*	STG4-M8/KUW4-M8 5,0M PUR 1

### Technical data

	3-pole	4-pole
Rated voltage $U_N$	AC/DC 24 V	
Rated voltage max.	60 V	
Rated current	4 A	
Pole number	3	4
Cable length (m)	0.3 0.6 1.0 1.5 2.0 5.0	0.3 0.6 1.0 1.5 2.0 5.0
Status indication	-	
Current Consumption	- mA	
Coding	-	
Shielding	-	

### General

Form male 1	M 8 male straight	
Form male 2	M 8 female angle connector	
Nominal insulation voltage	100 V	
Test voltage	1500 V	
Degree of pollution	3	
Insulation resistance at 20 °C	≥ 1000 MΩ×km	
Contact resistance	< 5 mΩ	
Flamability according to UL 94	V0	
Protection class	IP65/67/68	
Housing material	TPU	
Contact material	CuSn, gold-plated	
Thread material	Zinc die-casting, nickel-plated	
Material sealing ring	NBR	
Number of conductors/cross-section	3 × 0.25 mm <sup>2</sup> (32 × 0.1)	4 × 0.25 mm <sup>2</sup> (32 × 0.1)
Jacket material	PUR	
Jacket color	black	
Conductor insulation	PP	
Cable diameter	3.6 mm	3.9 mm
Bending radius	10 × D	
Storage temperature range	-30 °C ... +90 °C	
Temperature range connector	-25 °C ... +90 °C	
Temperature range fixed	-40 °C ... +80 °C	
Temperature range moving	-25 °C ... +80 °C	
Mechanical service life	-	
Weight (kg/piece)	0.02 0.03 0.04 0.05 0.06 0.16	0.05 0.06 0.08 0.10 0.13 0.31
Approvals	cULus (E224249)	

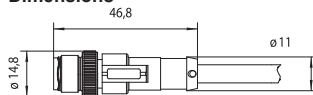
Accessories	Part-No.	Type	PU
Torque setting tool M 8	490090	DM-SET M8	1

# Actuator sensor interface · M12 - cables

Male M12 straight with PUR cable, open end  
self-locking screwed connection  
c-track compatible, halogen free



### Dimensions



### PIN assignment

471020, 471050, 471100

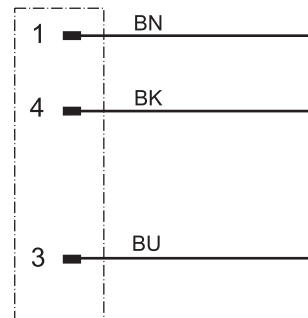


472020, 472050, 472100

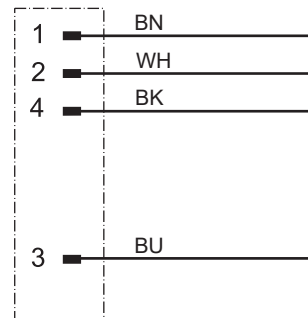


### Circuit diagram

471020, 471050, 471100



472020, 472050, 472100



Description	Part-No.	Type	PU	
<b>3-pole</b>				
Cable length	2.0 m	471020 S*	STG3-M12 2M PUR	1
	5.0 m	471050 S*	STG3-M12 5M PUR	1
	10.0 m	471100 S*	STG3-M12 10M PUR	1
<b>4-pole</b>				
Cable length	2.0 m	472020 S*	STG4-M12 2M PUR	1
	5.0 m	472050 S*	STG4-M12 5M PUR	1
	10.0 m	472100 S*	STG4-M12 10M PUR	1

Technical data	3-pole	4-pole
Rated voltage $U_N$	AC/DC 24 V	
Rated voltage max.	250 V	
Rated current	4 A	

	3	5.0	10.0	2.0	5.0	10.0
Cable length (m)	2.0	5.0	10.0	2.0	5.0	10.0
Status indication	-					
Current Consumption	- mA					
Coding	A					
Shielding	-					

General	
Form male 1	M 12 male straight
Nominal insulation voltage	250 V
Test voltage	2500 V
Degree of pollution	3
Insulation resistance at 20 °C	≥ 1000 MΩ×km
Contact resistance	< 5 mΩ
Flamability according to UL 94	V0
Protection class	IP65/67/68
Housing material	TPU
Contact material	CuSn, gold-plated
Thread material	Zinc die-casting, nickel-plated
Material sealing ring	-
Number of conductors/cross-section	3 × 0.34 mm <sup>2</sup> (42 × 0.1)      4 × 0.34 mm <sup>2</sup> (42 × 0.1)
Jacket material	PUR
Jacket color	black
Conductor insulation	PP
Cable diameter	3.8 mm      4.1 mm
Bending radius	10 × D
Storage temperature range	-30 °C ... +90 °C
Temperature range connector	-25 °C ... +90 °C
Temperature range fixed	-40 °C ... +80 °C
Temperature range moving	-25 °C ... +80 °C
Mechanical service life	-
Weight (kg/piece)	0.090    0.190    0.380    0.100    0.200    0.400
Approvals	cULus (E224249)

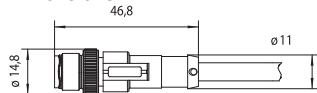
Accessories	Part-No.	Type	PU
Torque setting tool M 12	490091	DM-SET M12	1

# Actuator sensor interface · M12 - cables

Male M12 straight with PUR cable, open end  
self-locking screwed connection  
c-track compatible, halogen free



### Dimensions



### PIN assignment

473020, 473050, 473100

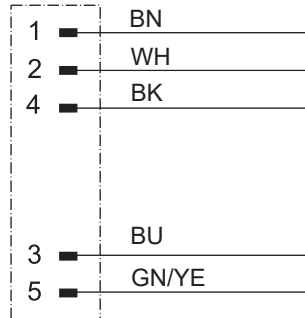


482020, 482050, 482100

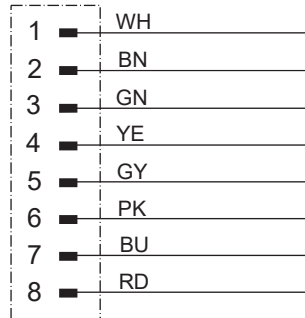


### Circuit diagram

473020, 473050, 473100



482020, 482050, 482100



Description	Part-No.	Type	PU	
<b>5-pole</b>				
Cable length	2.0 m	473020 S*	STG5-M12 2M PUR	1
	5.0 m	473050 S*	STG5-M12 5M PUR	1
	10.0 m	473100 S*	STG5-M12 10M PUR	1
<b>8-pole</b>				
Cable length	2.0 m	482020 S*	STG8-M12 2M PUR	1
	5.0 m	482050 S*	STG8-M12 5M PUR	1
	10.0 m	482100 S*	STG8-M12 10M PUR	1

Technical data	5-pole			8-pole		
Rated voltage U <sub>N</sub>	AC/DC 24 V					
Rated voltage max.	60 V			30 V		
Rated current	4 A			2 A		
Pole number	5			8		
Cable length (m)	2.0	5.0	10.0	2.0	5.0	10.0
Status indication	-					
Current Consumption	- mA					
Coding	A					
Shielding	-					
<b>General</b>						
Form male 1	M 12 male straight					
Nominal insulation voltage	63 V			36 V		
Test voltage	1500 V					
Degree of pollution	3					
Insulation resistance at 20 °C	≥ 1000 MΩ×km					
Contact resistance	< 5 mΩ					
Flamability according to UL 94	V0					
Protection class	IP65/67/68					
Housing material	TPU					
Contact material	CuSn, gold-plated					
Thread material	Zinc die-casting, nickel-plated					
Material sealing ring	-					
Number of conductors/cross-section	5 × 0.34 mm <sup>2</sup> (42 × 0.1)			8 × 0.25 mm <sup>2</sup> (32 × 0.1)		
Jacket material	PUR					
Jacket color	black					
Conductor insulation	PP					
Cable diameter	4.5 mm			5.9 mm		
Bending radius	10 × D					
Storage temperature range	-30 °C ... +90 °C					
Temperature range connector	-25 °C ... +90 °C					
Temperature range fixed	-40 °C ... +80 °C					
Temperature range moving	-25 °C ... +80 °C					
Mechanical service life	-					
Weight (kg/piece)	0.100	0.250	0.480	0.110	0.260	0.525
Approvals	cULus (E224249)					

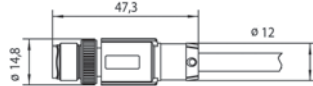
Accessories	Part-No.	Type	PU
Torque setting tool M 12	490091	DM-SET M12	1

# Actuator sensor interface · M12 - cables

Male M12 straight with PUR cable, shielded 360°, open end self-locking screwed connection c-track compatible, halogen free



### Dimensions



### PIN assignment

456202, 456205, 456210

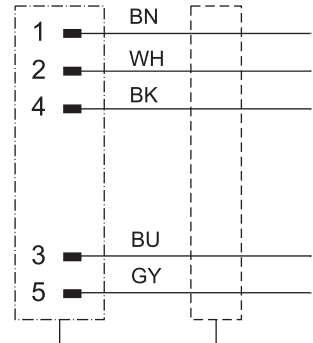


458702, 458705, 458710

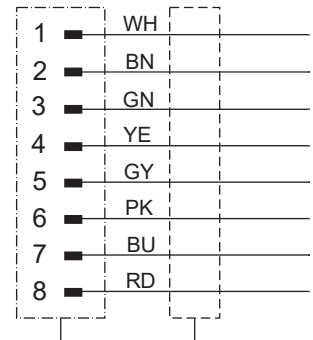


### Circuit diagram

456202, 456205, 456210



458702, 458705, 458710

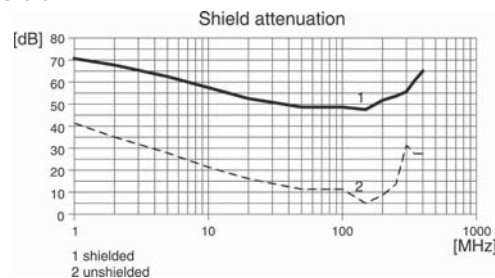


Description	Part-No.	Type	PU	
<b>5-pole</b>				
Cable length	2.0 m	456202 S*	STG5-M12(C)2m PUR	1
	5.0 m	456205 S*	STG5-M12(C)5m PUR	1
	10.0 m	456210 S*	STG5-M12(C) 10m PUR	1
<b>8-pole</b>				
Cable length	2.0 m	458702 S*	STG8-M12(C) 2M PUR	1
	5.0 m	458705 S*	STG8-M12(C) 5m PUR	1
	10.0 m	458710 S*	STG8-M12(C) 10M PUR	1

Technical data	5-pole		8-pole	
Rated voltage $U_N$	AC/DC 24 V			
Rated voltage max.	60 V		30 V	
Rated current	4 A		2 A	
Pole number	5		8	
Cable length (m)	2.0	5.0	10.0	2.0
Status indication	-			
Current Consumption	- mA			
Coding	A			
Shielding	-			
<b>General</b>				
Form male 1	M 12 male straight			
Nominal insulation voltage	63 V		36 V	
Test voltage	1500 V			
Degree of pollution	3			
Insulation resistance at 20 °C	$\geq 1000 \text{ M}\Omega \times \text{km}$			
Contact resistance	$< 5 \text{ m}\Omega$			
Flamability according to UL 94	V0			
Protection class	IP65/67			
Housing material	TPU			
Contact material	CuSn, gold-plated			
Thread material	Zinc die-casting, nickel-plated			
Material sealing ring	-			
Number of conductors/cross-section	$5 \times 0.34 \text{ mm}^2 (42 \times 0.1)$		$8 \times 0.25 \text{ mm}^2 (32 \times 0.1)$	
Jacket material	PUR			
Jacket color	black			
Conductor insulation	PP			
Cable diameter	5.3 mm		5.9 mm	
Bending radius	$10 \times D$			
Storage temperature range	$-30 \text{ }^\circ\text{C} \dots +90 \text{ }^\circ\text{C}$			
Temperature range connector	$-25 \text{ }^\circ\text{C} \dots +90 \text{ }^\circ\text{C}$			
Temperature range fixed	$-40 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$			
Temperature range moving	$-25 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$			
Mechanical service life	-			
Weight (kg/piece)	0.150	0.300	0.565	0.155
Approvals	cULus (E224249)			

Accessories	Part-No.	Type	PU
Torque setting tool M 12	490091	DM-SET M12	1

### Action chart



\* S Article from stock  
A Available with a lead time  
R Available on request



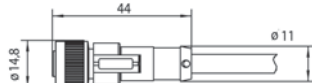
# Actuator sensor interface · M12 - cables

Female M12 straight with PUR cable, open end  
self-locking screwed connection  
c-track compatible, halogen free



Description	Part-No.	Type	PU	
<b>3-pole</b>				
Cable length	2.0 m	465020 S*	KUG3-M12 2M PUR	1
	5.0 m	465050 S*	KUG3-M12 5M PUR	1
	10.0 m	465100 S*	KUG3-M12 10M PUR	1
<b>4-pole</b>				
Cable length	2.0 m	466020 S*	KUG4-M12 2M PUR	1
	5.0 m	466050 S*	KUG4-M12 5M PUR	1
	10.0 m	466100 S*	KUG4-M12 10M PUR	1

## Dimensions



## PIN assignment

465020, 465050, 465100

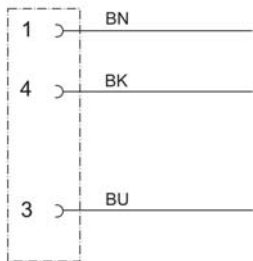


466020, 466050, 466100

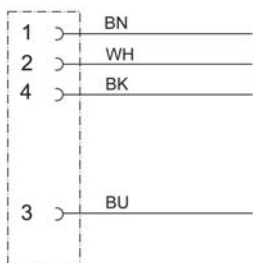


## Circuit diagram

465020, 465050, 465100



466020, 466050, 466100



Technical data	3-pole			4-pole		
Rated voltage $U_N$	AC/DC 24 V					
Rated voltage max.	250 V					
Rated current	4 A					
Pole number	3			4		
Cable length (m)	2.0	5.0	10.0	2.0	5.0	10.0
Status indication	-					
Current Consumption	- mA					
Coding	A					
Shielding	-					
<b>General</b>						
Form male 1	M 12 female straight					
Nominal insulation voltage	250 V					
Test voltage	2500 V					
Degree of pollution	3					
Insulation resistance at 20 °C	$\geq 1000 \text{ M}\Omega \times \text{km}$					
Contact resistance	$< 5 \text{ m}\Omega$					
Flamability according to UL 94	V0					
Protection class	IP65/67/68					
Housing material	TPU					
Contact material	CuSn, gold-plated					
Thread material	Zinc die-casting, nickel-plated					
Material sealing ring	-					
Number of conductors/cross-section	$3 \times 0.34 \text{ mm}^2 (42 \times 0.1)$			$4 \times 0.34 \text{ mm}^2 (42 \times 0.1)$		
Jacket material	PUR					
Jacket color	black					
Conductor insulation	PP					
Cable diameter	3.8 mm			4.1 mm		
Bending radius	$10 \times D$					
Storage temperature range	$-30 \text{ }^\circ\text{C} \dots +90 \text{ }^\circ\text{C}$					
Temperature range connector	$-25 \text{ }^\circ\text{C} \dots +90 \text{ }^\circ\text{C}$					
Temperature range fixed	$-40 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$					
Temperature range moving	$-25 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$					
Mechanical service life	-					
Weight (kg/piece)	0.090	0.190	0.380	0.100	0.200	0.400
Approvals	cULus (E224249)					

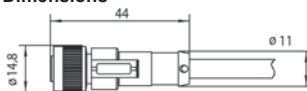
Accessories	Part-No.	Type	PU
Torque setting tool M 12	490091	DM-SET M12	1

# Actuator sensor interface · M12 - cables

Female M12 straight with PUR cable, open end  
self-locking screwed connection  
c-track compatible, halogen free



### Dimensions



### PIN assignment

477020, 477050, 477100

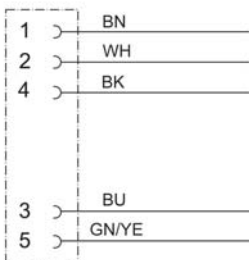


478020, 478050, 478100

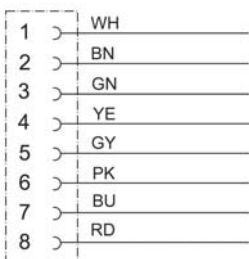


### Circuit diagram

477020, 477050, 477100



478020, 478050, 478100



Description	Part-No.	Type	PU	
<b>5-pole</b>				
Cable length	2.0 m	477020 S*	KUG5-M12 2M PUR	1
	5.0 m	477050 S*	KUG5-M12 5M PUR	1
	10.0 m	477100 S*	KUG5-M12 10M PUR	1
<b>8-pole</b>				
Cable length	2.0 m	478020 S*	KUG8-M12 2M PUR	1
	5.0 m	478050 S*	KUG8-M12 5M PUR	1
	10.0 m	478100 S*	KUG8-M12 10M PUR	1

Technical data	5-pole		8-pole			
Rated voltage $U_N$	AC/DC 24 V					
Rated voltage max.	60 V			30 V		
Rated current	4 A			2 A		
Pole number	5		8			
Cable length (m)	2.0	5.0	10.0	2.0	5.0	10.0
Status indication	-					
Current Consumption	- mA					
Coding	A					
Shielding	-					
<b>General</b>						
Form male 1	M 12 female straight					
Nominal insulation voltage	63 V			36 V		
Test voltage	1500 V					
Degree of pollution	3					
Insulation resistance at 20 °C	$\geq 1000 \text{ M}\Omega \times \text{km}$					
Contact resistance	$< 5 \text{ m}\Omega$					
Flamability according to UL 94	V0					
Protection class	IP65/67/68					
Housing material	TPU					
Contact material	CuSn, gold-plated					
Thread material	Zinc die-casting, nickel-plated					
Material sealing ring	-					
Number of conductors/cross-section	$5 \times 0.34 \text{ mm}^2 (42 \times 0.1)$		$8 \times 0.25 \text{ mm}^2 (32 \times 0.1)$			
Jacket material	PUR					
Jacket color	black					
Conductor insulation	PP					
Cable diameter	4.5 mm		5.9 mm			
Bending radius	$10 \times D$					
Storage temperature range	$-30 \text{ }^\circ\text{C} \dots +90 \text{ }^\circ\text{C}$					
Temperature range connector	$-25 \text{ }^\circ\text{C} \dots +90 \text{ }^\circ\text{C}$					
Temperature range fixed	$-40 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$					
Temperature range moving	$-25 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$					
Mechanical service life	-					
Weight (kg/piece)	0.100	0.250	0.480	0.110	0.260	0.525
Approvals	cULus (E224249)					

Accessories	Part-No.	Type	PU
Torque setting tool M 12	490091	DM-SET M12	1

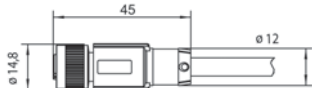
\* S Article from stock  
A Available with a lead time  
R Available on request

# Actuator sensor interface · M12 - cables

Female M12 straight with PUR cable, shielded 360°, open end  
self-locking screwed connection  
c-track compatible, halogen free



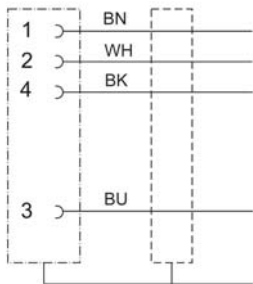
### Dimensions



### PIN assignment



### Circuit diagram



Description	Part-No.	Type	PU
Cable length	2.0 m	456402 S*	KUG4-M12(C) 2m PUR 1
	5.0 m	456405 S*	KUG4-M12(C) 5m PUR 1
	10.0 m	456410 S*	KUG4-M12(C) 10m PUR 1

### Technical data

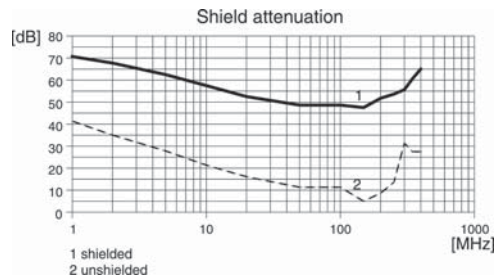
Rated voltage $U_N$	AC/DC 24 V		
Rated voltage max.	250 V		
Rated current	4 A		
Pole number	4		
Cable length (m)	2.0	5.0	10.0
Status indication	-		
Current Consumption	- mA		
Coding	A		
Shielding	360°		

### General

Form male 1	M 12 female straight		
Nominal insulation voltage	250 V		
Test voltage	2500 V		
Degree of pollution	3		
Insulation resistance at 20 °C	$\geq 1000 \text{ M}\Omega \times \text{km}$		
Contact resistance	$< 5 \text{ m}\Omega$		
Flamability according to UL 94	V0		
Protection class	IP65/67		
Housing material	TPU		
Contact material	CuSn, gold-plated		
Thread material	Zinc die-casting, nickel-plated		
Material sealing ring	-		
Number of conductors/cross-section	$4 \times 0.34 \text{ mm}^2 (42 \times 0.1)$		
Jacket material	PUR		
Jacket color	black		
Conductor insulation	PP		
Cable diameter	4.9 mm		
Bending radius	$10 \times D$		
Storage temperature range	$-30 \text{ }^\circ\text{C} \dots +90 \text{ }^\circ\text{C}$		
Temperature range connector	$-25 \text{ }^\circ\text{C} \dots +90 \text{ }^\circ\text{C}$		
Temperature range fixed	$-40 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$		
Temperature range moving	$-25 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$		
Mechanical service life	-		
Weight (kg/piece)	0.125	0.275	0.520
Approvals	cULus (E224249)		

Accessories	Part-No.	Type	PU
Torque setting tool M 12	490091	DM-SET M12	1

### Action chart

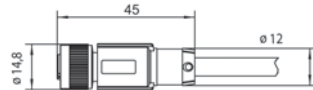


# Actuator sensor interface · M12 - cables

Female M12 straight with PUR cable, shielded 360°, open end self-locking screwed connection  
c-track compatible, halogen free



### Dimensions



### PIN assignment

456502, 456505, 456510

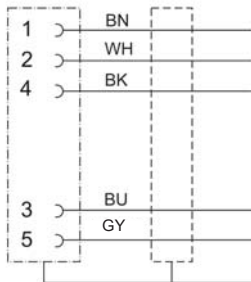


458802, 458805, 458810

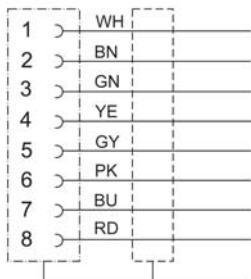


### Circuit diagram

456502, 456505, 456510



458802, 458805, 458810



Description	Part-No.	Type	PU	
<b>5-pole</b>				
Cable length	2.0 m	456502 S*	KUG5-M12(C) 2m PUR	1
	5.0 m	456505 S*	KUG5-M12(C) 5m PUR	1
	10.0 m	456510 S*	KUG5-M12(C) 10m PUR	1
<b>8-pole</b>				
Cable length	2.0 m	458802 S*	KUG8-M12(C) 2M PUR	1
	5.0 m	458805 S*	KUG8-M12(C) 5M PUR	1
	10.0 m	458810 S*	KUG8-M12(C) 10M PUR	1

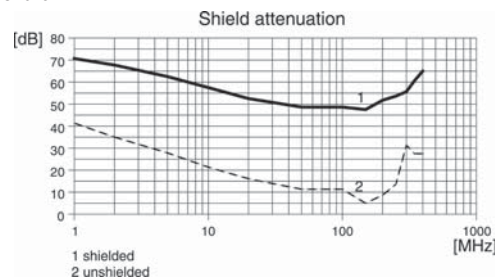
Technical data	5-pole		8-pole	
Rated voltage $U_N$	AC/DC 24 V			
Rated voltage max.	60 V		30 V	
Rated current	4 A		2 A	
Pole number	5		8	
Cable length (m)	2.0	5.0	10.0	2.0
				5.0
				10.0

Status indication	-			
Current Consumption	- mA			
Coding	A			
Shielding	360°			

General	
Form male 1	M 12 female straight
Nominal insulation voltage	63 V
Test voltage	1500 V
Degree of pollution	3
Insulation resistance at 20 °C	≥ 1000 MΩ×km
Contact resistance	< 5 mΩ
Flamability according to UL 94	V0
Protection class	IP65/67
Housing material	TPU
Contact material	CuSn, gold-plated
Thread material	Zinc die-casting, nickel-plated
Material sealing ring	-
Number of conductors/cross-section	5 × 0.34 mm <sup>2</sup> (42 × 0.1)
Jacket material	PUR
Jacket color	black
Conductor insulation	PP
Cable diameter	5.3 mm
Bending radius	10 × D
Storage temperature range	-30 °C ... +90 °C
Temperature range connector	-25 °C ... +90 °C
Temperature range fixed	-40 °C ... +80 °C
Temperature range moving	-25 °C ... +80 °C
Mechanical service life	-
Weight (kg/piece)	0.150 0.300 0.565 0.150 0.305 0.570
Approvals	cULus (E224249)

Accessories	Part-No.	Type	PU
Torque setting tool M 12	490091	DM-SET M12	1

### Action chart



\* S Article from stock  
A Available with a lead time  
R Available on request

# Actuator sensor interface · M12 - cables

Female M12 angled with PUR cable, open end  
self-locking screwed connection  
c-track compatible, halogen free



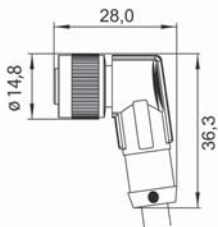
Description	Part-No.	Type	PU	
<b>3-pole</b>				
Cable length	2.0 m	462020 S*	KUW3-M12 2M PUR	1
	5.0 m	462050 S*	KUW3-M12 5M PUR	1
	10.0 m	462100 S*	KUW3-M12 10M PUR	1
<b>4-pole</b>				
Cable length	2.0 m	464020 S*	KUW4-M12 2M PUR	1
	5.0 m	464050 S*	KUW4-M12 5M PUR	1
	10.0 m	464100 S*	KUW4-M12 10M PUR	1

Technical data	3-pole			4-pole		
Rated voltage $U_N$	AC/DC 24 V					
Rated voltage max.	250 V					
Rated current	4 A					
Pole number	3			4		
Cable length (m)	2.0	5.0	10.0	2.0	5.0	10.0
Status indication	-					
Current Consumption	- mA					
Coding	A					
Shielding	-					

General						
Form male 1	M 12 female angle connector					
Nominal insulation voltage	250 V					
Test voltage	2500 V					
Degree of pollution	3					
Insulation resistance at 20 °C	$\geq 1000 \text{ M}\Omega \times \text{km}$					
Contact resistance	$< 5 \text{ m}\Omega$					
Flamability according to UL 94	V0					
Protection class	IP65/67/68					
Housing material	TPU					
Contact material	CuSn, gold-plated					
Thread material	Zinc die-casting, nickel-plated					
Material sealing ring	NBR					
Number of conductors/cross-section	3 × 0.34 mm <sup>2</sup> (42 × 0.1)			4 × 0.34 mm <sup>2</sup> (42 × 0.1)		
Jacket material	PUR					
Jacket color	black					
Conductor insulation	PP					
Cable diameter	3.8 mm			4.1 mm		
Bending radius	10 × D					
Storage temperature range	-30 °C ... +90 °C					
Temperature range connector	-25 °C ... +90 °C					
Temperature range fixed	-40 °C ... +80 °C					
Temperature range moving	-25 °C ... +80 °C					
Mechanical service life	-					
Weight (kg/piece)	0.090	0.190	0.380	0.100	0.200	0.400
Approvals	cULus (E224249)					

Accessories	Part-No.	Type	PU
Torque setting tool M 12	490091	DM-SET M12	1

## Dimensions



## PIN assignment

462020, 462050, 462100

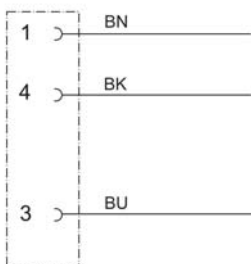


464020, 464050, 464100

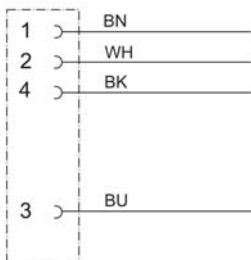


## Circuit diagram

462020, 462050, 462100



464020, 464050, 464100



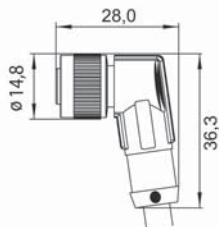


# Actuator sensor interface · M12 - cables

Female M12 angled with PUR cable, open end self-locking screwed connection c-track compatible, halogen free



### Dimensions



### PIN assignment

443020, 443050, 443100

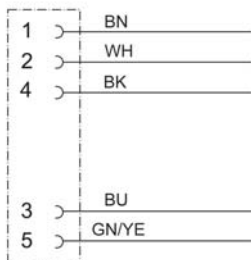


479020, 479050, 479100

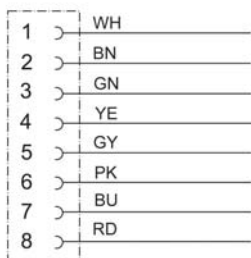


### Circuit diagram

443020, 443050, 443100



479020, 479050, 479100



Description	Part-No.	Type	PU	
<b>5-pole</b>				
Cable length	2.0 m	443020 S*	KUW5-M12 2M PUR	1
	5.0 m	443050 S*	KUW5-M12 5M PUR	1
	10.0 m	443100 S*	KUW5-M12 10M PUR	1
<b>8-pole</b>				
Cable length	2.0 m	479020 S*	KUW8-M12 2M PUR	1
	5.0 m	479050 S*	KUW8-M12 5M PUR	1
	10.0 m	479100 S*	KUW8-M12 10M PUR	1

Technical data	5-pole		8-pole			
Rated voltage $U_N$	AC/DC 24 V					
Rated voltage max.	60 V		30 V			
Rated current	4 A		2 A			
Pole number	5		8			
Cable length (m)	2.0	5.0	10.0	2.0	5.0	10.0
Status indication	-					
Current Consumption	- mA					
Coding	A					
Shielding	-					
<b>General</b>						
Form male 1	M 12 female angle connector					
Nominal insulation voltage	63 V		36 V			
Test voltage	1500 V					
Degree of pollution	3					
Insulation resistance at 20 °C	$\geq 1000 \text{ M}\Omega \times \text{km}$					
Contact resistance	$< 5 \text{ m}\Omega$					
Flamability according to UL 94	V0					
Protection class	IP65/67/68					
Housing material	TPU					
Contact material	CuSn, gold-plated					
Thread material	Zinc die-casting, nickel-plated					
Material sealing ring	NBR					
Number of conductors/cross-section	5 × 0.34 mm <sup>2</sup> (42 × 0.1)		8 × 0.25 mm <sup>2</sup> (32 × 0.1)			
Jacket material	PUR					
Jacket color	black					
Conductor insulation	PP					
Cable diameter	4.5 mm		5.9 mm			
Bending radius	10 × D					
Storage temperature range	-30 °C ... +90 °C					
Temperature range connector	-25 °C ... +90 °C					
Temperature range fixed	-40 °C ... +80 °C					
Temperature range moving	-25 °C ... +80 °C					
Mechanical service life	-					
Weight (kg/piece)	0.100	0.250	0.480	0.110	0.260	0.525
Approvals	cULus (E224249)					

Accessories	Part-No.	Type	PU
Torque setting tool M 12	490091	DM-SET M12	1

\* S Article from stock  
 A Available with a lead time  
 R Available on request

# Actuator sensor interface · M12 - cables

Female M12 angled with PUR cable, shielded 360°, open end self-locking screwed connection  
c-track compatible, halogen free

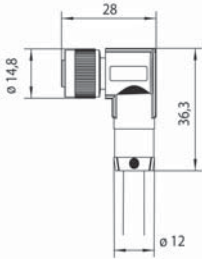


Description	Part-No.	Type	PU	
<b>4-pole</b>				
Cable length	2.0 m	456702 S*	KUW4-M12(C) 2m PUR	1
	5.0 m	456705 S*	KUW4-M12(C) 5m PUR	1
	10.0 m	456710 S*	KUW4-M12(C) 10m PUR	1

Technical data		4-pole	
Rated voltage $U_N$		AC/DC 24 V	
Rated voltage max.		250 V	
Rated current		4 A	
Pole number		4	
Cable length (m)	2.0	5.0	10.0
Status indication		-	
Current Consumption		- mA	
Coding		A	
Shielding		360°	

General	
Form male 1	M 12 female angle connector
Nominal insulation voltage	250 V
Test voltage	2500 V
Degree of pollution	3
Insulation resistance at 20 °C	$\geq 1000 \text{ M}\Omega \times \text{km}$
Contact resistance	$< 5 \text{ m}\Omega$
Flamability according to UL 94	V0
Protection class	IP65/67
Housing material	TPU
Contact material	CuSn, gold-plated
Thread material	Zinc die-casting, nickel-plated
Material sealing ring	NBR
Number of conductors/cross-section	$4 \times 0.34 \text{ mm}^2 (42 \times 0.1)$
Jacket material	PUR
Jacket color	black
Conductor insulation	PP
Cable diameter	4.9 mm
Bending radius	$10 \times D$
Storage temperature range	-30 °C ... +90 °C
Temperature range connector	-25 °C ... +90 °C
Temperature range fixed	-40 °C ... +80 °C
Temperature range moving	-25 °C ... +80 °C
Mechanical service life	-
Weight (kg/piece)	0.125      0.275      0.520
Approvals	cULus (E224249)

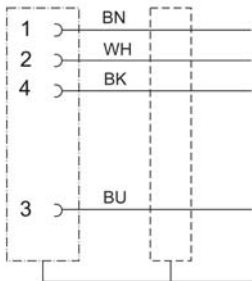
## Dimensions



## PIN assignment

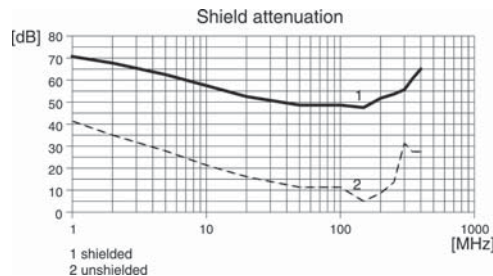


## Circuit diagram



Accessories	Part-No.	Type	PU
Torque setting tool M 12	490091	DM-SET M12	1

## Action chart



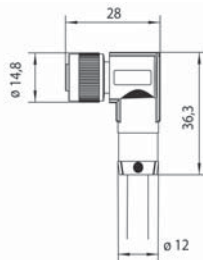
# Actuator sensor interface · M12 - cables

Female M12 angled with PUR cable, shielded 360°, open end self-locking screwed connection  
c-track compatible, halogen free



Description	Part-No.	Type	PU	
<b>5-pole</b>				
Cable length	2.0 m	456802 S*	KUW5-M12(C) 2m PUR	1
	5.0 m	456805 S*	KUW5-M12(C) 5m PUR	1
	10.0 m	456810 S*	KUW5-M12(C) 10m PUR	1
<b>8-pole</b>				
Cable length	2.0 m	458902 S*	KUW8-M12(C) 2M PUR	1
	5.0 m	458905 S*	KUW8-M12(C) 5M PUR	1
	10.0 m	458910 S*	KUW8-M12(C) 10M PUR	1

## Dimensions



## PIN assignment

456802, 456805, 456810

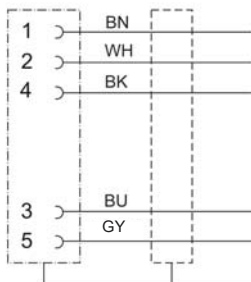


458902, 458905, 458910

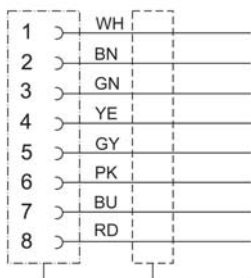


## Circuit diagram

456802, 456805, 456810



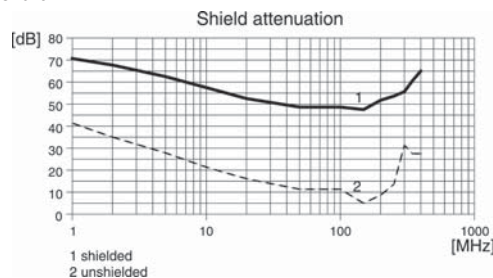
458902, 458905, 458910



Technical data	5-pole		8-pole	
Rated voltage $U_N$	AC/DC 24 V			
Rated voltage max.	60 V		30 V	
Rated current	4 A		2 A	
Pole number	5		8	
Cable length (m)	2.0	5.0	10.0	2.0
Status indication	-			
Current Consumption	- mA			
Coding	A			
Shielding	360°			
<b>General</b>				
Form male 1	M 12 female angle connector			
Nominal insulation voltage	63 V		36 V	
Test voltage	1500 V			
Degree of pollution	3			
Insulation resistance at 20 °C	≥ 1000 MΩ×km			
Contact resistance	< 5 mΩ			
Flamability according to UL 94	V0			
Protection class	IP65/67			
Housing material	TPU			
Contact material	CuSn, gold-plated			
Thread material	Zinc die-casting, nickel-plated			
Material sealing ring	NBR			
Number of conductors/cross-section	5 × 0.34 mm <sup>2</sup> (42 × 0.1)		8 × 0.25 mm <sup>2</sup> (32 × 0.1)	
Jacket material	PUR			
Jacket color	black			
Conductor insulation	PP			
Cable diameter	5.3 mm		5.9 mm	
Bending radius	10 × D			
Storage temperature range	-30 °C ... +90 °C			
Temperature range connector	-25 °C ... +90 °C			
Temperature range fixed	-40 °C ... +80 °C			
Temperature range moving	-25 °C ... +80 °C			
Mechanical service life	-			
Weight (kg/piece)	0.150	0.300	0.565	0.155
Approvals	cULus (E224249)			

Accessories	Part-No.	Type	PU
Torque setting tool M 12	490091	DM-SET M12	1

## Action chart



\* S Article from stock  
A Available with a lead time  
R Available on request

# Actuator sensor interface · M12 - cables

Female M12 angled, with LEDs and PUR cable, open end self-locking screwed connection  
c-track compatible, halogen free



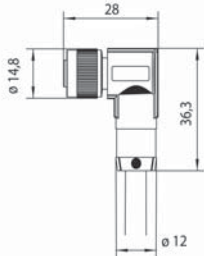
Description	Part-No.	Type	PU	
<b>3-pole</b>				
Cable length	2.0 m	468020 S*	KUW/LED A-M12 2M PUR	1
	5.0 m	468050 S*	KUW/LED A-M12 5M PUR	1
	10.0 m	468100 S*	KUW/LED A-M12 10M PUR	1
<b>4-pole</b>				
Cable length	2.0 m	469020 S*	KUW/LED P-M12 2M PUR	1
	5.0 m	469050 S*	KUW/LED P-M12 5M PUR	1
	10.0 m	469100 S*	KUW/LED P-M12 10M PUR	1

Technical data	3-pole	4-pole			
Rated voltage $U_N$	AC/DC 24 V				
Rated voltage max.	28 V				
Rated current	4 A				
Pole number	3	4			
Cable length (m)	10.0	5.0	2.0	5.0	10.0
Status indication	Operating voltage: LED green I/O: LED yellow				
Current Consumption	10 mA				
Coding	A				
Shielding	-				

General						
Form male 1	M 12 female angle connector					
Nominal insulation voltage	32 V					
Test voltage	- V					
Degree of pollution	3					
Insulation resistance at 20 °C	$\geq 1000 \text{ M}\Omega \times \text{km}$					
Contact resistance	$< 5 \text{ m}\Omega$					
Flamability according to UL 94	V0					
Protection class	IP65/67/68					
Housing material	TPU					
Contact material	CuSn, gold-plated					
Thread material	Zinc die-casting, nickel-plated					
Material sealing ring	NBR					
Number of conductors/cross-section	3 × 0.34 mm <sup>2</sup> (42 × 0.1)		4 × 0.34 mm <sup>2</sup> (42 × 0.1)			
Jacket material	PUR					
Jacket color	black					
Conductor insulation	PP					
Cable diameter	3.8 mm		4.1 mm			
Bending radius	10 × D					
Storage temperature range	-30 °C ... +90 °C					
Temperature range connector	-25 °C ... +90 °C					
Temperature range fixed	-40 °C ... +80 °C					
Temperature range moving	-25 °C ... +80 °C					
Mechanical service life	-					
Weight (kg/piece)	0.370	0.190	0.095	0.100	0.200	0.390
Approvals	cULus (E224249)					

Accessories	Part-No.	Type	PU
Torque setting tool M 12	490091	DM-SET M12	1

## Dimensions



## PIN assignment

468100, 468050, 468020

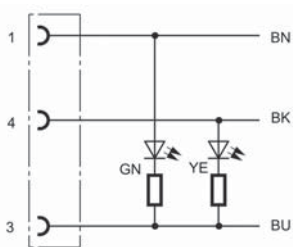


469020, 469050, 469100

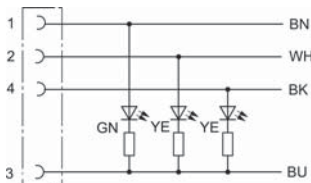


## Circuit diagram

468100, 468050, 468020



469020, 469050, 469100

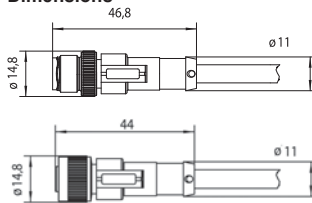


# Actuator sensor interface · M12 / M12 – cables

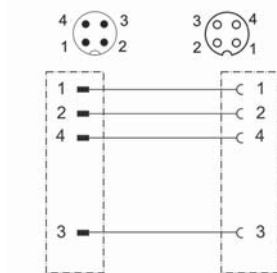
Male M12 straight to female M12, straight with PUR cable  
self-locking screwed connection  
c-track compatible, halogen free



### Dimensions



### PIN assignment



Description	Part-No.	Type	PU
<b>4-pole</b>			
Cable length	0.3 m	429003 S*	STG4-M12/KUG4-M12 0,3M PUR 1
	0.6 m	429006 S*	STG4-M12/KUG4-M12 0,6mPUR 1
	1.0 m	429010 S*	STG4-M12/KUG4-M12 1,0M PUR 1
	1.5 m	429015 S*	STG4-M12/KUG4-M12 1,5M PUR 1
	2.0 m	429020 S*	STG4-M12/KUG4-M12 2,0M PUR 1
	5.0 m	429050 S*	STG4-M12/KUG4-M12 5,0M PUR 1

Technical data		4-pole					
Rated voltage $U_N$		AC/DC 24 V					
Rated voltage max.		250 V					
Rated current		4 A					
Pole number		4					
Cable length (m)	0.3 0.6 1.0 1.5 2.0 5.0						
Status indication		-					
Current Consumption		- mA					
Coding		A					
Shielding		-					
<b>General</b>							
Form male 1		M 12 male straight					
Form male 2		M 12 female straight					
Nominal insulation voltage		320 V					
Test voltage		2500 V					
Degree of pollution		3					
Insulation resistance at 20 °C		$\geq 1000 \text{ M}\Omega \times \text{km}$					
Contact resistance		$< 5 \text{ m}\Omega$					
Flamability according to UL 94		V0					
Protection class		IP65/67/68					
Housing material		TPU					
Contact material		CuSn, gold-plated					
Thread material		Zinc die-casting, nickel-plated					
Material sealing ring		NBR					
Number of conductors/cross-section		$4 \times 0.34 \text{ mm}^2 (42 \times 0.1)$					
Jacket material		PUR					
Jacket color		black					
Conductor insulation		PP					
Cable diameter		4.1 mm					
Bending radius		$10 \times D$					
Storage temperature range		$-30 \text{ }^\circ\text{C} \dots +90 \text{ }^\circ\text{C}$					
Temperature range connector		$-25 \text{ }^\circ\text{C} \dots +90 \text{ }^\circ\text{C}$					
Temperature range fixed		$-40 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$					
Temperature range moving		$-25 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$					
Mechanical service life		-					
Weight (kg/piece)	0.05 0.07 0.09 0.11 0.14 0.26						
Approvals		cULus (E224249)					

Accessories	Part-No.	Type	PU
Torque setting tool M 12	490091	DM-SET M12	1

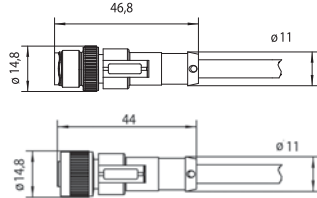


# Actuator sensor interface · M12 / M12 – cables

Male M12 straight to female M12 straight with PUR cable  
self-locking screwed connection  
c-track compatible, halogen free

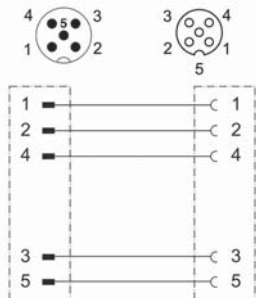


### Dimensions

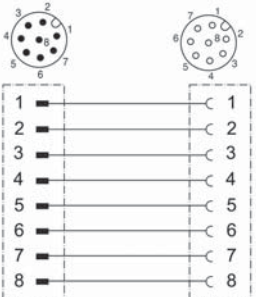


### PIN assignment

442003, 442006, 442010, 442015,  
442020, 442050



420003, 420006, 420010, 420015,  
420020, 420050



Description	Part-No.	Type	PU
<b>5-pole</b>			
Cable length	0.3 m	442003 S*	STG5-M12/KUG5-M12 0,3M PUR 1
	0.6 m	442006 S*	STG5-M12/KUG5-M12 0,6M PUR 1
	1.0 m	442010 S*	STG5-M12/KUG5-M12 1,0M PUR 1
	1.5 m	442015 S*	STG5-M12/KUG5-M12 1,5M PUR 1
	2.0 m	442020 S*	STG5-M12/KUG5-M12 2,0M PUR 1
	5.0 m	442050 S*	STG5-M12/KUG5-M12 5,0M PUR 1
<b>8-pole</b>			
Cable length	0.3 m	420003 S*	STG8-M12/KUG8-M12 0,3M PUR 1
	0.6 m	420006 S*	STG8-M12/KUG8-M12 0,6M PUR 1
	1.0 m	420010 S*	STG8-M12/KUG8-M12 1,0M PUR 1
	1.5 m	420015 S*	STG8-M12/KUG8-M12 1,5M PUR 1
	2.0 m	420020 S*	STG8-M12/KUG8-M12 2,0M PUR 1
	5.0 m	420050 S*	STG8-M12/KUG8-M12 5,0M PUR 1

### Technical data

	5-pole					8-pole						
Rated voltage U <sub>N</sub>	AC/DC 24 V											
Rated voltage max.	30 V											
Rated current	4 A					2 A						
Pole number	5					8						
Cable length (m)	0.3	0.6	1.0	1.5	2.0	5.0	0.3	0.6	1.0	1.5	2.0	5.0
Status indication	-											
Current Consumption	- mA											
Coding	A											
Shielding	-											
<b>General</b>												
Form male 1	M 12 male straight											
Form male 2	M 12 female straight											
Nominal insulation voltage	63 V					36 V						
Test voltage	1500 V											
Degree of pollution	3											
Insulation resistance at 20 °C	≥ 1000 MΩ×km											
Contact resistance	< 5 mΩ											
Flamability according to UL 94	V0											
Protection class	IP65/67/68											
Housing material	TPU											
Contact material	CuSn, gold-plated											
Thread material	Zinc die-casting, nickel-plated											
Material sealing ring	NBR											
Number of conductors/cross-section	5 × 0.34 mm <sup>2</sup> (42 × 0.1)					8 × 0.25 mm <sup>2</sup> (32 × 0.1)						
Jacket material	PUR											
Jacket color	black											
Conductor insulation	PP											
Cable diameter	4.5 mm					5.9 mm						
Bending radius	10 × D											
Storage temperature range	-30 °C ... +90 °C											
Temperature range connector	-25 °C ... +90 °C											
Temperature range fixed	-40 °C ... +80 °C											
Temperature range moving	-25 °C ... +80 °C											
Mechanical service life	-											
Weight (kg/piece)	0.05	0.06	0.09	0.11	0.14	0.30	0.05	0.06	0.09	0.11	0.14	0.30
Approvals	cULus (E224249)											

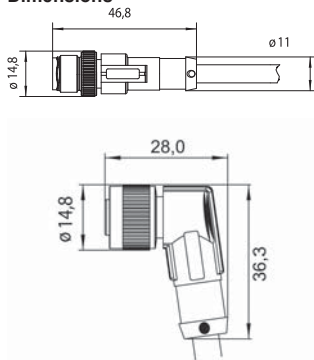
Accessories	Part-No.	Type	PU
Torque setting tool M 12	490091	DM-SET M12	1

# Actuator sensor interface · M12 / M12 – cables

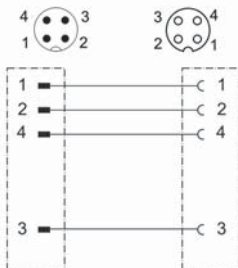
Male M12 straight to female M12 angled with PUR cable  
self-locking screwed connection  
c-track compatible, halogen free



### Dimensions



### PIN assignment



Description	Part-No.	Type	PU
<b>4-pole</b>			
Cable length	0.3 m	418003 S*	STG4-M12/KUW4-M12 0,3M PUR 1
	0.6 m	418006 S*	STG4-M12/KUW4-M12 0,6M PUR 1
	1.0 m	418010 S*	STG4-M12/KUW4-M12 1,0M PUR 1
	1.5 m	418015 S*	STG4-M12/KUW4-M12 1,5M PUR 1
	2.0 m	418020 S*	STG4-M12/KUW4-M12 2,0M PUR 1
	5.0 m	418050 S*	STG4-M12/KUW4-M12 5,0M PUR 1

Technical data		4-pole					
Rated voltage $U_N$		AC/DC 24 V					
Rated voltage max.		250 V					
Rated current		4 A					
Pole number		4					
Cable length (m)	0.3	0.6	1.0	1.5	2.0	5.0	
Status indication		-					
Current Consumption		- mA					
Coding		A					
Shielding		-					

General						
Form male 1	M 12 male straight					
Form male 2	M 12 Female angle connector					
Nominal insulation voltage	320 V					
Test voltage	2500 V					
Degree of pollution	3					
Insulation resistance at 20 °C	$\geq - M\Omega \times km$					
Contact resistance	$< 5 m\Omega$					
Flamability according to UL 94	V0					
Protection class	IP65/67/68					
Housing material	TPU					
Contact material	CuSn, gold-plated					
Thread material	Zinc die-casting, nickel-plated					
Material sealing ring	NBR					
Number of conductors/cross-section	$4 \times 0.34 mm^2 (42 \times 0.1)$					
Jacket material	PUR					
Jacket color	black					
Conductor insulation	PP					
Cable diameter	4.1 mm					
Bending radius	$10 \times D$					
Storage temperature range	-30 °C ... +90 °C					
Temperature range connector	-25 °C ... +90 °C					
Temperature range fixed	-40 °C ... +80 °C					
Temperature range moving	-25 °C ... +80 °C					
Mechanical service life	-					
Weight (kg/piece)	0.05	0.06	0.08	0.10	0.13	0.24
Approvals	cULus (E224249)					

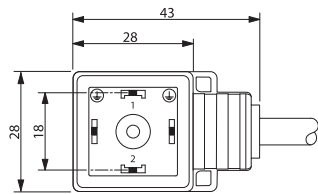
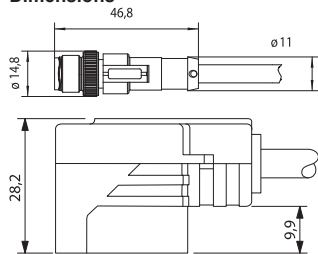
Accessories	Part-No.	Type	PU
Torque setting tool M 12	490091	DM-SET M12	1

# Actuator sensor interface - M12 / valve suppressor

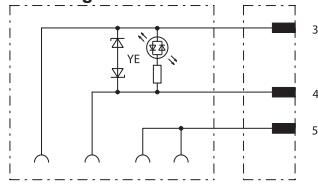
Male M12 straight to valve connector form A  
with protection device and LED status indication  
c-track compatible, halogen free



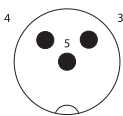
## Dimensions



## PIN assignment



## Pin layout



Description	Part-No.	Type	PU
<b>Construction A + Z-diode</b>			
Cable length	0.3 m	435003 S*	STG3-M12/LZ-A 0,3M PUR 1
	0.6 m	435006 S*	STG3-M12/LZ-A 0,6M PUR 1
	1.0 m	435010 S*	STG3-M12/LZ-A 1,0M PUR 1
	1.5 m	435015 S*	STG3-M12/LZ-A 1,5M PUR 1
	2.0 m	435020 S*	STG3-M12/LZ-A 2,0M PUR 1
	5.0 m	435050 S*	STG3-M12/LZ-A 5,0M PUR 1

Technical data		Construction A + Z-diode				
Rated voltage $U_N$		AC/DC 24 V				
Rated voltage range		10 V – 28 V				
Rated current		4 A				
Rated frequency		50 – 60 Hz				
Protection device		Z-diode + LED				
Pole number		3				
Cable length (m)	0.3	0.6	1.0	1.5	2.0	5.0
Status indication		LED yellow				
Current Consumption		10 mA				
Cut-off peak		≤ 52 V				
Holding Capacity		100 VA				
<b>General</b>						
Form male 1		M 12 male straight				
Form male 2		Valve connector Baufl. A				
Nominal insulation voltage		32 V				
Test voltage		– V				
Degree of pollution		3				
Insulation resistance at 20 °C		≥ 100 MΩ×km				
Contact resistance		< 5 mΩ				
Flamability according to UL 94		V0				
Protection class		IP65/67				
Housing material		TPU				
Contact material		CuSn, gold-plated				
Thread material		Zinc die-casting, nickel-plated				
Material sealing ring		–				
Number of conductors/cross-section		3 × 0.5 mm <sup>2</sup>				
Jacket material		PUR				
Jacket color		black				
Conductor insulation		PP				
Cable diameter		4.5 mm				
Bending radius		10 × D				
Storage temperature range		-30 °C ... +90 °C				
Temperature range connector		-20 °C ... +85 °C				
Temperature range fixed		-40 °C ... +80 °C				
Temperature range moving		-20 °C ... +80 °C				
Mechanical service life		–				
Weight (kg/piece)	0.045	0.053	0.065	0.079	0.096	0.146
Standards		EN 175301-803				
Approvals		–				

Accessories	Part-No.	Type	PU
Torque setting tool M 12	490091	DM-SET M12	1

## Comments

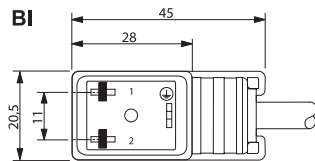
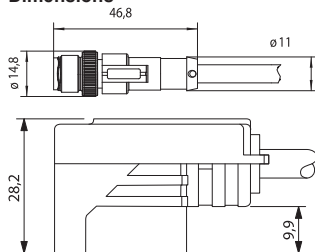
Silicone free, Free from paint wetting impairment substances, resistant to microbes and hydrolysis. Very good resistance to acids, alkalines and solvents. The material resistance is based on the application for use with aggressive media.

# Actuator sensor interface - M12 / valve suppressor

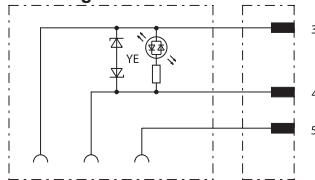
Male M12 straight to valve suppressor form B / form BI  
with protection device and LED status indication  
c-track compatible, halogen free



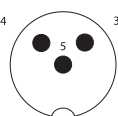
## Dimensions



## PIN assignment



## Pin layout



Description	Part-No.	Type	PU
<b>Construction BI + Z diode</b>			
Cable length	0.3 m	439003 S*	STG3-M12/LZ-BI 0° 0,3M PUR 1
	0.6 m	439006 S*	STG3-M12/LZ-BI 0° 0,6M PUR 1
	1.0 m	439010 S*	STG3-M12/LZ-BI 0° 1,0M PUR 1
	1.5 m	439015 S*	STG3-M12/LZ-BI 0° 1,5M PUR 1
	2.0 m	439020 S*	STG3-M12/LZ-BI 0° 2,0M PUR 1
	5.0 m	439050 S*	STG3-M12/LZ-BI 0° 5,0M PUR 1

Technical data		Construction BI + Z diode					
Rated voltage $U_N$		AC/DC 24 V					
Rated voltage range		10 V – 28 V					
Rated current		4 A					
Rated frequency		50 – 60 Hz					
Protection device		Z-diode + LED					
Pole number		3					
Cable length (m)	0.3 0.6 1.0 1.5 2.0 5.0						
Status indication		I/O: LED yellow					
Current Consumption		4 mA					
Cut-off peak		≤ 52 V					
Holding Capacity		100 VA					
<b>General</b>							
Form male 1		M 12 male straight					
Form male 2		Valve connector Bauform B Ind.					
Nominal insulation voltage		32 V					
Test voltage		– V					
Degree of pollution		3					
Insulation resistance at 20 °C		≥ 100 MΩ×km					
Contact resistance		< 5 mΩ					
Flamability according to UL 94		V0					
Protection class		IP65/67					
Housing material		TPU					
Contact material		CuSn, gold-plated					
Thread material		Zinc die-casting, nickel-plated					
Material sealing ring		–					
Number of conductors/cross-section		3 × 0.5 mm <sup>2</sup>					
Jacket material		PUR					
Jacket color		black					
Conductor insulation		PP					
Cable diameter		4.5 mm					
Bending radius		10 × D					
Storage temperature range		-30 °C ... +90 °C					
Temperature range connector		-25 °C ... +90 °C					
Temperature range fixed		-40 °C ... +80 °C					
Temperature range moving		-20 °C ... +80 °C					
Mechanical service life		–					
Weight (kg/piece)	0.06 0.08 0.10 0.12 0.14 0.28						
Standards		–					
Approvals		–					

Accessories	Part-No.	Type	PU
Torque setting tool M 12	490091	DM-SET M12	1

## Comments

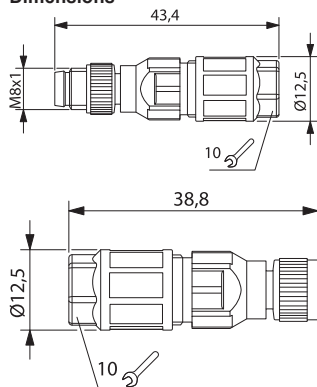
Silicone free, Free from paint wetting impairment substances, resistant to microbes and hydrolysis. Very good resistance to acids, alkalines and solvents. The material resistance is based on the application for use with aggressive media.

# Actuator sensor interface · M8 - connector

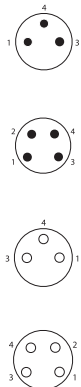
Field wireable connector, M8 straight  
Male / female  
IDC quick-connect technology



## Dimensions



## Pin layout

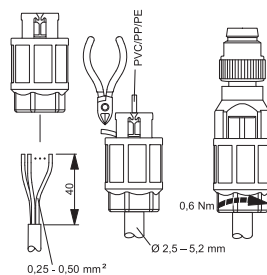


Description	Part-No.	Type	PU	
<b>Male</b>				
Pole number	3	490123 S*	STGK-M8 3 POL. SNK	1
	4	490124 S*	STGK-M8 4POL. SNK	1
<b>Female</b>				
Pole number	3	490125 S*	KUGK-M8 3 POL. SNK	1
	4	490126 S*	KUGK-M8 4POL. SNK	1

Technical data	Male		Female	
Rated voltage $U_N$	AC/DC 24 V			
Rated voltage max.	60 V	30 V	60 V	30 V
Rated current	- A			
Pole number	3	4	3	4
Status indication	-			
Current Consumption	- mA			
Coding	-			
Shielding	-			
<b>General</b>				
Connection device	IDC 0.25 mm <sup>2</sup> - 0.5 mm <sup>2</sup>			
Design	M 8×1 male straight		M 8×1 female straight	
Contact material	CuSn, gold-plated			
Material sealing ring	-		NBR	
Test voltage	1500	800	1500	800
Degree of pollution	3			
Insulation resistance	> 100 MΩ			
Contact resistance	< 5 mΩ			
Flamability according to UL 94	V0			
Protection class	IP67			
Housing material	PA			
Thread material	CuZn nickel-plate			
Cable diameter	2.5 - 5 mm			
Storage temperature range	-40 °C ... +90 °C			
Temperature range connector	-40 °C ... +80 °C			
Mechanical service life	10 × same cross-section			
Weight (kg/piece)	0.008		0.007	
Approvals	cULus (E256031)			
Standards	-			

Accessories	Part-No.	Type	Jacket material
matching cables	117240	SU TR AS PUR 3×0,25 UL	PUR
	117241	SU TR AS PUR 4×0,25 UL	PUR
	117243	SU TR AS PUR 3×0,34 UL	PUR
	117244	SU TR AS PUR 4×0,34 UL	PUR

## Mounting diagram



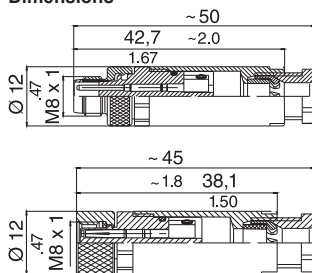


# Actuator sensor interface · M8 - connector

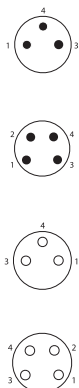
## Field wireable connector, M8 straight Male / female Screw terminal



### Dimensions



### Pin layout

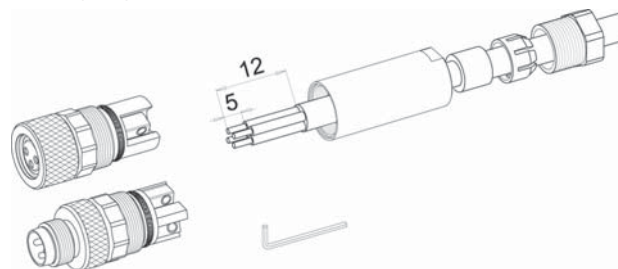


Description	Part-No.	Type	PU
<b>Male</b>			
Pole number	3	490035 S*	STGK-M8 3 POL. SK 1
	4	490057 S*	STGK-M8 4 POL. SK 1
<b>Female</b>			
Pole number	3	490037 S*	KUGK-M8 3 POL. SK 1
	4	490059 S*	KUGK-M8 4 POL. SK 1

Technical data	Male	Female
Rated voltage $U_N$	AC/DC 24 V	
Rated voltage max.	60 V	
Rated current	4 A	
Pole number	3	4
Status indication	-	
Current Consumption	- mA	
Coding	-	
Shielding	-	
<b>General</b>		
Connection device	Screw terminal 0.14 mm <sup>2</sup> – 0.5 mm <sup>2</sup>	
Design	M 8×1 male straight	
Contact material	CuZn, gold-plated	
Material sealing ring	-	NBR
Test voltage	1500	
Degree of pollution	3	
Insulation resistance	> 10000 MΩ	
Contact resistance	< 3 mΩ	
Flamability according to UL 94	V0	
Protection class	IP67	
Housing material	PBT	
Thread material	CuZn nickel-plate	
Color of the housing	black	
Cable diameter	3.5 – 5 mm	
Storage temperature range	-40 °C ... +90 °C	
Temperature range connector	-25 °C ... +85 °C	
Mechanical service life	>100 insertion cycles	
Weight (kg/piece)	0.040	
Approvals	cULus (E224249)	

Accessories	Part-No.	Type	Jacket material
matching cables	117240	SU TR AS PUR 3×0,25 UL	PUR
	117241	SU TR AS PUR 4×0,25 UL	PUR
	117243	SU TR AS PUR 3×0,34 UL	PUR
	117244	SU TR AS PUR 4×0,34 UL	PUR

### Mounting diagram



\* S Article from stock  
A Available with a lead time  
R Available on request

# Actuator sensor interface · M12 - connector

Field wireable connector, M12 straight

Male / female - A coded

Fast connection method, IDC method of termination



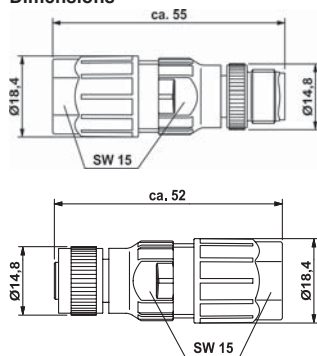
Description	Part-No.	Type	PU	
<b>Male</b>				
Pole number	4	490028 S*	STGK-M12 4POL.SNK	1
<b>Female</b>				
Pole number	4	490029 S*	KUGK-M12 4POL.SNK	1

Technical data	Male	Female
Rated voltage $U_N$		AC/DC 24 V
Rated voltage max.		250 V
Rated current		4 A
Pole number		4
Status indication		-
Current Consumption		- mA
Coding		A
Shielding		-

General		
Design	M 12×1	
Nominal insulation voltage	300 V	
Test voltage	2500 V	
Degree of pollution	3	
Insulation resistance	> 1000 MΩ	
Contact resistance	< 5 mΩ	
Flamability according to UL 94	V0	
Protection class	IP67	
Housing material	PBT	
Color of the housing	black	
Contact material	CuZn, gold-plated	
Thread material	CuZn nickel-plate	
Material sealing ring	-	NBR
Cable diameter		4 – 7.5 mm
Storage temperature range		-40 °C ... +90 °C
Temperature range connector		-25 °C ... +80 °C
Connection device		Compliant terminal
Cross-section, metric		0.75 mm <sup>2</sup>
Mechanical service life		>100 insertion cycles
Weight (kg/piece)		0.030
Approvals		cULus (E224249)

Accessories	Part-No.	Type	Jacket material
matching cables	117243	SU TR AS PUR 3×0,34 UL	PUR
	117244	SU TR AS PUR 4×0,34 UL	PUR

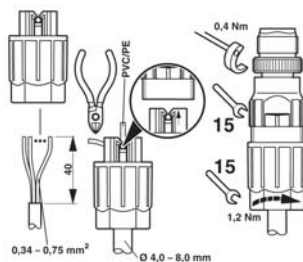
## Dimensions



## Pin layout



## Mounting diagram

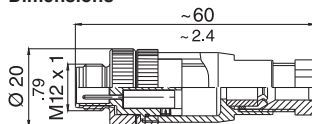


# Actuator sensor interface · M12 - connector

Field wireable connector, M12 straight  
Male - A coded  
Screw terminal



## Dimensions



## Pin layout



Description	Part-No.	Type	PU
<b>Male</b>			
Pole number	4	490017 S*	STGK-M12 4POL.SK PG7 1
	5	490018 S*	STGK M12 5 POL. SK PG7 1
	8	490070 S*	STGK M12 8 POL. SK PG9 1

## Technical data

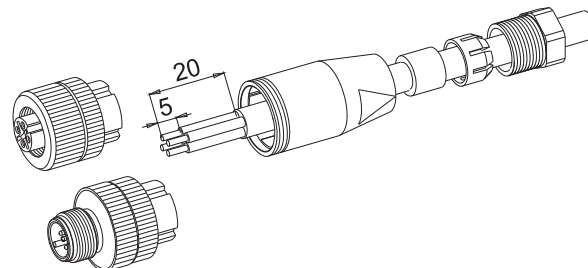
Technical data		Male	
Rated voltage $U_N$		AC/DC 24 V	
Rated voltage max.	250 V	125 V	60 V
Rated current	4 A		2 A
Pole number	4	5	8
Status indication		-	
Current Consumption		- mA	
Coding		A	
Shielding		-	

## General

Design	M 12×1		
Nominal insulation voltage	2500 V	1500 V	800 V
Test voltage	2950 V	1750 V	910 V
Degree of pollution	3		
Insulation resistance	> 10000 MΩ		
Contact resistance	< 3 mΩ		
Flamability according to UL 94	V0		
Protection class	IP67		
Housing material	PBT		
Color of the housing	black		
Contact material	CuZn, gold-plated		
Thread material	CuZn nickel-plate		
Material sealing ring	-		
Cable diameter	4 – 6 mm	6 – 8 mm	
Storage temperature range	-40 °C ... +90 °C		
Temperature range connector	-25 °C ... +85 °C		
Connection device	Screw terminal max. 0.75 mm <sup>2</sup>	Screw terminal max. 0.5 mm <sup>2</sup>	
Cross-section, metric	0.75 mm <sup>2</sup>	0.5 mm <sup>2</sup>	
Mechanical service life	>100 insertion cycles		
Weight (kg/piece)	0.040		
Approvals	cURus (E224249)		

Accessories	Part-No.	Type	Jacket material
matching cables	117243	SU TR AS PUR 3×0,34 UL PUR	PUR
	117244	SU TR AS PUR 4×0,34 UL PUR	PUR
	117245	SU TR AS PUR 5×0,34 UL PUR	PUR
	117246	SU TR AS PUR 5×0,34 UL PUR	PUR
	117242	SU TR AS PUR 8×0,25 UL PUR	PUR

## Mounting diagram

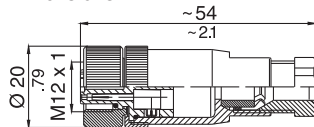


# Actuator sensor interface · M12 - connector

## Field wireable connector, M12 straight Female - A coded Screw terminal



### Dimensions



### Pin layout



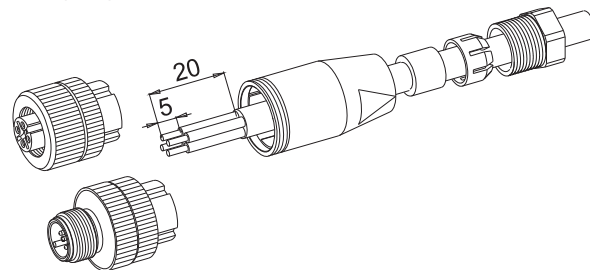
Description	Part-No.	Type	PU
<b>Female</b>			
Pole number	4	490011 S*	KUGK-M12 4POL. SK PG7 1
	5	490012 S*	KUGK-M12 5pol. SK PG7 1
	8	490071 S*	KUGK-M12 8POL. SK PG9 1

Technical data		Female	
Rated voltage $U_N$		AC/DC 24 V	
Rated voltage max.	250 V	125 V	60 V
Rated current	4 A	5	2 A
Pole number	4	5	8
Status indication		-	
Current Consumption		- mA	
Coding		A	
Shielding		-	

General			
Design		M 12×1	
Nominal insulation voltage	2500 V	1500 V	800 V
Test voltage	2950 V	1750 V	910 V
Degree of pollution		3	
Insulation resistance		> 10000 MΩ	
Contact resistance		< 3 mΩ	
Flamability according to UL 94		V0	
Protection class		IP67	
Housing material		PBT	
Color of the housing		black	
Contact material		CuZn, gold-plated	
Thread material		CuZn nickel-plate	
Material sealing ring		-	
Cable diameter	4 – 6 mm	6 – 8 mm	
Storage temperature range	-40 °C ... +90 °C		
Temperature range connector	-25 °C ... +85 °C		
Connection device	Screw terminal max. 0.75 mm <sup>2</sup>	Screw terminal max. 0.5 mm <sup>2</sup>	
Cross-section, metric	0.75 mm <sup>2</sup>	0.5 mm <sup>2</sup>	
Mechanical service life	>100 insertion cycles		
Weight (kg/piece)	0.040		
Approvals	cURus (E224249)		

Accessories	Part-No.	Type	Jacket material
matching cables	117243	SU TR AS PUR 3×0,34 UL	PUR
	117244	SU TR AS PUR 4×0,34 UL	PUR
	117245	SU TR AS PUR 5×0,34 UL	PUR
	117246	SU TR AS PUR 5×0,34 UL	PUR
	117242	SU TR AS PUR 8×0,25 UL	PUR

### Mounting diagram

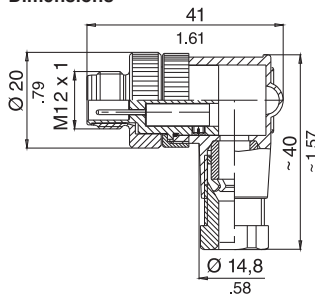


# Actuator sensor interface · M12 - connector

## Field wireable connector, M12 angled Male - A coded Screw terminal



### Dimensions



### Pin layout



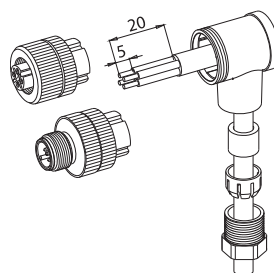
Description	Part-No.	Type	PU
<b>Male</b>			
Pole number	4	490020 S*	STWK-M12 4POL. SK PG7 1
	5	490021 S*	STWK-M12 5POL. SK PG7 1

Technical data		Male	
Rated voltage $U_N$		AC/DC 24 V	
Rated voltage max.	250 V		60 V
Rated current		4 A	
Pole number	4		5
Status indication		-	
Current Consumption		- mA	
Coding		A	
Shielding		-	

General		M 12x1	
Design			
Nominal insulation voltage	2500 V		1500 V
Test voltage	2950 V		1750 V
Degree of pollution		3	
Insulation resistance		> 10000 MΩ	
Contact resistance		< 3 mΩ	
Flamability according to UL 94		V0	
Protection class		IP67	
Housing material		PBT	
Color of the housing		black	
Contact material		CuZn, gold-plated	
Thread material		CuZn nickel-plate	
Material sealing ring		-	
Cable diameter		4 - 6 mm	
Storage temperature range		-40 °C ... +90 °C	
Temperature range connector		-25 °C ... +85 °C	
Connection device		Screw terminal max. 0.75 mm <sup>2</sup>	
Cross-section, metric		0.75 mm <sup>2</sup>	
Mechanical service life		>100 insertion cycles	
Weight (kg/piece)		0.040	
Approvals		cURus (E224249)	

Accessories	Part-No.	Type	Jacket material
matching cables	117243	SU TR AS PUR 3x0,34 UL	PUR
	117244	SU TR AS PUR 4x0,34 UL	PUR
	117245	SU TR AS PUR 5x0,34 UL	PUR
	117246	SU TR AS PUR 5x0,34 UL	PUR

### Mounting diagram



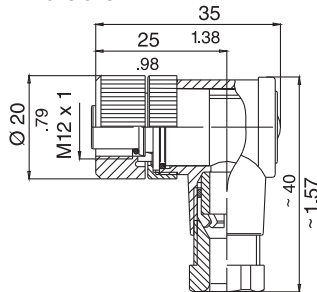


# Actuator sensor interface · M12 - connector

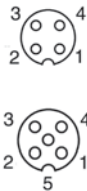
## Field wireable connector, M12 angled Female - A coded Screw terminal



### Dimensions



### Pin layout



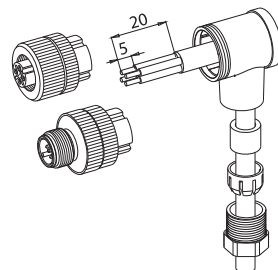
Description	Part-No.	Type	PU
<b>Female</b>			
Pole number	4	490014 S*	KUWK-M12 4POL.SK PG7 1
	5	490015 S*	KUWK-M12 5POL.SK PG7 1

Technical data		Female	
Rated voltage $U_N$		AC/DC 24 V	
Rated voltage max.	250 V		60 V
Rated current		4 A	
Pole number	4		5
Status indication		-	
Current Consumption		- mA	
Coding		A	
Shielding		-	

General			
Design		M 12×1	
Nominal insulation voltage	2500 V		1500 V
Test voltage	2950 V		1750 V
Degree of pollution		3	
Insulation resistance		> 10000 MΩ	
Contact resistance		< 3 mΩ	
Flamability according to UL 94		V0	
Protection class		IP67	
Housing material		PBT	
Color of the housing		black	
Contact material		CuZn, gold-plated	
Thread material		CuZn nickel-plate	
Material sealing ring		NBR	
Cable diameter		4 – 6 mm	
Storage temperature range		-40 °C ... +90 °C	
Temperature range connector		-25 °C ... +85 °C	
Connection device		Screw terminal max. 0.75 mm <sup>2</sup>	
Cross-section, metric		0.75 mm <sup>2</sup>	
Mechanical service life		>100 insertion cycles	
Weight (kg/piece)		0.040	
Approvals		cURus (E224249)	

Accessories	Part-No.	Type	Jacket material
matching cables	117243	SU TR AS PUR 3×0,34 UL	PUR
	117244	SU TR AS PUR 4×0,34 UL	PUR
	117245	SU TR AS PUR 5×0,34 UL	PUR
	117246	SU TR AS PUR 5×0,34 UL	PUR

### Mounting diagram

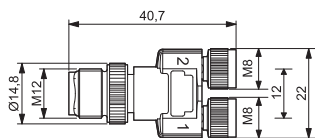
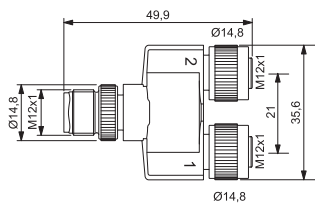


# Actuator sensor interface - M12, M12/M8 -connector

## T piece

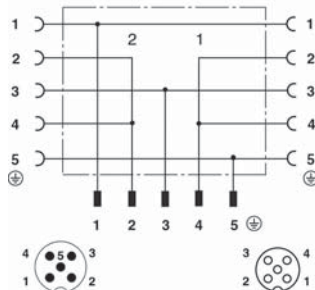
Male M12 to 2× female M12, 5pin PIN 2+4 bridged + PE

Male M12 4pin to 2× female M8, 3pin

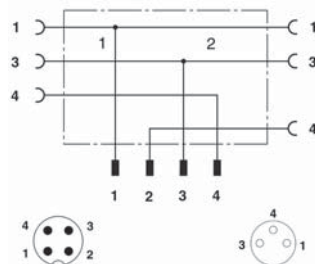


### PIN assignment

#### 490026



#### 490038



Description	Part-No.	Type	PU	
Pole number	5	490026 S*	AST M 12/2×M 12	1
	3	490038 S*	T-VERTEILER M12 AUF 2× M8	1

Technical data	490026	490038
Rated voltage $U_N$		AC/DC 24 V
Rated voltage max.	60 V	30 V
Rated current	4 A	3 A
Pole number	5	3
Status indication		-
Current Consumption		- mA
Coding		A
Shielding		-

General	M 12×1/M 12×1	M 12×1/M 8×1
Design	M 12×1/M 12×1	M 12×1/M 8×1
Nominal insulation voltage		60 V
Test voltage		1500 V
Degree of pollution		3
Insulation resistance		> 10000 MΩ
Contact resistance		< 5 mΩ
Flamability according to UL 94		HB
Protection class		-
Housing material		TPU
Color of the housing		black
Contact material		CuZn, gold-plated
Thread material		Zinc die-casting, nickel-plated
Material sealing ring		NBR
Storage temperature range		-25 °C ... +90 °C
Temperature range connector		-25 °C ... +90 °C
Connection device		-
Mechanical service life		>100 insertion cycles
Weight (kg/piece)	0.029	0.014
Approvals		cULus (E224249)

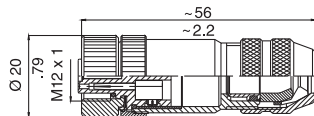
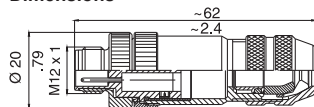
Accessories	Part-No.	Type	PU
Torque setting tool M 8	490090	DM-SET M8	1
Torque setting tool M 12	490091	DM-SET M12	1

# Actuator sensor interface · M12 - connector

Field wireable connector, M12 straight shielded  
Male / female - A coded (CAN)  
Screw terminal



## Dimensions



## Pin layout



Description	Part-No.	Type	PU
<b>Male</b>			
Pole number	4	490050 S*	STGK4-M12(C) 4-POL. A-cod. SK 1
	5	490051 S*	STGK5-M12(C) 5-POL. A-cod. SK 1
	8	490054 S*	STGK8-M12(C) 8-POL. A-cod. SK 1
<b>Female</b>			
Pole number	4	490052 S*	KUGK4-M12(C) 4-POL. A-cod. SK 1
	5	490053 S*	KUGK5-M12(C) 5-POL. A-cod. SK 1
	8	490077 S*	KUGK8-M12(C) 8-POL. A-cod. SK 1

Technical data	Male			Female		
Rated voltage $U_N$	AC/DC 24 V					
Rated voltage max.	250 V	60 V	30 V	250 V	60 V	30 V
Rated current	4 A		2 A	4 A		2 A
Pole number	4	5	8	4	5	8
Status indication	-					
Current Consumption	- mA					
Coding	A					
Shielding	360°					

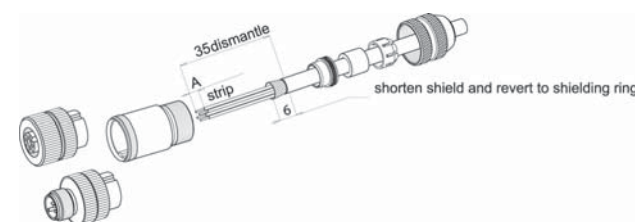
General						
Design	M 12×1					
Nominal insulation voltage	- V					
Test voltage	2500 V	1500 V	800 V	2500 V	1500 V	800 V
Degree of pollution	3					
Insulation resistance	> 10000 MΩ					
Contact resistance	< 3 mΩ					
Flamability according to UL 94	HB					
Protection class	IP67					
Housing material	Zinc die-casting					
Color of the housing	-					
Contact material	CuZn, gold-plated					
Thread material	CuZn nickel-plate					
Material sealing ring	NBR					
Cable diameter	6 – 8 mm					
Storage temperature range	-40 °C ... +90 °C					
Temperature range connector	-25 °C ... +85 °C					

Connection device	Screw terminal max. 0.75 mm <sup>2</sup>			Screw terminal max. 0.5 mm <sup>2</sup>
Cross-section, metric	0.75 mm <sup>2</sup>	0.5 mm <sup>2</sup>	0.75 mm <sup>2</sup>	0.5 mm <sup>2</sup>
Mechanical service life	>100 insertion cycles			
Weight (kg/piece)	0.045			
Approvals	cURus (E224249)			

Accessories	Part-No.	Type	Jacket material
matching cables	117253	SU TR AS(C)PUR (3×0,34) UL	PUR
	117254	SU TR AS(C)PUR (4×0,34) UL	PUR
	117255	SU TR AS(C)PUR (5×0,34) UL	PUR
	117252	SU TR AS(C)PUR (8×0,25) UL	PUR

**Comments**  
5-pole variant for Device Net and CAN, see bus cables

## Mounting diagram

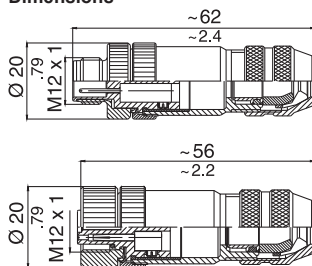


# Actuator sensor interface · M12 - connector

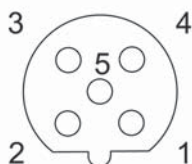
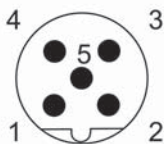
Field wireable connector, M12 straight shielded  
Male / female - B coded (Profibus, Interbus)  
Screw terminal



## Dimensions



## Pin layout

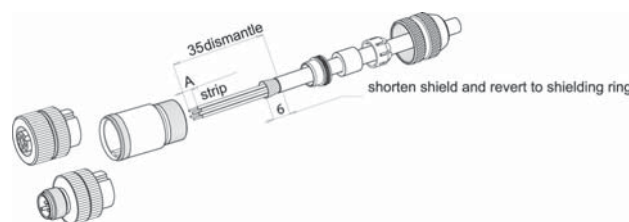


Description	Part-No.	Type	PU
<b>Male</b>			
Pole number	5	490072 S*	STGK5-M12(C) 5-POL. B-cod. SK 1
<b>Female</b>			
Pole number	5	490073 S*	KUGK5-M12(C) 5-POL. B-cod. SK 1
<b>Technical data</b>			
	<b>Male</b>	<b>Female</b>	
Rated voltage $U_N$		AC/DC 24 V	
Rated voltage max.		60 V	
Rated current		4 A	
Pole number		5	
Status indication		–	
Current Consumption		– mA	
Coding		B	
Shielding		360°	
<b>General</b>			
Design		M 12×1	
Nominal insulation voltage		– V	
Test voltage		1500 V	
Degree of pollution		3	
Insulation resistance		> 10000 MΩ	
Contact resistance		< 3 mΩ	
Flamability according to UL 94		HB	
Protection class		IP67	
Housing material		Zinc die-casting	
Contact material	CuZn, gold-plated	CuSn, gold-plated	
Thread material		CuZn nickel-plate	
Material sealing ring		NBR	
Cable diameter		6 – 8 mm	
Storage temperature range		–40 °C ... +90 °C	
Temperature range connector		–25 °C ... +85 °C	
Connection device		Screw terminal max. 0.75 mm <sup>2</sup>	
Cross-section, metric		–	
Mechanical service life		>100 insertion cycles	
Weight (kg/piece)		0.040	
Approvals		cURus (E224249)	

## Comments

suitable for Profibus and Interbus, see bus cables

## Mounting diagram



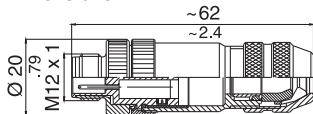
\* S Article from stock  
A Available with a lead time  
R Available on request

# Actuator sensor interface · M12 - connector

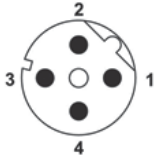
## Field wireable connector, M12 straight shielded Male - D coded Cat 5e (Ethernet, Profinet) Screw terminal



### Dimensions



### Pin layout

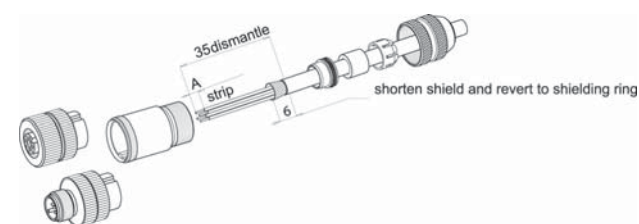


Description	Part-No.	Type	PU
<b>Male</b>			
Pole number	4	490074 S*	STGK4-M12(C) 4-POL. D-cod. SK 1
<b>Technical data</b>			
		<b>Male</b>	
Rated voltage $U_N$	AC/DC 24 V		
Rated voltage max.	60 V		
Rated current	4 A		
Pole number	4		
Status indication	-		
Current Consumption	- mA		
Coding	D		
Shielding	360°		
<b>General</b>			
Design	M 12x1 male		
Nominal insulation voltage	250 V		
Test voltage	2950 V		
Degree of pollution	3		
Insulation resistance	> 10000 M $\Omega$		
Contact resistance	< 3 m $\Omega$		
Flamability according to UL 94	HB		
Protection class	IP67		
Housing material	Zinc die-casting		
Contact material	CuZn, gold-plated		
Thread material	CuZn nickel-plate		
Material sealing ring	NBR		
Cable diameter	6 – 8 mm		
Storage temperature range	-40 °C ... +90 °C		
Temperature range connector	-25 °C ... +85 °C		
Connection device	Screw terminal		
Cross-section, metric	without AE: 0.25–0.75 mm <sup>2</sup> with AE: 0.14–0.75 mm <sup>2</sup>		
Mechanical service life	>100 insertion cycles		
Weight (kg/piece)	0.045		
Approvals	cURus (E224249)		

### Comments

suitable for Ethernet and Profinet, see bus cables

### Mounting diagram



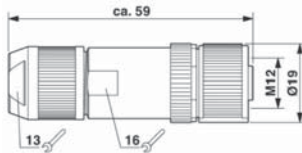


# Actuator sensor interface · M12 - connector

## Field wireable connector, M12 straight shielded Female - D coded Cat 5e (Ethernet, Profinet) Shield termination via iris spring, cage clamp



### Dimensions

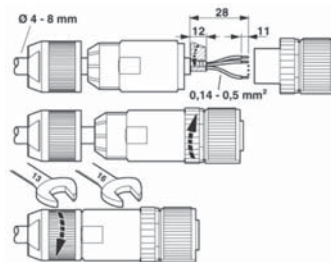


### Pin layout



Description	Part-No.	Type	PU
<b>Female</b>			
Pole number	4	490095 S*	KUGK4-M12(C) 4-POL. D-cod. SK 1
<b>Technical data</b>			
		<b>Female</b>	
Rated voltage $U_N$	AC/DC 24 V		
Rated voltage max.	60 V		
Rated current	4 A		
Pole number	4		
Status indication	-		
Current Consumption	- mA		
Coding	D		
Shielding	360°		
<b>General</b>			
Design	M 12×1 female		
Nominal insulation voltage	60 V		
Test voltage	800 V		
Degree of pollution	3		
Insulation resistance	> 10000 MΩ		
Contact resistance	< 8 mΩ		
Flamability according to UL 94	V0		
Protection class	IP67		
Housing material	Zinc die-casting		
Contact material	CuSn, gold-plated		
Thread material	CuZn nickel-plate		
Material sealing ring	NBR		
Cable diameter	4 – 8 mm		
Storage temperature range	-40 °C ... +90 °C		
Temperature range connector	-40 °C ... +85 °C		
Connection device	Spring terminal 0.14 mm <sup>2</sup> – 0.5 mm <sup>2</sup> AWG 26 – AWG 20		
Mechanical service life	>100 insertion cycles		
Weight (kg/piece)	0.042		
Approvals	-		
<b>Comments</b>			
suitable for Ethernet and Profinet, see bus cables			

### Mounting diagram



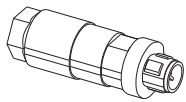
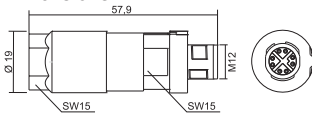
\* S Article from stock  
A Available with a lead time  
R Available on request

# Actuator sensor interface · M12 - connector

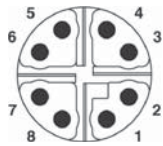
## Field wireable connector, M12 straight shielded Male - X coded Cat 6<sub>A</sub> (Ethernet, Profinet) IDC/quick-connect technology



### Dimensions



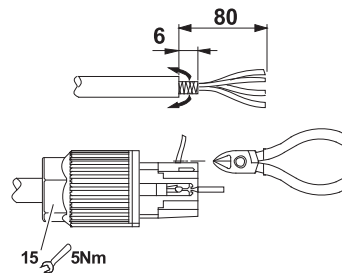
### Pin layout



Description	Part-No.	Type	PU
<b>Male</b>			
Pole number	8	490167 S*	STGK8-M12(C) 8pol. X-kod. Cat.6A 1
<b>Technical data</b>			
		<b>Male</b>	
Rated voltage $U_N$		DC 50 V	
Rated current		0.6 A	
Pole number		8	
Coding		X	
Shielding		360°	
<b>General</b>			
Design		M 12×1	
Degree of pollution		3	
Insulation resistance		> 100 MΩ	
Flamability according to UL 94		V0	
Contact resistance		≤5 mΩ	
Protection class		IP65/67	
Housing material		Zinc die-casting	
Contact material		CuSn, gold-plated	
Material sealing ring		NBR	
Strand diameter			
Cable diameter		0.9 – 1.6 mm	
Storage temperature range		-40 °C ... +85 °C	
Temperature range connector		-40 °C ... +85 °C	
Connection device		Compliant terminal	
Cross-section AWG		AWG 26-22	
Mechanical service life		>100 insertion cycles	
Weight (kg/piece)		0.043	

Accessories	Part-No.	Type	Jacket material
matching cables	104338	EL BUS(C)PVC ET(4×(2×AWG26/7)St)C Cat.6A	PVC
	104331	EL ET BUS(C)PVC PIMF (4×(2×AWG26/7)) GN	PVC
	104347	SU BUS(C)P ET(4×2×AWG26/19)C UL Cat.6	PUR

### Mounting diagram

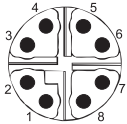


# Actuator sensor interface

## Field wireable connector, M12 straight shielded Female - X coded Cat 6<sub>A</sub> (Ethernet, Profinet) IDC/quick-connect technology

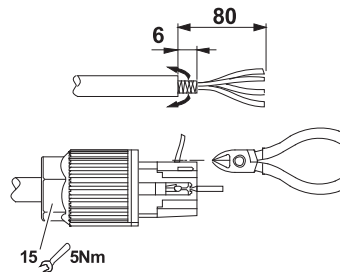


Pin layout



Description	Part-No.	Type	PU
Pole number	8	490168 S*	KUGK8-M12(C) 8pol. X-kod. Cat.6A 1
<b>Technical data</b>			
Rated voltage $U_N$	DC 50 V		
Rated current	0.6 A		
Pole number	8		
Coding	X		
Shielding	360°		
<b>General</b>			
Design	M 12×1		
Degree of pollution	3		
Insulation resistance	> 100 MΩ		
Flamability according to UL 94	V0		
Contact resistance	-		
Protection class	IP65/67		
Housing material	Zinc die-casting		
Contact material	CuSn, gold-plated		
Material sealing ring	NBR		
Strand diameter			
Cable diameter	5 – 9.7 mm		
Storage temperature range			
Temperature range connector	-40 °C ... +85 °C		
Connection device	Compliant terminal		
Cross-section AWG	AWG 26-22		
Mechanical service life	>100 insertion cycles		
Weight (kg/piece)	0.022		

Mounting diagram



\* S Article from stock  
A Available with a lead time  
R Available on request

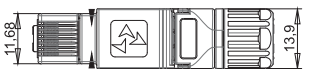
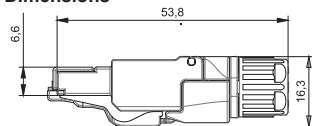
# Actuator sensor interface

## Industrial connector RJ45 solid metal housing, quick-connect technology AWG 27–22 Cat 6<sub>A</sub> / Cat 5e



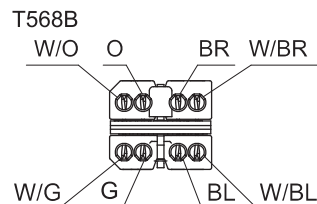
Description	Part-No.	Type	PU
Description	490174 S*	RJ45-M 8pol. Cat.6A T568B	1
	490175 S*	RJ45-M 8pol. Cat.6A T568A	1
	490176 S*	RJ45-M 8pol. Cat.6A T568B	1
	490177 S*	RJ45-MS 4pol. PROFINET	1

### Dimensions

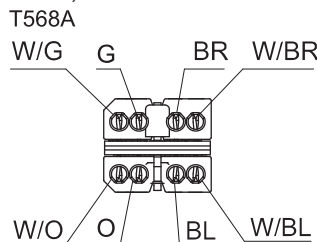


### Connection assignment

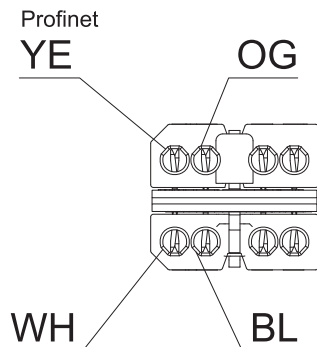
#### 490174



#### 490175, 490176

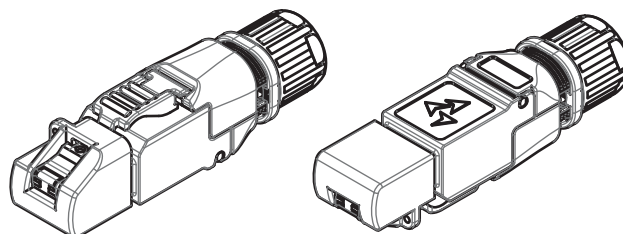


#### 490177



Technical data	490174	490175	490176	490177
Rated voltage			30 V	
Rated current		≤1 A per contact		
Pole number		8		4
Transfer rate		10 Gbit/s		100 Mbit/s
Category		Cat.6 <sub>A</sub>		Cat.5e
Shielding		shielded		
<b>General</b>				
Design		RJ45		
Degree of pollution		1		
Insulation resistance		> 500 MΩ		
Contact resistance		< 20 mΩ		
Flamability according to UL 94		V0		
Protection class		IP20		
Housing material		Zinc die-casting		
Color of the housing		silver		
Cover		PBT black		
Contact material		Spring steel gold-plated		
Strand diameter		1 – 1.6 mm		
Cable diameter		5.5 – 10 mm		
Cross-section AWG		AWG 24/1-22/1, AWG 27/7-22/7, AWG 24/19-22/19	AWG 26/1-24/1, AWG 27/7-24/7, AWG 26/19	AWG 24/1-22/1, AWG 27/7-22/7, AWG 24/19-22/19
Operation temperature range		-40 °C ... +85 °C		
Storage temperature range		-40 °C ... +85 °C		
Mechanical service life		>750 insertion cycles		
Dimensions (w × h × d)		13.9 × 16.3 × 53.8 mm		
Weight (kg/piece)		0.025		
Approvals		cULus (E326112)		
Standards		IEC 60603-7-51		IEC 61784-5-3
<b>Comments</b>		Suitable for Profinet, SERCOS3, Ethercat, Ethernet/IP, Powerlink, VARAN, Power over Ethernet+ (PoE+IEEE 802.3at) Suitable cables, see overview assignment Ethernet cables to connectors		

### Mounting diagram

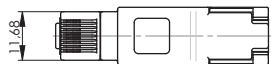
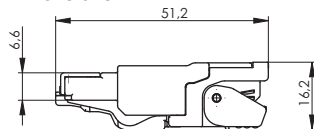


# Actuator sensor interface · RJ45 connector

## Industrial connector RJ45 solid metal housing, quick-connect technology AWG 27–22 Cat 6<sub>A</sub>



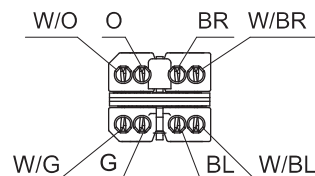
### Dimensions



### Connection assignment

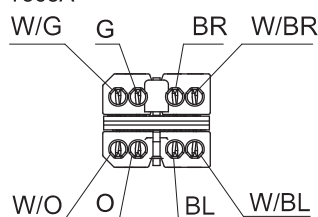
#### 490128

#### T568B



#### 490129, 490138

#### T568A



Description	Part-No.	Type	PU
Description	490128	S* RJ45-M 8pol. Cat.6A T568B	1
	490129	S* RJ45-M 8pol. Cat.6A T568A	1
	490138	S* RJ45-M 8pol. Cat.6A T568B AWG 26/19	1

Technical data	490128	490129	490138
Rated voltage		30 V	
Rated current		≤1 A	
Pole number		8	
Transfer rate		10 Gbit/s	
Category		Cat.6 <sub>A</sub>	
Shielding		shielded	
<b>General</b>			
Design		RJ45	
Degree of pollution		1	
Insulation resistance		> 500 MΩ	
Contact resistance		< 20 mΩ	
Flamability according to UL 94		V0	
Protection class		IP20	
Housing material		Zinc die-casting	
Color of the housing		black	
Cover		PBT black	
Contact material		Spring steel gold-plated	
Strand diameter		0.85 – 1.6 mm	0.85 – 1.1 mm
Cable diameter		5 – 9 mm	
Cross-section AWG		AWG 24/1-22/1, AWG 27/7-22/7	AWG 26/1, AWG 26/7, AWG 26/19
Operation temperature range		-40 °C ... +70 °C	
Storage temperature range		-40 °C ... +70 °C	
Mechanical service life		>750 insertion cycles	
Dimensions (w × h × d)		13.8 × 16.2 × 53.1 mm	
Weight (kg/piece)		0.025	
Approvals		cULus (E326112)	
Standards		IEC 60603-7-51	

### Comments

Suitable for Profinet, SERCOS3, Ethercat, Ethernet/IP, Powerlink, VARAN, Power over Ethernet+ (PoE+IEEE 802.3at)  
Suitable cables, see overview assignment Ethernet cables to connectors

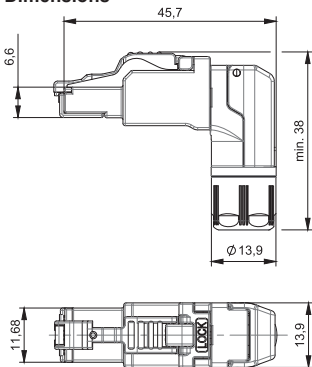
# Actuator sensor interface · RJ45 connector

Industrial connector RJ45, angled  
solid metal housing, quick-connect technology AWG 27–22  
Cat 6<sub>A</sub> / Cat 5e

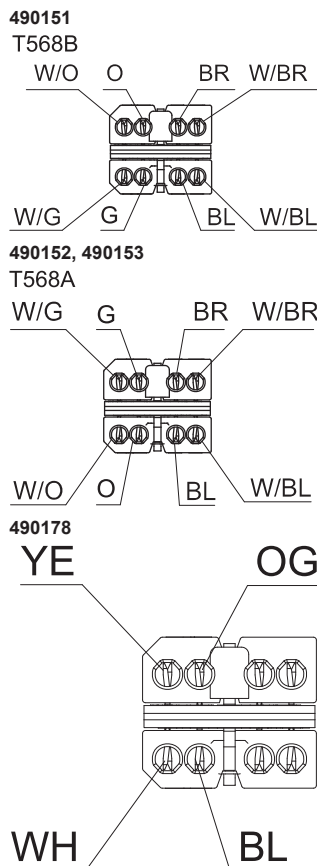


Description	Part-No.	Type	PU	
Description	Connection according to TIA 568 B	490151 S*	RJ45-X 8pol. Cat.6A T568B	1
	Connection according to TIA 568 A	490152 S*	RJ45-X 8pol. Cat.6A T568A	1
	Connection according to TIA 568 B	490153 S*	RJ45-X 8pol. Cat.6A T568B AWG 26/19	1
	Connecting according to color coded Profinet.	490178 S*	RJ45-MR 4pol. PROFINET	1

## Dimensions

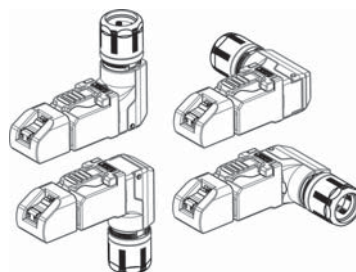


## Connection assignment



Technical data	490151	490152	490153	490178
Rated voltage	30 V			
Rated current	≤1 A per contact			
Pole number	8		4	
Transfer rate	10 Gbit/s		100 Mbit/s	
Category	Cat.6 <sub>A</sub>		Cat.5e	
Shielding	shielded			
<b>General</b>				
Design	RJ45 angle connector			
Degree of pollution	1			
Insulation resistance	> 500 MΩ			
Contact resistance	< 20 mΩ			
Flamability according to UL 94	V0			
Protection class	IP20			
Housing material	Zinc die-casting			
Color of the housing	silver			
Cover	PBT black			
Contact material	Spring steel gold-plated			
Strand diameter	1 – 1.6 mm	0.85 – 1.1 mm		1 – 1.6 mm
Cable diameter	5.5 – 10 mm			
Cross-section AWG	AWG 24/1-22/1, AWG 27/7-22/7	AWG 26/1-24/1, AWG 27/7-24/7, AWG 26/19	AWG 24/1-22/1, AWG 27/7-22/7, AWG 24/19-22/19	
Operation temperature range	-40 °C ... +85 °C			
Storage temperature range	-40 °C ... +85 °C			
Mechanical service life	>750 insertion cycles			
Dimensions (w × h × d)	13.9 × 38.0 × 45.7 mm			
Weight (kg/piece)	0.030		0.025	
Approvals	cULus (E326112)			
Standards	IEC 60603-7-51		IEC 61784-5-3	
<b>Comments</b>	Suitable for Profinet, SERCOS3, Ethercat, Ethernet/IP, Powerlink, VARAN, Power over Ethernet+ (PoE+IEEE 802.3at) Suitable cables, see overview assignment Ethernet cables to connectors			

## Mounting diagram



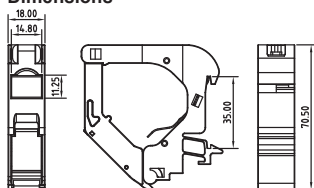


# Interface Technology · Ethernet connectivity

## Module holder, RJ45, female / IDC For TS35 DIN rail Cat. 6A



### Dimensions



### Connection assignment RJ45

	TIA 568A	TIA 568 B	Profinet
1	WHGN	WHOG	YE
2	GN	OG	OG
3	WHOG	WHGN	WH
4	BU	BU	-
5	WHBU	WHBU	-
6	OG	GN	BU
7	WHBR	WHBR	-
8	BR	BR	-

Description	Part-No.	Type	PU
<b>Suitable for Ethernet applications</b>			
Description	8-pin	490166 S* MDT-RJ45 F 8pol. Cat.6A	1
<b>Technical data</b>			
		<b>490166</b>	
Rated voltage		125	
Rated current		≤1.5 A per contact	
Pole number		8	
Transfer rate		10 Gbit/s	
Category		Cat.6	
Contact type		IDC	
Shielding		shielded	
<b>General</b>			
Design		RJ45 female	
Nominal insulation voltage		- V	
Test voltage		- V	
Degree of pollution		1	
Insulation resistance		> 100 MΩ	
Contact resistance		< 50 mΩ	
Flamability according to UL 94		V0	
Protection class		IP20	
Housing material		PC	
Color of the housing		grey	
Contact material		CuSn, gold-plated	
Cable diameter		4.5 – 8 mm	
Cross-section AWG		AWG 24-22	
Operation temperature range		-40 °C ... +70 °C	
Storage temperature range		-40 °C ... +70 °C	
Mechanical service life		>750 insertion cycles	
Dimensions (w × h × d)		18.0 × 70.5 × 67.5 mm	
Weight (kg/piece)		0.063	
Approvals		cULus (E326112)	
Standards		-	
<b>Accessories</b>			
Patch cable RJ45 Cat.5e	192000.xxxx	xxxx cable length from 0.5 - 30 m	1
Patch cable RJ45 Cat.6	192100.xxxx	xxxx cable length from 0.5 - 30 m	1

\* S Article from stock  
A Available with a lead time  
R Available on request

# Actuator sensor interface · M8 panel jack

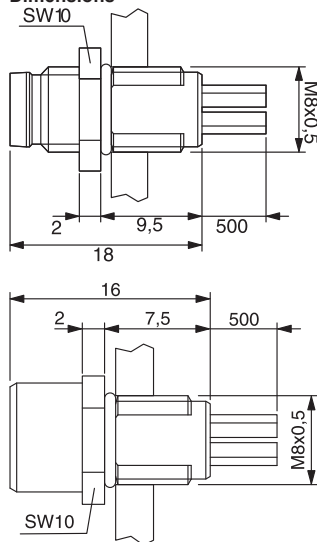
## M8 panel connectors using M8 thread

Male / female

0.5 m TPE wire



### Dimensions

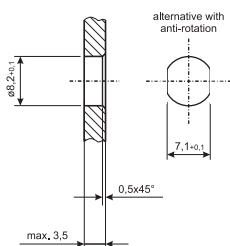


### Pin layout



### Mounting diagram

assembling board with through bore-hole  
2:1



Description	Part-No.	Type	PU	
<b>Male</b>				
Pole number	3	490062 S*	STGE-M8 3pol. 0,5m Litze	1
	4	490063 S*	STGE-M8 4pol. 0,5m Litze	1
<b>Female</b>				
Pole number	3	490060 S*	KUGE-M8 3pol. 0,5m Litze	1
	4	490061 S*	KUGE-M8 4pol. 0,5m Litze	1
<b>Technical data</b>				
	<b>Male</b>		<b>Female</b>	
Rated voltage $U_N$	AC/DC 24 V			
Rated voltage max.	60 V	30 V	60 V	30 V
Rated current	4 A			
Pole number	3	4	3	4
Cable length	0.5 m			
Coding	-			
Shielding	-			
<b>General</b>				
Design	M 8×1 male		M 8×1 female	
Test voltage	1500 V	800 V	1500 V	800 V
Degree of pollution	3			
Insulation resistance	> 100 MΩ			
Contact resistance	< 3 mΩ			
Flamability according to UL 94	HB			
Protection class	IP67			
Housing material	Zinc die-casting			
Contact material	CuZn, gold-plated			
Thread material	CuZn nickel-plate			
Material sealing ring	-		NBR	
Number of conductors/cross-section	0.25 mm <sup>2</sup> (14×0.15 mm)			
Jacket material	-			
Conductor insulation	TPE			
Cable diameter	- mm			
Bending radius	-			
Storage temperature range	-40 °C ... +90 °C			
Temperature range connector	-25 °C ... +85 °C			
Connection device	M 8			
Cross-section, metric	0.25 mm <sup>2</sup>			
Mechanical service life	>100 insertion cycles			
Weight (kg/piece)	0.012	0.014	0.012	0.014
Approvals	-			

### Comments

Included in scope of delivery: M8 lock nut

### Connection assignment

#### Pole / wire color:

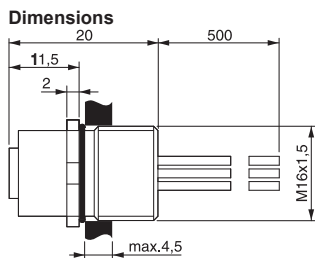
1/ BN (brown)  
3/ BU (blue)  
4/ BK (black)

1/ BN (brown)  
2/ WH (white)  
3/ BU (blue)  
4/ BK (black)

\* S Article from stock  
A Available with a lead time  
R Available on request

# Actuator sensor interface - M12 panel jack

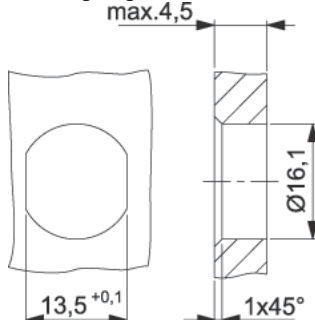
## M12 connectors panel mounted using M16 thread Male / female - A coded 0.5 m TPE wire



### Pin layout



### Mounting diagram



Description	Part-No.	Type	PU	
<b>Male</b>				
Pole number	4	490067 S*	STGE-M12 4pol. 0,5m Litze	1
	5	490068 S*	STGE-M12 5pol. 0,5m Litze	1
	8	490069 S*	STGE-M12 8pol. 0,5m Litze	1
<b>Female</b>				
Pole number	4	490064 S*	KUGE-M12 4pol. 0,5m Litze	1
	5	490065 S*	KUGE-M12 5pol. 0,5m Litze	1
	8	490066 S*	KUGE-M12 8pol. 0,5m Litze	1

Technical data	Male			Female		
Rated voltage $U_N$	AC/DC 24 V					
Rated voltage max.	250 V	60 V	30 V	250 V	60 V	30 V
Rated current	4 A		2 A	4 A		2 A
Pole number	4	5	8	4	5	8
Cable length	0.5 m					
Coding	A					
Shielding	-					
<b>General</b>						
Design	M 12x1					
Test voltage	2500 V	1500 V	800 V	2500 V	1500 V	800 V
Degree of pollution	3					
Insulation resistance	> 100 MΩ					
Contact resistance	< 3 mΩ					
Flamability according to UL 94	V0					
Protection class	IP67					
Housing material	Zinc die-casting					
Contact material	CuZn, gold-plated					
Thread material	CuZn nickel-plate					
Material sealing ring	-			NBR		
Number of conductors/cross-section	0.34 mm <sup>2</sup> (7x0.25 mm)		0.25 mm <sup>2</sup> (14x0.15 mm)	0.34 mm <sup>2</sup> (7x0.25 mm)		0.25 mm <sup>2</sup> (14x0.15 mm)
Jacket material	-					
Conductor insulation	TPE					
Cable diameter	1.25 mm		1.15 mm	1.25 mm		1.15 mm
Bending radius	-					
Storage temperature range	-40 °C ... +90 °C					
Temperature range connector	-25 °C ... +90 °C					
Connection device	M 16					
Cross-section, metric	0.34 mm <sup>2</sup>		0.25 mm <sup>2</sup>	0.34 mm <sup>2</sup>		0.25 mm <sup>2</sup>
Mechanical service life	>100 insertion cycles					
Weight (kg/piece)	0.020	0.021	0.025	0.020	0.021	0.025
Approvals	-					

Accessories	Part-No.	Type	PU
Counter nut M16	600361	GMS M16	100

### Comments

#### Connection assignment

##### Pole / wire color:

- 1/ BN (brown)
- 2/ WH (white)
- 3/ BU (blue)
- 4/ BK (black)

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

- 1/ WH (white)
- 2/ BN (brown)
- 3/ GN (green)
- 4/ YE (yellow)
- 5/ GY (grey)
- 6/ PK (pink)
- 7/ BU (blue)
- 8/ RD (red)

\* S Article from stock  
A Available with a lead time  
R Available on request

# Actuator sensor interface · USB-panel connector

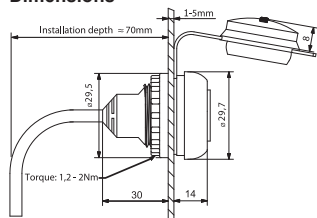
## USB 3.0 panel connector with M22 thread for front installation

### USB connector Type A on straight USB plug Type A with PVC cable

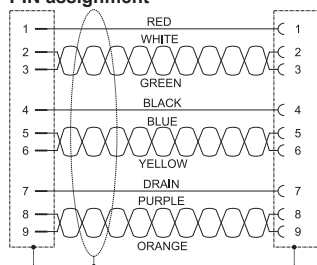
Type: USB-3.0 A/A



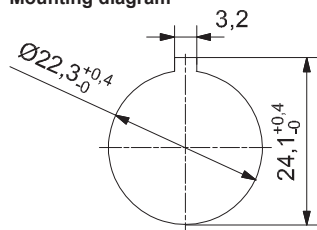
#### Dimensions



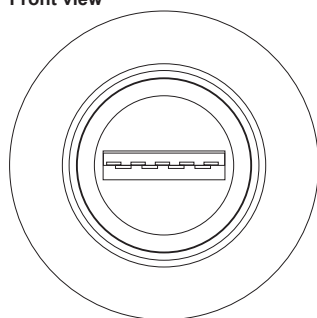
#### PIN assignment



#### Mounting diagram



#### Front view



Description	Part-No.	Type	PU
<b>USB 3.0</b>			
Cable length	0.3 m	490113.0030 S*	USB-3.0 A/A F/M 0,3m PVC 1
	0.6 m	490113.0060 S*	USB-3.0 A/A F/M 0,6m PVC 1
	0.8 m	490113.0080 S*	USB-3.0 A/A F/M 0,8m PVC 1
	1.5 m	490113.0150 S*	USB-3.0 A/A F/M 1,5m PVC 1
	2.0 m	490113.0200 S*	USB-3.0 A/A F/M 2,0m PVC 1
	3.0 m	490113.0300 S*	USB-3.0 A/A F/M 3,0m PVC 1
	5.0 m	490113.0500 S*	USB-3.0 A/A F/M 5,0m PVC 1

#### Technical data

Technical data		USB 3.0						
Rated voltage $U_N$		AC/DC 5 V						
Rated voltage max.		30 V						
Rated current		0.9 A						
Pole number		9						
Cable length	0.3 m 0.6 m 0.8 m 1.5 m 2.0 m 3.0 m 5.0 m							
Transfer rate		5 Gbit/s						
USB standard		3.0						
Contact type		1 : 1						
Shielding		shielded						
<b>General</b>		<b>USB-A</b>						
Design		USB-A						
Test voltage		- V						
Degree of pollution		3						
Insulation resistance at 20 °C		≥ 100 MΩ×km						
Contact resistance		< 30 mΩ						
Flamability according to UL 94		-						
Protection class		IP65 IP20						
Housing material		PA, PVC						
Cover		TPU						
Contact material		CuSn, gold-plated						
Mounting		Front installation						
Installation depth		70 mm						
Number of conductors/cross-section		(2×AWG24 + 1×2×AWG28 + 2×(1×2×AWG28)St)StC						
Jacket material		PVC						
Jacket color		black						
Cable diameter		6.1 mm						
Bending radius		6 × D						
Temperature range moving		-5 °C ... +70 °C						
Operation temperature range		-5 °C ... +70 °C						
Temperature range fixed		-25 °C ... +80 °C						
Temperature range connector								
Mechanical service life		1500 insertion cycles						
Dimensions (Ø×d)		29.5 × 45 mm						
Weight (kg/piece)	0.046 0.058 0.066 0.094 0.113 0.152 0.232							
Approvals		cULus (E326112)						

#### Comments

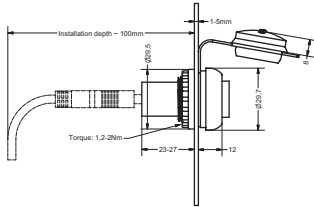
Included in the delivery: captive safety cap

# Actuator sensor interface · USB-panel connector

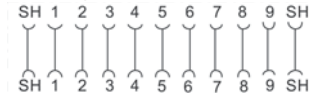
USB 3.0 panel connector with M22 thread for front installation  
 USB 3.0 female / female Type A/A  
 Typ: UBS-3.0 A/A F/F



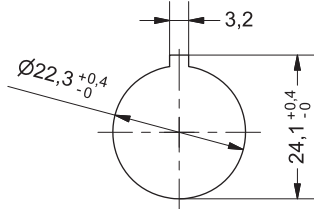
## Dimensions



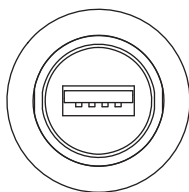
## PIN assignment



## Mounting diagram



front view



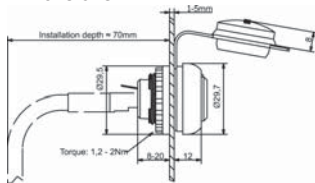
Description	Part-No.	Type	PU
USB 3.0	490112 S*	USB-3.0 A/A F/F	1
<b>Technical data</b>		<b>USB 3.0</b>	
Rated voltage $U_N$		AC/DC 5 V	
Rated voltage max.		30 V	
Rated current		0.9 A	
Pole number		9	
Cable length		– m	
Transfer rate		5 Gbit/s	
USB standard		3.0	
Contact type		1 : 1	
Shielding		shielded	
<b>General</b>			
Design		USB 3.0 female/female type A/A	
Test voltage		– V	
Degree of pollution		3	
Insulation resistance		> 100 MΩ	
Contact resistance		< 30 mΩ	
Flamability according to UL 94		–	
Protection class		IP65 IP20	
Housing material		PA, PVC	
Cover		TPU	
Contact material		CuSn, gold-plated	
Mounting		Front installation	
Installation depth		100 mm	
Number of conductors/cross-section		–	
Jacket material		–	
Cable diameter		– mm	
Bending radius		–	
Storage temperature range		–25 °C ... +80 °C	
Operation temperature range		–20 °C ... +70 °C	
Mechanical service life		>100 insertion cycles	
Dimensions (Ø×d)		29.5 × 42.5 mm	
Weight (kg/piece)		0.009	
Approvals		cULus (E326112)	
<b>Comments</b>			
		Included in the delivery: captive safety cap	

# Actuator sensor interface · RJ45 panel connector

RJ45 panel connector for front installation 22.5 mm  
female/female 1:1  
Cat 5e/6

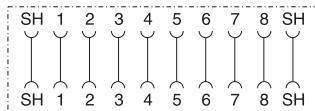


## Dimensions

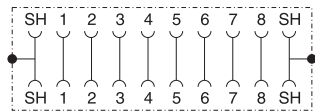


## Circuit diagram

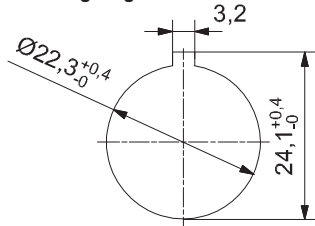
### 492075



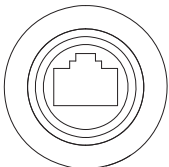
### 491075



## Mounting diagram



front view:



Description	Part-No.	Type	PU	
<b>Category</b>				
Category	Cat.5e	492075 S*	RJ45 F/F 8/8 Cat.5e	1
	Cat.6	491075 S*	RJ45 F/F 8/8 Cat.6	1

Technical data	492075	491075
Rated voltage $U_N$		AC 24 V
Rated voltage max.	50 V	150 V
Rated current		1.5 A
Pole number		8
Cable length		- m
Transfer rate	100 MHz	250 MHz
Category	Cat.5e	Cat.6
Contact type		1 : 1
Shielding	connected through	360°
Coding		-

## General

Design	RJ45
Test voltage	- V
Degree of pollution	3
Insulation resistance	> 100 MΩ
Contact resistance	< 30 mΩ
Flamability according to UL 94	V0
Protection class	IP65 IP20
Housing material	PA PBT
Cover	TPU
Contact material	CuSn, gold-plated
Mounting	Front installation
Installation depth	70 mm
Number of conductors/cross-section	8×2
Jacket material	-
Cable diameter	- mm
Bending radius	-
Operation temperature range	-25 °C ... +70 °C
Storage temperature range	-25 °C ... +80 °C
Mechanical service life	>750 insertion cycles
Dimensions (Ø×d)	29.5 × 29 mm
Weight (kg/piece)	0.016
Approvals	cULus (E326112)

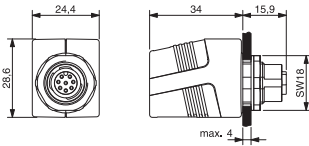


# Actuator sensor interface · RJ45 panel connector

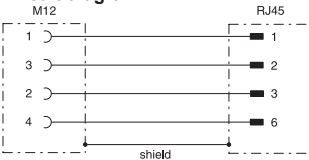
## Control cabinet bushing M12 - RJ45 female/female 1:1 Cat 5e (Ethernet, Profinet)



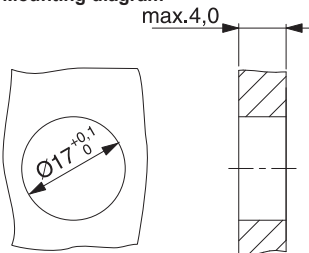
### Dimensions



### Circuit diagram



### Mounting diagram



Description	Part-No.	Type	PU
Design	490105 S*	M12-RJ45 F/F 90° 4/4 Cat.5e Profinet	1
	490106 S*	M12-RJ45 F/F 180° 4/4 Cat.5e Profinet	1

Technical data	490105	490106
Rated voltage $U_N$		24 V
Rated voltage max.		50 V
Rated current		1 A
Pole number		4
Cable length		– m
Transfer rate		0.1 Gbit/s
Category		Cat.5e
Contact type		1 : 1
Shielding		360°
Coding		D

General	
Design	RJ45/M 12×1
Test voltage	– V
Degree of pollution	–
Insulation resistance	> 100 MΩ
Contact resistance	< 30 mΩ
Flamability according to UL 94	V0
Protection class	IP67
Housing material	PA
Cover	–
Contact material	Phosphor Bronze, gold-plated
Mounting	–
Installation depth	70 mm
Number of conductors/cross-section	–
Jacket material	–
Cable diameter	– mm
Bending radius	–
Operation temperature range	–25 °C ... +85 °C
Storage temperature range	–25 °C ... +85 °C
Mechanical service life	>750 insertion cycles
Dimensions (Ø×d)	29.5 × 29 mm
Weight (kg/piece)	0.037
Approvals	–

# Actuator sensor interface

## Protective coverage M8, M12 Color: black



Description	Part-No.	Type	PU	
Color	black	499989 S*	SK M8 FUER BUCHSE	100
Color	black	499994 S*	SK M12 FUER BUCHSE	100
<b>General</b>	<b>499989</b>	<b>499994</b>		
Housing material		PA		
Color		black		
Flamability according to UL 94		V0		
Connection device	M 8 × 1		M 12 × 1	
Storage temperature range		-20 °C ... +80 °C		
Operation temperature range		-20 °C ... +80 °C		
Dimensions (w × h × d)				
Weight (kg/piece)		0.002		

# Notes

---



# Product Overview: Classification Ethernet

## Ethernet cables

Art.no.	Description	C-track compatible	Cat	Iso.	AWG								PROFINET	EtherCAT	SERCOS the automation bus	CC-Link IE Field	EtherNet/IP		
					490128 - 490174	490151	AWG 27 - 22	490129 - 490175	490152	AWG 27 - 22	490138 - 490176	490153						AWG 26	490177 - 490178
104301	Prof. (2X2XAWG22/1) UL		Type A	PVC															
104302	Prof. (2X2XAWG22/19) UL	•	Type C	PUR															
104303	Prof. (2X2XAWG22/7) UL	•	Type C	PUR															
104307	Prof. (2X2XAWG22/7) UL		Type B	PVC															
104331	Eth. (4X(2XAWG26/7) UL		7	PVC															
104335	Eth. (4X2XAWG26/7) UL		5e	PVC															
104336	Eth. (4X2XAWG24/7) UL		5e	PVC	•	•													
104337	Eth. (4X2XAWG24/19) UL	•	5e	PUR	•	•													
104338	Eth. (4X(2XAWG26/7) UL		6A	PVC															
104347	Eth. (4X2XAWG26/19) UL	•	6	PUR															
104350	Eth. (4X2XAWG22/7) UL		5e	PVC	•	•													
104379	Prof. (2X2XAWG26/19) UL	•	5e	PUR															
104396	Eth. (4X2XAWG26/19) UL	•	5e	PUR															
104397	Eth. (4X(2XAWG22/1) UL		6A	PVC	•	•													
104401	Eth. (4X(2XAWG24/7) UL	•	6A	PUR	•	•													

# t Cable and connector

## Ethernet connector RJ45 / M12

### RJ45 T568B



490128  
with cable  
clamp

490174  
with cable  
fitting

490151  
with cable  
fitting

1 white / orange	
2 orange	
3 white / green	
4 blue	
5 white / blue	
6 green	
7 white / brown	
8 brown	

### RJ45 T568A



490129  
with cable  
clamp

490175  
with cable  
fitting

490152  
with cable  
fitting

1 white / green	
2 green	
3 white / orange	
4 blue	
5 white / blue	
6 orange	
7 white / brown	
8 brown	

### RJ45 T568B AWG26



490138  
with cable  
clamp

490176  
with cable  
fitting

490153  
with cable  
fitting

1 white / orange	
2 orange	
3 white / green	
4 blue	
5 white / blue	
6 green	
7 white / brown	
8 brown	

### RJ45 T568A/B

### M12



490166  
Module holder



490074  
X-cod. pin



490095  
D-cod. female



490167  
X-cod. pin



490168  
X-cod. female

	T568A	T568B
1		
2		
3		
4		
5		
6		
7		
8		

1 yellow	
2 white	
3 orange	
4 blue	

1 white/orange	
2 orange	
3 white / green	
4 green	
5 white / brown	
6 brown	
7 white / blue	
8 blue	

### Profinet RJ45



490177  
straight



490178  
angled

1 yellow	
2 orange	
3 white	
4	
5	
6 blue	
7	
8	





### 3. Suppression Technology



## 3. Suppression technology



### Suppressor for switch gear, universal suppressor module

Enclosure: S1, S2	3.3
Enclosure: V1	3.4
Enclosure: VM1, V2	3.5
Enclosure: S6 (SIEMENS, AEG, EATON)	3.6



### Valve connector with cable

Valve connector Deutsch DT06-2S, with or without jacket	3.7 - 3.8
Valve connector AMP Junior Timer, with or without jacket	3.9 - 3.10
Design A (18 mm)	3.11 - 3.15
Design A (18 mm) mit Sonderfunktion	3.16 - 3.18
Design B (10 mm)	3.19
Design BI (11 mm)	3.20
Design C (8 mm)	3.21
Design CI (9,4 mm)	3.22



### Valve connector, adjustable

Design A (18 mm)	3.23 - 3.24
Design A (18 mm) with special function	3.25 - 3.27
Design B (10 mm) and BI (11 mm)	3.28
Design B (10 mm) and BI (11 mm) with special function	3.29
Design C (8 mm) and CI (9,4 mm)	3.30



### Valve suppression

Design A (18 mm)	3.31
Design BI (11 mm)	3.32



### Motor suppression

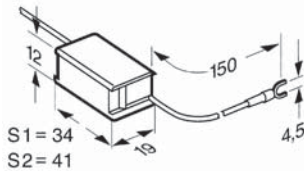
Installation in the motor terminal board	3.33 - 3.36
Attachment to contactor	3.37 - 3.38
Mounting under contactor	3.39

# Suppression Technology · Suppressor for Switched Gear

## Universal Suppressor Module

Enclosure type: S1, S2

Protection device: Diode / Varistor / RC module



### PIN assignment

700445, 700446



700440



700414, 700413

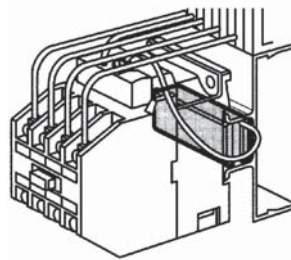


Description	Part-No.	Type	PU
<b>Diode</b>			
Rated voltage	DC 24–230 V	700445 S*	LD-S1-0445 DC 24-230V 1A
	DC 24–230 V	700446 S*	LD-S1-0446 DC 24-230V 3A
<b>varistor</b>			
Rated voltage	AC/DC 24 V	700440 S*	LV-S1-0440 AC/DC 24V 60VA
<b>RC module</b>			
Rated voltage	AC 115–230 V	700414 S*	LRC-S2-0414 AC 230V 10VA
	AC 115–230 V	700413 S*	LRC-S2-0413 AC 230V 20VA

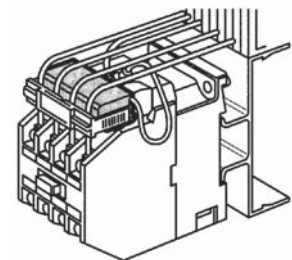
Technical data	700445	700446	700440	700414	700413
Type of function	Switching device suppression				
Protection device	Diode		Varistor	RC module	
Rated voltage	DC 24–230 V		AC/DC 24 V	AC 115–230 V	
Cut-off peak	≤ 1 V		≤ 52 V	≤ – V	
Rated frequency	–		50 – 60 Hz		
Inverse voltage/switching current	1600 V / 1 A	1300 V / 3 A	–		
Holding Capacity	25 VA	70 VA	60 VA	10 VA	20 VA
Type of connecting lead	0.5 mm <sup>2</sup> LIY				
Cable length (m)	0.15				
Connection device	Fork-type cable lug M 4				
<b>General</b>					
Design	S1		S2		
Status indication	–				
Housing material	PPO				
Color of the housing	grey				
Protection class	IP67				
Mounting	Attachment to contactor, with holder, DIN rail mounting				
Operation temperature range	–20 °C ... +60 °C				
Storage temperature range	–20 °C ... +80 °C				
Dimensions (w × h × d)	34.0 × 19.0 × 12.0 mm		41.0 × 19.0 × 12.0 mm		
Weight (kg/piece)	0.010		0.014		
Standards	–				
Approvals	cURus (E135145)				

Accessories	Color	Part-No.	Mounting	PU
Retaining clip for type S1	transparent	700409	connection wires	100
Retaining clip for type S2	transparent	700419	connection wires	100

### Mounting diagram



### Mounting diagram

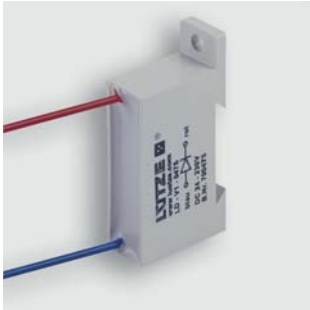


# Suppression Technology · Suppressor for Switched Gear

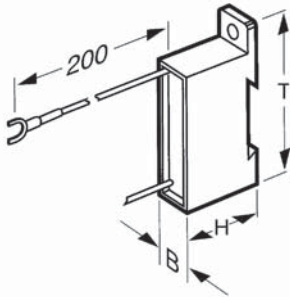
## Universal Suppressor Module

Enclosure type: V1

Protection device: Diode / Varistor / RC module



### Dimensions



### PIN assignment

700476



700577, 700568, 700435



700466



Description	Part-No.		Type	PU	
<b>Diode</b>					
Rated voltage	DC 24–230 V	700476	S* LD-V1-0476 DC 24-230V 3A	10	
<b>varistor</b>					
Rated voltage	AC/DC 24 V	700577	S* LV-V1-0577 AC/DC 24V 200VA	10	
	AC/DC 115 V	700568	S* LV-V1-0568 AC/DC 115V 200VA	10	
	AC/DC 230 V	700435	S* LV-V1-0435 AC/DC 230V 200VA	10	
<b>RC module</b>					
Rated voltage	AC 115–230 V	700466	S* LRC-V1-0466 AC 230V 30VA	10	
<b>Technical data</b>					
	<b>700476</b>	<b>700577</b>	<b>700568</b>	<b>700435</b>	<b>700466</b>
Type of function	Switching device suppression				
Protection device	Diode	Varistor		RC module	
Rated voltage	DC 24–230 V	AC/DC 24 V	AC/DC 115 V	AC/DC 230 V	AC 115–230 V
Cut-off peak	≤ 1 V	≤ 52 V	≤ 250 V	≤ 475 V	≤ – V
Rated frequency	–		50 – 60 Hz		
Inverse voltage/switching current	1300 V / 3 A		–		
Holding Capacity	70 VA		200 VA	30 VA	
Type of connecting lead	0.5 mm <sup>2</sup> LIY				
Cable length (m)	0.2				
Connection device	Fork-type cable lug M 4				
<b>General</b>					
Design	V1				
Potting compound	2-components				
Housing material	PA 6.6				
Color of the housing	grey				
Protection class	IP67				
Mounting	DIN rail mounting, 1 snap-on socket, Attachment hole m 4				
Operation temperature range	–20 °C ... +60 °C				
Storage temperature range	–20 °C ... +80 °C				
Dimensions (w × h × d)	12.5 × 25.0 × 48.0 mm				
Weight (kg/piece)	0.017	0.020		0.031	
Standards	–				
Approvals	cURus (E135145)				

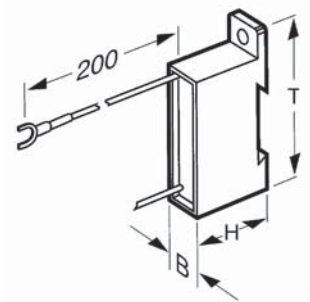
Accessories	Color	Part-No.	Mounting	PU
Snap-on socket type 2	grey	700499	DIN rail mounting	10

# Suppression Technology · Suppressor for Switched Gear

## Universal Suppressor Module Enclosure type: VM1, V2 Protection device: RC module



### Dimensions



### PIN assignment



Description	Part-No.	Type	PU	
<b>RC module in the V2 enclosure</b>				
Rated voltage	AC 230–400 V	700464 S*	LRC-V2-0464 AC 400V 10VA	10
	AC 230–400 V	701583 S*	LRC-V2-1583 AC 400V 60VA	10
<b>RC module in the VM1 enclosure</b>				
Rated voltage	AC 115–230 V	700463 S*	LRC-VM1-0463 AC 230V 30VA	10
<b>Technical data</b>				
	<b>700464</b>	<b>701583</b>	<b>700463</b>	
Type of function	Switching device suppression			
Protection device	RC module			
Rated voltage	AC 230–400 V		AC 115–230 V	
Rated frequency	50 – 60 Hz			
Inverse voltage/switching current	–			
Holding Capacity	10 VA	60 VA	30 VA	
Type of connecting lead	0.5 mm <sup>2</sup> LIY			
Cable length (m)	0.2			
Connection device	Fork-type cable lug M 4			
<b>General</b>				
Design	V2		VM1	
Potting compound	2-components			
Housing material	PA 6.6		PPO	
Color of the housing	grey			
Protection class	IP67			
Mounting	DIN rail mounting, 1 snap-on socket, Attachment hole m 4			
Operation temperature range	-20 °C ... +60 °C			
Storage temperature range	-20 °C ... +80 °C			
Dimensions (w × h × d)	15.0 × 30.0 × 58.0 mm		15.0 × 41.0 × 48.0 mm	
Weight (kg/piece)	0.028	0.031	0.033	
Standards	–			
Approvals	cURus (E135145)			
<b>Accessories</b>				
Snap-on socket type 2	Color	Part-No.	Mounting	PU
	grey	700499	DIN rail mounting	10

# Suppression Technology · Suppressor for Switched Gear

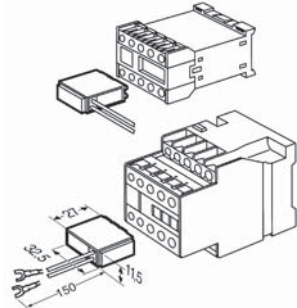
Universal suppressor module - for Siemens-, AEG-, EATON contactors  
Enclosure type S6

Protection device: Diode / Varistor / RC module



Description	Part-No.	Type	PU
<b>Diode</b>			
Rated voltage	DC 24–230 V	700323 S*	LD-S6-0323 DC 24-230V 1A
<b>varistor</b>			
Rated voltage	AC/DC 24 V	700324 S*	LV-S6-0324 AC/DC 24V 200VA
<b>RC module</b>			
Rated voltage	AC 115–230 V	700321 S*	LRC-S6-0321 AC 230V 10VA
<b>Technical data</b>			
	<b>700323</b>	<b>700324</b>	<b>700321</b>
Type of function	Switching device suppression		
Protection device	Diode	Varistor	RC module
Rated voltage	DC 24–230 V	AC/DC 24 V	AC 115–230 V
Cut-off peak	≤ 1 V	≤ 52 V	≤ – V
Rated frequency	–	50 – 60 Hz	
Inverse voltage/switching current	1600 V / 1 A	–	–
Holding Capacity	25 VA	200 VA	10 VA
Type of connecting lead	0.5 mm <sup>2</sup> LIY		
Cable length (m)	0.15		
Connection device	Fork-type cable lug M 4		
<b>General</b>			
Design	S6		
Potting compound	2-components		
Housing material	PA		
Protection class	IP20		
Mounting	Attachment to contactor		
Operation temperature range	-20 °C ... +60 °C		
Storage temperature range	-20 °C ... +80 °C		
Dimensions (w × h × d)	32.5 × 27.0 × 11.5 mm		
Weight (kg/piece)	0.010		
Standards	–		
Approvals	cURus (E135145), VDE		

## Dimensions



## PIN assignment

700323



700324



700321





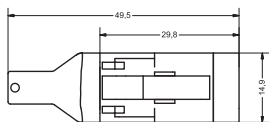
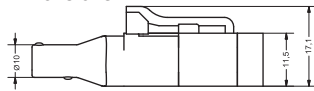
# Suppression Technology · Valve suppressors Deutsch DT06-2S

With integrated protection device + LED

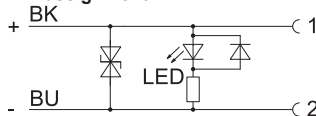
2pin version, protected against reverse polarity, moulded PUR connecting cable 2 × 0.75 mm<sup>2</sup> on cable outlet can be directly mounted to a protective hose



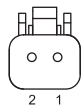
## Dimensions



## PIN assignment



## Pin layout



Description	Part-No.	Type	PU
<b>Suppressor diode + LED</b>			
Cable length	2.5 m	709442.0250 S*	LS-DT06 9442.0250 2,5mPUR 1
	5.0 m	709442.0500 S*	LS-DT06 9442.0500 5,0mPUR 1
	7.5 m	709442.0750 S*	LS-DT06 9442.0750 7,5mPUR 1
	10.0 m	709442.1000 S*	LS-DT06 9442.1000 10mPUR 1
	15.0 m	709442.1500 S*	LS-DT06 9442.1500 15mPUR 1
	20.0 m	709442.2000 S*	LS-DT06 9442.2000 20mPUR 1

Technical data	.0250	.0500	.0750	.1000	.1500	.2000
Type of function	Valve suppressor					
Protection device	Suppressor diode					
Rated voltage	DC 12/24 V					
Current Consumption	10 mA					
Cut-off peak	≤ 52 V					
Rated frequency	-					
Holding Capacity	100 VA					
Type of connecting lead	2×0.75 mm <sup>2</sup> PUR					
Cable length (m)	2.5	5	7.5	10	15	20
Connecting lead Ø	5.0 ± 0.20 mm					

## General

Design	DT					
Status indication	LED yellow					
Amperage range	≤ 2 A					
Conductor color	black, blue					
Jacket color	black					
Housing material	PA					
Color of the housing	translucent black					
Protection class	IP67					
Mounting	plug-in, Protective hose possible					
Temperature range connector	-30 °C ... +85 °C					
Temperature range fixed	-40 °C ... +80 °C					
Temperature range moving	-30 °C ... +80 °C					
Storage temperature range	-40 °C ... +90 °C					
Dimensions (w × h × d)	14.9 × 17.1 × 49.5 mm					
Weight (kg/piece)	0.130	0.240	0.330	0.460	0.700	0.930
Insulation resistance	> 100 MΩ					
Contact material	CuZn nickel-plate					
Test voltage type	DC 150 V					
Contact resistance	< 10 mΩ					
Pole number	2					
Flamability according to UL 94	-					
Material sealing ring	Silicone					
Mechanical service life	>100 insertion cycles					
Degree of pollution	3					
UV-resistant according to	-					
Standards	-					
Approvals	-					

## Comments

<sup>1)</sup> Excellent chemical and oil resistance. The material resistance must be checked based on the application for use with aggressive media!

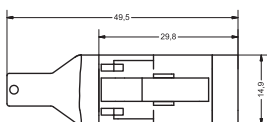
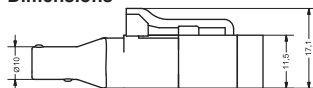
# Suppression Technology · Valve suppressors, Deutsch DT06-2S - outdoor

With integrated protection device + LED

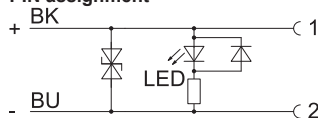
protection against reverse polarity, moulded single conductor PVC FLRY 2 × 0.75 mm<sup>2</sup> on cable outlet can be directly mounted to a protective hose



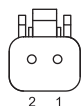
## Dimensions



## PIN assignment



## Pin layout



Description	Part-No.	Type	PU
<b>Suppressor diode + LED</b>			
Cable length	2.5 m	709441.0250 A*	LS-DT06-9441.0250 2,5m FLRY 1
	5.0 m	709441.0500 A*	LS-DT06 9441.0500 5,0m FLRY 1
	7.5 m	709441.0750 A*	LS-DT06 9441.0750 7,5m FLRY 1
	10.0 m	709441.1000 A*	LS-DT06 9441.1000 10,0m FLRY 1
	15.0 m	709441.1500 A*	LS-DT06 9441.1500 15m FLRY 1
	20.0 m	709441.2000 A*	LS-DT06 9441.2000 20,0m FLRY 1

Technical data	.0250	.0500	.0750	.1000	.1500	.2000
Type of function	Valve suppressor					
Protection device	Suppressor diode + LED					
Rated voltage	DC 12/24 V					
Current Consumption	10 mA					
Cut-off peak	≤ 52 V					
Rated frequency	-					
Holding Capacity	100 VA					
Type of connecting lead	2×0.75 mm <sup>2</sup> FLRY					
Cable length (m)	2.5	5	7.5	10	15	20
Connecting lead Ø	1.8 ± 0.10 mm					

## General

Design	DT					
Status indication	LED yellow					
Amperage range	≤ 2 A					
Conductor color	black, blue					
Jacket color	-					
Housing material	PA					
Color of the housing	translucent black					
Protection class	IP67					
Mounting	plug-in, Protective hose possible					
Temperature range connector	-30 °C ... +85 °C					
Temperature range fixed	-40 °C ... +105 °C					
Temperature range moving	-30 °C ... +90 °C					
Storage temperature range	-40 °C ... +90 °C					
Dimensions (w × h × d)	14.9 × 17.1 × 49.5 mm					
Weight (kg/piece)	0.085	0.140	0.200	0.250	0.360	0.740
Insulation resistance	> 100 MΩ					
Contact material	CuZn nickel-plate					
Test voltage type	DC 150 V					
Contact resistance	< 10 mΩ					
Pole number	2					
Flamability according to UL 94	V0					
Material sealing ring	Silicone					
Mechanical service life	>100 insertion cycles					
Degree of pollution	3					
UV-resistant according to	-					
Standards	-					
Approvals	-					

## Comments

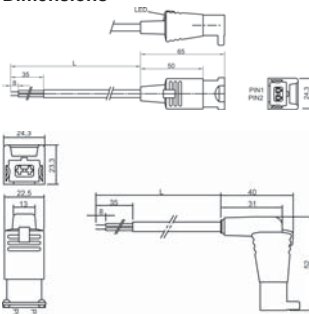
<sup>1)</sup> Excellent chemical and oil resistance. The material resistance must be checked based on the application for use with aggressive media!

# Suppression Technology · Valve suppressors AMP Junior Timer

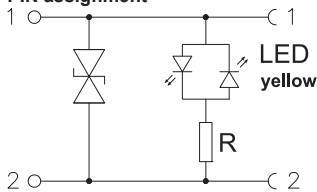
With integrated protection device + LED  
 2-pin style, protection against reverse polarity  
 Moulded PUR connecting cable 2 × 0.75 mm<sup>2</sup>



### Dimensions



### PIN assignment



Description	Part-No.	Type	PU	
<b>Suppressor diode + LED straight</b>				
Cable length	2.5 m	709482 S*	LS-AMP 9482 2,5m PUR	1
	5.0 m	709483 S*	LS-AMP 9483 5m PUR	1
	7.5 m	709484 S*	LS-AMP 9484 7,5m PUR	1
	10.0 m	709485 S*	LS-AMP 9485 10m PUR	1
	15.0 m	709486 S*	LS-AMP 9486 15m PUR	1
	20.0 m	709487 R*	LS-AMP 9487 20m PUR	1
<b>Suppressor diode + LED angled</b>				
Cable length	2.5 m	709472 S*	LS-AMP 9472 2,5m PUR	1
	5.0 m	709473 S*	LS-AMP 9473 5m PUR	1
	7.5 m	709474 S*	LS-AMP 474 7,5m PUR	1
	10.0 m	709475 S*	LS-AMP 475 10m PUR	1
	15.0 m	709476 S*	LS-AMP 9476 15m PUR	1
	20.0 m	709477 R*	LS-AMP 9477 20m PUR	1

### Technical data

Type of function	Valve suppressor					
Protection device	Suppressor diode + LED					
Rated voltage	AC/DC 24 V					
Current Consumption	10 mA					
Cut-off peak	≤ 75 V					
Rated frequency	50 – 60 Hz					
Holding Capacity	100 VA					
Type of connecting lead	2×0.75 mm <sup>2</sup> PUR					
Cable length (m)	2.5	5	7.5	10	15	20
Connecting lead Ø	5.2 ± 0.20 mm					

### General

	AMP Junior Timer straight	AMP Junior Timer angle connector				
Design	AMP Junior Timer straight	AMP Junior Timer angle connector				
Status indication	LED yellow					
Amperage range	≤ 4 A					
Conductor color	black, blue					
Jacket color	black					
Contact material	CuZn tin-plated					
Housing material	PA 6.6					
Color of the housing	black					
Protection class	IP65					
Mounting	plug-in					
Temperature range connector	-25 °C ... +80 °C					
Storage temperature range	-40 °C ... +90 °C					
Temperature range fixed	-30 °C ... +90 °C					
Temperature range moving	-15 °C ... +80 °C					
Dimensions (w × h × d)	straight: 24.3 × 22.3 × 65.0 mm	angled: 24.3 × 40.0 × 52.0 mm				
Weight (kg/piece)	0.130	0.240	0.330	0.460	0.700	0.930

### Comments

<sup>1)</sup> Excellent chemical and oil resistance. The material resistance must be checked based on the application for use with aggressive media!

# Suppression Technology · AMP Junior Timer Connector

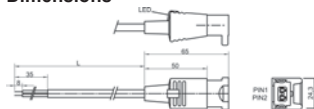
## 2-pole straight

### Protection device suppressor diode + status indication LED

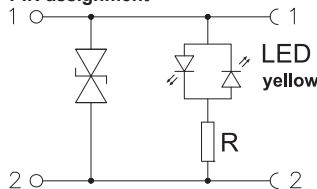
### with moulded vehicle cable Type FLRY as single conductor 0.75 mm<sup>2</sup>



#### Dimensions



#### PIN assignment



Description	Part-No.	Type	PU
<b>Suppressor diode + LED</b>			
Cable length	2.5 m	709443.0250 A*	LS-AMP 9443.0250 2,5m PVC 1
	5.0 m	709443.0500 A*	LS-AMP 9443.0500 5,0m PVC 1
	7.5 m	709443.0750 A*	LS-AMP 9443.0750 7,5m PVC 1
	10.0 m	709443.1000 A*	LS-AMP 9443.1000 10m PVC 1
	15.0 m	709443.1500 A*	LS-AMP 9443.1500 15m PVC 1
	20.0 m	709443.2000 A*	LS-AMP 9443.2000 20m PVC 1

#### Technical data

Type of function	Valve suppressor					
Protection device	Suppressor diode + LED					
Rated voltage	AC/DC 18–30 V					
Current Consumption	10 mA					
Cut-off peak	≤ 75 V					
Rated frequency	50 – 60 Hz					
Holding Capacity	100 VA					
Type of connecting lead	2×0.75 mm <sup>2</sup> FLRY					
Cable length (m)	2.5	5	7.5	10	15	20
Connecting lead Ø	2.1 ± 0.20 mm					

#### General

Design	AMP Junior Timer straight					
Status indication	LED yellow					
Amperage range	≤ 4 A					
Conductor color	black, blue					
Contact material	CuZn tin-plated					
Housing material	PA 6.6					
Color of the housing	black					
Protection class	IP65					
Mounting	–					
Temperature range connector	-30 °C ... +85 °C					
Storage temperature range	-40 °C ... +90 °C					
Temperature range fixed	-40 °C ... +105 °C					
Temperature range moving	-30 °C ... +90 °C					
Dimensions (w × h × d)	24.3 × 22.3 × 65.0 mm					
Weight (kg/piece)	0.090	0.150	0.210	0.270	0.390	0.510
UV-resistant according to	–					

#### Comments

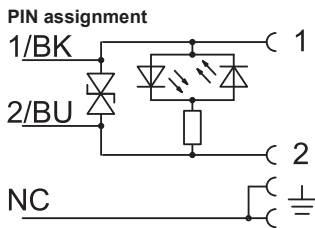
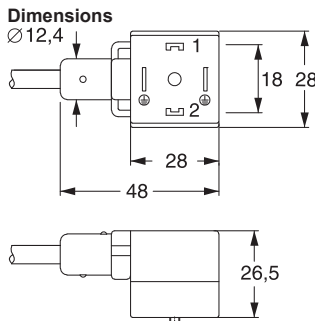
<sup>1)</sup> Excellent chemical and oil resistance. The material resistance must be checked based on the application for use with aggressive media!

# Suppression Technology · Valve suppressors

## Construction A (18 mm)

2pin version, protected against reverse polarity, moulded PUR connecting cable 2 × 0.75 mm<sup>2</sup>

Protection device: suppressor diode + LED



Description	Part-No.	Type	PU	
<b>Suppressor diode + LED</b>				
Cable length	1 m	709469 S*	LS-A-9469 1,0mPUR AC/DC 24V	1
	2.5 m	709459 S*	LS-A-9459 2,5mPUR AC/DC 24V	1
	5 m	709460 S*	LS-A-9460 5,0mPUR AC/DC 24V	1
	10 m	709462 S*	LS-A-9462 10mPUR AC/DC 24V	1

<b>Technical data</b>				
Type of function	Valve suppressor			
Protection device	Suppressor diode + LED			
Rated voltage	AC/DC 24 V			
Current Consumption	4 mA			
Cut-off peak	≤ 52 V			
Rated frequency	50 – 60 Hz			
Holding Capacity	100 VA			
Type of connecting lead	2×0.75 mm <sup>2</sup> PUR			
Cable length (m)	1	2.5	5	10
Connecting lead Ø	5.0 mm			
<b>General</b>				
Design	A (18 mm)			
Status indication	LED yellow			
Amperage range	≤ 4 A			
Conductor color	black, blue			
Jacket color	black			
Contact material	CuSn silver-plated			
Housing material	TPU			
Color of the housing	transparent			
Protection class	IP67			
Mounting	Breakaway torque 0.4 Nm, Protective hose possible			
Operation temperature range	-25 °C ... +80 °C			
Temperature range connector	-25 °C ... +90 °C			
Temperature range fixed	-30 °C ... +90 °C			
Temperature range moving	-15 °C ... +80 °C			
Storage temperature range	-40 °C ... +90 °C			
Dimensions (w × h × d)	28.0 × 26.5 × 48.0 mm			
Weight (kg/piece)	0.080	0.140	0.250	0.530
Standards	EN 175301-803, ISO 4400			
Approvals	-			

Accessories	Color	Part-No.	Type	PU
Tag holder 7×20 mm	white	760968	BZT-0720	100

### Comments

<sup>1)</sup> Very good chemical and oil resistance. The material resistance must be checked based on the application for use with aggressive media!

# Suppression Technology · Valve suppressors

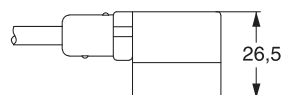
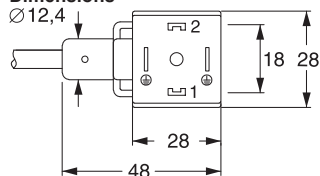
## Design A (18 mm), 2-pin without PE

Protection device suppressor diode + LED, with stainless steel screw

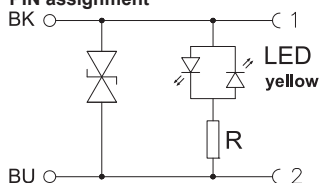
Moulded vehicle cable type FLRY as single conductor 2x0.75mm<sup>2</sup>



### Dimensions



### PIN assignment



Description	Part-No.	Type	PU
Cable length	2.5 m	709428.0250 A*	LS-A 2,5 m FLRY AC/DC 12-24 V 1
	5 m	709428.0500 A*	LS-A 5,0 m FLRY AC/DC 12-24 V 1
	7.5 m	709428.0750 A*	LS-A 10m FLRY AC/DC 12-24 V 1
	10 m	709428.1000 A*	LS-A 10m FLRY AC/DC 12-24 V 1
	15 m	709428.1500 A*	LS-A 15m FLRY AC/DC 12-24 V 1
	20 m	709428.2000 A*	LS-A 20m FLRY AC/DC 12-24 V 1

### Technical data

Type of function	Valve suppressor
Protection device	Suppressor diode + LED
Rated voltage	AC/DC 12-24 V
Current Consumption	4 mA
Cut-off peak	52
Rated frequency	50 – 60 Hz
Holding Capacity	100 VA
Type of connecting lead	2x0.75 mm <sup>2</sup> FLRY
Cable length (m)	2.5 5 7.5 10 15 20
Connecting lead Ø	1.8 mm

### General

Design	A (18 mm)
Status indication	LED yellow
Amperage range	≤ 7 A
Conductor color	black, blue
Housing material	TPU
Color of the housing	transparent
Contact material	CuSn silver-plated
Fixing	Fixing screw stainless steel 1.4567
Protection class	IP65
Mounting	Breakaway torque 0.4 Nm
Operation temperature range	-25 °C ... +90 °C
Temperature range connector	-25 °C ... +90 °C
Temperature range fixed	-40 °C ... +105 °C
Temperature range moving	-30 °C ... +90 °C
Storage temperature range	-40 °C ... +90 °C
Dimensions (w × h × d)	28.0 × 26.5 × 48.0 mm
Weight (kg/piece)	0.110 0.170 0.230 0.290 0.410 0.530
Standards	EN 175301-803, ISO 4400
Approvals	-

### Comments

<sup>1)</sup> Excellent chemical and oil resistance. The material resistance must be checked based on the application for use with aggressive media!

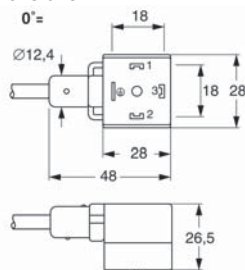


# Suppression Technology · Valve suppressors

**Design A (18mm), 3-pin without PE, 0°**  
**Without circuit, with stainless steel screw**  
**with moulded vehicle cable Type FLRY as single conductor 3x0.75mm<sup>2</sup>**



## Dimensions



## PIN assignment

1	BK
2	BU
3	BN

Description	Part-No.	Type	PU
Cable length	2.5 m	709427.0250 A* L-A 2,5 m FLRY 0° AC/DC 0-230 V	1
	5 m	709427.0500 A* L-A 5,0 m FLRY 0° AC/DC 0-230 V	1
	7.5 m	709427.0750 A* L-A 7,5 m FLRY 0° AC/DC 0-230 V	1
	10 m	709427.1000 A* L-A 10m FLRY 0° AC/DC 0-230 V	1
	15 m	709427.1500 A* L-A 10m FLRY 0° AC/DC 0-230 V	1
	20 m	709427.2000 A* L-A 10m FLRY 0° AC/DC 0-230 V	1

## Technical data

Type of function	Valve suppressor
Protection device	-
Rated voltage	AC/DC 0-230 V
Current Consumption	- mA
Rated frequency	50 - 60 Hz
Holding Capacity	100 VA
Type of connecting lead	0.75 mm <sup>2</sup> FLRY
Cable length (m)	2.5 5 7.5 10 15 20
Connecting lead Ø	1.8 mm

## General

Design	A (18 mm)
Status indication	-
Amperage range	≤ 7 A
Conductor color	black, blue, brown
Housing material	TPU
Color of the housing	black
Contact material	CuSn silver-plated
Fixing	Fixing screw stainless steel 1.4567
Protection class	IP65
Mounting	Breakaway torque 0.4 Nm
Operation temperature range	-25 °C ... +90 °C
Temperature range connector	-25 °C ... +90 °C
Temperature range fixed	-40 °C ... +105 °C
Temperature range moving	-30 °C ... +90 °C
Storage temperature range	-40 °C ... +90 °C
Dimensions (w × h × d)	28.0 × 26.5 × 48.0 mm
Weight (kg/piece)	0.110 0.170 0.230 0.290 0.410 0.530
Standards	EN 175301-803, ISO 4400

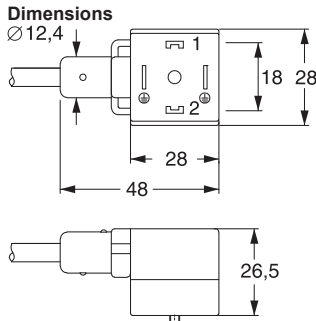
## Approvals

Approvals -

**Comments**  
<sup>1)</sup> Excellent chemical and oil resistance. The material resistance must be checked based on the application for use with aggressive media!

# Suppression Technology · Valve suppressors

## Construction A (18 mm) PVC connecting lead with bridged ground conductor (PE)

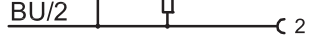


### PIN assignment

709600, 709601, 709608



709605, 709606, 709607, 709519



709673, 709674, 709675



Description	Part-No.	Type	PU	
<b>without component parts</b>				
Rated voltage	AC/DC 0–230 V	709600 <b>S*</b>	L-A-9600 2,5mPVC up to 230 V	1
	AC/DC 0–230 V	709601 <b>S*</b>	L-A-9601 5mPVC up to 230 V	1
	AC/DC 0–230 V	709608 <b>S*</b>	L-A-9608 10m PVC 0-230V	1
<b>Suppressor diode</b>				
Rated voltage	AC/DC 24 V	709605 <b>S*</b>	LS-A-9605 2.5m PVC 24V	1
	AC/DC 24 V	709606 <b>S*</b>	LS-A-9606 5m PVC 24V	1
	AC/DC 24 V	709607 <b>S*</b>	LS-A-9607 10m PVC 24V	1
	AC/DC 24 V	709519 <b>S*</b>	LS-A-9519 15m PVC 24V	1
<b>varistor</b>				
Rated voltage	AC/DC 230 V	709673 <b>S*</b>	LV-A-9673 2.5m PVC 230V	1
	AC/DC 230 V	709674 <b>S*</b>	LV-A-9674 5m PVC 230V	1
	AC/DC 230 V	709675 <b>S*</b>	LV-A-9675 10m PVC 230V	1

Technical data	without component parts	Suppressor diode	varistor	
Type of function		Valve suppressor		
Protection device	–	Suppressor diode	Varistor	
Rated voltage	AC/DC 0–230 V	AC/DC 24 V	AC/DC 230 V	
Current Consumption	– mA	4 mA	3 mA	
Cut-off peak	≤ – V	≤ 52 V	≤ 475 V	
Rated frequency		50 – 60 Hz		
Holding Capacity	150 VA		100 VA	
Type of connecting lead		3×0.5 mm <sup>2</sup> PVC		
Cable length (m)	2.5 5 10	2.5 5 10 15	2.5 5 10	
Connecting lead Ø		4.8 ± 0.15 mm		
<b>General</b>				
Design		A (18 mm)		
Status indication	–	LED yellow		
Amperage range	≤ 7 A	≤ 4 A	≤ 0.5 A	
Conductor color		brown, blue, yellow-green		
Jacket color		black		
Contact material		CuSn silver-plated		
Housing material		TPU		
Color of the housing	black	transparent		
Protection class		IP67		
Mounting		Breakaway torque 0.4 Nm, Protective hose possible		
Operation temperature range		–25 °C ... +80 °C		
Temperature range connector		–25 °C ... +90 °C		
Temperature range fixed		–30 °C ... +80 °C		
Temperature range moving		–5 °C ... +70 °C		
Storage temperature range		–40 °C ... +90 °C		
Dimensions (w × h × d)		28.0 × 26.5 × 48.0 mm		
Weight (kg/piece)	0.130 0.220 0.530	0.140 0.220 0.530 0.740	0.140 0.220 0.530	
Standards		EN 175301-803, ISO 4400		
Approvals		–		

Accessories	Color	Part-No.	Type	PU
Tag holder 7×20 mm	white	760968	BZT-0720	100

### Comments

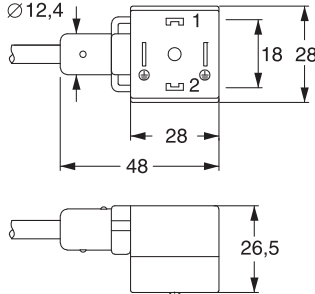
<sup>1)</sup> Very good chemical and oil resistance. The material resistance must be checked based on the application for use with aggressive media!

# Suppression Technology · Valve suppressors

## Construction A (18 mm) PUR connecting lead with bridged ground conductor (PE)

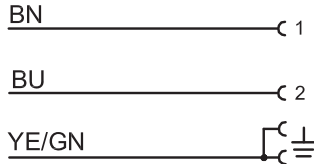


### Dimensions

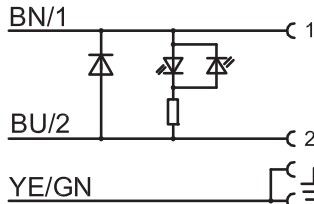


### PIN assignment

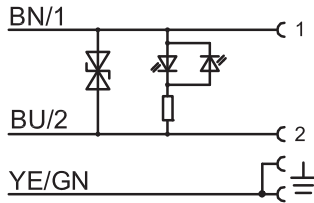
709700, 709701, 709708



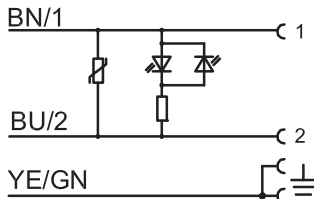
709526, 709527



709705, 709706, 709707



709773, 709774, 709775



Description	Part-No.	Type	PU	
<b>without component parts</b>				
Rated voltage	AC/DC 0–230 V	709700 S*	L-A-9700 2,5mPUR up to 230 V	1
	AC/DC 0–230 V	709701 S*	L-A-9701 5mPUR up to 230 V	1
	AC/DC 0–230 V	709708 S*	L-A-9708 10m PUR 0-230V	1
<b>Diode</b>				
Rated voltage	DC 24 V	709526 S*	LD-A-9526 2,0m PUR 24V	1
	DC 24 V	709527 S*	LD-A-9527 5,0m PUR 24V	1
<b>Suppressor diode</b>				
Rated voltage	AC/DC 24 V	709705 S*	LS-A-9705 2.5m PUR 24V	1
	AC/DC 24 V	709706 S*	LS-A-9706 5m PUR 24V	1
	AC/DC 24 V	709707 S*	LS-A-9707 10m PUR 24V	1
<b>varistor</b>				
Rated voltage	AC/DC 230 V	709773 S*	LV-A-9773 2.5m PUR 230V	1
	AC/DC 230 V	709774 S*	LV-A-9774 5m PUR 230V	1
	AC/DC 230 V	709775 S*	LV-A-9775 10m PUR 230V	1

Technical data	without component parts	Diode	Suppressor diode	varistor
Type of function		Valve suppressor		
Protection device	–	Diode + LED	Suppressor diode + LED	Varistor + LED
Rated voltage	AC/DC 0–230 V	DC 24 V	AC/DC 24 V	AC/DC 230 V
Current Consumption	– mA		4 mA	3 mA
Cut-off peak	≤ – V	≤ 1 V	≤ 52 V	≤ 475 V
Rated frequency	50 – 60 Hz	–		50 – 60 Hz
Holding Capacity	– VA			100 VA
Type of connecting lead		3×0.5 mm <sup>2</sup> PUR		
Cable length (m)	2.5 5 10	2.5 5	2.5 5 10	2.5 5 10
Connecting lead Ø	5.0 ± 0.15 mm			
<b>General</b>				
Design	A (18 mm)			
Status indication	–	LED yellow		
Amperage range	≤ 7 A	≤ 4 A		≤ 0.5 A
Conductor color	brown, blue, yellow-green			
Jacket color	black			
Contact material	CuSn silver-plated			
Housing material	TPU			
Color of the housing	black	transparent		
Protection class	IP67			
Mounting	Breakaway torque 0.4 Nm, Protective hose possible			
Operation temperature range	–25 °C ... +80 °C			
Temperature range connector	–25 °C ... +90 °C			
Temperature range fixed	–40 °C ... +80 °C			
Temperature range moving	–20 °C ... +80 °C			
Storage temperature range	–40 °C ... +90 °C			
Dimensions (w × h × d)	28.0 × 26.5 × 48.0 mm			
Weight (kg/piece)	0.130 0.230 0.530	0.130 0.230 0.130 0.230 0.530	0.130 0.300 0.530	
Standards	EN 175301-803, ISO 4400			
Approvals	–			

Accessories	Color	Part-No.	Type	PU
Tag holder 7×20 mm	white	760968	BZT-0720	100

### Comments

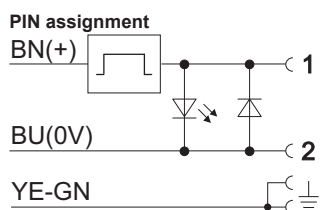
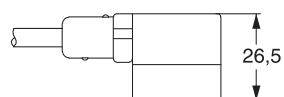
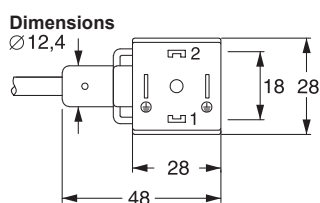
<sup>1)</sup> Very good chemical and oil resistance. The material resistance must be checked based on the application for use with aggressive media!

# Suppression Technology · Valve Suppressors - special function

Energy reducer, construction A (18 mm), PUR cable

Energy reduction approx. 50 %, protection device, LED status indication

0° – 180° field installation, open cable end



Description	Part-No.	Type	PU
<b>Energy reducer</b>			
Cable length	2.5 m	709709.0250 S*	LER-A-9709 2,5m PUR DC 24V 1
	5.0 m	709709.0500 S*	LER-A-9709 5,0m PUR DC 24V 1
	10.0 m	709709.1000 S*	LER-A-9709 10m PUR DC 24V 1

<b>Technical data</b>			
Type of function	Energy reducer		
Protection device	Free-wheeling diode		
Rated voltage	DC 24 V		
Current Consumption	24 mA		
Cut-off peak	≤ 1 V		
Switching frequency	max. 2 Hz		
Energy reduction	Reduction factor approx. 50 %		
Type of connecting lead	3×0.5 mm <sup>2</sup> PUR		
Cable length (m)	2.5	5	10
Connecting lead Ø	5.0 ± 0.15 mm		
<b>General</b>			
Design	A (18 mm)		
Status indication	LED yellow		
Conductor insulation	PVC		
Amperage range	≤ 2 A		
Conductor color	brown, blue, yellow-green		
Jacket color	black		
Contact material	CuSn silver-plated		
Housing material	TPU		
Color of the housing	translucent black		
Protection class	IP67		
Mounting	Breakaway torque 0.4 Nm, Protective hose possible		
Operation temperature range	-25 °C ... +80 °C		
Temperature range connector	-25 °C ... +60 °C		
Temperature range fixed	-40 °C ... +80 °C		
Temperature range moving	-20 °C ... +80 °C		
Storage temperature range	-40 °C ... +90 °C		
Dimensions (w × h × d)	22.0 × 26.5 × 50.0 mm		
Weight (kg/piece)	0.130	0.230	0.530
Standards	EN 175301-803, ISO 4400		
Approvals	-		

Accessories	Color	Part-No.	Type	PU
Tag holder 7×20 mm	white	760968	BZT-0720	100

**Comments**

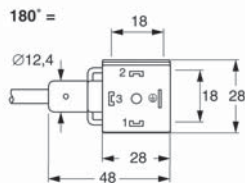
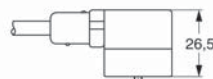
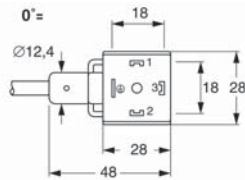
<sup>1)</sup> Excellent chemical and oil resistance. The material resistance must be checked based on the application for use with aggressive media!

# Suppression Technology · Valve Suppressors - special function

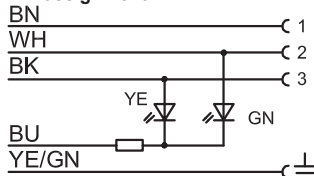
## Construction A (18 mm) PUR connecting lead Pressure switch / fill level monitor



### Dimensions



### PIN assignment



Description	Part-No.	Type	PU	
<b>0°; PE at the cable entry point</b>				
Rated voltage	DC 24 V	709772 S*	LDS-A-9772 5m PUR DC 24V	1
	DC 24 V	709771 S*	LDS-A-9771 10mPUR DC 24V	1
<b>180°; PE across from the cable entry point</b>				
Rated voltage	DC 24 V	709782 S*	LDS-A-9782 5m PUR DC 24V	1
	DC 24 V	709789 S*	LDS-A-9789 10m PUR DC 24V	1

Technical data	709772	709771	709782	709789
Type of function	Pressure switch			
Protection device	-			
Rated voltage	DC 24 V			
Rated voltage range	30 V			
Current Consumption	4 mA			
Switching frequency	-			
Switch-on delay	-			
Switch-off delay	-			
Cut-off peak	≤ - V			
Rated frequency	-			
Holding Capacity	- VA			
Type of connecting lead	5×0.5 mm <sup>2</sup> PUR			
Cable length (m)	5	10	5	10
Connecting lead Ø	5.6 ± 0.15 mm			
Fitting	-			
Short-circuit protection	-			
<b>General</b>				
Design	A (18 mm)			
Status indication	LED yellow + LED green			
Amperage range	≤ 4 A			
Conductor color	various			
Jacket color	black			
Contact material	CuSn silver-plated			
Housing material	TPU			
Color of the housing	transparent			
Protection class	IP67			
Mounting	Breakaway torque 0.4 Nm, Protective hose possible			
Operation temperature range	-25 °C ... +80 °C			
Temperature range connector	-25 °C ... +90 °C			
Temperature range fixed	-40 °C ... +80 °C			
Temperature range moving	-20 °C ... +80 °C			
Storage temperature range	-40 °C ... +90 °C			
Dimensions (w × h × d)	28.0 × 26.5 × 48.0 mm			
Weight (kg/piece)	0.225	0.530	0.225	0.530
Standards	EN 175301-803, ISO 4400			
Approvals	-			

Accessories	Color	Part-No.	Type	PU
Tag holder 7×20 mm	white	760968	BZT-0720	100

### Comments

<sup>1)</sup> Excellent chemical and oil resistance. The material resistance must be checked based on the application for use with aggressive media!

# Suppression Technology · Valve Suppressors - special function

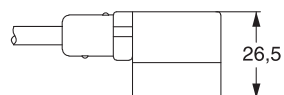
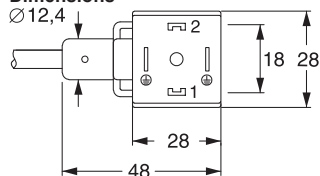
## Construction A (18 mm)

### PUR connecting lead

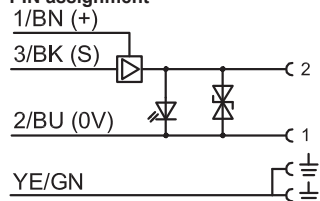
### Switching amplifier, short-circuit-proof, 0°–180° installation



#### Dimensions



#### PIN assignment



Description	Part-No.	Type	PU	
<b>without galvanic insulation</b>				
Rated voltage	DC 24 V	709790 S*	LVER-A-9790 2,5m PUR DC 24V	1
	DC 24 V	709791 S*	LVER-A-9791 5m PUR DC 24V	1
	DC 24 V	709792 S*	LVER-A-9792 10m PUR DC 24V	1

Technical data	709790	709791	709792
Type of function		Switching amplifier	
Protection device		Suppressor diode	
Rated voltage		DC 24 V	
Rated voltage range		DC 19 – 30 V	
Current Consumption		2.4 mA	
Switching frequency		max. 20 Hz	
Switch-on delay		<100 µs	
Switch-off delay		<200 µs	
Cut-off peak		≤ 52 V	
Rated frequency		–	
Holding Capacity		100 VA	
Type of connecting lead		4×0.75 mm <sup>2</sup> PUR	
Cable length (m)	2.5	5	10
Connecting lead Ø		5.8 ± 0.15 mm	
Fitting		–	
Short-circuit protection		Short circuit protected	
<b>General</b>			
Design		A (18 mm)	
Status indication		LED yellow	
Amperage range		≤ 2 A	
Conductor color		various	
Jacket color		black	
Contact material		CuSn silver-plated	
Housing material		TPU	
Color of the housing		transparent	
Protection class		IP67	
Mounting		Breakaway torque 0.4 Nm, Protective hose possible	
Operation temperature range		-25 °C ... +80 °C	
Temperature range connector		-25 °C ... +90 °C	
Temperature range fixed		-40 °C ... +80 °C	
Temperature range moving		-20 °C ... +80 °C	
Storage temperature range		-40 °C ... +80 °C	
Dimensions (w × h × d)		28.0 × 26.5 × 48.0 mm	
Weight (kg/piece)	0.140	0.300	0.560
Standards		EN 175301-803, ISO 4400	
Approvals		–	

Accessories	Color	Part-No.	Type	PU
Tag holder 7×20 mm	white	760968	BZT-0720	100

#### Comments

<sup>1)</sup> Excellent chemical and oil resistance. The material resistance must be checked based on the application for use with aggressive media.



# Suppression Technology · Valve suppressors

## Construction B (10 mm)

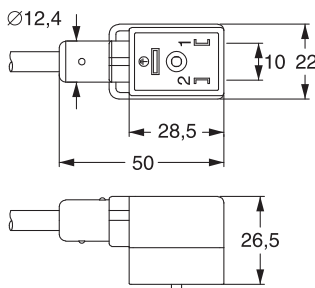
PUR/PVC cable

Protection device: suppressor diode + LED

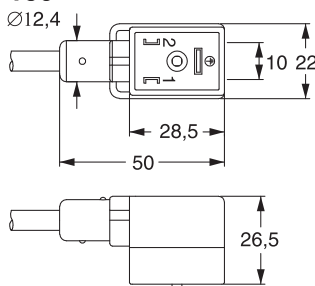


### Dimensions

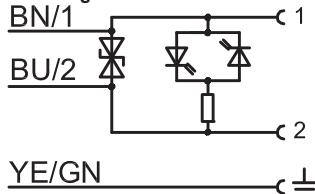
0°



180°



### PIN assignment



Description	Part-No.	Type	PU	
<b>Cable outlet 0°, PVC</b>				
Cable length	2.5 m	709615 S*	LS-B-9615 2.5m PVC 0° 24V	1
	5 m	709616 S*	LS-B-9616 5m PVC 0° 24V	1
	10 m	709617 S*	LS-B-9617 10m PVC 0° 24V	1
<b>Cable outlet 180°, PVC</b>				
Cable length	2.5 m	709625 S*	LS-B-9625 2.5m PVC 180° 24V	1
	5 m	709626 S*	LS-B-9626 5m PVC 180° 24V	1
	10 m	709627 S*	LS-B-9627 10m PVC 180° 24V	1
<b>Cable outlet 0°, PUR</b>				
Cable length	2.5 m	709715 S*	LS-B-9715 2.5m PUR 0° 24V	1
	5 m	709716 S*	LS-B-9716 5m PUR 0° 24V	1
	10 m	709717 S*	LS-B-9717 10m PUR 0° 24V	1
<b>Cable outlet 180°, PUR</b>				
Cable length	2.5 m	709725 S*	LS-B-9725 2.5m PUR 180° 24V	1
	5 m	709726 S*	LS-B-9726 5m PUR 180° 24V	1
	10 m	709727 S*	LS-B-9727 10m PUR 180° 24V	1

Technical data		PVC termination cable		PUR termination cable			
Type of function		Valve suppressor					
Protection device		Suppressor diode					
Rated voltage		AC/DC 24 V					
Current Consumption		4 mA					
Cut-off peak		≤ 52 V					
Rated frequency		50 – 60 Hz					
Holding Capacity		100 VA					
Type of connecting lead		3×0.5 mm <sup>2</sup> PVC		3×0.5 mm <sup>2</sup> PUR			
Cable length (m)		2.5	5	10	2.5	5	10
Connecting lead Ø		4.8 ± 0.5 mm		5.0 ± 0.5 mm			
<b>General</b>							
Design		B DIN (10 mm)					
Status indication		LED yellow					
Amperage range		≤ 4 A					
Conductor color		various					
Jacket color		black					
Contact material		CuSn silver-plated					
Housing material		TPU					
Color of the housing		transparent					
Protection class		IP67					
Mounting		Breakaway torque 0.4 Nm, Protective hose possible					
Connection device		-					
Operation temperature range		-25 °C ... +80 °C					
Temperature range connector		-25 °C ... +90 °C					
Temperature range fixed		-30 °C ... +80 °C		-40 °C ... +80 °C			
Temperature range moving		-5 °C ... +70 °C		-20 °C ... +80 °C			
Storage temperature range		-40 °C ... +90 °C					
Dimensions (w × h × d)		22.0 × 26.5 × 50.0 mm					
Weight (kg/piece)		0.130	0.220	0.530	0.130	0.220	0.530
Standards		EN 175301-803, ISO 6952					
Approvals		-					

Accessories	Color	Part-No.	Type	PU
Tag holder 7×20 mm	white	760968	BZT-0720	100

### Comments

<sup>1)</sup> Excellent chemical and oil resistance. The material resistance must be checked based on the application for use with aggressive media!

# Suppression Technology · Valve suppressors

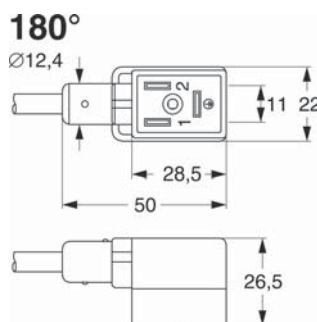
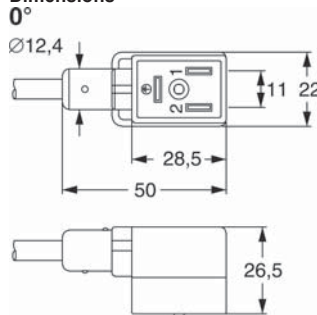
## Construction BI (11 mm)

PUR/PVC cable

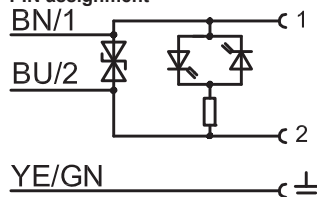
Protection device: suppressor diode + LED



### Dimensions



### PIN assignment



Description	Part-No.	Type	PU	
<b>Cable outlet 0°, PVC</b>				
Cable length	2.5 m	709635 S*	LS-BI-9635 2,5m PVC 0° 24 V	1
	5 m	709636 S*	LS-BI-9636 5m PVC 0° 24V	1
	10 m	709637 S*	LS-BI-9637 10m PVC 0° 24V	1
<b>Cable outlet 180°, PVC</b>				
Cable length	2.5 m	709645 S*	LS-BI-9645 2.5m PVC 180° 24V	1
	5 m	709646 S*	LS-BI-9646 5m PVC 180° 24V	1
	10 m	709647 S*	LS-BI-9647 10m PVC 180° 24V	1
<b>Cable outlet 0°, PUR</b>				
Cable length	2.5 m	709735 S*	LS-BI-9735 2.5m PUR 0° 24V	1
	5 m	709736 S*	LS-BI-9736 5m PUR 0° 24V	1
	10 m	709737 S*	LS-BI-9737 10m PUR 0° 24V	1
<b>Cable outlet 180°, PUR</b>				
Cable length	2.5 m	709745 S*	LS-BI-9745 2.5m PUR 180° 24V	1
	5 m	709746 S*	LS-BI-9746 5m PUR 180° 24V	1
	10 m	709747 S*	LS-BI-9747 10m PUR 180° 24V	1

Technical data		PVC termination cable		PUR termination cable			
Type of function		Valve suppressor					
Protection device		Suppressor diode					
Rated voltage		AC/DC 24 V					
Current Consumption		4 mA					
Cut-off peak		≤ 52 V					
Rated frequency		50 – 60 Hz					
Holding Capacity		100 VA					
Type of connecting lead		3×0.5 mm <sup>2</sup> PVC		3×0.5 mm <sup>2</sup> PUR			
Cable length (m)		2.5	5	10	2.5	5	10
Connecting lead Ø		4.8 ± 0.15 mm		5.0 ± 0.15 mm			
<b>General</b>							
Design		BI Ind. (11 mm)					
Status indication		LED yellow					
Amperage range		≤ 4 A					
Conductor color		various					
Jacket color		black					
Contact material		CuSn silver-plated					
Housing material		TPU					
Color of the housing		transparent					
Protection class		IP67					
Mounting		Breakaway torque 0.4 Nm, Protective hose possible					
Connection device		–					
Operation temperature range		-25 °C ... +80 °C					
Temperature range connector		-25 °C ... +90 °C					
Temperature range fixed		-30 °C ... +80 °C		-40 °C ... +80 °C			
Temperature range moving		-5 °C ... +70 °C		-20 °C ... +80 °C			
Storage temperature range		-40 °C ... +90 °C					
Dimensions (w × h × d)		22.0 × 26.5 × 50.0 mm					
Weight (kg/piece)		0.130	0.220	0.530	0.130	0.220	0.530
Standards		–					
Approvals		–					

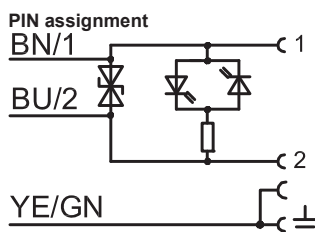
Accessories	Color	Part-No.	Type	PU
Tag holder 7×20 mm	white	760968	BZT-0720	100

### Comments

<sup>1)</sup> Excellent chemical and oil resistance. The material resistance must be checked based on the application for use with aggressive media!

# Suppression Technology · Valve suppressors

## Construction C (8 mm) PUR/PVC cable with bridged ground conductor (PE)



Description	Part-No.	Type	PU	
<b>PVC connecting lead</b>				
Cable length	2.5 m	709653 S*	LS-C-9653 2.5m PVC 24V	1
	5 m	709654 S*	LS-C-9654 5m PVC 24V	1
	10 m	709659 S*	LS-C-9659 10m PVC 24V	1
<b>PUR connecting lead</b>				
Cable length	2.5 m	709753 S*	LS-C-9753 2.5m PUR 24V	1
	5 m	709754 S*	LS-C-9754 5m PUR 24V	1
	10 m	709759 S*	LS-C-9759 10m PUR 24V	1

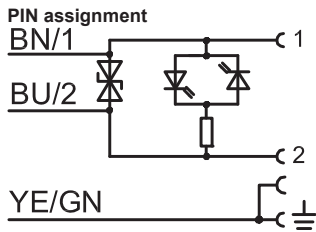
Technical data		-	
Type of function	Valve suppressor		
Protection device	Suppressor diode		
Rated voltage	AC/DC 24 V		
Current Consumption	4 mA		
Cut-off peak	≤ 52 V		
Rated frequency	50 – 60 Hz		
Holding Capacity	70 VA		
Type of connecting lead	3×0.5 mm <sup>2</sup> PVC		3×0.5 mm <sup>2</sup> PUR
Cable length (m)	2.5	5	10
Connecting lead Ø	4.8 ± 0.15 mm		5.0 ± 0.15 mm
<b>General</b>			
Design	C DIN (8 mm)		
Status indication	LED yellow		
Amperage range	≤ 3 A		
Conductor color	various		
Jacket color	black		
Contact material	CuSn silver-plated		
Housing material	TPU		
Color of the housing	transparent		
Protection class	IP67		
Mounting	Breakaway torque 0.4 Nm, Protective hose possible		
Connection device	-		
Operation temperature range	-25 °C ... +80 °C		
Temperature range connector	-25 °C ... +90 °C		
Temperature range fixed	-30 °C ... +80 °C	-40 °C ... +80 °C	
Temperature range moving	-5 °C ... +70 °C	-20 °C ... +80 °C	
Storage temperature range	-40 °C ... +90 °C		
Dimensions (w × h × d)	16.0 × 25.3 × 39.0 mm		
Weight (kg/piece)	0.120	0.215	0.520
Standards	EN 175301-803, ISO 6952		
Approvals	-		

Accessories	Color	Part-No.	Type	PU
Tag holder 7×20 mm	white	760968	BZT-0720	100

**Comments**  
<sup>1)</sup> Excellent chemical and oil resistance. The material resistance must be checked based on the application for use with aggressive media!

# Suppression Technology · Valve suppressors

## Construction CI (9.4 mm) PUR/PVC cable with bridged ground conductor (PE)



Description	Part-No.	Type	PU	
<b>PVC connecting lead</b>				
Cable length	2.5 m	709666 S*	LS-CI-9666 2.5m PVC 24V	1
	5 m	709667 S*	LS-CI-9667 5m PVC 24V	1
	10 m	709668 S*	LS-CI-9668 10m PVC 24V	1
<b>PUR connecting lead</b>				
Cable length	2.5 m	709766 S*	LS-CI-9766 2.5m PUR 24V	1
	5 m	709767 S*	LS-CI-9767 5m PUR 24V	1
	10 m	709768 S*	LS-CI-9768 10m PUR 24V	1

Technical data		-			
Type of function	Valve suppressor				
Protection device	Suppressor diode				
Rated voltage	AC/DC 24 V				
Current Consumption	4 mA				
Cut-off peak	≤ 52 V				
Rated frequency	50 – 60 Hz				
Holding Capacity	70 VA				
Type of connecting lead	3×0.5 mm <sup>2</sup> PVC		3×0.5 mm <sup>2</sup> PUR		
Cable length (m)	2.5	5	10	2.5	5 10
Connecting lead Ø	4.8 ± 0.15 mm		5.0 ± 0.15 mm		
<b>General</b>					
Design	CI Ind. (9.4 mm)				
Status indication	LED yellow				
Amperage range	≤ 3 A				
Conductor color	various				
Jacket color	black				
Contact material	CuSn silver-plated				
Housing material	TPU				
Color of the housing	transparent				
Protection class	IP67				
Mounting	Breakaway torque 0.4 Nm, Protective hose possible				
Connection device	-				
Operation temperature range	-25 °C ... +80 °C				
Temperature range connector	-25 °C ... +90 °C				
Temperature range fixed	-30 °C ... +80 °C		-40 °C ... +80 °C		
Temperature range moving	-5 °C ... +70 °C		-20 °C ... +80 °C		
Storage temperature range	-40 °C ... +90 °C				
Dimensions (w × h × d)	16.0 × 25.3 × 39.0 mm				
Weight (kg/piece)	0.120	0.215	0.520	0.120	0.215 0.520
Standards	-				
Approvals	-				

Accessories	Color	Part-No.	Type	PU
Tag holder 7×20 mm	white	760968	BZT-0720	100

### Comments

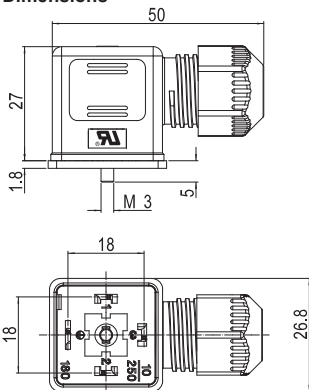
<sup>1)</sup> Excellent chemical and oil resistance. The material resistance must be checked based on the application for use with aggressive media!

# Suppression Technology · Valve suppressors

Adjustable male, design A (18 mm)  
 Ground wire terminator (PE) adjustable in 90° steps  
 Protection device: without circuit / Z-Diode+LED / Varistor+LED

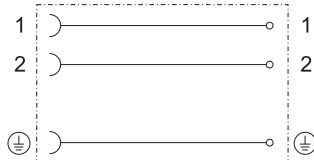


### Dimensions

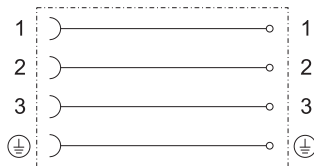


### PIN assignment

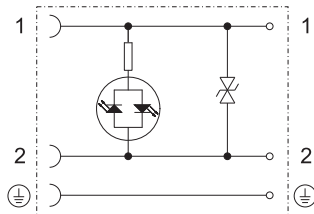
#### 705800



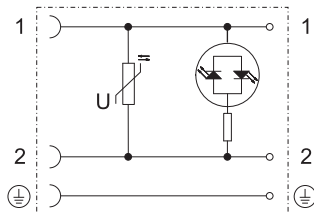
#### 705801



#### 705810



#### 705830



Description	Part-No.	Type	PU	
<b>without circuit</b>				
Rated voltage	AC/DC 0–230 V	705800 S*	L-V20-5800 AC/DC 0-230V	1
	AC/DC 0–230 V	705801 S*	L-V20-5801 AC/DC 0-230V	1
<b>Z-diode + LED</b>				
Rated voltage	AC/DC 24 V	705810 S*	LS-V20-5810 AC/DC 24V	1
<b>Varistor + LED</b>				
Rated voltage	AC/DC 110–230 V	705830 S*	LV-V20-5830 AC/DC 110-230V	1

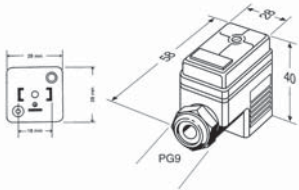
Technical data	705800	705801	705810	705830
Type of function	Valve suppressor			
Pole number	2	3	2	
Protection device	–		Z-Diode	Varistor
Rated voltage	AC/DC 0–230 V		AC/DC 24 V	AC/DC 110–230 V
Current Consumption	– mA		4 mA	
Rated frequency	–		50 – 60 Hz	
Holding Capacity	– VA			
Connecting lead Ø	4 – 9 mm			
<b>General</b>				
Design	A (18 mm)			
Status indication	–		LED yellow	
Amperage range	≤ 10 A	≤ 4 A		≤ 1 A
Contact material	CuZn silver-plated			
Housing material	PA			
Color of the housing	black	–		transparent
Protection class	IP67			
Mounting	Breakaway torque 0.4 Nm			
Connection device	Screw terminal			
Connection cross-section	max. 1.5 mm <sup>2</sup>			
Connection cross-section	max. AWG 16			
Material seal	NBR			
Operation temperature range	–40 °C ... +90 °C			
Dimensions (w × h × d)	26.8 × 28.8 × 50.0 mm			
Weight (kg/piece)	0.023			
Standards	EN 175301-803, ISO 4400			
Approvals	cURus (E256031)			

# Suppression Technology · Valve suppressors

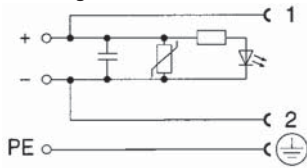
## Adjustable plug Construction A (18 mm) Ground wire terminator (PE) adjustable in 180° steps



### Dimensions



### PIN assignment



Description	Part-No.	Type	PU	
<b>Varistor + Capacitor</b>				
Rated voltage	DC 24 V	707403 S*	LCV-V10-7403 DC 24V	10
<b>Technical data</b>				
<b>Technical data</b>		<b>Varistor + Capacitor</b>		
Type of function	Valve suppressor			
Protection device	Varistor + Capacitor			
Rated voltage	DC 24 V			
Current Consumption	4 mA			
Cut-off peak	≤ 100 V			
Rated frequency	-			
Holding Capacity	50 VA			
Type of connecting lead	-			
Connecting lead Ø	5 – 9 mm			
<b>General</b>				
Design	A (18 mm)			
Status indication	LED yellow			
Amperage range	≤ 4 A			
Conductor color	-			
Contact material	CuSn tin-plated			
Housing material	PA			
Color of the housing	black			
Protection class	IP65			
Mounting	0°/180° possible			
Connection device	Screw terminal			
Connection cross-section	0.5 – 1.5 mm <sup>2</sup>			
Connection cross-section	AWG 20 – AWG 16			
Operation temperature range	-20 °C ... +60 °C			
Storage temperature range	-25 °C ... +80 °C			
Dimensions (w × h × d)	28.0 × 40.0 × 58.0 mm			
Weight (kg/piece)	0.036			
Standards	EN 175301-803, ISO 4400			
Approvals	-			
<b>Accessories</b>				
Marker holder BZT	Color	Part-No.	Type	PU
	white	681315	BZT 0920 (VE.100 St)	100

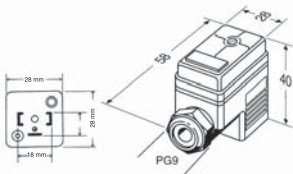


# Suppression Technology · Valve Suppressors - special function

**Adjustable male, form A (18 mm)**  
**Switching amplifier with and without galvanic insulation**  
**Ground wire terminator, short-circuit-proof, 0°–180° installation**

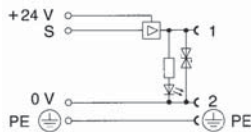


### Dimensions

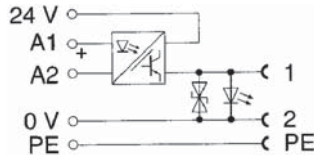


### PIN assignment

#### 705509, 706509



#### 707409



Description	Part-No.	Type	PU	
<b>without galvanic insulation</b>				
Rated voltage	DC 24 V	705509 S*	LVER-V10-5509 DC 24V	10
	DC 24 V	706509 S*	LVER-V10-6509 24V/2A DC	10
<b>with galvanic insulation</b>				
Rated voltage	DC 24 V	707409 S*	LVER-V10-7409 24V	10

Technical data	705509	706509	707409
Type of function		Switching amplifier	
Protection device		Suppressor diode	
Rated voltage		DC 24 V	
Rated voltage range		DC 18 – 30 V	
Current Consumption	21 mA		7 mA
Output		–	
Rise time		–	
Saturated voltage at max. current		–	
Control current	10 mA		7 mA
Switching frequency		max. 20 Hz	
Switch-on delay		<100 µs	
Switch-off delay		<200 µs	
Cut-off peak		≤ 52 V	
Rated frequency		–	
Holding Capacity		100 VA	
Connecting lead Ø		5 – 9 mm	
Fitting		PG 9	
Short-circuit protection		Short circuit protected	

<b>General</b>			
Design		A (18 mm)	
Status indication		LED yellow	
Amperage range		≤ 2 A	
Galvanic isolation I/O	–		4.5 kV
Clearance/creepage dist. (control/load side)	–		>5.5 mm
Contact material		CuSn tin-plated	
Housing material		PA	
Color of the housing	black	grey	black
Protection class		IP65	
Mounting		Breakaway torque 0.4 Nm	
Operation temperature range		-25 °C ... +60 °C	
Storage temperature range		-25 °C ... +80 °C	
Dimensions (w × h × d)		28.0 × 40.0 × 58.0 mm	
Connection device		Screw terminal	
Connection cross-section		0.5 – 1.5 mm <sup>2</sup>	
Connection cross-section		AWG 20 – AWG 16	
Weight (kg/piece)	0.039		0.044
Standards		EN 175301-803, ISO 4400	
Approvals		–	

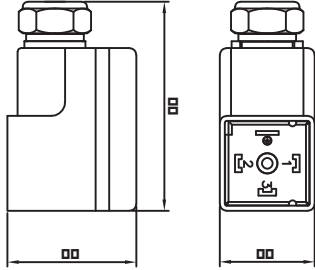
Accessories	Color	Part-No.	Type	PU
Marker holder BZT	white	681315	BZT 0920 (VE.100 St)	100

# Suppression Technology · Valve Suppressors - special function

## Adjustable male, form A (18 mm) - Double valves - Energy reducer

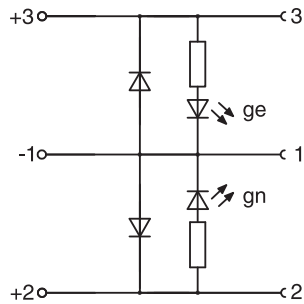


### Dimensions



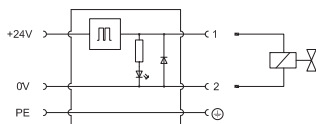
### PIN assignment

#### 705503



#### PE

#### 707512



Description	Part-No.	Type	PU	
<b>Double valves</b>				
Rated voltage	DC 24 V	705503 S*	LD-V10-5503	10
<b>Energy reducer</b>				
Rated voltage	DC 24 V	707512 S*	LBM-V10-7512	10

Technical data	705503	707512
Type of function	Double valve suppressor	Energy reducer
Protection device		Free-wheeling diode
Rated voltage		DC 24 V
Rated voltage range		DC 18 – 30 V
Current Consumption	6 mA	24 mA
Output		–
Rise time		Pulse duration approx. 200 ms
Switching frequency		–
Switch-on delay		–
Switch-off delay		–
Rated frequency		–
Holding Capacity	100 VA	50 VA
Connecting lead Ø		5 – 9 mm
Fitting		PG 9
Short-circuit protection		–
<b>General</b>		
Design		A (18 mm)
Status indication	LED green LED yellow	LED yellow
Amperage range	≤ – A	≤ 2 A
Clearance/creepage dist. (control/load side)		–
Conductor color		–
Contact material		CuSn tin-plated
Housing material		PA
Color of the housing		black
Protection class		IP65
Mounting		Breakaway torque 0.4 Nm
Operation temperature range		-25 °C ... +60 °C
Storage temperature range		-25 °C ... +80 °C
Dimensions (w × h × d)		28.0 × 40.0 × 58.0 mm
Connection device		Screw terminal
Connection cross-section		0.5 – 1.5 mm <sup>2</sup>
Connection cross-section		AWG 20 – AWG 16
Weight (kg/piece)		0.035
Standards		EN 175301-803, ISO 4400
Approvals		–

Accessories	Color	Part-No.	Type	PU
Marker holder BZT	white	681315	BZT 0920 (VE.100 St)	100

# Suppression Technology · Valve Suppressors - special function

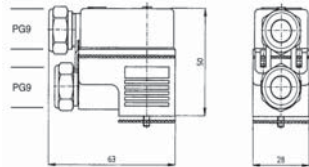
## Adjustable plug; Construction A (18 mm)

- two cable entry points

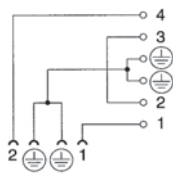
Ground wire terminator (PE) adjustable in 180° steps



### Dimensions



### PIN assignment



Description	Part-No.	Type	PU
<b>without protection device</b>			
Rated voltage	AC/DC 0–230 V	707514 S*	LPG-V10-7514 up to 230 V
			10
<b>Technical data</b>		<b>707514</b>	
Type of function	Double valve suppressor		
Protection device	–		
Rated voltage	AC/DC 0–230 V		
Output	–		
Rise time	–		
Saturated voltage at max. current	–		
Switching frequency	–		
Switch-on delay	–		
Switch-off delay	–		
Rated frequency	50 – 60 Hz		
Holding Capacity	100 VA		
Connecting lead Ø	5 – 9 mm		
Fitting	PG 9		
Short-circuit protection	–		
<b>General</b>			
Design	A (18 mm)		
Status indication	–		
Amperage range	≤ 4 A		
Clearance/creepage dist. (control/load side)	–		
Conductor color	–		
Contact material	CuSn tin-plated		
Housing material	PA		
Color of the housing	black		
Protection class	IP65		
Mounting	Breakaway torque 0.4 Nm		
Operation temperature range	-25 °C ... +60 °C		
Storage temperature range	-25 °C ... +80 °C		
Dimensions (w × h × d)	28.0 × 50.0 × 63.0 mm		
Connection device	Screw terminal		
Connection cross-section	0.5 – 1.5 mm <sup>2</sup>		
Connection cross-section	AWG 20 – AWG 16		
Weight (kg/piece)	0.030		
Standards	EN 175301-803, ISO 4400		
Approvals	–		
<b>Accessories</b>			
Marker holder BZT	Color	Part-No.	Type
	white	681315	BZT 0920 (VE.100 St)
			100

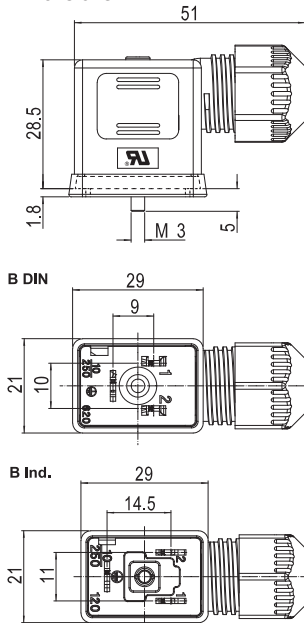
# Suppression Technology · Valve suppressors

Adjustable male, form B DIN (10 mm) and BI (11 mm)  
Ground wire terminator (PE) adjustable in 180° steps

Protection device: without circuit / Z-Diode+LED / Varistor+LED

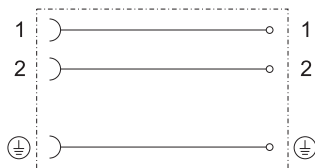


## Dimensions

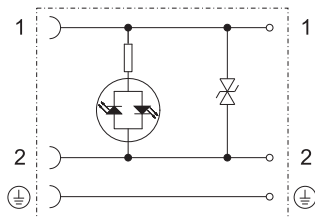


## PIN assignment

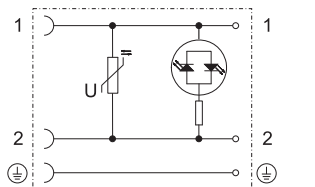
705802, 705803



705811, 705812



705831, 705832



Description	Part-No.	Type	PU	
<b>without circuit</b>				
Rated voltage	AC/DC 0–230 V	705802 S*	L-V21-5802 AC/DC 0-230V	1
	AC/DC 0–230 V	705803 S*	L-V22-5803 AC/DC 0-230V	1
<b>Z-diode + LED</b>				
Rated voltage	AC/DC 24 V	705811 S*	LS-V21-5811 AC/DC 24V	1
	AC/DC 24 V	705812 S*	LS-V22-5812 AC/DC 24V	1
<b>Varistor + LED</b>				
Rated voltage	AC/DC 110–230 V	705831 S*	LV-V21-5831 AC/DC 110-230V	1
	AC/DC 110–230 V	705832 S*	LV-V22-5832 AC/DC 110-230V	1

Technical data	705802	705803	705811	705812	705831	705832
Type of function	Valve suppressor					
Pole number	3					
Protection device	–		Z-Diode		Varistor	
Rated voltage	AC/DC 0–230 V		AC/DC 24 V		AC/DC 110–230 V	
Rated frequency	50 – 60 Hz					
Connecting lead Ø	4 – 9 mm					

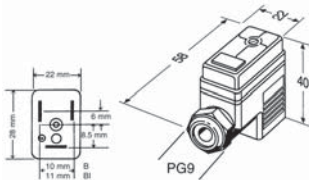
General	B DIN (10 mm)	BI Ind. (11 mm)	B DIN (10 mm)	BI Ind. (11 mm)	B DIN (10 mm)	BI Ind. (11 mm)
Design						
Status indication	LED yellow					
Amperage range	≤ 10 A		≤ 4 A		≤ 1 A	
Contact material	CuZn silver-plated					
Housing material	PA					
Color of the housing	black			transparent		
Protection class	IP67					
Mounting	Breakaway torque 0.4 Nm					
Connection device	Screw terminal					
Connection cross-section	max. 1.5 mm <sup>2</sup>					
Connection cross-section	max. AWG 18					
Material seal	NBR					
Operation temperature range	–40 °C ... +90 °C					
Dimensions (w × h × d)	21.0 × 30.3 × 51.0 mm					
Weight (kg/piece)	0.021					
Standards	EN 175301-803, ISO 6952	–	EN 175301-803, ISO 6952	–	EN 175301-803, ISO 6952	–
Approvals	cURus (E256031)					

# Suppression Technology · Valve Suppressors - special function

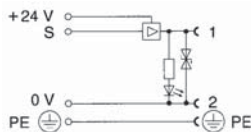
**Adjustable connector, Construction B (10 mm), Construction BI (11 mm)**  
**Switching amplifier without galvanic insulation short circuit protection**  
**Ground wire terminator (PE) adjustable in 180° steps**



## Dimensions



## PIN assignment



Description	Part-No.	Type	PU	
<b>Construction B</b>				
Rated voltage	DC 24 V	705610 S*	LVER-V11-5610 DC 24V	10
<b>Construction BI</b>				
Rated voltage	DC 24 V	705709 S*	LVER-V12-5709 DC 24V	10
<b>Technical data</b>				
	<b>705610</b>	<b>705709</b>		
Type of function		Switching amplifier		
Protection device		Suppressor diode		
Rated voltage		DC 24 V		
Rated voltage range		DC 18 – 30 V		
Current Consumption		19 mA		
Output		–		
Rise time		–		
Saturated voltage at max. current		–		
Control current		8 mA		
Switching frequency		max. 20 Hz		
Switch-on delay		<100 µs		
Switch-off delay		<200 µs		
Cut-off peak		≤ 52 V		
Rated frequency		–		
Holding Capacity		100 VA		
Connecting lead Ø		5 – 9 mm		
Fitting		PG 9		
Short-circuit protection		Short circuit protected		
<b>General</b>				
Design	B DIN (10 mm)	BI Ind. (11 mm)		
Status indication		LED green		
Amperage range		≤ 2 A		
Galvanic isolation I/O		–		
Clearance/creepage dist. (control/load side)		–		
Contact material		CuSn tin-plated		
Housing material		PA		
Color of the housing		black		
Protection class		IP65		
Mounting		Breakaway torque 0.4 Nm		
Operation temperature range		-20 °C ... +60 °C		
Storage temperature range		-25 °C ... +80 °C		
Dimensions (w × h × d)		22.0 × 40.0 × 58.0 mm		
Connection device		Screw terminal		
Connection cross-section		0.5 – 1.5 mm <sup>2</sup>		
Connection cross-section		AWG 20 – AWG 16		
Weight (kg/piece)		0.036		
Standards	EN 175301-803, ISO 6952	–		
Approvals		–		
<b>Accessories</b>				
Marker holder BZT	white	681315	BZT 0920 (VE.100 St)	100

# Suppression Technology · Valve suppressors

Adjustable male, form C DIN (8 mm) and CI (9.4 mm)  
Ground wire terminator (PE) adjustable in 90° steps

Protection device: without circuit / Z-Diode+LED / Varistor+LED

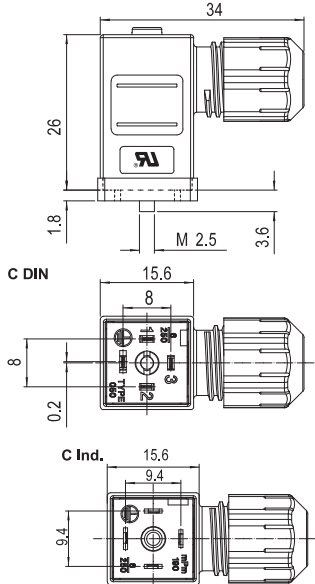


Description	Part-No.	Type	PU
<b>without circuit</b>			
Rated voltage	AC/DC 0–230 V	705804 S*	L-V23-5804 AC/DC 0-230V
	AC/DC 0–230 V	705805 S*	L-V24-5805 AC/DC 0-230V
<b>Z-diode + LED</b>			
Rated voltage	AC/DC 24 V	705813 S*	LS-V23-5813 AC/DC 24V
	AC/DC 24 V	705814 S*	LS-V24-5814 AC/DC 24V
<b>Varistor + LED</b>			
Rated voltage	AC/DC 110–230 V	705833 S*	LV-V23-5833 AC/DC 110-230V
	AC/DC 110–230 V	705834 S*	LV-V24-5834 AC/DC 110-230V

Technical data	705804	705805	705813	705814	705833	705834
Type of function	Valve suppressor					
Pole number	3					
Protection device	–		Z-diode + LED		Varistor + LED	
Rated voltage	AC/DC 0–230 V		AC/DC 24 V		AC/DC 110–230 V	
Rated frequency			50 – 60 Hz			
Connecting lead Ø	3 – 5.5 mm					

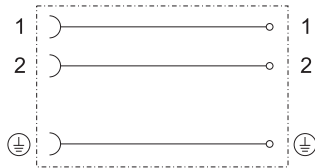
General	C DIN (8 mm)	CI Ind. (9.4 mm)	C DIN (8 mm)	CI Ind. (9.4 mm)	C DIN (8 mm)	CI Ind. (9.4 mm)
Design						
Status indication	LED yellow					
Amperage range	≤ 6 A		≤ 3 A		≤ 0.5 A	
Contact material	CuZn silver-plated					
Housing material	PA					
Color of the housing	black			transparent		
Protection class	IP67					
Mounting	Breakaway torque 0.4 Nm					
Connection device	Screw terminal					
Connection cross-section	max. 0.75 mm <sup>2</sup>					
Connection cross-section	max. AWG 18					
Material seal	NBR					
Operation temperature range	–40 °C ... +80 °C					
Dimensions (w × h × d)	15.6 × 27.8 × 34.0 mm					
Weight (kg/piece)	0.011			0.012		
Standards	EN 175301-803, ISO 6952	–	EN 175301-803, ISO 6952	–	EN 175301-803, ISO 6952	–
Approvals	cURus (E256031)					

## Dimensions

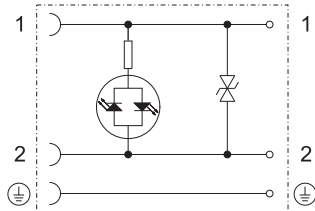


## PIN assignment

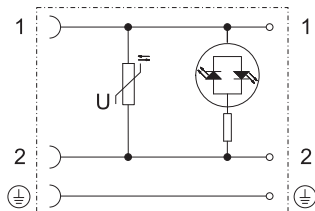
### 705804, 705805



### 705813, 705814



### 705833, 705834



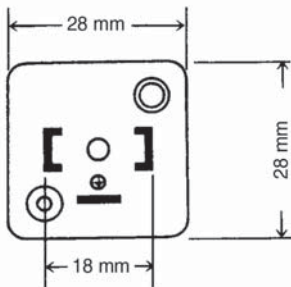
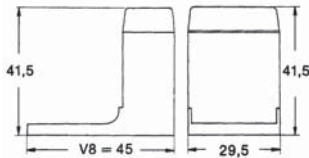


# Suppression Technology · Valve Suppressors

## Plug adaptor for valve suppressors type A Contact clearance 18 mm EN 175301-803 (DIN 43 650)

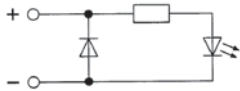


### Dimensions

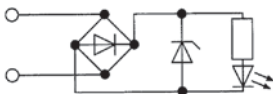


### PIN assignment

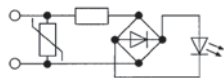
700861, 700863



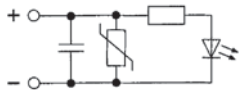
700897



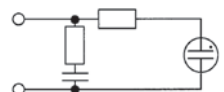
700881



700867



700910, 700857

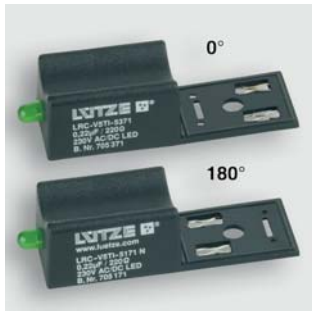


Description	Part-No.	Type	PU
<b>Diode + LED</b>			
Rated voltage	DC 24 V	700861 S*	LD-V8-0861 DC 24V
	DC 24 V	700863 S*	LD-V8-0863 DC 24V
<b>Z-Diode</b>			
Rated voltage	AC/DC 24 V	700897 S*	LZ-V8-0897 AC/DC 24V
<b>varistor</b>			
Rated voltage	AC/DC 24 V	700881 S*	LV-V8-0881N AC/DC 24V
<b>Varistor + Capacitor</b>			
Rated voltage	DC 24 V	700867 S*	LCV-V8T-0867 DC 24V
<b>RC module</b>			
Rated voltage	AC 115 V	700910 S*	LRC-V8-0910 AC 115V
	AC 230 V	700857 S*	LRC-V8-0857 AC 230V

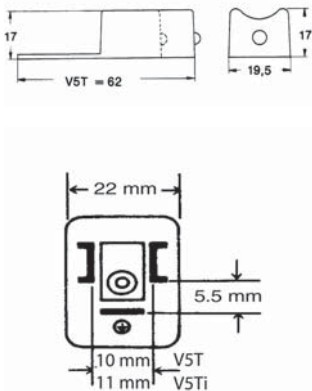
Technical data	700861	700863	700897	700881	700867	700910	700857
Type of function	Plug adapter						
Protection device	Diode + LED	Z-Diode	Varistor	Varistor + Capacitor	RC module		
Rated voltage	DC 24 V	AC/DC 24 V		DC 24 V	AC 115 V	AC 230 V	
Current Consumption	4 mA		- mA				
Cut-off peak	≤ 1 V	≤ 52 V	≤ 100 V		≤ 250 V	≤ 300 V	
Rated frequency	-	50 - 60 Hz		-	50 - 60 Hz		
Holding Capacity	- VA	15 VA	200 VA	50 VA	10 VA		
<b>General</b>							
Design	V8 (A 18 mm)			V8T (A 18 mm)	V8 (A 18 mm)		
Status indication	LED green			Glow lamp yellow			
Conductor color	-						
Housing material	PA						
Color of the housing	black						
Protection class	IP65						
Mounting	plug-in, Plug seal not applicable						
Operation temperature range	-20 °C ... +60 °C						
Storage temperature range	-25 °C ... +80 °C						
Dimensions (w × h × d)	29.5 × 41.5 × 45.0 mm						
Weight (kg/piece)	0.010						
Standards	EN 175301-803, ISO 4400						
Approvals	-						

# Suppression Technology · Valve Suppressors

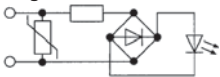
## Plug adaptor for valve suppressors type BI (11 mm) Contact arrangement in 0° and 180° construction



### Dimensions



### PIN assignment



Description	Part-No.	Type	PU	
Rated voltage	AC/DC 24 V	705341 S*	LV-V5TI-5341 0° AC/DC 24V	10
	AC/DC 24 V	705141 S*	LV-V5TI-5141 180° AC/DC 24V	10

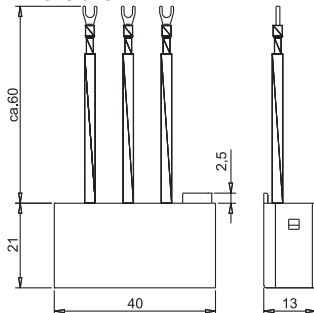
Technical data	705341	705141
Type of function	Plug adaptor	
Protection device	Varistor	
Rated voltage	AC/DC 24 V	
Current Consumption	4 mA	
Cut-off peak	≤ 100 V	
Rated frequency	50 – 60 Hz	
Holding Capacity	200 VA	
<b>General</b>		
Design	V5TI (BI Ind. 11 mm)	
Status indication	LED green	
Conductor color	–	
Housing material	PA	
Color of the housing	black	
Protection class	IP65	
Mounting	plug-in, Plug seal not applicable	
Operation temperature range	-20 °C ... +60 °C	
Storage temperature range	-25 °C ... +80 °C	
Dimensions (w × h × d)	19.5 × 17.0 × 62.0 mm	
Weight (kg/piece)	0.016	
Standards	–	
Approvals	–	

# Suppression Technology · Motor suppression

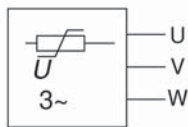
Motor suppression for the direct installation in the motor junction plate  
 5.5 kW to 7.5 kW, 3 AC x 500 V  
 Protection device: Varistor



### Dimensions



### PIN assignment



Description	Part-No.	Type	PU
<b>varistor</b>			
Description	varistor	706120 S*	LV-S10-6120 3 AC 500V 5,5kW
	varistor	706121 S*	LV-S10-6121 3 AC 500V 7,5kW
<b>Technical data</b>			
	<b>706120</b>		<b>706121</b>
Type of function	Motor suppression		
Protection device	Varistor		
Rated voltage	3× AC 500 V		
Cut-off peak	≤ 1075 V		
Rated frequency	10 – 400 Hz		
Engine power	5.5 kW		7.5 kW
Inverse voltage/switching current	–		
Type of connecting lead	1.5 mm <sup>2</sup> LIH		
Conductor color	black		
Cable length (m)	0.06		
Connecting lead Ø	–		
Connection device	Fork-type cable lug M 5		
Fitting	–		
<b>General</b>			
Design	S10		
Status indication	–		
Housing material	PC-ABS		
Color of the housing	grey		
Protection class	IP67		
Potting compound	2-components		
Mounting	Motor terminal board inside		
Operation temperature range	-20 °C ... +60 °C		
Storage temperature range	-40 °C ... +90 °C		
Dimensions (w × h × d)	40.0 × 21.0 × 13.0 mm		
Weight (kg/piece)	0.023		
Standards	–		
Approvals	cURus (E135145)		

# Suppression Technology · Motor suppression

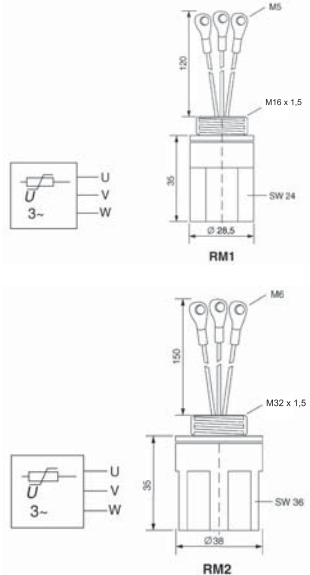
Motor suppression for the screwing in in the motor terminal box  
also suitable for frequency converters up to 7.5 kW, 3 AC x 575 V  
Protection device: Varistor



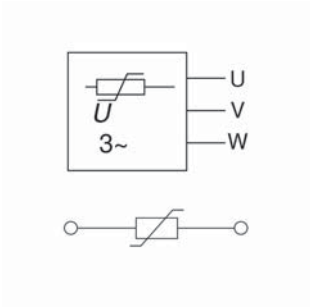
Description	Part-No.	Type	PU	
Description	Varistor	701533 S*	LV-RM1-1533 3AC 575V 4kW	10
	Varistor	701534 S*	LV-RM2-1534 3AC 575V 7,5kW	10

Technical data	701533	701534
Type of function	Motor suppression	
Protection device	Varistor	
Rated voltage	3x AC 575 V	
Cut-off peak	≤ 1075 V	
Rated frequency	10 – 400 Hz	
Engine power	4 kW	7.5 kW
Inverse voltage/switching current	–	
Type of connecting lead	1.5 mm <sup>2</sup> H07V-K	
Conductor color	black	
Cable length (m)	0.12	0.15
Connecting lead Ø	–	
Connection device	Ring termination M 5	Ring termination M 6
Fitting	M 16 x 1.5	M 32 x 1.5
Suppression type	–	
<b>General</b>		
Design	FEB RM 1	FEB RM 2
Status indication	–	
Housing material	PPO	
Color of the housing	grey	
Protection class	IP67	
Potting compound	2-components	
Mounting	screwed, into terminal housing	
Operation temperature range	-20 °C ... +60 °C	
Storage temperature range	-40 °C ... +90 °C	
Dimensions (w x h x d)	28.5 x 45.5 x 24.0 mm	38.0 x 45.5 x 36.0 mm
Weight (kg/piece)	0.040	0.075
Standards	–	
Approvals	cURus (E135145)	

## Dimensions

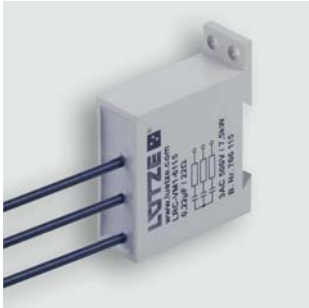


## PIN assignment

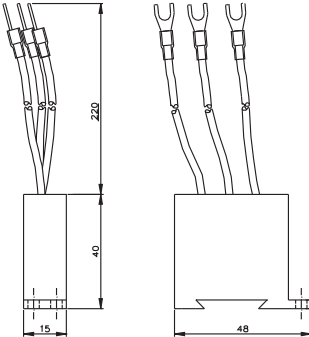


# Suppression Technology · Motor suppression

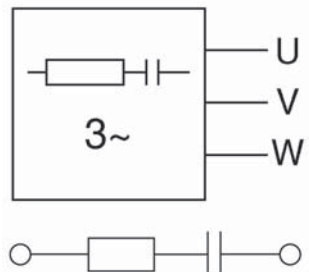
Motor suppression for the direct installation in the motor junction plate  
 7.5 kW, 3 AC x 500 V  
 Protection device: RC module



### Dimensions



### PIN assignment



Description	Part-No.	Type	PU
<b>RC module</b>			
Description	RC module	706115 S*	LRC-VM1-6115 3AC 500V 7,5kW
			10
<b>Technical data</b>		<b>706115</b>	
Type of function	Motor suppression		
Protection device	RC module		
Rated voltage	3× AC 500 V		
Rated frequency	50 – 60 Hz		
Engine power	7.5 kW		
Inverse voltage/switching current	–		
Type of connecting lead	1.0 mm <sup>2</sup> H05V-K		
Cable length (m)	0.22		
Connecting lead Ø	–		
Connection device	Fork-type cable lug M 4		
Fitting	–		
<b>General</b>			
Design	VM1		
Status indication	–		
Conductor color	black		
Jacket color	black		
Housing material	PPO		
Color of the housing	grey		
Protection class	IP67		
Potting compound	2-components		
Mounting	DIN rail mounting, 2 snap-on sockets, Motor terminal board inside		
Operation temperature range	-20 °C ... +60 °C		
Storage temperature range	-40 °C ... +90 °C		
Dimensions (w × h × d)	15.0 × 40.0 × 48.0 mm		
Weight (kg/piece)	0.049		
Standards	–		
Approvals	cURus (E135145)		

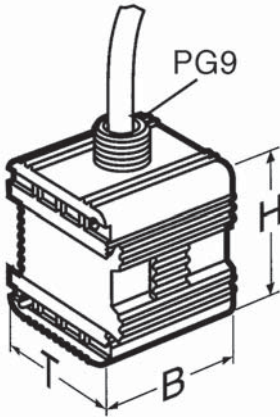
Accessories	Color	Part-No.	Mounting	PU
Snap-on socket type 2	grey	700499	DIN rail mounting	10

# Suppression Technology · Motor suppression

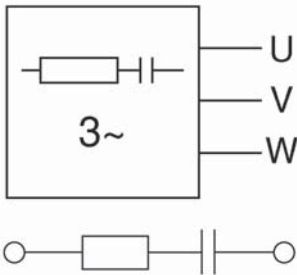
Motor suppression for the screwing in in the motor terminal box  
up to 7.5 kW, 3 AC x 575 V  
Protection device: RC module



## Dimensions



## PIN assignment



Description	Part-No.	Type	PU	
Description	RC module	700374 S*	LRC-M5-0374 3AC 500V 4kW	10
	RC module	700379 S*	LRC-M5-0379 3AC 575V 7,5kW	10

Technical data	700374	700379
Type of function	Motor suppression	
Protection device	RC module	
Rated voltage	3× AC 500 V	3× AC 575 V
Rated frequency	50 – 60 Hz	
Engine power	4 kW	7.5 kW
Inverse voltage/switching current	–	
Type of connecting lead	3×1.0 mm <sup>2</sup> PVC	
Cable length (m)	0.5	
Connecting lead Ø	6.3 mm	
Connection device	Line end open	
Fitting	PG 9	
<b>General</b>		
Design	M 5	
Status indication	–	
Conductor color	black	
Jacket color	grey	
Housing material	PA 6.6	
Color of the housing	black	
Protection class	IP67	
Potting compound	2-components	
Mounting	Motor terminal board outside, Cable tie on the supply cable, DIN rail mounting, 2 snap-on sockets	
Operation temperature range	-20 °C ... +60 °C	
Storage temperature range	-40 °C ... +90 °C	
Dimensions (w × h × d)	40.0 × 40.0 × 40.0 mm	
Weight (kg/piece)	0.113	
Standards	–	
Approvals	–	

Accessories	Color	Part-No.	Mounting	PU
Snap-on socket type 2	grey	700499	DIN rail mounting	10

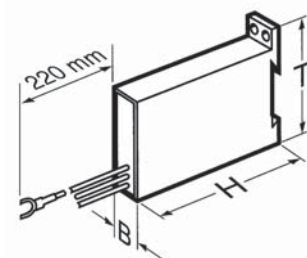


# Suppression Technology · Motor suppression

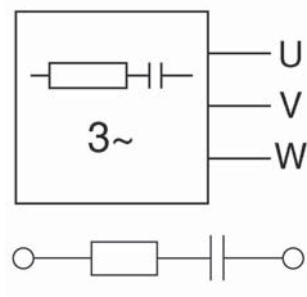
Motor suppression in the M1, M2 and M3 enclosure  
for AC motors up to 30 kW, 3 AC x 500 V  
Protection device: RC module



## Dimensions



## PIN assignment



Description	Part-No.	Type	PU	
Description	RC module	700490 S*	LRC-M1-0490 3AC 500V 4kW	10
	RC module	700491 S*	LRC-M2-0491 3AC 500V 7,5kW	10
	RC module	700492 S*	LRC-M2-0492 3AC 500V 15kW	10
	RC module	700493 S*	LRC-M3-0493 3AC 500V 30kW	10

Technical data	700490	700491	700492	700493
Type of function	Motor suppression			
Protection device	RC module			
Rated voltage	3× AC 500 V			
Rated frequency	50 – 60 Hz			
Engine power	4 kW	7.5 kW	15 kW	30 kW
Inverse voltage/switching current	–			
Type of connecting lead	1.0 mm <sup>2</sup> PVC			
Cable length (m)	0.22			
Connecting lead Ø	–			
Conductor color	black			
Connection device	Fork-type cable lug M 4			
Fitting	–			
<b>General</b>				
Design	M 1	M 2	M 3	
Status indication	–			
Housing material	PPO			
Color of the housing	grey			
Protection class	IP67			
Potting compound	2-components			
Mounting	DIN rail mounting, 2 snap-on sockets, Attachment hole m 4			
Operation temperature range	-20 °C ... +60 °C			
Storage temperature range	-40 °C ... +90 °C			
Dimensions (w × h × d)	15.0 × 70.0 × 48.0 mm	20.0 × 80.0 × 58.0 mm	25.0 × 90.0 × 58.0 mm	
Weight (kg/piece)	0.066	0.112	0.119	0.120
Standards	–			
Approvals	cURus (E135145)			

Accessories	Color	Part-No.	Mounting	PU
Snap-on socket type 2	grey	700499	DIN rail mounting	10

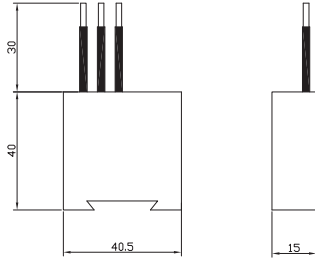
# Suppression Technology · Motor suppression

Universal motor suppression: direct attachment to the switch (e.g. Siemens SIRIUS 3RT 10)  
also suitable for frequency converters up to 7.5 kW, 3 AC x 575 V

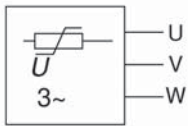
Protection device: Varistor



### Dimensions



### PIN assignment



Description	Part-No.	Type	PU
<b>varistor</b>			
Description	varistor	706167 S*	LV-VM1-6167 3AC 575V 7,5kW 10
<b>Technical data</b>			
		<b>706167</b>	
Type of function	Motor suppression		
Protection device	Varistor		
Rated voltage	3× AC 575 V		
Cut-off peak	≤ 1075 V		
Rated frequency	10 – 400 Hz		
Engine power	7.5 kW		
Inverse voltage/switching current	–		
Type of connecting lead	1.5 mm <sup>2</sup> H07V-U		
Conductor color	black		
Cable length (m)	0.03		
Connecting lead Ø	–		
Connection device	stripped cable ends		
Fitting	–		
<b>General</b>			
Design	VM1		
Status indication	–		
Housing material	PPO		
Color of the housing	grey		
Protection class	IP67		
Potting compound	2-components		
Mounting	Attachment to contactor		
Operation temperature range	-20 °C ... +60 °C		
Storage temperature range	-40 °C ... +90 °C		
Dimensions (w × h × d)	15.0 × 40.0 × 40.5 mm		
Weight (kg/piece)	0.015		
Standards	–		
Approvals	cURus (E135145)		

# Suppression Technology · Motor suppression

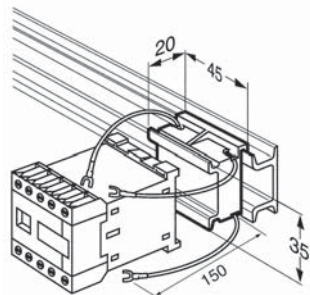
As substructure for protection types up to 45 mm wide

2.5 kW, 3 AC x 400 V

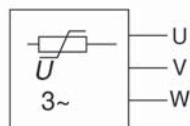
Protection device: Varistor



## Dimensions



## PIN assignment



Description	Part-No.	Type	PU
<b>varistor</b>			
Description	varistor	700217 S*	LV-S9-0217 3AC 400V 2,5KW
			10
<b>Technical data</b>		<b>700217</b>	
Type of function	Motor suppression		
Protection device	Varistor		
Rated voltage	3× AC 400 V		
Cut-off peak	≤ 745 V		
Rated frequency	10 – 400 Hz		
Engine power	2.5 kW		
Inverse voltage/switching current	–		
Type of connecting lead	1.0 mm <sup>2</sup> H05V-K		
Conductor color	black		
Cable length (m)	0.15		
Connecting lead Ø	–		
Connection device	Fork-type cable lug M 4		
Fitting	–		
<b>General</b>			
Design	S9		
Status indication	–		
Housing material	PC		
Color of the housing	grey		
Protection class	IP20		
Potting compound	–		
Mounting	DIN rail mountable TS35		
Operation temperature range	-20 °C ... +60 °C		
Storage temperature range	-40 °C ... +90 °C		
Dimensions (w × h × d)	40.0 × 20.0 × 35.0 mm		
Weight (kg/piece)	0.036		
Standards	–		
Approvals	–		



## 4. Technical information

<b>BUS and Network</b>	<b>4.2</b>
<b>ETHERNET - Overview</b>	<b>4.3</b>
<b>Approvals for North America</b>	<b>4.5</b>
<b>NFPA 79</b>	<b>4.6</b>
<b>Ampacity per National Electric Code (USA)</b>	<b>4.7</b>
<b>Current loads</b>	<b>4.8</b>
<b>Chemical resistance of PVC, TPE and PUR cable jackets</b>	<b>4.10</b>
<b>Properties of insulation materials</b>	<b>4.11</b>
<b>Design of the protection class designation according to EN 60529</b>	<b>4.12</b>
<b>Technical Terms</b>	<b>4.13</b>
<b>Certificates</b>	<b>4.14</b>





## Bus- and Network cables

Bus-Systems have become a very vital part of factory automation and it's hard to imagine automation without it. Besides hardware and software components, passive components such as bus cables and connectors play an important role for reliable function of the system. Bus cables must comply with all electrical parameters of the particular system. There is no universally applicable bus cable as the individual requirements are to diverse. LÜTZE offers robust, industrial grade Bus- and Network cables for the most common used systems worldwide. These cables are being offered for fixed and flexible application as well as continuous moving application in drag chains.

## Applications

### ASI - Actuator-Sensor-Interface

The AS-Interface per EN 50295 is a serial Actuator Sensor Network being used for digital signals in the lower field levels. It works in accordance to the Master Slave Principle and presents a cost effective alternative to other serial bus systems.

### Profibus

Profibus ist he most common Bus-System used in Europe in the area of automated manufacturing.

### Profibus PA

The engineering of these cables per IEC 61158-2 fulfills the requirements in process automation and also offers intrinsically safe connection to the field devices. Profibus PA is a synchronous protocol with DC-current flow free transmission, which is also often designated as H1. The IEC 61158-2 Technique is applied at the PROFIBUS-PA.

### Profibus DP

This Profibus variant, optimized through increased transmission speed and low installation cost, was especially designed for the communication between automation systems and decentralized peripheral devices in the field range. Profibus-DP substitutes the conventional parallel data communication with 24V or 0-20 mA. Lütze Profibus cables meet the specification for Profibus-DP type A according to EN 50254. Profibus-DP und Profibus FMS use the

same transmission technology as well as a unified Bus protocol. Both variants can be operated simultaneously on one cable.

### Profibus Fast Connect®

These cables have an optimized radial, symmetrical construction and can facilitate the application of special tools. Thereby, bus connector plugs are able to be assembled in a fast and installation-friendly way.

### CAN-Bus

Can-Bus is specified according to ISO 11898. Primarily designed for automotive applications Can-Buses are used today for the exchange of digital information, Controller Area Network (CAN) for faster data transfer/data exchange.

### Interbus

The Interbus-S was published in 1987 as an open sensor/ actuator bus protocol. As a typical sensor/actuator fieldbus, it is configured for the cyclic processing of process data and hence differentiates significantly from data orientated field buses. The main application area of Interbus-S lays in production engineering,, process engineering, as well as transport and logistics. Here the main focus is both the automotive industry and the drive technology.

### DeviceNet

DeviceNet is a service related Network, based on the proven CAN-Technology for fast data exchange. The configuration consists of thick cable (aka Trunk cable) and thin cable (aka drop cable). The use of high flexing cables in drag chains is likewise possible. DeviceNet has been standardized by Open DeviceNet Vendor Association (ODVA) and is the leading bus system for industrial automation in North America.

### Industrial Ethernet

Ethernet ist the most commonly used communication technology. The Ethernet Standard allows for a remarkable increase in the bandwidth, from 12 Mbits/s for a bus system, to up to 10 Gbit/s. In the office world the Ethernet Standard has already established itself as the standard technology, however the requirements for wiring systems and active components in the industrial environment differ greatly from those in an office environment. On one hand the infrastructure must be more robust; and on the other hand criteria such as real time application require special IT solutions. Consequently, this has resulted in the development of various proprietary systems such as ProfiNet, EtherCAT, Modbus TCP and Powerlink with system specific components which may not be compatible with others. A structured Ethernet cabling according to EN 50173-3 should support each proprietary system. While LÜTZE offers a large number of industrial Ethernet cable solutions we are pleased to have a special innovation with our drag chain suitable Cat6 Ethernet cable.



# ETHERNET – Overview

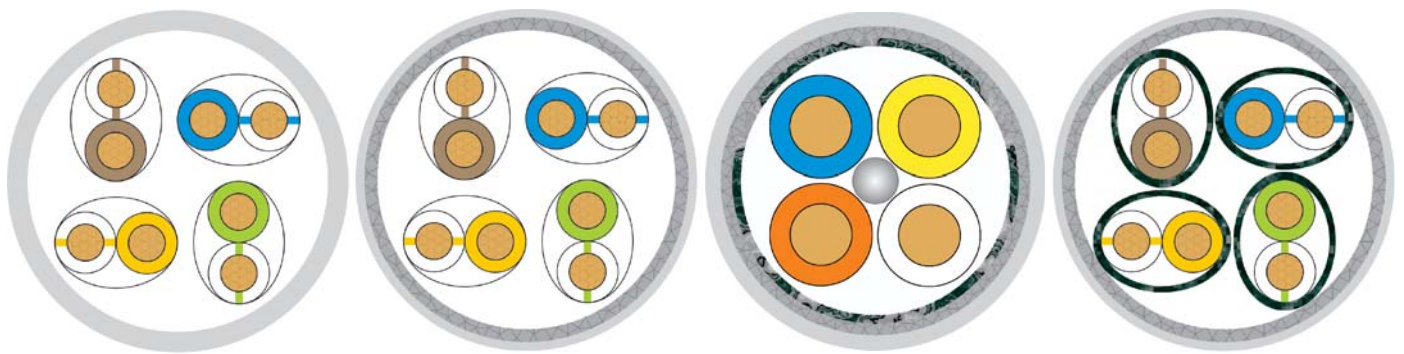
## 1. Correct Handling and Installation of Network Copper Cable

- Do not subject cable to tension
- Do not kink the cable
- Do not bend the cable more than 90° (See individual specifications for bending radius)
- Strip the cable as short as possible
- Do not crush cable when fastening
- Do not untwist the conductor pairs by **more than 0.5 inch**
- Terminate the shielding on both ends

## 2. LÜTZE ETHERNET Cables

We recommend shielded industrial Ethernet cable, such as LÜTZE ETHERNET cable, for use in industrial environment to ensure secure connectivity. Motors and other electrical noise producing devices are often located in close proximity to network cabling. EMI (Electro Magnetic Interference) and RFI (Radio Frequency Interference) can distort data transmission on copper-based network cable. To lessen or eliminate interference, called alien-crosstalk, the use of shielded industrial cable and connectors is recommended.

### Available LÜTZE ETHERNET Cables:



S/UTP	SF/UTP	SF/UTQ (Star Quad)	S/FTP
<b>Susceptibility for Interference</b>			
some	low	low	low
104337 CAT 5e	104335 CAT 5e 104366 CAT 5e 104347 CAT6	104301 CAT 5 104307 CAT 5 104302 CAT 5 104303 CAT 5	104338 CAT 6a 104331 CAT 7

## 3. Key for twisted pair cables according to ISO/IEC-11801 (2002)E

XX/YYZ

<b>XX</b> – outer jacket	<b>Y</b> – for the pair shielding	<b>ZZ</b> – wire pairing
<b>U</b> = unshielded	<b>U</b> = unshielded	<b>TP</b> = twisted pair (regular)
<b>F</b> = foiled shield	<b>F</b> = foiled shield	<b>TQ</b> = quad pair (star quad)
<b>S</b> = braided shield	<b>S</b> = braided shield	
<b>SF</b> = braided and foiled shield		

In order to utilize EMI/RFI shielding, the shield must be properly terminated at both ends!

# ETHERNET – Overview

## 4. ProfiNet – Star Quad Design and Termination

The star quad is a specific low-impedance cable configuration. Four conductors are twisted on a common axis. The conductors across from each other make a pair.

In Figure 1 the pairs are as follows:

**Pair 1:**  
Conductor A ← → Conductor D

**Pair 2:**  
Conductor B ← → Conductor C

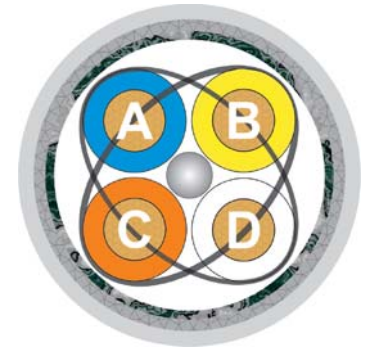


Figure 1

Other terminations than in Figure 1 lead to interferences, decreased connectivity or no connectivity at all.

## 5. Pin Assignment and Installation

RJ45 is the most common Ethernet connector and is available both shielded and unshielded. All pins of the RJ45 connector are used for 1000 Mbit/s (4-pair transmission). Four pins are used for 10/100 Mbit/s (2-pair transmission).

According to the EN 50173 standard, two color codes are defined for installation: T568A and T568B. It makes no difference which color code is used, however the same code should be used consistently throughout the entire installation. Mixing up the two color codes will result in malfunctions.

### Pin assignment RJ45 – Color code according to EN 50173 – hard wiring:

ETHERNET cables									
Pin#	Star Quad (ProfiNet)		Paired						
	100BASE-TX	Colorcode	10 BASE-T, 100BASE-TX	1000BASE-T			Colorcode T568A		Colorcode T568B
1	Transmit+	gelb	Transmit+	BI_DA+	(bidirectional)	WH/GN	WH/OR	OR	OR
2	Transmit-	orange	Transmit-	BI_DA-	(bidirectional)	GN	OR	OR	OR
3	Receive+	weiß	Receive+	BI_DB+	(bidirectional)	WH/OR	WH/GN	WH/GN	WH/GN
4	–		–	BI_DC+	(bidirectional)	BL	BL	BL	BL
5	–		–	BI_DC-	(bidirectional)	WH/BL	WH/BL	WH/BL	WH/BL
6	Receive-	blau	Receive-	BI_DB-	(bidirectional)	OR	GN	GN	GN
7	–		–	BI_DD+	(bidirectional)	WH/BN	WH/BN	WH/BN	WH/BN
8	–		–	BI_DD-	(bidirectional)	BN	BN	BN	BN

## 6. ETHERNET Categories and Classes

	ProfiNet®	CAT 5	CAT 5e	CAT 6	CAT 6a	CAT 7
<b>Class</b>	D	D	De	E	Ea	F
<b>Construction</b>	2 pair (AWG 22)	2 pair (AWG 24, AWG 26)	4 pair (AWG 24, AWG 26)	4 pair (26 AWG)	4 pair (26 AWG)	4 pair (26 AWG)
<b>Speed</b>	10/100 Mbit/s	10/100 Mbit/s	10/100/1000 Mbit/s	10/100/1000 Mbit/s	10/100/1000/10000 Mbit/s	10/100/1000/10000 Mbit/s
<b>LAN Applications (max.)</b>	10BASE-T (2 pair) 100BASE-TX (2 pair)	10BASE-T (2 pair) 100BASE-TX (2 pair)	10BASE-T (2 pair) 100BASE-TX (2 pair) 1000BASE-T (4 pair)	10BASE-T 100BASE-TX 1000BASE-T	10BASE-T 100BASE-TX 1000BASE-T 10GBASE-T	10BASE-T 100BASE-TX 1000BASE-T 10GBASE-T
<b>Nominal Impedance</b>	100 Ohm	100 Ohm	100 Ohm	100 Ohm	100 Ohm	100 Ohm
<b>Bandwidth</b>	100 MHz	100 MHz	100 MHz	250 MHz	500 MHz	600 MHz
<b>max. lenght</b>	100 m (10BASE-T) 100 m (100BASE-TX)	100 m (10BASE-T) 100 m (100BASE-TX)	100 m (10BASE-T) 100 m (100BASE-TX) 100 m (1000BASE-T)	100 m (10BASE-T) 100 m (100BASE-TX) 100 m (1000BASE-T)	100 m (10BASE-T) 100 m (100BASE-TX) 100 m (1000BASE-T) 100 m (10GBASE-T)	100 m (10BASE-T) 100 m (100BASE-TX) 100 m (1000BASE-T) 100 m (10GBASE-T)
<b>CAT compatibility</b>	CAT 5	CAT 5	CAT 5	CAT 5, CAT 5e	CAT 5, CAT 6	CAT 5, CAT 6, CAT 6a
<b>ISO/IEC standard</b>	–	ISO/IEC 11801	ISO/IEC 11801	ISO/IEC 11801	Modification 1 ISO/IEC 11801	ISO/IEC 11801
<b>ANSI/TIA standard</b>	–	ANSI/TIA-568-B	ANSI/TIA-568-C.2	ANSI/TIA-568-C.2	ANSI/TIA-568-C.2	Not recognized



# Approvals for North America

## Different UL ratings for cables

Product certifications in North America will often be conducted by the National Recognized Testing Laboratories (NRTL). The NRTLs are determined by the Occupational Safety and Health Administration (OSHA). You can find a list of the current NRTLs on [www.osha.gov](http://www.osha.gov).

LÜTZE mainly uses Underwriters Laboratories (UL) to certify the products. UL (USA) and CSA (Canada) have an agreement that allows the usage of one certification for both USA and Canada.

In general there are two main certification classes:

Certification	Logos	Meaning
UL Recognized		„UL Recognized“ signifies that the product is rated as a component. A component is a part of an application. Cables with an „Appliance Wiring Material“ (AWM per Standard 758) are always „recognized“. Typically these cables are already installed on the machine when it ships.
UL Listed		„UL Listed“ signifies a cable as actually tested and proven for a specific use. This way the cable has to match the UL Standards and the requirements of the National Electric Code (NEC). Typically, cables with a UL Listing are used for field wiring in North America.

## Common „UL Listings“ for industrial cables:

UL Listing type	Description	Meaning
CM	Communication	Cables for data communication per UL category DUZX and NEC 800
CMG	Communication General	Cables for data communication per UL category DUZX and NEC 800
CMX	Communication Residential	Cables for data communication with restrictions per UL category DUZX and NEC 800
PLTC	Power Limited Tray Cable	Cables for tray applications per UL category QPTZ and NEC 725
PLTC-ER	Power Limited Tray Cable Exposed Run	Cables for tray applications per UL category QPTZ and NEC 725 (exposed use possible)
ITC	Instrumentation Tray Cable	Instrumentation cables for tray applications per UL category NYTT and NEC 727
ITC-ER	Instrumentation Tray Cable Exposed Run	Instrumentation cables for tray applications per UL category NYTT and NEC 727 (exposed use possible)
TC	Power and Control Tray Cable	Power and control cables for tray applications per UL category QPOR and NEC 336
TC-ER	Power and Control Tray Cable Exposed Run	Power and control cables for tray applications per UL category QPOR and NEC 336 (exposed use possible)
MTW	Machine Tool Wire	Single or multi conductor control cables for Machine Tool Wiring per UL category ZKHZ and NEC 670
Flexible VFD and Servo	Flexible VFD and Servo aka Flexible Motor Supply Cable	Power cables for motor and variable frequency drive applications per UL category ZJFH
WTTC	Wind Turbine Tray Cable	Power and control cables for wind turbine applications per UL category ZGZN



This list only shows the common UL Listings for typical applications in the field of automation and does not stand for a complete overview of the current UL Listings.

It is possible to combine different UL Listings in one cable. LÜTZE offers a variety of cables with UL Listings for various industrial applications.

# NFPA 79

**NFPA 79** is the standard for industrial machines and installations in the USA. The NFPA 79 standard is published by National Fire Protection Agency (NFPA) and covers among other things the wiring of machine installations. The NFPA 79 standard works as an addition or an extension to the NEC (National Electric Code) which describes the general rules.

The current standard “NFPA 79 2015 Edition” allows the use of Appliance wiring material – “AWM” per UL Standard 758 again. The use of these cables on an industrial machine was explicitly prohibited in the 2007 Edition, which is no longer valid.

The 2007 regulations in regards AWM has been unsettling for many machine- and plant equipment manufacturers. The requirements of NFPA 79 standard are basically always met, if the cable has a listing of a National Recognized Testing Laboratory (NRTL) such as UL. It was possible that a cable carried both approvals and hence be marked with a  logo, as well as a .

The 2012 edition created a new option in article “12.9 special cables and conductors”, allowing the use of AWM cables as long as the suitability of cables for the industrial applications on the machine is given.

The reason for this restriction is that any AWM cable is considered a component and thus can only be allowed if the component is used within its intended use.

Previously allowed: 

Since 2012 Edition allowed:  

In order to use any AWM (UL 758) cable according to the current 2015, the requirements of paragraph 12.9 must be fulfilled. This paragraph lists three requirements of which at least one must be met.

To fulfill the most likely requirement, you have to use AWM cable which is suitable for the industrial use. This restriction shall prevent that machine- and equipment manufacturers use a cable which is not suitable for the intended use. The suitability can be checked easily by matching the UL AWM Style to the application. The UL AWM Styles provide, among other things, information about the materials and wall thickness of a cable. Any jacket-Style for example, includes information about:

- Material
- Wall thickness
- Voltage (Volt)
- Temperature range
- Use statement

Example: AWM 2587 describes a 600 V 90 °C cable with PVC jacket for external wiring.

The actual use, for example, may not exceed the rated voltage of this cable. Typical rated voltages for AWM cables are 30, 300, 600 and 1000 V.

For this purpose LÜTZE has expanded the offering of suitable industrial AWM cables per UL 758 Standard. All AWM Styles and the conforming rated voltages are marked explicitly in the catalog, so that you can find matching cables for every industrial application.

More information about the UL Standard 758 and the Style details you can find on [www.ul.com](http://www.ul.com). Information about NFPA 79 you can find on [www.nfpa.org](http://www.nfpa.org).

# Ampacity per National Electric Code (USA)

## Calculation of the max. ampacity, based on "NEC 2014 Edition"

According to NEC Tabelle 310.15(B), Edition 2014

Allowable Ampacities of Insulated Conductors Rated 0 Through 2000 Volts, 60 °C – 90 °C (140 °F – 194 °F). Not More Than Three Current-Carrying Conductors in Raceway, Cable, or Earth (Directly Buried), Based on Ambient Temperature of 30 °C (86 °F)

Size AWG oder kcmil	Temperature Rating of Conductor		
	60 °C / 140 °F	75 °C / 167 °F	90 °C / 194 °F
	Types TW, UF	Types RHW, THHW, THW, THWN, XHHW, USE, ZW	Types TBS, SA, SIS, FEP, FEPB, MI, RHH, RHW-2, THHN, THHW, THW-2, THWN-2, USE-2, XHH, XHHW, XHHW-2, ZW-2
	COPPER		
18	–	–	14
16	–	–	18
14**	15	20	25
12**	20	25	30
10**	30	35	40
8	40	50	55
6	55	65	75
4	70	85	95
3	85	100	115
2	95	115	130
1	110	130	145
1/0	125	150	170
2/0	145	175	195
3/0	165	200	225
4/0	195	230	260

\* Refer to NEC 310.15(B)(2) for the ampacity correction factors where the ambient temperature is other than 30 °C / 86 °F

\* Refer to NEC 240.4(D) for conductor overcurrent protection limitations.

## Correction Factors

Ambient temperature (Based on 310.15(B)(2)(a))

For ambient temperatures other than 30 °C / 86 °F, multiply the allowable ampacities shown above by the appropriate factor shown below.

Ambient temperature	60 °C / 140 °F	75 °C / 167 °F	90 °C / 194 °F
21-25 °C / 70-77 °F	1.08	1.05	1.04
26-30 °C / 78-86 °F	1	1	1
31-35 °C / 87-95 °F	0.91	0.94	0.96
36-40 °C / 96-104 °F	0.82	0.88	0.91
41-45 °C / 105-113 °F	0.71	0.82	0.87
46-50 °C / 114-122 °F	0.58	0.75	0.82
51-55 °C / 123-131 °F	0.41	0.67	0.76
56-60 °C / 132-140 °F	–	0.58	0.71
61-70 °C / 141-158 °F	–	0.33	0.58
71-80 °C / 159-176 °F	–	–	0.41

## Number of current carrying conductors

Per NEC Table 310.15(B)(3)A

Adjustment Factors for more than three current carrying conductors in Raceway or cable.

Number of Current-Carrying Conductors	Percent of values in tables 310.15(B) through 310.15(B)(19) as adjusted for ambient temperature if necessary
1-3	100
4-6	80
7-9	70
10-20	50
21-30	45
31-40	40
41 and more	35

Number of conductors is the total number of conductors in the raceway or cable adjusted in accordance with 310.15(B)(5) and (6)

### Example:

Calculation of 80 °C PUR AWG12 motor supply cable with control pair at ambient temperature of 50 °C and a required ampacity of 12,5 Ampere

- |                                       |      |   |  |
|---------------------------------------|------|---|--|
| 1. Factor ambient temperature         | 0,75 |   | 25 A x 0,75 x 0,8 = 15 A > 12,5 A                        |
| 2. Factor current carrying conductors | 80   | ? | Our recommendation AWG12 (equals ca. 4 mm <sup>2</sup> ) |

**Note:** The given values are reference numbers to calculate the required cable sizes. Friedrich Lütze GmbH is not responsible for the conformity of the values provided by the NEC.

# Current loads

Current rating of cables with rated voltage up to 1000 V and of heat-resistant cables.  
(cf. VDE 0298-4, 2003-08, Table 11)

	Gruppe 1 Einadrige Leitungen  • Gummi-isoliert • PVC-isoliert • TPE-isoliert • Wärmebeständig	Gruppe 2 Mehradrige Leitungen für Haus- und Handgeräte • Gummi-isoliert • PVC-isoliert • TPE-isoliert	Gruppe 3 Mehradrige Leitungen außer Haus- und Handgeräte • Gummi-isoliert • PVC-isoliert • TPE-isoliert	
Installation type	Free in air	On or at the surface		
Number of current carrying conductors	1	2	3	2 oder 3
Nominal cross section in mm <sup>2</sup>	Current rating in Ampere			
0,14 *	3	-	-	2
0,25 *	5	-	-	4
0,34 *	8	-	-	6
0,5 *	12	3	3	9
0,75	15	6	6	12
1,0	19	10	10	15
1,5	24	16	16	18
2,5	32	25	20	26
4	42	32	25	34
6	54	40	-	44
10	73	63	-	61
16	98	-	-	82
25	129	-	-	108
35	158	-	-	135
50	198	-	-	168
70	245	-	-	207
95	292	-	-	250
120	344	-	-	292
150	391	-	-	335
185	448	-	-	382
240	528	-	-	453
Based on DIN VDE 0298-4 2003-08	Table 11 column 1 e.g. H07V-K, LÜTZE SUPERFLEX® PLUS PUR single-conductor	Table 11 column 3 and 4		Table 11 column 5 z.B. LÜTZE SILFLEX® and LÜTZE SUPERFLEX® cables

Conversion factor for			
Deviating ambient temperature	Temperature	-	Temperature
Multi-conductor cables	-	-	Number of conductors

\* not official part of VDE 0298-4 2003-08. Current rating in accordance with 0891-1 or 0298-4 2003-08.

## Note 1:

This table deviates from the table in VDE 0298-4. If there is uncertainty, the latest version of DIN VDE 0298-4 is valid. The actual current rating is also influenced by deviating ambient temperature, as well as the number of conductor in a cable. In this case the derating factors from table "Temperature" and "Number of conductors" must be used.

## Note 2:

The here shown descriptions are reference values and in simplified form taken from VDE 0298-4 2003-8. If necessary additional conversion factors for accumulation, installation in tubes or cable racks must be taken from the entire version of VDE 0298-4 2003-8. Should there be newer versions available after printing deadline, these must be considered. LÜTZE assumes no guarantee for the completeness or the correctness of any information provided here.



# Current loads

## Temperature

Conversion factors for deviating ambient temperature  
(see VDE 0298-4 2003-08 Table 17, column 4, 5 and 7)

Ambient temperature	Factor		
	70 °C at the conductor	80 °C at the conductor	90 °C at the conductor
10 °C	1,22	1,18	1,15
15 °C	1,17	1,14	1,12
20 °C	1,12	1,10	1,08
25 °C	1,06	1,05	1,04
30 °C	1,00	1,00	1,00
35 °C	0,94	0,95	0,96
40 °C	0,87	0,89	0,91
45 °C	0,79	0,84	0,87
50 °C	0,71	0,77	0,82
55 °C	0,61	0,71	0,76
60 °C	0,50	0,63	0,71
65 °C	0,35	0,55	0,65
70 °C	-	0,45	0,58
75 °C	-	0,32	0,50
80 °C	-	-	0,41
85 °C	-	-	0,29

## Number of conductors

Conversion factors for multi-conductor cable with a nominal cross section up to 10 mm<sup>2</sup> (see VDE 0298-4 2003-08 Table 26, column 2)

Number of loaded conductors	Factor
5	0,75
7	0,65
10	0,55
14	0,50
19	0,45
24	0,40
40	0,35
61	0,30

### Note:

If necessary additional conversion factors for accumulation, installation in tubes or cable racks must be taken from the entire version of VDE 0298-4 2003-8. LÜTZE assume no guarantee for the completeness or the correctness of any information provided here.

# Chemical resistance of PVC, TPE and PUR cables jackets

Anorganic	Concentration	PVC	TPE	PUR
Alaune	c.s.	+	+	
Aluminium salts	ec.	+	+	+
Ammonia, a	10 %	+	+	+
Ammonium acetate, a	ec.	+	+	
Ammonium carbonate, a	ec.	+	+	-
Ammonium chloride, a	ec.	+	+	+
Barium salts	ec.	+	+	+
Boric acid	100 %	+	+	O
Calcium chlorid, a	c.s.	+	+	O
Calcium chlorid, a	10 % and 40 %			+
Calcium nitrate, a	c.s.	+	+	
Chrom salts, a	c.s.	+	+	+
Calium carbonate, a (potash)		+	+	
Potassium chlorate, a	c.s.	+	+	
Potassium chloride, a	c.s.	+	+	O
Calcium dichromate, a		+	+	
Calcium iodide, a		+	+	
Calcium nitrate, a	c.s.	+	+	+
Potassium permanganate , a		O	O	-
Potassium sulfate, a		+	+	+
Copper salts, a	c.s.	+	+	+
Magnesium salts, a	c.s.	+	+	O
Sodium carbonate, a (Natron)		+	+	O
Sodium bisulfate, a		+	+	
Sodium chloride , a (common salt)		+	+	+
Sodium thiosulfate, a (fixing salt)		+	+	O
Nickel salts, a	c.s.	+	+	+
Phosphoric acid	50 %	+	+	-
Mercury	100 %	+	+	+
Mercury salts, a	c.s.	+	+	+
Nitric acid	30 %	-	-	-
Hydrochloric acid	concentration	-	-	-
Sulfur	100 %	+	+	+
Sulfur dioxide,	gaseous	+	+	O
Carbon disulfide		-	-	-
Hydrogen sulfide		+	+	-
Sea water		+	+	+
Silver salts, a		+	+	+
Hydrogen peroxide, a	3 %	+	+	+
Zinc salts, a		+	+	-
Tin(II) chloride		+	+	-
Organic	Concentration	PVC	TPE	PUR
Ethyl alcohol	100 %	-	-	-
Formic acid	30 %	-	-	-
Benzine/Benzene		-	O	+
Succinic acid, a	c.s.	+	+	-
Acetic acid	20 %	O	O	O
Hydraulic oil		-	*	O*
Isopropyl alcohol	100 %	-	-	O
Kerosene			O	O
Machine oil		O*	O*	+
Methyl alcohol, a	100 %	O	O	O
Mineral oil, depending on type (ASTM)			*	*
Oxalic acid, a	c.s.	+	+	
Paraffin oil			+	+
Plant oils and greases		O/+*	+	O/+*
Cutting oil		O*	O/+*	+
Tartaric acids, a		+	+	
Citric acid		+	+	

**Legend:** ec. = each concentration      a = aqueous  
c.s. = cold saturated                      + = resistant  
O = conditionally resistant              - = unstable  
\* = depending on the additives in oil

Disclaimer: This information shall only serve as support for choosing a suitable material for use with chemical substances. Prior to the final installation a test of the material should be performed with the chemical substances under prospective conditions of use. Lütze assumes no guarantee for the completeness or the correctness of this content, and declines all liability claims, which relate to loss or damage, which was caused by the use of the presented information or recommendations.

All specification refer to room temperature!

# Properties of insulation materials

Material	Abb.	Short abbreviation	Service temperature °C	Dielectric constant 10 <sup>3</sup>	spec. contact Ohm x cm	Tensile strength N/mm <sup>2</sup>	Elongation at break %	Absorption of water (20 °C) %	Weathering resistance	Fuel resistance	Oil resistance	Flammability
Polyvinyl chloride	PVC	Y	- 30/+ 70	4 - 7	10 <sup>12</sup> – 10 <sup>15</sup>	10 – 25	150 – 300	0.4	moderate	moderate	good	self-extinguishing
Polyvinyl chloride heat resistant	PVC	Y	- 20/+ 90	3.5	10 <sup>12</sup> – 10 <sup>15</sup>	10 – 25	150 – 300	0.4	moderate	moderate	good	self-extinguishing
High pressure polyethelyne	LDPE	2Y	- 50/+ 70	2.3	10 <sup>17</sup>	20 – 30	500	0.1	good	low	moderate	flammable
Low pressure polyethelyne	HDPE	2Y	- 50/+ 100	2.3	10 <sup>17</sup>	30	800	0.1	moderate	low	moderate	flammable
Polyurethane	PUR	11Y	- 40/ + 90/100	4.0 – 6.0	10 <sup>12</sup>	30 – 45	300 – 600	1.5	very good	good	good	self-extinguishing
Polyamide	PA	4Y	- 40/+ 80	3.5 – 7.0	10 <sup>14</sup>	50 – 180	200 – 300	1 – 2	good	moderate	good	flammable
Polybutylene terephthalate	PBTP	-	- 60/+ 110	3.0 – 4.0	10 <sup>16</sup>	50 – 100	50 – 300	0.5	good	good	good	flammable
Polytetrafluoroethylene	PTFE	5Y	- 190/+ 260	2.1	10 <sup>18</sup>	14 – 40	240 – 400	0.01	very good	very good	very good	not flammable
tetrafluoroethylene hexafluoro-propylene Copolymer	FEP	6Y	- 100/+ 200	2.1	10 <sup>18</sup>	20 – 25	250 – 350	0.01	very good	very good	very good	not flammable
Ethylene tetrafluoroethylene	ETFE	7Y	- 100/+ 150	2.6	10 <sup>16</sup>	40 – 50	100 – 300	0.01	very good	very good	very good	not flammable
Perfluoroalkoxy polymer	PFA	-	- 190/+ 260	2.1	10 <sup>15</sup>	30	300	0.01	very good	very good	good	not flammable
Chloroprene rubber	CR	5G	- 40/+ 100	6.0 – 8.0	10 <sup>13</sup>	25	450	1.0	very good	low	good	self-extinguishing
Silicon rubber	SI	2G	- 60/+ 180	2.8 – 3.2	10 <sup>15</sup>	5 – 10	200 – 350	1.0	very good	low	moderate	flame flammable
Ethylene vinyl acetate	EVA	4G	- 30/+ 125	5 – 7	10 <sup>13</sup>	5	200	0.01	good	low	low	flammable
Ethylene propylene rubber	EPM/ EPDM	3G	- 30/+ 120	3.2	10 <sup>14</sup>	5 – 25	200 – 450	0.02	good	low	low	flammable
Thermoplastic polyolefin Elastomer	TPE-O	18Y	- 40/+ 120	2.7 – 3.6	5 x 10 <sup>14</sup>	>6	>400	1.5	very good	moderate	moderate	flammable
Thermoplastic polyester Elastomer	TPE-E	12Y	- 70/+ 125	3.7 – 5.1	10 <sup>12</sup>	3 – 25	280 – 650	0.3 – 0.6	very good	good	very good	flammable
Styrol triblock Copolymer	TPE-S	-	- 75/ + 105/140	2.2 – 2.6	10 <sup>16</sup>	9 – 25	500 – 700	1 – 2	moderate	good	low	flammable

Only for basic materials, deviations are possible depending on the indented use/design.

# Design of the protection class designation according to EN 60529

The protection of electrical equipment through corresponding enclosure is specified with code letters and code numbers. This protection class designation consists of the letters "IP" and two code numbers from 0 to 8. The first code number stands for the protection against contact and foreign substances, the second number specifies the degree of protection against water. The higher the respective code number is, the higher is the offered protection. The valid protection class for each product is specified in the technical data.

## For example the designation:

IP 65	Code letter IP	IP	
	First code number	6	corresponds to: Protection against entrance of dust
	Second code number	5	corresponds to: Protection against sprayed water

## For protection against contact and foreign substances

First code number	Protection scope designation	Explanation
0	No protection	No special protection of persons from accidental contact with standing or moving parts under voltage. No protection of the equipment against entry of solid foreign substances.
1	Protection against foreign substances > 50 mm	Protection against accidental contact of large area surfaces of standing and internally moving parts under voltage, e.g. with the hand, but no protection against intentional access to these parts. Protection against entry of solid foreign substances with a diameter larger than 50 mm.
2	Protection against foreign substances > 12 mm	Protection against contact by the fingers of standing or internally moving parts under voltage. Protection against entry of solid foreign substances with a diameter larger than 12 mm.
3	Protection against foreign substances > 2.5 mm	Protection against contact of standing or internally moving parts under voltage with tools, wires or similar of a thickness larger than 2.5 mm. Protection against entry of solid foreign substances with a diameter larger than 2.5 mm.
4	Protection against foreign substances > 1 mm	Protection against contact of standing or internally moving parts under voltage with tools, wires or similar of a thickness larger than 1 mm. Protection against entry of solid foreign substances with a diameter larger than 1 mm.
5	Protection against dust accumulation	Full protection against contact of standing or internally moving parts under voltage moving parts under voltage. Protection against dust accumulation. The entry of dust is not fully prevented but the dust may not enter in such quantities that the functioning is impaired.
6	Protection against dust accumulation	Full protection against contact of standing or internally moving parts under voltage moving parts under voltage. Protection against entry of dust.

## For water protection

Second code number	Protection scope designation	Explanation
0	No protection	No special protection
1	Protection from vertically falling dripping water	Water drops that fall vertically may not have any damaging effect.
2	Protection from dripping water falling at an angle	Water drops that fall at an arbitrary angle of up to 15° to vertical may not have any damaging effect.
3	Protection from sprayed water	Water that falls in an arbitrary angle up to 60° to vertical may not have a damaging effect.
4	Protection from splashed water	Water that is splashed from all directions against the equipment may not have a damaging effect.
5	Protection from water projected from a nozzle	Water projected from a nozzle that is aimed at the equipment from all directions may not have any damaging effect.
6	Protection against flooding	Water may not enter into the equipment in damaging amounts during temporary flooding (e.g. by heavy seas)
7	Protection against immersion	Water may not enter in damaging amounts if the equipment is immersed in water for the defined pressure and time conditions.
8	Protection against submersion	Water may not enter in damaging amounts if the equipment is submerged in water for the defined pressure and indefinite amount of time.

You can find the valid protection class for the respective product in the technical data.

# Technical Terms

NEC	National Electric Code (USA)
NEMA	National Electrical Manufactureres Association (USA)
Rated voltage	Electric voltage in stranded operation
NFPA	National Fire and Protection Agency (USA)
Optical coverage	Degree of coverage by the copper braid shield (how dense the shield is braided)
Ozone resistance	Ability of the material to withstand ozone radiation
Ozone resistance	There are 2 conductors twisted with each other in the cable
PE	Protective Earth – Protection conductor
PiMF	Pairs in Metal Foil – twisted pair cabled pairs of conductors are shielded separately
Polyethylen (PE)	Insulation material with very good electric characteristics, low water-absorption, high viscosity and excellent dielectric values
Polyolefin	Insulation material with good electric characteristics, good chemical resistance as well as high viscosity and ultimate elongation. Belongs to the Group of semi-crystalline thermoplastics
Polypropylen (PP)	Insulation material with good electric characteristics as well as high strength and stability. Belongs to the group of semi-crystalline thermoplastics
Polyurethan (PUR)	Thermoplastic Polyurethane – High-quality jacket-material for the usage in cable tracks and harsh environmental conditions
Polyvinylchlorid (PVC)	Popular jacket material for industrial control cable, allowed due to compounds with additives high flexibility and improved oil resistance
Test voltage	Represents the voltage with which the cable has been tested
RAL-Number	Numbered color system for definite identification of a color type
RoHS	Restriction of Hazardous Substances
Layer pitch optimized	The lay length of the cabled conductors will be optimized for the application shorter lay lengths for higher alternating bending
Loop resistance	In the transmission technique the loop resistance is the resistance of a at the end short-circuit pair of conductors am (Forward- and return cable e.g. of a BUS- cable)
Protective conductor	Grounding conductor
Self-extinguishing	The characteristic of a material to extinguish flames by itself (eg. PVC)
Servo	The name of a supply- and motor connection cable
Zero potential	High quality stranding technique for cabled conductor without mechanical back twist. Especially important for high-flexible cables for the use in cable tracks
StC	Double shielded (Static shiel/foil+braid)
Star quad	Four conductors are cabled around a common axis
Control pair	Twisted conductor pairs for signal transmission in motor cables
Interfering signal	Cable- or fieldbound interferences
Radiation resistance	Resistance agaist radiation
Talcum	Talcum is used in powder as a release agent between the jacket and the conductor cable core. This allows the jacket to be removed easier later on
Temperature range	The recommended temperature range for the use of a cable
Thermoplastics	Thermoplastics can be transferred in a plastic state by heat supply
TI	Classification of characteristics of PVC Insulation material according to EN 50363
TM	Classification of characteristics of PVC jacket material according to EN 50363
Torsion	Here: The rotation of a cable around the logitudinal axis Specification for cable in °/m
TP	Twisted pair
TPE	Thermoplastic elastomere – High-quality material with good mechanical stress characteristics. Divided into various subgroups
U0/U	Rated volatge/Operating voltage
UL	Underwriters Laboratories
V	Volt
VDE	Association of Electrical, Electronic and Information Technologies
Rotproof	Increased resistance to rotting
Fleece wrap	A fleece wrapped around the conductors to protect the conductors and for better gliding characteristics.
VW-1	Flam test of UL (Vertical Wire Flame Test)
Wall thickness	The thickness of the jacket
Bend strength	The ability of a material not to break during permanent bending
Tear-resistant	The ability of a material to resists further cracking after a tear occurred
Characteristic impedance	Complex input resistance of infinite cable.
x	Ground conductor is not existing (like OZ, OB)
XLPE	Cross-linked polyethylene = XLPE
Tensile strenght	The maximum tension (pulling)
Tension	Tension which is built up in the direction of the external load in the interior of an object
Sub jacket	Between conductor and shield introduced separation layer to protect the wires
Ω	Ohm

\* Registered trademark

# Certificates





## CERTIFICATE

This is to certify that

**Friedrich Lütze GmbH**  
 Bruckwiesenstrasse 17-19  
 71384 Weinstadt

with the organizational units/sites as listed in the annex

has implemented and maintains a **Quality Management System**.

Scope:  
 Development, production and distribution of electrical and electronic components and solutions for the automation technology

Through an audit, documented in a report, it was verified that the management system fulfills the requirements of the following standard:

**ISO 9001 : 2008**

Certificate registration no.	001737 QM08	
Date of certification	2013-07-05	
Valid until	2016-07-04	

**DQS GmbH**  
*G. Blechschmidt*  
 Götz Blechschmidt  
 Managing Director



Accredited Body: DQS GmbH, August-Schanz-Straße 21, 60433 Frankfurt am Main





## CERTIFICATE

This is to certify that

**Friedrich Lütze GmbH**  
 Bruckwiesenstrasse 17-19  
 71384 Weinstadt

has implemented and maintains an **Environmental Management System**.

Scope:  
 Development, production and distribution of electrical and electronic components and solutions for the automation technology

Through an audit, documented in a report, it was verified that the management system fulfills the requirements of the following standard:

**ISO 14001 : 2004 + Cor 1 : 2009**

Certificate registration no.	001737 UM	
Date of certification	2013-08-03	
Valid until	2016-08-02	

**DQS GmbH**  
*G. Blechschmidt*  
 Götz Blechschmidt  
 Managing Director



Accredited Body: DQS GmbH, August-Schanz-Straße 21, 60433 Frankfurt am Main




## C E R T I F I C A T E

awarded to

**Friedrich Lütze GmbH**  
 Bruckwiesenstrasse 17-19  
 71384 Weinstadt  
 Germany

**DQS GmbH**

confirms, as an IRIS approved certification body, that the Management System of the above organization has been assessed and found to be in accordance with the

**International Railway Industry Standard (IRIS)**  
**Revision 02, May 2009**

for the activity of Design and development & Manufacturing  
 for the scopes of certification 9 (On board vehicle control)  
 Electrical and electronic components and solutions for the automation technology

Certificate valid from: 21/05/2013      Certificate valid until: 20/05/2016 \*

*G. Blechschmidt*

Current date: 08/07/2013  
 Certificate-Register-No.: 001737 IRIS

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705509	3.25	709475	3.9	709768	3.22						
705610	3.29	709476	3.9	709771	3.17						
705709	3.29	709477	3.9	709772	3.17						
705800	3.23	709482	3.9	709773	3.15						
705801	3.23	709483	3.9	709774	3.15						
705802	3.28	709484	3.9	709775	3.15						
705803	3.28	709485	3.9	709782	3.17						
705804	3.30	709486	3.9	709789	3.17						
705805	3.30	709487	3.9	709790	3.18						
705810	3.23	709519	3.14	709791	3.18						
705811	3.28	709526	3.15	709792	3.18						
705812	3.28	709527	3.15								
705813	3.30	709600	3.14								
705814	3.30	709601	3.14								
705830	3.23	709605	3.14								
705831	3.28	709606	3.14								
705832	3.28	709607	3.14								
705833	3.30	709608	3.14								
705834	3.30	709615	3.19								
706115	3.35	709616	3.19								
706120	3.33	709617	3.19								
706121	3.33	709625	3.19								
706167	3.38	709626	3.19								
706509	3.25	709627	3.19								
707403	3.24	709635	3.20								
707409	3.25	709636	3.20								
707512	3.26	709637	3.20								
707514	3.27	709645	3.20								
709427.0250	3.13	709646	3.20								
709427.0500	3.13	709647	3.20								
709427.0750	3.13	709653	3.21								
709427.1000	3.13	709654	3.21								
709427.1500	3.13	709659	3.21								
709427.2000	3.13	709666	3.22								
709428.0250	3.12	709667	3.22								



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