

- Slip Rings
- Optical Fibre Signal Transmission Modules
- Cables, Connectors and pre-assembled Cordsets
- Functional Safety

Our pulses for innovations



The Kübler Group belongs today to the leading specialists worldwide in the fields of position and motion sensors, functional safety, counting and process technology and transmission technology.

Founded in the year 1960 by Fritz Kübler, the family business is now led by the next generation of Gebhard and Lothar Kübler.

Nine international group members and distributors in more than 50 countries offer local product know-how, service and advice throughout the world.

Innovative product and sector solutions, as well as solutions for functional safety and a high level of service, are the reasons behind our global success.

The strict focus on quality ensures the highest levels of reliability and a long service life for our products in the field.

Over 400 dedicated people worldwide make this success possible and ensure that customers can continue to place their trust in our company.

Kübler Service for worldwide planning reliability



Sample and Repair Service

We manufacture samples of special designs or according to customer specification within shortest time. We carry out repair work reliably within a maximum of 5 days.



Kübler online – www.kuebler.com

- Up-to-date product and company information
- Product finder – the selection tool that helps you finding quickly the suitable product
- Download service for CAD data, software, operating instructions, certificates and catalogs
- You will find comprehensive information about the basic technical knowledge relating to our products on our homepage: www.kuebler.com/basics



Safety Services

- Adapted service packages
- Individual customer solutions



Service-Center / Technical Hotline

Whatever your needs, advice, analysis or support for the installation, Kübler is present on site all over the world with its Service Center.



10 by 10

We will manufacture and deliver 10 encoders within 10 working days (365 days a year - with the exception of 24th Dec. until 2nd Jan.)



48 h Express Service

We can process your order within 48 hours; we can ship stock items the same day.

- Simplified orders
- Calculable delivery
- Flexible use of small batch sizes



Tailor-made Solutions – Kübler Design System (KDS) OEM Products and Systems (OPS)

We develop jointly with our customers product and engineering solutions for customer-specific products, integrated drive solutions, up to complete systems (sensors, electronics and mechanics).

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 Kübler Poland +48 61 84 99 902

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 Kübler China +86 10 5134 8680
 Kübler India +91 8600 147 280
 Kübler USA +1 855 583 2537

Our product portfolio



Position and Motion Sensors

- Incremental and Absolute Encoders
- Linear Measuring Technology
- Inclinometers
- Connection Technology

Transmission Technology

- Slip Rings
- Optical Fibre Signal Transmission Modules
- Cables, Connectors and pre-assembled Cordsets

Functional Safety

- Encoders certified up to SIL3/Plc
- Modules for safe Drive Monitoring
- System Solutions for safe processing of Safety Sensors

Counters and Process Devices

- Pulse Counters and Preset Counters
- Hour Meters and Timers
- Frequency Meters and Tachometers
- Combination Time and Energy Meters
- Position Displays
- Process Displays and Controllers for Temperature, Analogue Signals and Strain-Gauge
- Setpoint Adjuster

We offer solutions for the following industries:



The high performance level and reliability of the Kübler products are based on our long experience in these demanding application sectors. Learn more about our application-specific solutions under:

www.kuebler.com/industries

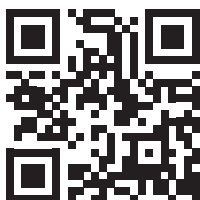
Transmission Technology 2014

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Product overview		6
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Technical basics	Slip rings	10
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You will find comprehensive information about the basic technical knowledge relating to our products on our homepage, at the address www.kuebler.com/basics





Product Overview

Slip rings

		Power / Current (Load)	Signal (Data)	Pneumatics	Hydraulics	N° of channels max.	Ø Hollow shaft max. in mm [inch]	Current max. in A	Protection rating max.	Speed max. in RPM	Temperature range max. in °C [°F]	Page
	Modular, construction system SR085	•	•	•	•	20	30 [1.18]	25	IP64	800	-35...+85 [-31...+185]	20
	Modular, construction system, bearingless SR085B	•	•	–	–	10	34 [1.34]	16	IP40	200	0...+75 [+32...+167]	23
	Modular, contactless signal transmission SRI085	•	•	–	–	9	30 [1.18]	16	IP64	800	-30...+85 [-22...+185]	25
	Compact, low-maintenance SR060E	•	•	–	–	5	25 [0.98]	20	IP64	500	0...+75 [+32...+167]	27







Optical fibre modules

		Interface	Transmission distance in m	Input frequency in kHz	Transmission rate in Mbit/s	Temperature in °C [°F]	Power supply in VDC	Power consumption in W	Page
	Optical fibre module, incremental LWL	RS422 HTL	1.000	400	120	-10...+60 [-14...+140]	5 10...30	2	32
	Optical fibre module, absolute LWL.A	SSI	1.500	500	120	-10...+60 [-14...+140]	5 10...30	1.6	34





Product Overview





Connection technology

Cable, unprepared, cut to length



	PVC cable	PUR cable	TPE cable	Cross section in mm ²	Cable diameter in mm	for incremental encoders	for absolute encoders	Page
 5 core + shield	•	•	–	5 x 0.14 [AWG25] 5 x 0.75 [AWG18]	approx. 4.7 approx. 7.5	•	–	38
 8 core + shield	–	•	–	8 x 0.14 [AWG25]	approx. 5.5	–	•	38
 10 core + shield	–	•	–	4 x 2 x 0.25 [AWG23] + 2 x 1 [AWG17]	approx. 7.9	•	•	38
 12 core + shield	•	•	•	10 x 0.14 [AWG25] + 2 x 0.5 [AWG20] 12 x 0.14 [AWG25] 6 x 2 x 0.14 [AWG25] 5 x 2 x 0.14 [AWG25] + 2 x 0.5 [AWG20] 6 x 2 x 0.14 [AWG25]	approx. 6.9 approx. 6.7 approx. 7.5 approx. 8.5 approx. 7.3	•	•	38
 18 core + shield	•	–	–	18 x 0.14 [AWG25]	approx. 7.8	–	•	39
 PROFIBUS DP DeviceNet CANopen EtherCAT / PROFINET IO	•	•	–	2 x 0.34 [AWG25] 2 x 0.52 [AWG24] + 2 x 1.04 [AWG17] 3 x 2 x 0.25 [AWG23] 2 x 2 x 0.34 [AWG22]	approx. 7.6 approx. 8.4 approx. 6.2 approx. 4.8	•	•	39


Product Overview

Connection technology Connectors, self-assembly		N° of pins	Housing	Connection technology	Cable diameter Ø in mm	Straight connector	Right angle connector	Wall/panel lead-through	for fieldbus	Page
	M12	4/5/8/12	Metal	Screw terminals	6 - 8	•	•	•	•	40
	M23	12/17	Metal	Solder pins	5.5 - 10.5	•	–	•	–	58
	MIL	7/10	Metal	Solder pins	5 - 8	•	–	–	–	64
	RJ45	8	Plastic	Crimp connection	4.5 - 8	•	–	–	•	56

Connection technology Cordsets, pre-assembled		PVC cable	PUR cable	TPE cable	Optical fibre	Straight connector	Right angle connector	for incremental encoders	for SSI / BiSS-C encoders	for fieldbus	for analogue interfaces	Page
	with M12 connector	•	•	–	–	•	•	•	•	•	•	41
	with M23 connector	•	•	•	–	•	–	•	•	–	•	60
	Simplex Patch cable optical fibre	–	–	–	•	•	–	•	•	–	–	32
	with Sub-D connector	–	•	–	–	–	•	–	–	•	–	48

Product Overview

Connection technology Functional Safety Connectors, self-assembly		N° of pins	Housing	Connection technology	Cable diameter Ø in mm	Straight connector	Right angle connector	Wall/panel lead-through	Page
 <small>new</small>	Sub-D	9	ABS metallized	Solder pins	6 - 8	–	•	–	65
 <small>new</small>	RJ45	8	Plastic	Crimp connection	4.5 - 8	•	–	–	65

Connection technology Functional Safety Cordsets, pre-assembled		PVC cable	PUR cable	TPE cable	Optical fibre	Straight connector	Right angle connector	for incremental encoders	for SSI / BiSS-C encoders	for fieldbus	for analogue interfaces	Page
 <small>new</small>	Sub-D	•	–	–	–	–	•	•	•	–	–	66

Slip rings

General information / Mounting

Description

Slip rings are basically used for transmitting electrical current, signals or data, pneumatics and hydraulics from a stationary to a rotary platform.

Kübler slip rings feature a particularly rugged compact design, long maintenance cycles and a long service life.

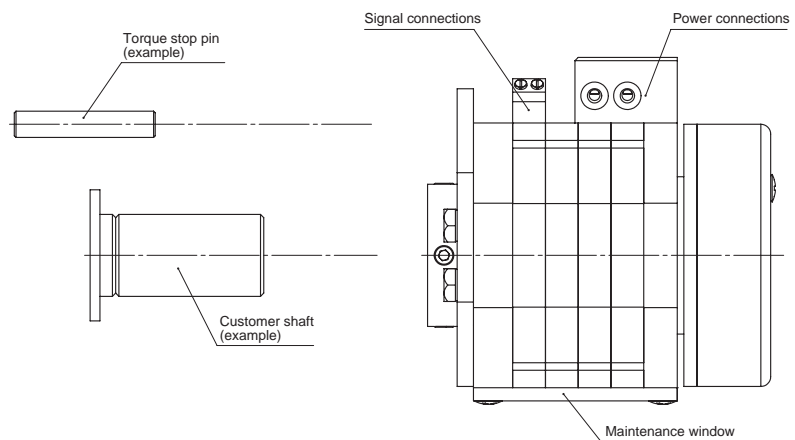
In slip rings, the electrical transmission between the stator and rotor units takes place via sliding contacts and is extremely reliable.

The SR085 family has a modular construction and offers highest flexibility for a wide variety of applications.

Slip ring mounting

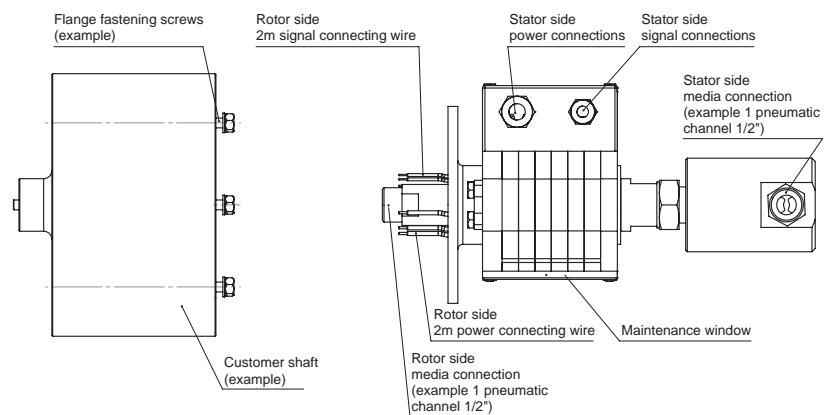
Hollow shaft mounting

- Slide the slip ring on the hollow shaft
- Tighten the setscrews and secure them with screw stop varnish
- Secure the slip ring against rotation with the torque stop



Flange mounting

- Connect the electrical and pneumatic transmission
- Fasten the flange with the screws and secure the screws with appropriate means, e.g. spring washers, screw stop plates
- Secure the slip ring against rotation with the torque stop



Slip rings Mounting

Mounting position

The slip rings of the SR085 and SR060 series can be configured for the following electrical transmissions:

- Only signal transmission
- Only power current transmission
- Mixed transmission of signals and power

In the latter case, for a vertical installation, care must be taken so that the signal rings are always located on top. This reduces the possible risk of contaminating the signal contacts.

The slip rings of the SR085 series may be installed standing, horizontally and suspended.

A distinction is thus made among the installation positions in order to minimize the contamination of the signal channels.

The slip rings of the SR060 series are designed only for horizontal or suspended installation.

The mounting position is to be defined in the order code as follows:

SR085-XX-XX-XX-X1XXX-VXXX

in case of standing and horizontal installation (flange at the bottom)

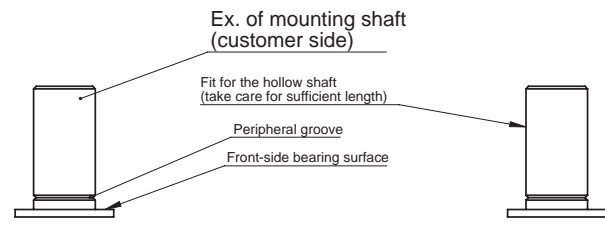
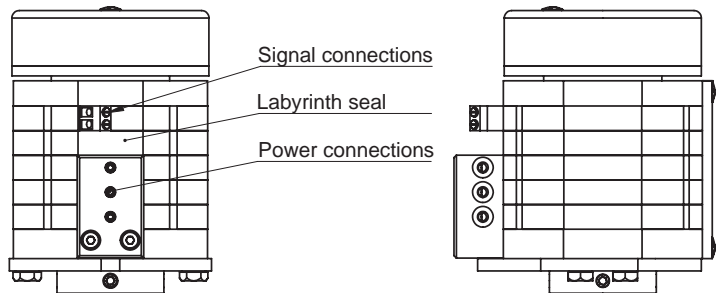
SR085-XX-XX-XX-X2XXX-VXXX

in case of suspended and horizontal installation (flange on top)

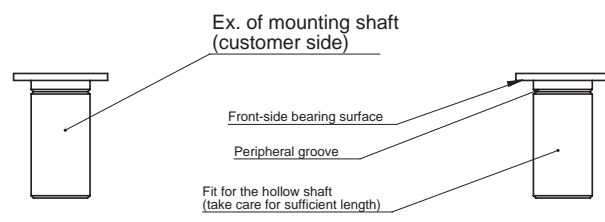
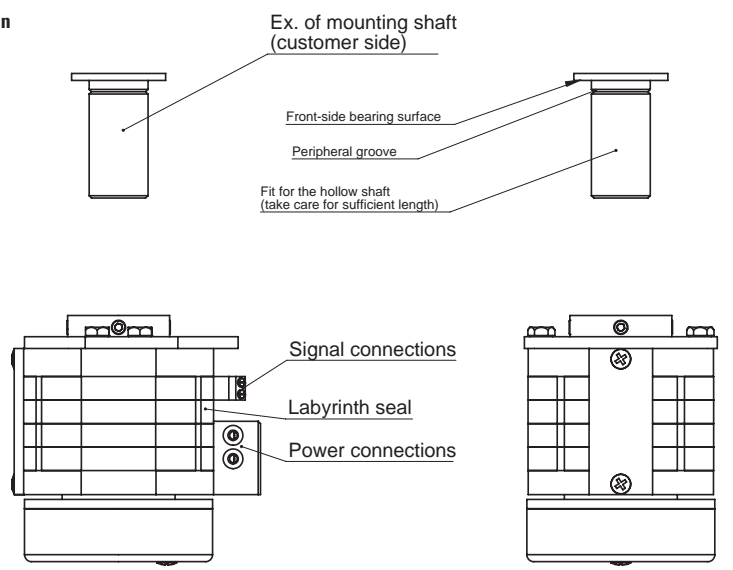
SR085-XX-XX-XX-X0XXX-VXXX

in case of only load or only signal transmission

Mounting position standing



Mounting position suspended



Slip rings Contactmaterials and characteristics

For load transmission

Copper alloy

Use: Standard contacts for power channels
Characteristics: Suitable for high currents, very low voltage drop, very low friction coefficient, and thus long service life



Stator ring with copper alloy contacts

Bronze

Use: Standard slip ring for power channels
Characteristics: Good contact properties, long service life



Bronze slip rings with insulator

For signal / data transmission

Silver alloy

Use: Standard contact for signal/data channels
Characteristics: Safe transmission of data and signals, especially for very low currents and voltages, very low contact resistance, easy maintenance, no contact oil required, long service life, longer maintenance cycles



Stator ring with silver alloy contacts

Precious metal alloy

Use: As a standard slip ring for signal channels, paired with silver alloy contacts
Characteristics: Safe transmission of data and signals, especially for very low currents and voltages, very low contact resistance. Suitable for intermittent operation (long standstill periods)



Slip rings out of special precious metal alloy with insulator

Bronze

Use: As a standard slip ring for signal channels, paired with silver alloy contacts
Characteristics: Safe transmission of data and signals, especially for very low currents and voltages, very low contact resistance



Slip rings out of bronze with insulator

Contact material	Copper / Bronze	Silver / Bronze	Silver / Precious metal
Suitable for only load transmission			
High currents and voltages	x		
Suitable for only signal / data transmission			
Low currents and voltages		x	x
Digital and switching signals		x	x
Fieldbus signals			x
Intermittent operation (constant contact resistance < 0.1 ohm when stopped and when rotating)			x
Maintenance			
Contact oil not required for maintenance	x	x	x

Slip rings Maintenance

Maintenance

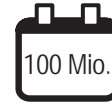
Regular and appropriate maintenance is determining for the safety and service life of the slip ring.

Unless otherwise specified in the technical data sheet, the following maintenance intervals apply:

- 1st interval after max. 50 million revolutions or after 1 year
- Every further maintenance interval max. 100 million revolutions or at the minimum once per year



or



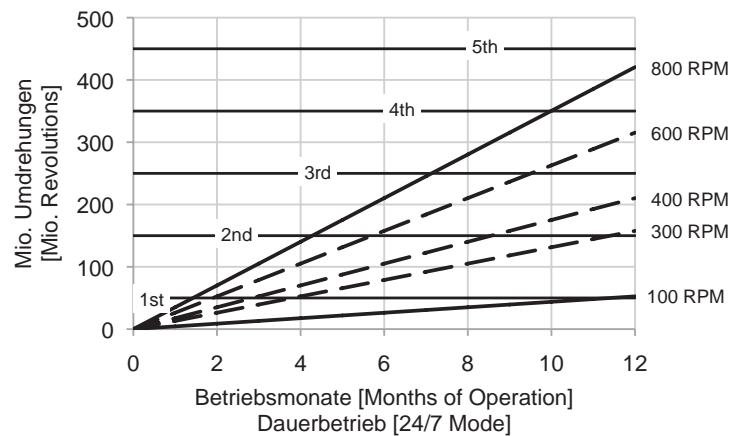
or



Maintenance plan

Depending on the rotational speed and on the operating mode, the specified maintenance intervals are reached more or less quickly. In case of continuous operation and corresponding rotational speeds, maintenance will be required, depending on the contact material of the signal/data channels, after the following number of months of operation:

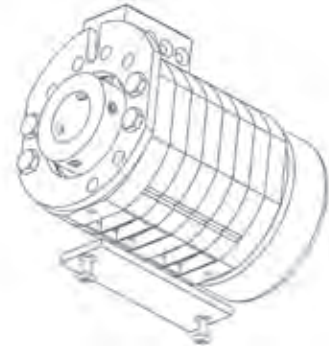
Signal/data channels, contact material silver alloy / precious metal / bronze



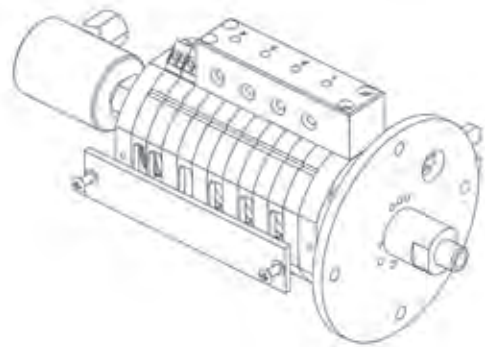
Slip rings	Maintenance
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Position of the maintenance window

Slip ring with maintenance window at the bottom
(slip ring for power current up to 16 A)



Slip ring with maintenance window on the side
(slip ring for power current over 16 A)

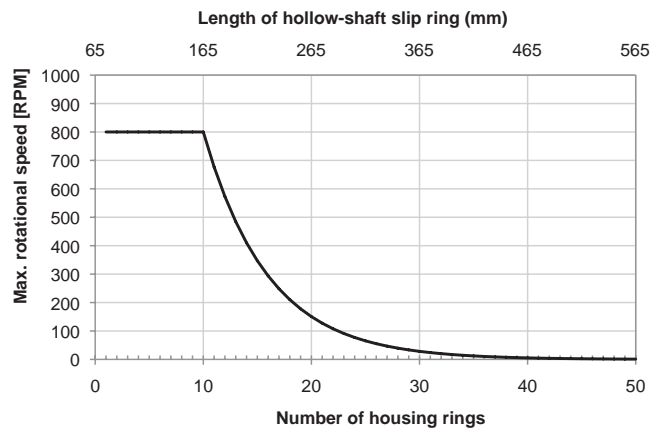


Note:
The accurate description of the maintenance work can be found in the respective maintenance instructions.

Rotational speeds

The maximum rotational speed depends on the mounting position and on the number of channels eg. housing rings (see fig.).

For higher rotational speeds, please contact the manufacturer.



Slip rings are to be mounted by the customer so as to prevent them from oscillating and to ensure optimal rotation. The setscrews must be tightened evenly.

Unless otherwise specified, the shaft receiving the slip ring should have a h7 fit.

Whenever possible, always tighten the opposite screws consecutively and evenly. In addition, at least 1/3 of the whole slip ring length should be in contact with the shaft.

Safety-Trans™-Design

Two-chamber system for simultaneous load and signal transmission. The power and the signal area are separated by a special labyrinth seal. This allows minimizing a possible contamination of the signal contacts.

Optical fibre signal transmission	General information	
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Description

The system is made up of an optical fibre transmitter and an optical fibre receiver.

The optical fibre transmitter converts the electrical signals of an encoder into optical fibre signals.

A simple glass fibre allows reliable transmission up to distances of 1500 m.

The receiver module converts the optical signals back into electrical signals.

The modules are available in various level and power supply voltage variants.

Main advantages of an optical fibre transmission:

- Insensitivity to electromagnetic interferences and to leakage effects between lines routed parallel
- Significantly higher transmission speeds
- The optical fibre cable can be routed through explosive atmospheres
- Cost and weight savings thanks to reduced cabling work, especially for important cable lengths

Mounting of optical fibre modules

The optical fibre modules can be mounted directly on a TS35 DIN rail (top-hat rail) according to EN 50022.

The installation width for every module is only 22.5 mm.

Laying and connection of glass fibre cables

Laying the cable is generally easy.

Care must nevertheless be taken to make sure that the bending radius does not become smaller than 30 mm for static laying and 60 mm for dynamic laying.

When connecting the cable, make sure that the bayonet catch is locked and remove the dust protection caps only just before connecting the cable.

Glass fibre cables

The modules can be connected together using 50/125 µm or 62.5/125 µm multimode glass fibre cables with ST/PC type connectors with bayonet catch. Single-mode Simplex patch cables are not suitable.

Kübler offers finished confectioned patch cables adapted to the optical fibre modules as accessories.

They ensure the full functionality and high signal quality of our sensors.

Connection technology

Introduction / Cables and connectors

Introduction

All products of chapter Connection technology have been tested and released in relation with the corresponding compatible Kübler sensors.

They ensure the full functionality and high signal quality of our sensors - this guarantee is supported by our competent customer service.

Your advantage:

- Prevents from misconnections
 - No time-consuming search for errors
- Optimal shielding
 - Prevents from EMC problems
- Shorter mounting times
 - Time- and thus cost-savings
- No time-consuming search for the suitable connector or cable
 - Time-savings and error prevention

Material information - Cables

PVC

- Suitable for average mechanical stresses in the area of packaging machines and assembly and production lines
- Good resistance against acids and alkalis and thus predestined for use in the food and beverage industry
- Limited friction resistance and partial resistance to oils and chemicals

PUR

- Flexible, PVC, silicone and halogen-free control cable with PUR cable jacket and polypropylene wire insulation
- The cable is oil-resistant and non-flammable according to VDE 0472, and it is resistant to chemicals, hydrolysis and microbes
- Temperature resistance from -30°C to +90°C
- Use is possible in trailing cable carriers with a bending radius equal at least to 10 x D
- Thanks to its resistance to welding sparks, this cable is very well adapted for flexible use in the area of robotics, machine tools and metal cutting production

Material information - Connectors

Two material groups are used for the connectors described in the catalogue:

Metals for contacts and housings

- Contacts:
Metal, CuZn, gilded
- Connecting nut /compression screw:
Metal, CuZn, nickel-plated

Plastics for insulator and housing

- Contact carrier:
Plastic, TPU, black
- Body:
Plastic, TPU, black
- Seal:
Plastic, fluorine rubber (FKM/FPM) FPM/FKM or nitrile-butadiene rubber (NBR)

Connection technology | Cables and connectors

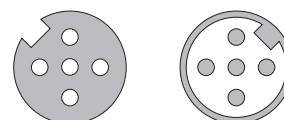
Coding of the M12 x 1 connectors

The connectors are coded to guarantee protection against polarity reversal. This coding is achieved by means of a peg or a notch in the contact carrier.

Kübler connectors make a distinction between A, B or D coding.

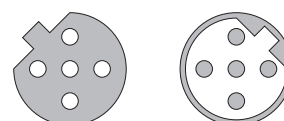
A-coding

Female connector with coupling nut: Coding notch
 Male connector with external thread: Coding peg
 Use: CANopen and 8-pin connector



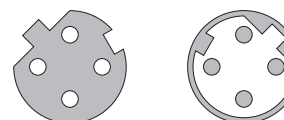
B-coding

Female connector with coupling nut: Coding peg
 Male connector with external thread: Coding notch
 Use: Profibus



D-coding

Female connector with coupling nut: Coding peg and Coding notch
 Male connector with external thread: Coding peg and Coding notch
 Use: Profinet and EtherCAT



Product Overview
Basics

Shielding

With round connectors, care must be taken to connect carefully the shielding braid of the cable to the shield connection of the connector.

An all-round contact (360°) is optimal. Good (in practice often sufficient) shielding values are also reached by connecting the shielding braid firmly to the electrically conductive housing. Connectors purely out of plastic, without metal sleeve, providing no contact for the shielding braid, are not sufficient.

Furthermore, a proper contact with the mating connector is also important, as well as a good contact of the mating connector with the chassis of the equipment.



"Allround" shielding with Kübler cordsets

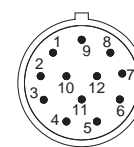
Counting direction cw/ccw

The counting direction of the connectors is indicated by cw for a clockwise arrangement and ccw for a counter-clockwise arrangement. The connector is always viewed from the mating side.

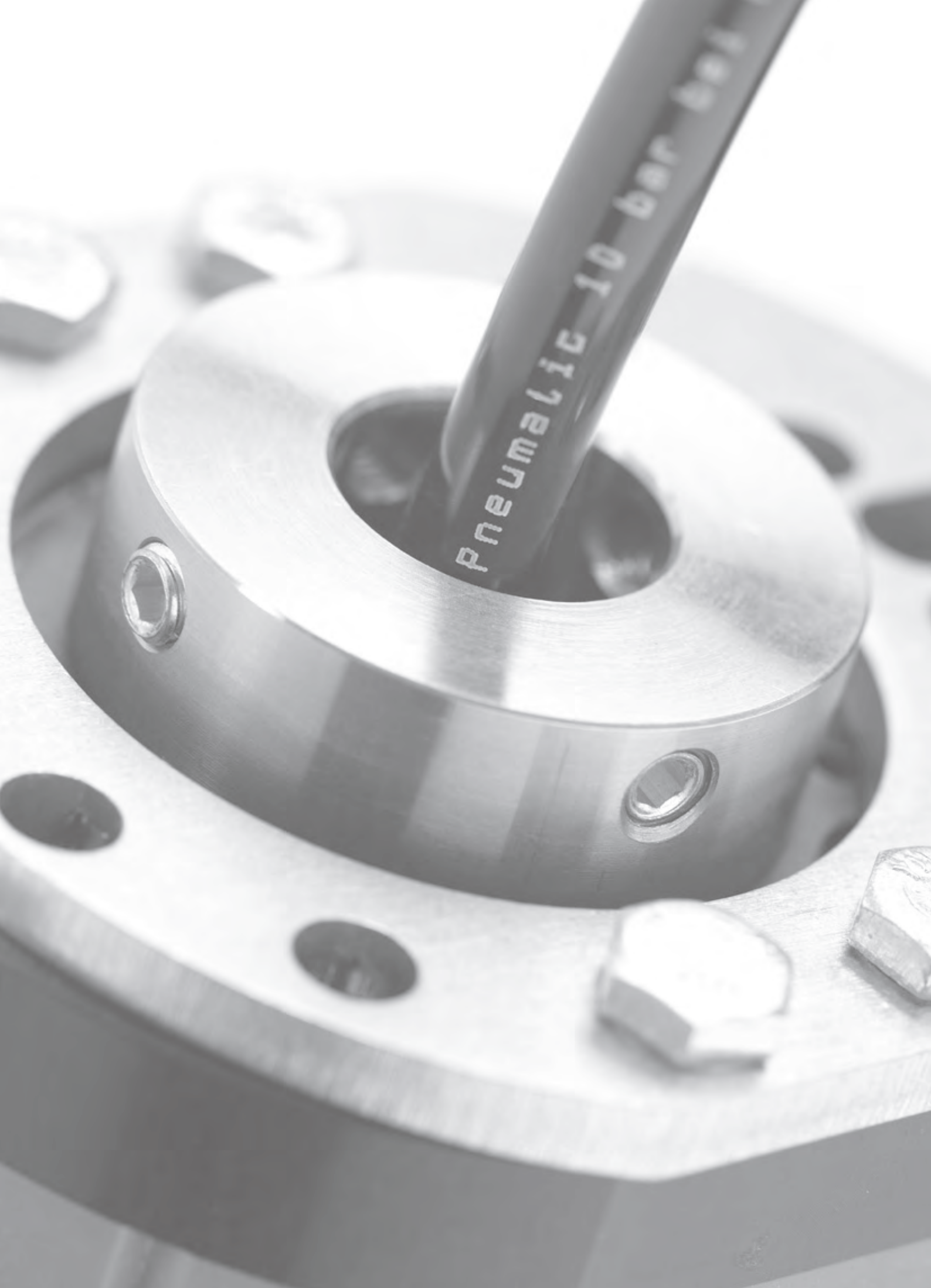
Top view of mating side






Counting direction cw (e.g. female connector)



Counting direction ccw (e.g. male connector)



Slip Rings

		Type	Page	
Slip rings		Modular – Construction system	SR085	20
		Modular – Construction system, bearingless	SR085B	23
		Modular – Contactless signal transmission	SRI085	25
		Compact – Low-maintenance	SR060E	27

Slip Rings

Modular	Construction system	SR085
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In general slip rings are used to transmit power, signals or data, pneumatic and hydraulic, from a stationary to a rotating platform.

The transmission between the stator and rotor takes place via sliding contacts and is extremely reliable.

The construction is modular and offers the greatest flexibility in a variety of applications.

Flexible and rugged

- Modular construction system, load and signal/data channels can be combined as desired
- Rugged GFPC housing (glass-reinforced polycarbonate), 30% glass-fibre content for industrial usage
- Long service life and long maintenance cycles

Reliable with Safety-Trans™ Design

- Two-cavity system for load and signal transmission
- Labyrinth seal
- High vibration resistance
- Fieldbus signals such as Profibus, CANopen etc. up to 12 Mbit/sec

Applications

Packaging machines, textile machines, pipeline inspection systems, video surveillance equipment (CCTV), bottling plants, rotary tables

Standard models

Delivery time is 10 working days for a maximum of 10 pcs. per delivery. Larger quantities have a delivery time of 15 working days (or alternatively on request).



	Signal / data channels	Load channels	Contact material	Order-No.
Hollow shaft	4 x	4 x	silver / precious metal	SR085-25-04-04-11301-V100
25 mm [0.98"]	6 x	6 x	silver / precious metal	SR085-25-06-06-11301-V100
Hollow shaft	2 x	3 x	silver / precious metal	SR085-30-02-03-11301-V100
30 mm [1.18"]	6 x	6 x	silver / precious metal	SR085-30-06-06-11301-V100

Order code

SR085 - **XX** - **XX** - **XX** - **XXXXXX** - **V100**
 Type **a** **b** **c** **d** **e** **f** **g** **h** **i**

Please note: non-standard models will be checked for availability - an alternative model may be proposed. Minimum order quantity 5 pieces for new models. Delivery time 20 to 25 working days. For list of all available types, see www.kuebler.com/sr-list

a <i>Type of mounting</i> 00 = flange mounting 20 = hollow shaft, ø 20 mm [0.79"] 24 = hollow shaft, ø 24 mm [0.94"] 25 = hollow shaft, ø 25 mm [0.98"] 30 = hollow shaft, ø 30 mm [1.18"] IN = hollow shaft, ø 1" (other options on request)	d <i>Max. load current</i> 0 = no load channels 1 = 16 A, 240 V AC/DC 2 = 25 A, 240 V AC/DC 3 = 10 A, 400 V AC/DC 4 = 20 A, 400 V AC/DC	f <i>Contact material for signal / data channels²⁾</i> 0 = no signal channels 3 = silver / precious metal 4 = silver / bronze	h <i>Protection rating</i> 1 = IP50 2 = IP64
b <i>Number of signal / data channels¹⁾</i>	e <i>Mounting position</i> 0 = any, only with either load or signal channels 1 = standing and horizontal (flange down) 2 = hanging and horizontal (flange up)	g <i>Media lead-through</i> 0 = none only flange mounting (00): 1 = air, connection 1/4" 2 = air, connection 1/2" 3 = air, connection 3/8" 4 = hydraulics, connection 1/2" 5 = hydraulics, connection 3/8" hollow shaft or shaft mounting: 6 = air, rotatable connector (up to 300 rpm)	i <i>Version number (options)</i> V100 = without options >V100 = Options on request, e.g.: - > 20 channels - other types of mounting - other types of connection e.g. plug connectors
c <i>Number of power (load) channels¹⁾</i>			

1) 20 combination max., for example 4 data channels and 16 load channels
 2) Contact material gold / gold and copper / bronze on request

Slip Rings

Modular	Construction system	SR085
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Contact material for electrical signal / data transmission

Contact material	Silver / Bronze	Silver / Precious metal
	contact brush	contact brush
Suitable for		
Very low currents and voltages	x	x
Digital and switching signals	x	x
Fieldbus signals		x
High shock and vibration levels	x	x
Intermittent operation (constant contact resistance < 0.1 ohm when stopped and when rotating)		x
Maintenance		
Contact oil not required for maintenance	x	x

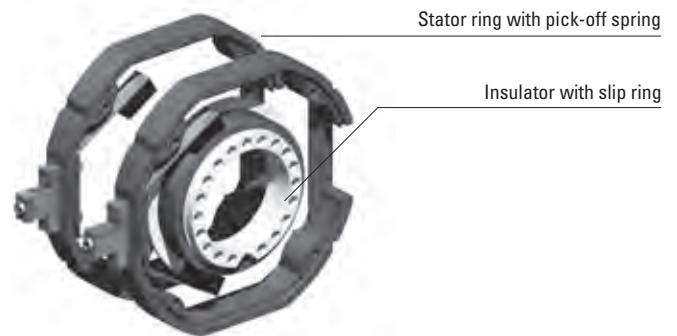
Calculation of time intervals for maintenance

Calculation of time intervals for maintenance with contact material silver/precious metal or silver/bronze (Maintenance intervals 100 million revolutions)

$$\frac{100,000,000 \text{ revolutions}}{200 \text{ rpm} \times 60 \text{ min} \times 24 \text{ h}} = 350 \text{ days}$$

Technical data (standard version)	
Overall length	dep. on the number of transmission paths
Hollow shaft diameter	up to ø 30 mm [1.18"]
Voltage/current loading	
load channels	240 V AC/DC, max. 16 A (order option 1) 240 V AC/DC, max. 25 A (order option 2) 400 V AC/DC, max. 10 A (order option 3) 400 V AC/DC, max. 20 A (order option 4)
signal channels	48 V AC/DC, max. 2 A
Contact resistance (dynamic only with contact material silver/bronze)	
load channel	≤ 1 Ohm
signal/data channels	≤ 0.1 Ohm
Insulation resistance	10 ³ MOhm, at 500 V DC
Dielectric strength	1000 V eff. (60 sec.)
Speed max. (signal / data channels)	800 rpm (depends on installation position and numbers of channels)
Service life (signal / data channels)	typ. 500 million revolutions (depends on installation position)
Maintenance cycles	first maintenance after 50 million revolutions, all further maintenance intervals after 100 million revolutions
Material pairing load channels	copper / bronze
Operating temperature	-35° ... +85°C [-31°F ... +185°F]
Protection	max. IP64
Transmission paths	max. 20 (> 20 on request)
Standards	EN 61010-1 2001, VDE 0110 part 1, VDE 0295/6.92, VDE 0100 part 523

Modular construction system



Technology in detail

Easily accessible connections



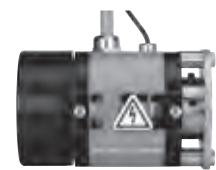
IP64 version with rotor and stator protective cover



Version with media lead-through (air, hydraulics)



Practical maintenance window



Hollow shaft mounting with rotatable connector (air)



Slip Rings

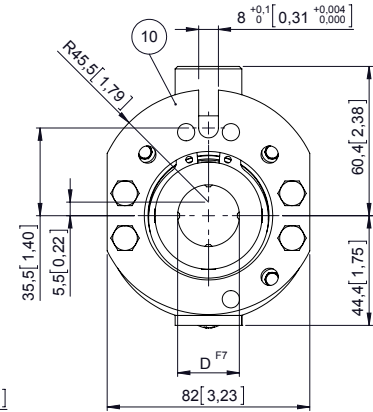
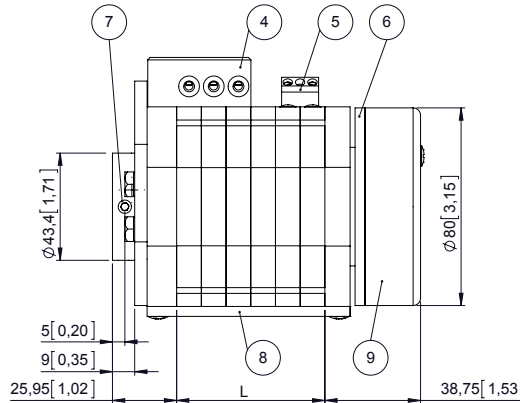
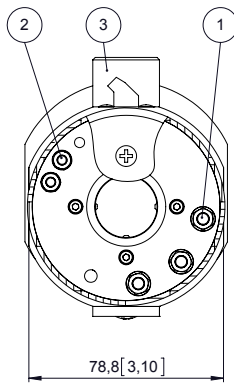
Modular	Construction system	SR085
----------------	----------------------------	--------------

Dimensions

Dimensions in mm [inch]

Standard version

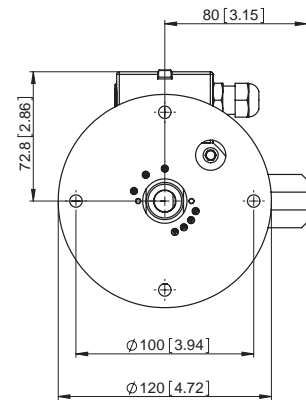
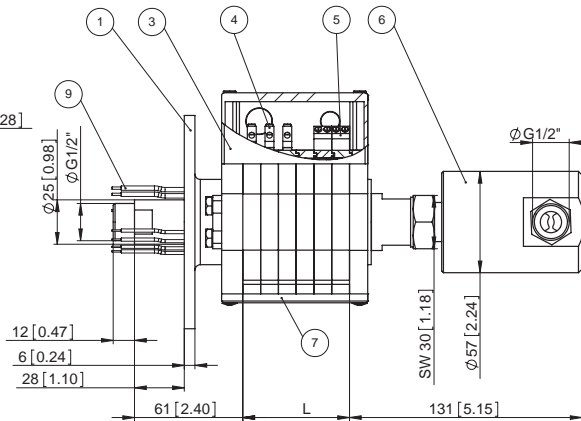
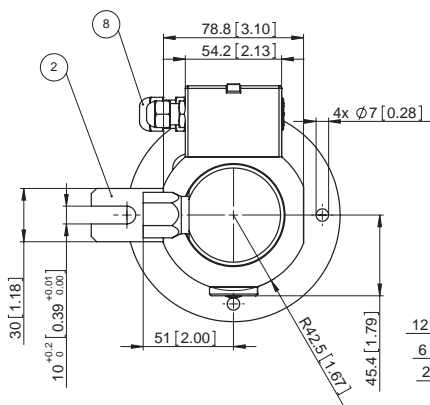
Example: Type SR085-25-02-03-11301-V100
(2 data channels, 3 load channels)



- | | | |
|--|---|--------------------------------------|
| 1 – Screw terminal M5 for load transmission | 4 – Wire lead-in for power possible on both sides | 8 – Maintenance window |
| 2 – Screw terminal M4 for signal transmission | 5 – Terminal clamp for signal transmission | 9 – Protective cover for connections |
| 3 – Terminal clamp for power without wire protection, with shock-hazard touch protection | 6 – Rotating connection ring | 10 – Torque stop |
| | 7 – 4 x socket set screw DIN 914 M6 | |

Air lead-through versions

Example: Type SR085-00-04-03-11422-V100



- | | | |
|-----------------------------|---------------------------|------------------------|
| 1 – Mounting flange | 4 – Terminal clamp power | 7 – Maintenance window |
| 2 – Torque stop | 5 – Terminal clamp signal | 8 – Cable gland |
| 3 – Stator protective cover | 6 – Media lead-through | 9 – Connection wires |

Calculation of the overall length

Basic dimensions	
slip ring with hollow shaft	64.5 mm [2.54"]
slip ring with flange mounting and media lead-through 1/2" or 3/8"	185 mm [7.28"]
slip ring with flange mounting and media lead-through 1/4"	168 mm [6.61"]
Additional dimensions	
+ number of signal/data channels (silver / precious metal or silver / bronze)	+ 10 mm [0.39"] per data channels
+ number of load channels, order options 1 and 2	+ 10 mm [0.39"] per load channel
+ number of load channels, order options 3 and 4 (10 or 20 A, 400 V)	+ 20 mm [0.79"] per load channel, if only load + 10 mm [0.39"]
+ labyrinth isolation ring for load and signal transmission	+ 10 mm [0.39"]

Slip Rings

Modular	Construction system, bearingless	SR085B
----------------	---	---------------



In general slip rings are used to transmit power, signals or data from a stationary to a rotating platform.

The SR085B is a cost-effective bearingless slip ring. Its flexible modular system allows a wide range of customer-specific applications.

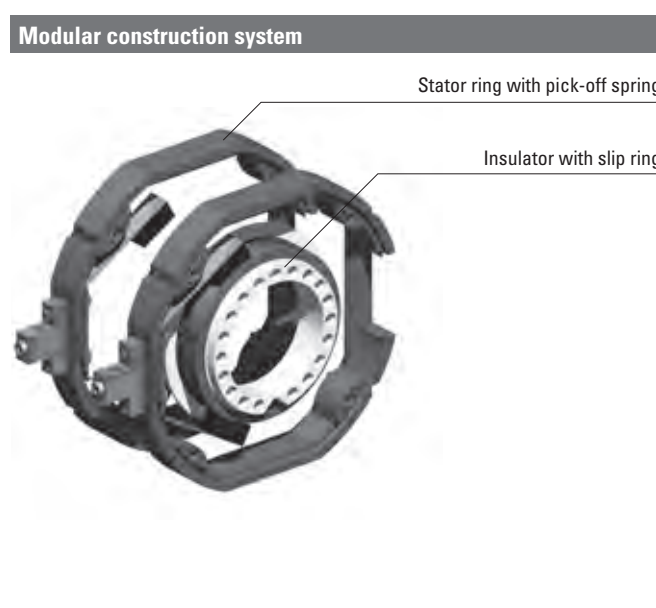
The SR085B is ideally suited for the transmission of signals, data and/or loads.

Slip Rings

<p>Flexible and slim</p> <ul style="list-style-type: none"> • Modular construction system, can be combined as desired • From 33 mm mounting depth • Cost-effective bearingless construction • Long service life and long maintenance cycles 	<p>Applications</p> <p>Revolving doors, rotary tables, rotary show cases, packaging machines, other low speed applications.</p>
--	--

Order code	SR085B - XX - XX - 1 0 X - V100					
	Type	a	b	c	d e	f
a Type of mounting	20 = hollow shaft, ø 20 mm [0.79"] 24 = hollow shaft, ø 24 mm [0.94"] 25 = hollow shaft, ø 25 mm [0.98"] 30 = hollow shaft, ø 30 mm [1.18"] 34 = hollow shaft, ø 34 mm [1.34"] (other options on request)	b Number of channels max. 10 channels	c Max. load current 1 = 16 A, 240 V AC/DC	d Mounting position 0 = any	e Contact material 3 = silver / precious metal 4 = silver / bronze 5 = copper / bronze	f Version number (options) V100 = without options >V100 = options on request

Technical data (standard version)	
Overall length	dep. on the number of transmission paths
Hollow shaft diameter	up to ø 34 mm [1.34"]
Voltage/current loading	240 V AC/DC, max. 16 A
Contact resistance (dynamic only with contact material copper/bronze and silver/bronze)	copper / bronze ≤ 1 Ohm silver / precious metal ≤ 0.1 Ohm silver / bronze ≤ 0.1 Ohm
Insulation resistance	10 ³ MOhm, at 500 V DC
Dielectric strength	1000 V eff. (60 sec.)
Speed max.	200 min ⁻¹
Protection	IP40
Service life	typ. 500 million revolutions dep. on the mounting position
Maintenance cycles	typ. 100 million revolutions
Operating temperature	0°C ... +75°C [+32°F ... +167°F]



Slip Rings

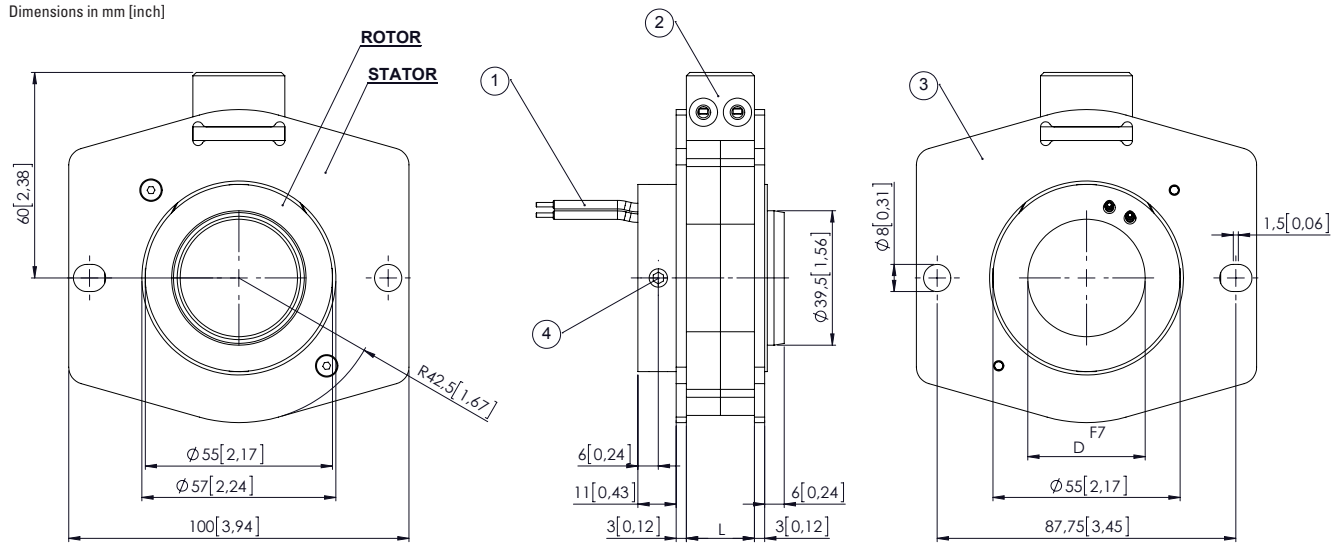
Modular	Construction system, bearingless	SR085B
----------------	---	---------------

Contact material

Contact material	Copper / Bronze	Silver / Bronze	Silver / Precious metal
Suitable for only load transmission High currents and voltages	x		
Suitable for only signal / data transmission or combined signal, data and load transmission			
Low currents and voltages		x	x
High currents and voltages		x	x
Digital and switching signals		x	x
Fieldbus signals			x
Intermittent operation (constant contact resistance < 0.1 ohm when stopped and when rotating)			x
Maintenance Contact oil not required for maintenance	x	x	x

Dimensions

Dimensions in mm [inch]



Permitted misalignment rotor/stator
axial = max 0.5 mm
radial = max 0.5 mm

- 1 - Connection wires
- 2 - Terminal clamp for power without wire protection, with shock-hazard touch protection
- 3 - Stator cover, mounting plate
- 4 - 4 x socket set screw DIN 914 M6

Calculation of total length L:

Basic dimension: 23 mm [0.91"]

Additional dimension: +10 mm [0.39"] per channel

Slip Rings

Modular	Contactless signal transmission	SRI085
----------------	--	---------------



In general slip rings are used to transmit electrical power, signals or data, pneumatic and hydraulic, from a stationary to a rotating platform.

In the SRI085, signal transmission occurs by means of a contactless inductive coupling. This ensures the data channels without maintenance requirements.

The construction is modular and offers the greatest flexibility in a variety of applications.

Slip Rings

<p>Flexible and rugged</p> <ul style="list-style-type: none"> • Modular construction system, load and signal/data channels can be combined as desired • Rugged GFPC housing (glass-reinforced polycarbonate) for industrial usage 	<p>Maintenance-free</p> <ul style="list-style-type: none"> • Signal / data channels maintenance-free by means of inductive coupling • Long service life <p>Applications Packaging machines, rotary tables and textile machines</p>
--	--

Standard versions				Order No.
	Signal / data channels	Load channels	max. load current	
Hollow shaft 25 mm [0.98"]	3 x	4 x	16 A, 240 V AC/DC	SRI085-25-03-04-1101-V100
Other options on request:				
• Hollow shaft up to \varnothing 30 mm [1.18"]				
• Number of data channels – max. 3 PT100 pairs				
• Number of load channels – max. 6 channels				
• Protection max. IP64				

Connection technology		Order No.
Connector, self-assembly (straight)	M12 female connector with coupling nut	05.CMB 8181-0
Cordset, pre-assembled	M12 female connector with coupling nut, 2 m PUR cable	05.00.6051.8211.002M

Additional connectors can be found in the connection technology section or in the connection technology area of our website at: www.kuebler.com/connection_technology.

Easily accessible connections



Slip Rings

Modular	Contactless signal transmission	SRI085
----------------	--	---------------

Technical data

Load transmission	
Current carrying capacity voltage / current	max. 240 V / 16 A max. 240 V / 25 A
Contact resistance	< 1 Ohm
Insulation resistance	< 10 ⁸ MOhm
Dielectric strength	1000 V eff.

Data transmission	
Data signal	PT100
Measuring range	0°C ... +300°C [+32°F ... + 572°F] (4 ... 20 mA)
Power supply	24 V DC, ±10%
Power consumption	max. 250 mA at 24 V DC
Max. load of the current source	400 Ohm
Type of connection	Flange connector M12, A coded (terminal assignment see connection table)

Mechanical characteristics		
	only data transmission SRI085-XX-0X-00-010X-V100	mixed data and load transmission SRI085-XX-XX-XX-X101-V100
Speed	max. 800 rpm	max. 800 rpm
Service life	–	typ. 500 million revolutions
Maintenance cycles	maintenance-free	100 million revolutions
Operating temperature	-30°C ... +85°C [-22°F ... +185°F]	-30°C ... +85°C [-22°F ... +185°F]
Protection	max. IP64	max. IP50
Contact material load channel	–	copper/bronze

Terminal assignment

Interface	Flange connector M12, 8 pin								
1	Signal:	channel 2, PT100	channel 3, PT100	channel 3, 0 V	0 V	+24 V	channel 1, PT100	channel 1, 0 V	channel 2, 0 V
	Pin:	1	2	3	4	5	6	7	8

Top view of mating side, male contact base

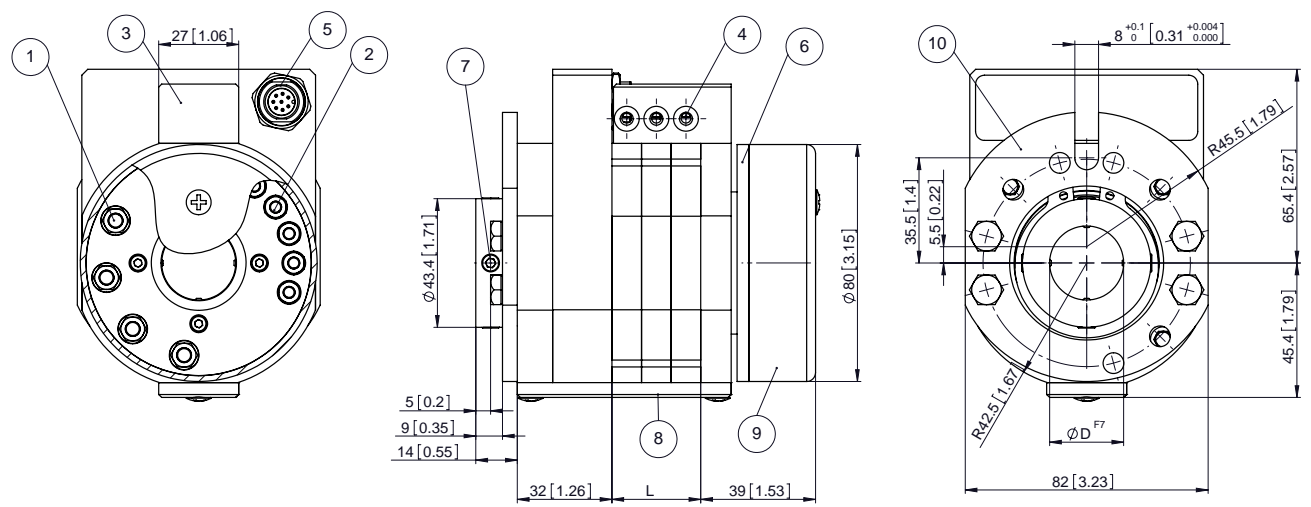


Flange connector M12, 8 pin

Dimensions

Dimensions in mm [inch]

Example: SRI085-25-03-03-1101-V100



- 1 – Screw terminal M5 for load transmission
- 2 – Screw terminal M4 for signal transmission
- 3 – Terminal clamp for power without wire protection, with shock-hazard touch protection
- 4 – Wire lead-in for power possible on both sides
- 5 – Flange connector M12, A coded
- 6 – Rotating connection ring
- 7 – 4 x socket set screw DIN 914 M6
- 8 – Maintenance window
- 9 – Protective cover for connections
- 10 – Torque stop

Slip Rings

Compact **Low-maintenance** **SR060E**



RU US pending

In general slip rings are used to transmit power, signals or data from a stationary to a rotating platform.

The SR060E is a compact, economical slip ring for up to 3 power and 2 signal transmissions.

New innovative contact materials ensure long service life and extremely low-maintenance operation. The round shape with smooth surfaces and high protection level allows easy cleaning.

Slip Rings

<p>Compact</p> <ul style="list-style-type: none"> • Dimensions 60 x 98 mm • Can be used as a pair starting from just 60 mm shaft distance of the sealing rollers • Various component configurations for the transmission paths, max. 3 x load and 2 x signal transmission • Easily accessible connections • Load current up to 20 A 	<p>Low-maintenance</p> <ul style="list-style-type: none"> • Maintenance cycles only every 100 million revolutions • No contact oil required • Easy cleaning – high protection level IP64 <p>Applications for slip rings</p> <p>Flowpack and blister packaging machines, robots and handling equipment, rotary tables</p>
---	---

<p>Order code for standard versions</p>	<p>SR060E - XX - X - X - XX 2 - V100</p> <p style="font-size: small;">Type a b c d e f g</p>
<p>a <i>Hollow shaft</i> 20 = ø 20 mm [0.79"] 22 = ø 22 mm [0.87"] 24 = ø 24 mm [0.94"] 25 = ø 25 mm [0.98"] (other diameters on request)</p>	<p>b <i>Number of signal / data channels</i> 0 or 2</p> <p>c <i>Number of load channels</i> 0, 2 or 3</p>
<p>d <i>Max. load current</i> 0 = no load channels 1 = 16 A, 240 V AC/DC 2 = 20 A, 240 V AC/DC</p>	<p>e <i>Contact material signal / data channels</i> 0 = no signal / data channels 3 = silver / precious metal 4 = silver / bronze</p> <p>f <i>Protection</i> 2 = IP64</p> <p>g <i>Version number (options)</i> V100 = without option > V100 = option on request</p>

Technical data	
Hollow shaft diameter	up to max. ø 25 mm [0.98"]
Voltage/current loading	
load channels	240 V AC/DC, max. 16 A
signal channels	240 V AC/DC, max. 20 A (order option 2) 48 V AC/DC, max. 2 A
Contact resistance	dynamic only with contact material copper/bronze (load channel) and silver/bronze (data channel)
load channel	≤ 1 Ohm
signal channel	≤ 0.1 Ohm
Insulation resistance	10 ³ Ohm (at 500 V DC)
Dielectric strength	1000 V eff. (60 sec.)
Speed max.	500 min ⁻¹

Service life	typ. 500 million revolutions (depends on installation position)
Maintenance cycles	first maintenance after 50 million revolutions, all further maintenance intervals after 100 million revolutions
Material pairing load channels	copper / bronze
Operating temperature	0°C ... +75°C [+32°F ... +167°F]
Protection	IP64
Standards	VDE 0110 and VDE 0295/6.92

Slip Rings

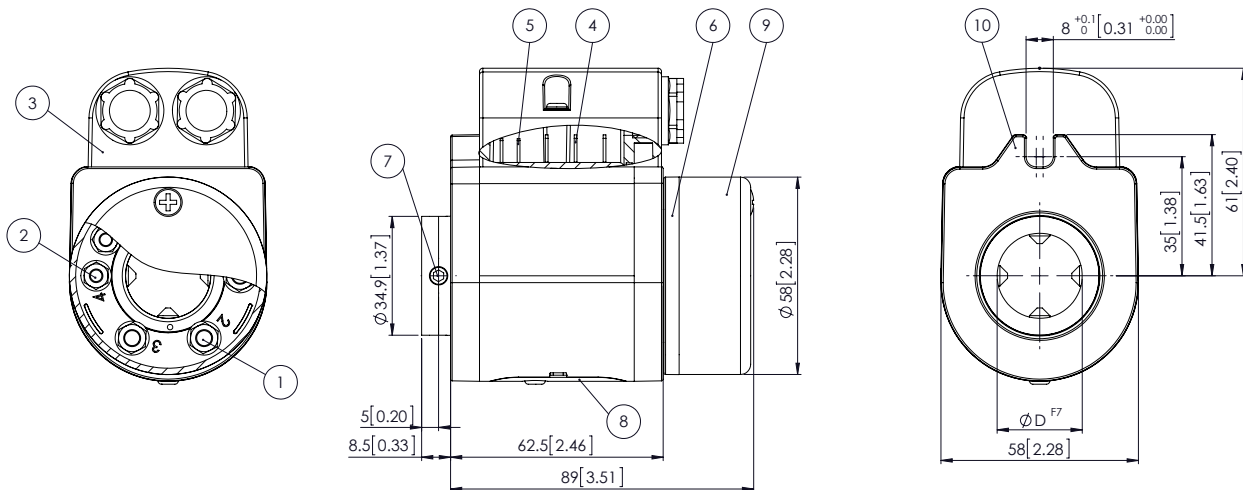
Compact	Low-maintenance	SR060E
----------------	------------------------	---------------

Contact material for electrical signal / data transmission

Contact material	Silver / Bronze	Silver / Precious metal
Suitable for		
Very low currents and voltages	x	x
Digital and switching signals	x	x
High shock and vibration levels	x	x
Intermittent operation (constant contact resistance < 0.1 ohm when stopped and when rotating)		x
Maintenance		
Contact oil not required for maintenance	x	x

Dimensions

Dimensions in mm [inch]



- 1 – Screw terminal M5 for load transmission
- 2 – Screw terminal M4 for signal transmission
- 3 – Protective cover for the stator connections with screwed assembly (only IP64)

- 4 – Flat pin connection for load transmission
- 5 – Flat pin connection for signal transmission
- 6 – Rotating connection ring
- 7 – 4 x socket set screw DIN 914 M6

- 8 – Maintenance window
- 9 – Protective cover for connections
- 10 – Torque stop



Optical Fibre Signal Transmission Modules

			Page
Optical fibre signal transmission modules	RS422/HTL (incremental)	transmitter and receiver	32
	SSI (absolute)	transmitter and receiver	34

Optical Fibre Signal Transmission Modules

Optical fibre signal transmission

Transmitter and receiver

RS422/HTL

eco
plus

Cost advantage compared to conventional wiring over 150 m length*



The solution where signal transmission is difficult.

The system is made up of an optical fibre transmitter and an optical fibre receiver. The optical fibre transmitter converts the electrical signals of a normal incremental encoder into a light signal for transmission by means of an optical fibre.

The receiving module converts the optical signal back into electrical signals. Up to 4 channels with inverted signals may be transmitted safely.

Innovative

- Signal transmission via just a single glass fibre
- Safe signal transmission up to 1000 m
- Input frequency up to 400 kHz
- Input level 10 ... 30 V or RS422
- Inverted input signals
- Resists extremely strong electro-magnetical fields

Compact

- Can be installed even where space is tight
- Minimal installation depth
- Connections plug-in HD-Sub D15 or terminal clamp

Application areas

- Process control technology and automation technology
- Applications sensitive to interference
- High voltage plants
- Plants with long transmission distances
- Potential separation
- Explosive areas

Order code

Optical fibre transmitter / receiver

6.LWL X . XX
a b c

a S = Optical fibre transmitter
E = Optical fibre receiver

b Output circuit / Power supply
 1 = RS422 / 10 ... 30 V DC
 2 = HTL, without inverted signals / 10 ... 30 V DC (only for optical fibre transmitter)
 4 = RS422 / 5 V DC
 5 = HTL / 10 ... 30 V DC, input

c Type of connection
 0 = Terminal clamp
 1 = Plug-in connector HD-Sub D15

Scope of delivery:
 - Optical fibre module
 - Multilingual operating manual

Optical fibre transmitter versions can be combined with any version of the optical fibre receivers.

Accessories

Simplex Patch cable
ST-ST - Multimode



Connector:
2 x ST/PC, optical fibre:
1 x 50/125

Order No.

05.B09-B09-821-XXXX

XXXX = Length in m
Standard lengths: 2 m, 5 m, 8 m, 10 m, 15 m, 20 m, ... (in 5 m steps)

ST Multimode coupling



Barrel: ceramic, slotted

05.LWLK.001

* Comparison of costs:
Costs per meter standard copper cable compared to costs per meter optical fibre signal cable + costs of transmitter + costs of receiver

Optical Fibre Signal Transmission Modules

Optical fibre signal transmission Transmitter and receiver RS422/HTL

Technical data		Glass fibre	
Power supply	10 ... 30 DC V eg. 5 V DC ±5%		multimode fibre, 50/125 µm, 62.5/125 µm
Power consumption per module	< 2 W		
Operating voltage reverse connection protection	available		
Encoder inputs optical fibre transmitter channels	A, \bar{A} , B, \bar{B} , 0, $\bar{0}$	Input signals sampling rate	10 MSamples/s
Max. input frequency optical fibre transmitter and output frequency optical fibre receiver	400 kHz	Optical fibre transmission distance	max. 1000 m [3280.8']
Input level optical fibre transmitter	10 ... 30 V or RS 422	Dimensions (W x L x H) Terminal clamp	22.5 x 110.8 x 88.4 mm [0.89 x 4.36 x 3.48"]
Optical wavelength	820 nm	Plug-in connector	19.0 x 110.8 x 88.4 mm [0.75 x 4.36 x 3.48"]
Optical transmission rate	120 Mbit/s	Protection class	IP40, terminals IP20
Optical fibre synchronisation display	LED on the receiver	Terminals	protected against contact max. conductor diameter 2.5 mm ² [AWG 23]
Optical fibre connection	ST connector, ø 9 mm [0.35] on the bottom side of the housing	Temperature range	-10°C ... +60°C [+14°F ... +140°F]
		Weight	approx. 95 g [3.35 oz]
		Standards	EN 55011 Class B EN 61000-6-2: 2006

Terminal assignment

Type of connection	Terminal clamp, optical fibre transmitter and optical fibre receiver											
0	Signal	\bar{A}	\bar{B}	$\bar{0}$ (\bar{C})	A	B	0 (C)	\bar{D}	D	+V	0 V linked internally	Shield
	Terminal	1	2	3	4	5	6	7	10	8	9, 11, 12	–

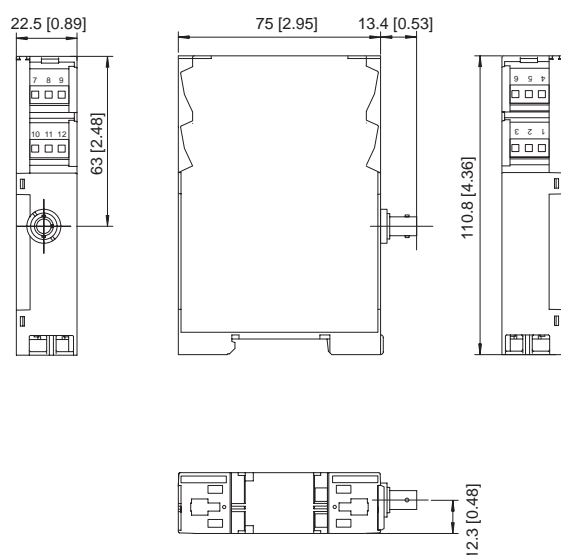
Type of connection	HD-Sub D15, optical fibre transmitter											Terminal		
1	Signal	\bar{A}	\bar{B}	$\bar{0}$ (\bar{C})	A	B	0 (C)	\bar{D}	D	+V _{out} to encoder	0 V linked internally	Shield	0 V linked internally	+V _{out} to encoder, linked internally
	Terminal	8	6	3	9	7	4	1	2	15	11, 12	13	1	2

Type of connection	HD-Sub D15, optical fibre receiver											Terminal		
1	Signal	\bar{A}	\bar{B}	$\bar{0}$ (\bar{C})	A	B	0 (C)	\bar{D}	D	+V _{in} power supply	0 V linked internally	Shield	0 V linked internally	+V _{in} power supply, linked internally
	Terminal	8	6	3	9	7	4	1	2	15	11, 12	13	1	2

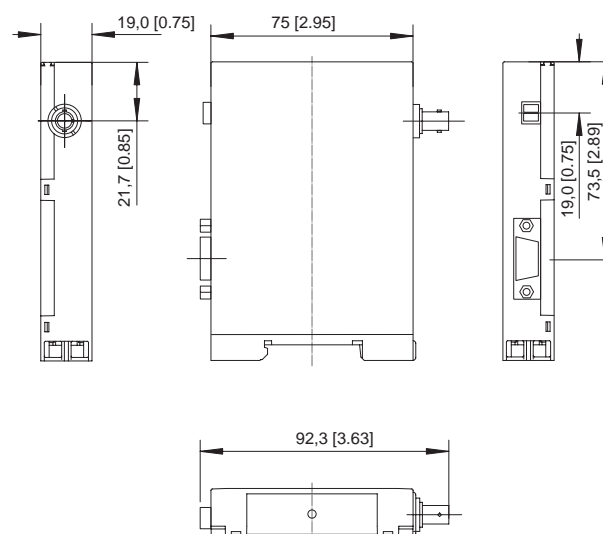
Dimensions

Dimensions in mm [inch]

Terminal clamp



Plug-in connector, HD-Sub D15



Optical Fibre Signal Transmission Modules

Optical fibre signal transmission

Transmitter and receiver

SSI

eco plus

Cost advantage compared to conventional wiring over 150 m length*



Optical fibre transmission system for SSI absolute encoders

The system is made up of an optical fibre transmitter and an optical fibre receiver.

The optical fibre transmitter converts the electrical signals of a normal absolute encoder with Synchronous Serial Interface (SSI) into a light signal for transmission by means of an optical fibre. The receiving module converts the optical signal back into electrical signals.

Absolute signals can be transmitted safely through one glass fibre over distances of up to 1500 m. The resolution of 13 bit for a singleturn encoder or 25 bit for a multiturn encoder can be defined by means of a DIP-switch on the front side of the module.

Reliable transmission

- Safe signal transmission up to 1500 m
- Resists extremely strong electro-magnetic fields

Easy installation

- Signal transmission via a single glass fibre
- Resolution of 13 bit or 25 bit can be set via DIP-switch
- LED for monitoring of power supply, clock and date
- DIN-rail mounting – requires min. installation space – only 22 mm wide

Application areas

- Process control technology and automation technology
- Applications sensitive to interference
- High voltage plants
- Plants with long transmission distances
- Potential separation
- Explosive areas

Order code

Optical fibre transmitter / receiver

6.LWL X . AX

a
S = Optical fibre transmitter
E = Optical fibre receiver

b Supply voltage
1 = 10 ... 30 V DC
4 = 5 V DC

Scope of delivery:

- Optical fibre module
- Operating manual, dual language, German and English

Accessories

**Simplex Patch cable
ST-ST - Multimode**



Connector:
2 x ST/PC, Optical fibre:
1 x 50/125

Order No.

05.B09-B09-821-XXXX

XXXX = Length in m
Standard lengths: 2 m, 5 m,
8 m, 10 m, 15 m, 20 m, ...
(in 5 m steps)

ST Multimode coupling



Barrel: ceramic, slotted

05.LWLK.001

* Comparison of costs:
Costs per meter standard copper cable compared to costs per meter optical fibre signal cable + costs of transmitter + costs of receiver

Optical Fibre Signal Transmission Modules

Optical fibre signal transmission Transmitter and receiver SSI

Technical data	
Power supply	10 ... 30 DC V eg. 5 V DC ±5%
Power consumption per module	+V = 10 ... 30 V DC max 1.6 W +V = 5 V DC max 0.8 W
Operating voltage reverse connection protection	available
Encoder inputs	optical fibre transmitter C-, C+ and D-, D+
SSI clock rate	500 kHz fixed setting
Optical wavelength	820 nm (infrared)
Optical transmission rate	120 Mbit/s
Optical fibre connection	ST connector, ø 9 mm [0.35] on the bottom side of the housing

Glass fibre	multimode fibre, 50/125 µm, 62.5/125 µm
Optical fibre transmission distance	max. 1500 m [4921.3']
Dimensions (W x L x H)	22.5 x 110.8 x 88.4 mm [0.89 x 4.36 x 3.48"]
Protection class	IP40, terminals IP20
Terminals	protected against contact max. conductor diameter 2.5 mm ² [AWG 23]
Temperature range	-10°C ... +60°C [+14°F ... +140°F]
Weight	approx. 100 g [3.53 oz]
Standards	EN 55011 class B1 EN 61000-6-2: 2006

Connection diagram

Optical fibre transmitter

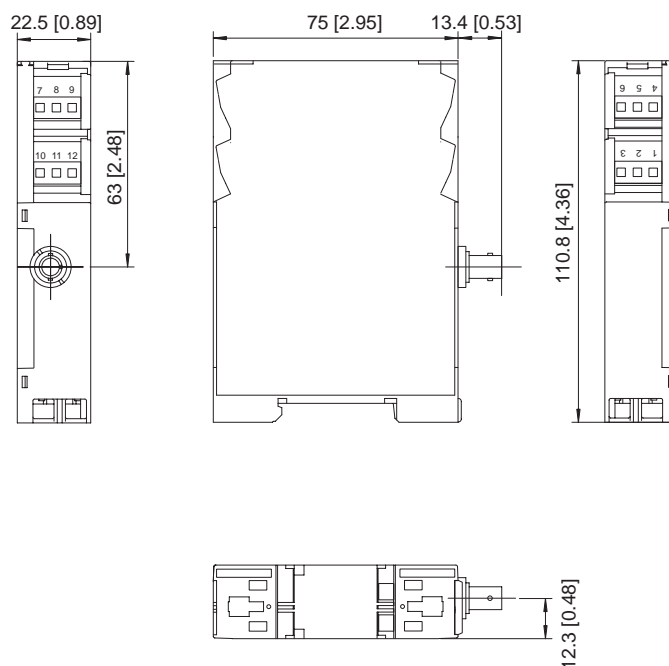
Pin	Signal
1	0 V (GND)
2	+V
3	C+
4	C-
5	D+
6	D-
7	0 V (GND)
8	+V

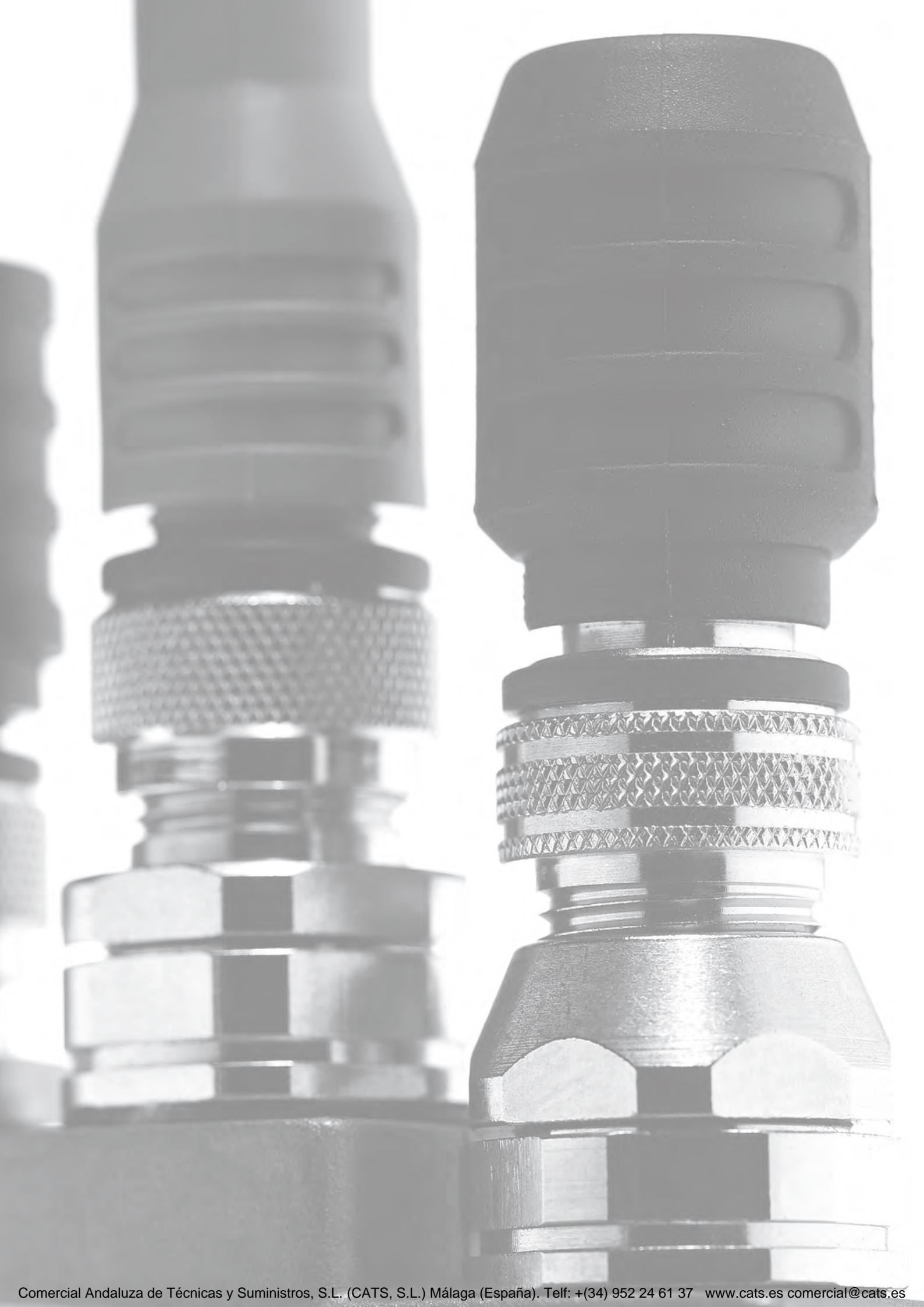
Optical fibre receiver

Pin	Signal	
1	0 V (GND)	
2	+V	from power supply
3	D+	
4	D-	to controller
5	C+	
6	C-	from controller
7	emitter (-)	
8	collector (+)	optocoupler output alarm output


Dimensions

Dimensions in mm [inch]





Connection Technology

			Page
Cable	Unprepared, cut to length		38
M12 connection technology	Incremental, SSI, Analogue	Connectors, self-assembly	40
		Cordsets, pre-assembled	41
	PROFIBUS DP	Connectors, self-assembly	43
		Bus cable, pre-assembled	46
		CANopen / DeviceNet	Connectors, self-assembly
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M12 and RJ45 connection technology	EtherCAT / PROFINET IO	Connectors, self-assembly	56
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		Cordsets, pre-assembled	60
MIL connection technology	Standard	Connectors, self-assembly	64
Functional Safety 		Connectors, self-assembly	65
		Cordsets, pre-assembled	66

The idea behind our Connection Technology System



Connection Technology from Kübler = System Safety!








All the products in the Connection Technology section have been tested and approved with the relevant compatible Kübler sensors.

They ensure the full functionality and high signal quality of our sensors.

Your benefit:

- Elimination of connection errors
– no laborious fault finding
- Optimal shielding
– avoids EMC problems
- Shorter installation times
– saves time, cuts costs
- No time-consuming search for the right connector or cable
– saves time, eliminates errors

Connection Technology

Cable		Unprepared, cut to length		
5 core + shield				Order No.
PVC electronic cable LiVCY 	Cross section Permanent working temp. range flexible installation secure installation Bending radius flexible installation secure installation Cable diameter	5 x 0.14 mm ² [AWG25] -5°C ... +70°C [+23°F ... +158°F] -30°C ... +80°C [-22°F ... +176°F] min. 75 mm [2.95"] min. 75 mm [2.95"] approx. 4.7 ±0.2 mm	suitable for: incremental encoders without inversions	8.0000.6300.XXXX ¹⁾
	TPE electronic trailing cable halogen-free 	Cross section Permanent working temp. range flexible installation secure installation Bending radius flexible installation secure installation Cable diameter	5 x 0.75 mm ² [AWG18] -35°C ... +100°C [-31°F ... +212°F] -40°C ... +100°C [-40°F ... +212°F] min. 40 mm [1.57"] min. 25 mm [0.98"] approx. 7.5 ±0.3 mm	suitable for: speed switch, robust incremental encoders without inversions
8 core + shield				Order No.
PUR trailing cable halogen-free, flame resistant 	Cross section Permanent working temp. range flexible installation secure installation Bending radius flexible installation secure installation Cable diameter	8 x 0.14 mm ² [AWG25] -20°C ... +80°C [-4°F ... +176°F] -40°C ... +80°C [-40°F ... +176°F] min. 65 mm [2.56"] min. 45 mm [1.77"] approx. 5.5 ±0.2 mm	suitable for: Limes, 365X, 368X SSI and analogue	8.0000.6P00.XXXX ¹⁾
	PUR electronic trailing cable halogen-free 	Cross section Permanent working temp. range flexible installation secure installation Bending radius flexible installation secure installation Cable diameter	4 x 2 x 0.25 mm ² [AWG23] + 2 x 1 mm ² [AWG17] -40°C ... +90°C [-40°F ... +194°F] -50°C ... +90°C [-58°F ... +194°F] min. 95 mm [3.74"] min. 40 mm [1.57"] approx. 7.9 ±10%	suitable for: H100 with speed switch LA10 LA50
12 core + shield				Order No.
PUR electronic trailing cable halogen-free 	Cross section Permanent working temp. range flexible installation secure installation Bending radius flexible installation secure installation Cable diameter	10 x 0.14 mm ² [AWG25] + 2 x 0.5 mm ² [AWG20] -30°C ... +80°C [-22°F ... +176°F] -50°C ... +90°C [-58°F ... +194°F] min. 50 mm [1.97"] min. 35 mm [1.38"] approx. 6.9 ±0.3 mm	suitable for: robust incremental encoders	8.0000.6100.XXXX ¹⁾
	PVC electronic cable LiVCY 	Cross section Permanent working temp. range flexible installation secure installation Bending radius flexible installation secure installation Cable diameter	12 x 0.14 mm ² [AWG25] -5°C ... +70°C [+23°F ... +158°F] -30°C ... +80°C [-22°F ... +176°F] min. 100 mm [3.94"] min. 70 mm [2.76"] approx. 6.7 ±0.2 mm	suitable for: incremental encoders standard cable
PUR electronic trailing cable halogen-free 	Cross section Permanent working temp. range flexible installation secure installation drag chain operation Bending radius flexible installation secure installation Cable diameter	6 x 2 x 0.14 mm ² [AWG25] -30°C ... +90°C [-22°F ... +194°F] -40°C ... +90°C [-40°F ... +194°F] -25°C ... +60°C [-13°F ... +140°F] min. 50 mm [1.97"] min. 35 mm [1.38"] approx. 7.5 ±0.2 mm	suitable for: LA10	8.0000.6Y00.XXXX ¹⁾

1) XXXX = cable length in meters (e.g. 10 m = 0010)

Connection Technology

Cable		Unprepared, cut to length		
12 core + shield		Order No.		
TPE electronic cable (TP) halogen-free 	Cross section	5 x 2 x 0.14 mm ² [AWG25] + 2 x 0.5 mm ² [AWG20]	suitable for: high temperatures or encoders with sine wave output	8.0000.6E00.XXXX ¹⁾
	Permanent working temp. range	flexible installation -40°C ... +110°C [-40°F ... +230°F] secure installation -60°C ... +135°C [-76°F ... +275°F]		
	Bending radius	flexible installation min. 90 mm [3.54"] secure installation min. 70 mm [2.76"]		
	Cable diameter	approx. 8.5 ±0.4 mm		
PVC electronic cable LiYCY (TP) 	Cross section	6 x 2 x 0.14 mm ² [AWG25]	suitable for: absolute encoders with SSI or 4 ... 20 mA analogue output, twisted pair conductors	8.0000.6900.XXXX ¹⁾
	Permanent working temp. range	flexible installation -5°C ... +70°C [+23°F ... +158°F] secure installation -30°C ... +80°C [-22°F ... +176°F]		
	Bending radius	flexible installation min. 110 mm [4.33"] secure installation min. 75 mm [2.95"]		
	Cable diameter	approx. 7.3 ±0.2 mm		
18 core + shield		Order No.		
PVC electronic cable LiYCY 	Cross section	18 x 0.14 mm ² [AWG25]	suitable for: absolute encoders with parallel output, twisted pair conductors	8.0000.6700.XXXX ¹⁾
	Permanent working temp. range	flexible installation -5°C ... +70°C [+23°F ... +158°F] secure installation -30°C ... +80°C [-22°F ... +176°F]		
	Bending radius	flexible installation min. 120 mm [4.72"] secure installation min. 100 mm [3.94"]		
	Cable diameter	approx. 7.8 ±0.2 mm		
PROFIBUS DP - cable		Order No.		
PUR outer jacket, PE wire insulation 	Cross section	2 x 0.34 mm ² [AWG22]	suitable for: all Profibus fieldbus encoders and Safety-M safety module BMB1	05.KABEL451.XXX ¹⁾
	Permanent working temp. range	flexible installation -30°C ... +70°C [-22°F ... +158°F] secure installation -50°C ... +90°C [-58°F ... +194°F]		
	Bending radius	flexible installation min. 70 mm [2.76"] secure installation min. 50 mm [1.97"]		
	Cable diameter	approx. 7.6 ±0.2 mm		
DeviceNet - cable		Order No.		
PUR outer jacket, PE wire insulation 	Cross section	2 x 0.52 mm ² [AWG24] + 2 x 1.04 mm ² [AWG17]	suitable for: all DeviceNet fieldbus encoders and Safety-M fieldbus module BM11	05.KABEL5723.XXX ¹⁾
	Permanent working temp. range	flexible installation -30°C ... +70°C [-22°F ... +158°F] secure installation -50°C ... +90°C [-58°F ... +194°F]		
	Bending radius	flexible installation min. 70 mm [2.76"] secure installation min. 50 mm [1.97"]		
	Cable diameter	approx. 8.4 ±0.2 mm		
CANopen - cable		Order No.		
PVC electronic cable 	Cross section	3 x 2 x 0.25 mm ² [AWG23]	suitable for: all CANopen fieldbus encoders and Safety-M fieldbus module BM21	8.0000.6V00.XXXX ¹⁾
	Permanent working temp. range	flexible installation -10°C ... +90°C [+14°F ... +194°F] secure installation -30°C ... +90°C [-22°F ... +194°F]		
	Bending radius	flexible installation min. 120 mm [4.72"] secure installation min. 40 mm [1.57"]		
	Cable diameter	approx. 6.2 ±0.2 mm		
EtherCAT / PROFINET IO - cable		Order No.		
PVC electronic cable 	Cross section	2 x 2 x 0.34 mm ² [AWG22]	suitable for: all EtherCAT / PROFINET IO encoders and Safety-M fieldbus modules BM31 + BMC1	05.00.6031.1111.XXXM ¹⁾
	Permanent working temp. range	flexible installation -30°C ... +70°C [-22°F ... +158°F] secure installation -40°C ... +80°C [-40°F ... +176°F]		
	Bending radius	flexible installation min. 50 mm [1.97"] secure installation min. 25 mm [0.98"]		
	Cable diameter	approx. 4.8 ±0.2 mm		

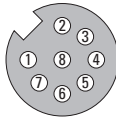
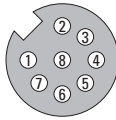
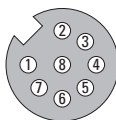
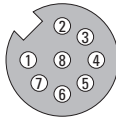
1) XXXX = cable length in meters (e.g. 10 m = 0010)

Connection Technology

M12 connection technology		Incremental, SSI, Analogue	Connectors, self-assembly	Order No.
5-pin				
Female connector with coupling nut straight, IP67 Housing: metal		A coded, screw connections, for cable \varnothing 6 ... 8 mm [0.24 ... 0.32"]	suitable for our analogue series: A50, B80, C120, D135, IS40, IS60 3651 / 3671	8.0000.5116.0000
8-pin				
Female connector with coupling nut straight, IP67 Housing: metal		A coded, screw connections, for cable \varnothing 6 ... 8 mm [0.24 ... 0.32"]	suitable for our incremental and SSI series: 3610 / 3620 5821 F3653 / F3673 5814 / 5834 F3663 / F3683 5853 / 5873 5000 / 5020 5863 / 5883 5006 58x4FSx A020 / A02H 5876	05.CMB 8181-0
Male connector with external thread straight, IP67 Housing: metal		A coded, screw connections, for cable \varnothing 6 ... 8 mm [0.24 ... 0.32"]	suitable for: versions with cable outlet	05.CMBS 8181-0
12-pin				
Female connector with coupling nut straight, IP67 Housing: metal		A coded, screw connections, for cable \varnothing 6 ... 8 mm [0.24 ... 0.32"]	suitable for: LA10	8.0000.5162.0000
Accessories				
Securing clip for M12 connectors EX zone 2/22 Material: plastic		(Working temperature range -25°C ... +90°C)		8.0000.5000.0006


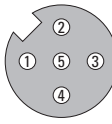
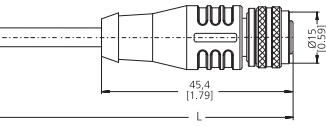
Connection Technology


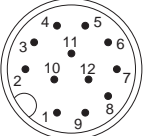
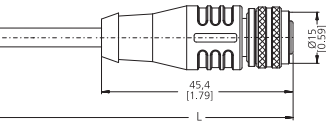
M12 connection technology Incremental, SSI, Analogue Cordsets, pre-assembled

With connector, 8-pin		(Working temperature range -30°C ... +80°C)		Order No.
Female connector with coupling nut straight, IP67, single-ended Cable: PVC, 8 x 0.25 mm ² [AWG23] Housing: metal / plastic	A coded  1: WH 5: GY 2: BN 6: PK 3: GN 7: BU 4: YE 8: RD Shield on housing	suitable for our incremental and SSI series: 3610 / 3620 5821 F3653 / F3673 5814 / 5834 F3663 / F3683 5853 / 5873 5000 / 5020 5863 / 5883 5006 58x4FSx A020 / A02H 5876	Cable length 2 m [6.56'] 5 m [16.40'] 10 m [32.81'] 15 m [49.21']	05.00.6041.8211.002M 05.00.6041.8211.005M 05.00.6041.8211.010M 05.00.6041.8211.015M
Female connector with coupling nut right-angle, IP67, single-ended Cable: PVC, 8 x 0.25 mm ² [AWG23] Housing: metal / plastic	A coded  1: WH 5: GY 2: BN 6: PK 3: GN 7: BU 4: YE 8: RD Shield on housing	suitable for our incremental and SSI series: 3610 / 3620 5821 F3653 / F3673 5814 / 5834 F3663 / F3683 5853 / 5873 5000 / 5020 5863 / 5883 5006 58x4FSx A020 / A02H 5876	Cable length 2 m [6.56'] 5 m [16.40'] 10 m [32.81'] 15 m [49.21']	05.00.6041.8311.002M 05.00.6041.8311.005M 05.00.6041.8311.010M 05.00.6041.8311.015M
Female connector with coupling nut straight, IP67, single-ended Cable: PVC, 8 x 0.25 mm ² [AWG23] Housing: metal / plastic	A coded  1: WH 5: GY 2: BN 6: PK 3: GN 7: BU 4: YE 8: RD Shield on housing	suitable for our incremental and SSI series: 3610 / 3620 5821 F3653 / F3673 5814 / 5834 F3663 / F3683 5853 / 5873 5000 / 5020 5863 / 5883 5006 58x4FSx A020 / A02H 5876	Cable length 2 m [6.56'] 5 m [16.40'] 10 m [32.81'] 15 m [49.21']	05.00.6051.8211.002M 05.00.6051.8211.005M 05.00.6051.8211.010M 05.00.6051.8211.015M
Female connector with coupling nut right-angle, IP67, single-ended with integrated control LEDs Cable: PVC, 8 x 0.25 mm ² [AWG23] Housing: metal / plastic	A coded  1: WH 5: PK 2: BN 6: GY 3: YE 7: RD 4: GN 8: BU Shield on housing	suitable for our incremental and SSI series: 3610 / 3620 5006 5000 / 5020 5821 A020 A02H	Cable length 2 m [6.56'] 4 m [13.12'] 6 m [19.69'] 10 m [32.81']	05.E-WKC 8T-PX3-930-0002 05.E-WKC 8T-PX3-930-0004 05.E-WKC 8T-PX3-930-0006 05.E-WKC 8T-PX3-930-0010


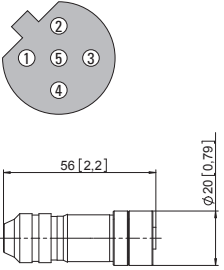

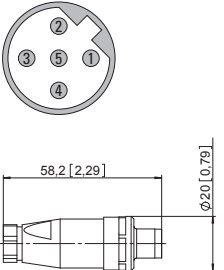

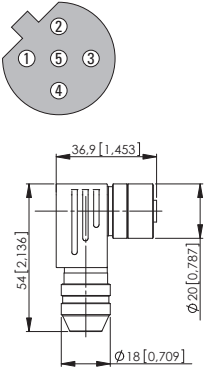

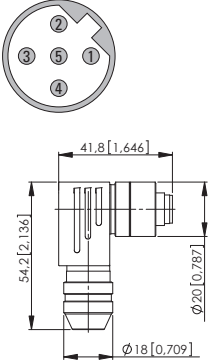
Connection Technology

M12 connection technology	Incremental, SSI, Analogue	Cordsets, pre-assembled
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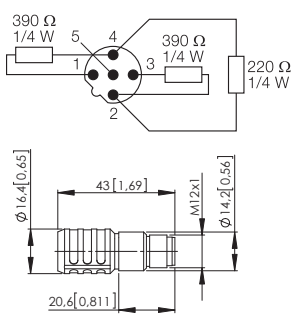

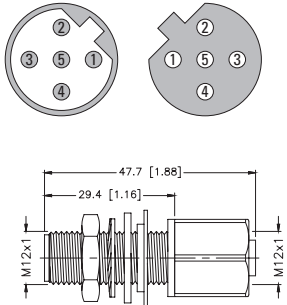
With connector, 5-pin	<i>(Working temperature range -30°C ... +80°C)</i>	<i>Order No.</i>																
<p>Female connector with coupling nut straight, IP67, single-ended</p> <p>Cable: PVC, 5 x 0.25 mm² [AWG23] Housing: metal / plastic</p> 	<p>A coded</p> <table style="margin-left: 20px;"> <tr><td>1: BN</td><td>4: BK</td></tr> <tr><td>2: WH</td><td>5: GY</td></tr> <tr><td>3: BU</td><td></td></tr> </table> <p>Shield on housing</p>   <p>suitable for our analogue series:</p> <table style="margin-left: 20px;"> <tr><td>A50</td><td>B80</td></tr> <tr><td>C120</td><td>D135</td></tr> <tr><td>IS40</td><td></td></tr> </table> <p><i>Cable length</i></p> <table style="margin-left: 20px;"> <tr><td>2 m [6.56']</td></tr> <tr><td>5 m [16.40']</td></tr> <tr><td>10 m [32.81']</td></tr> <tr><td>15 m [49.21']</td></tr> </table>	1: BN	4: BK	2: WH	5: GY	3: BU		A50	B80	C120	D135	IS40		2 m [6.56']	5 m [16.40']	10 m [32.81']	15 m [49.21']	<p>05.00.6081.2211.002M</p> <p>05.00.6081.2211.005M</p> <p>05.00.6081.2211.010M</p> <p>05.00.6081.2211.015M</p>
1: BN	4: BK																	
2: WH	5: GY																	
3: BU																		
A50	B80																	
C120	D135																	
IS40																		
2 m [6.56']																		
5 m [16.40']																		
10 m [32.81']																		
15 m [49.21']																		

With connector, 12-pin	<i>(Working temperature range -30°C ... +90°C)</i>	<i>Order No.</i>												
<p>Female connector with coupling nut straight, IP67, single-ended</p> <p>Cable: PUR, 6 x 2 x 0.14 mm² [AWG25] Housing: metal / plastic</p> 	<p>A coded</p> <table style="margin-left: 20px;"> <tr><td>1: WH</td><td>7: BU</td></tr> <tr><td>2: BN</td><td>8: RD</td></tr> <tr><td>3: GN</td><td>9: BK</td></tr> <tr><td>4: YE</td><td>10: VT</td></tr> <tr><td>5: GY</td><td>11: GY/PK</td></tr> <tr><td>6: PK</td><td>12: RD/BU</td></tr> </table> <p>Shield on housing</p>   <p>suitable for:</p> <p>LA10</p> <p><i>Cable length</i></p> <p>5 m [16.40']</p>	1: WH	7: BU	2: BN	8: RD	3: GN	9: BK	4: YE	10: VT	5: GY	11: GY/PK	6: PK	12: RD/BU	<p>05.00.60B1.B211.005M</p>
1: WH	7: BU													
2: BN	8: RD													
3: GN	9: BK													
4: YE	10: VT													
5: GY	11: GY/PK													
6: PK	12: RD/BU													


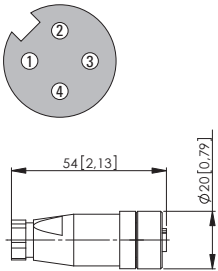

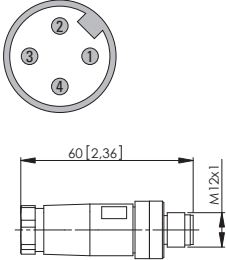

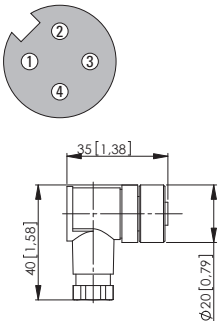
Connection Technology

M12 connection technology	PROFIBUS DP	Connectors, self-assembly	
5-pin			Order No.
<p>Female connector with coupling nut Bus in, straight, IP67</p> <p>Housing: metal</p> 	<p>B coded, screw connections, for cable \varnothing 4 ... 9 mm [0.16 ... 0.35"]</p> 	<p>suitable for our series: 5858 / 5878 5868 / 5888 9080</p>	05.BMWS 8151-8.5
<p>Male connector with external thread, Bus out, straight, IP67</p> <p>Housing: metal</p> 	<p>B coded, screw connections, for cable \varnothing 4 ... 9 mm [0.16 ... 0.35"]</p> 	<p>suitable for our series: 5858 / 5878 5868 / 5888 9080</p>	05.BMSWS 8151-8.5
<p>Female connector with coupling nut Bus in, right-angle, IP67</p> <p>Housing: metal</p> 	<p>B coded, screw connections, for cable \varnothing 4 ... 9 mm [0.16 ... 0.35"]</p> 	<p>suitable for our series: 5858 / 5878 5868 / 5888 9080</p>	05.BMWS 8251-8.5
<p>Male connector with external thread Bus out, right-angle, IP67</p> <p>Housing: metal</p> 	<p>B coded, screw connections, for cable \varnothing 4 ... 9 mm [0.16 ... 0.35"]</p> 	<p>suitable for our series: 5858 / 5878 5868 / 5888 9080</p>	05.BMSWS 8251-8.5

M12 connection technology	PROFIBUS DP	Connectors, self-assembly
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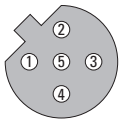

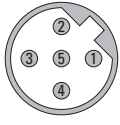

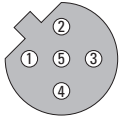

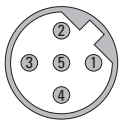

Accessories	Order No.	
<p>Terminating resistor straight, IP67 Housing: metal / plastic</p> 	<p>B coded</p>  <p>suitable for our series: 5858 / 5878 5868 / 5888 9080</p>	<p>05.RSS4.5-PDP-TR</p>
<p>M12 lead-through straight, IP67 Housing: metal</p> 	<p>B coded</p>  <p>suitable for our series: 5858 / 5878 5868 / 5888 9080</p>	<p>05.FKW-FSW45/M12</p>

Connection Technology

M12 connection technology	PROFIBUS DP	Connectors, self-assembly	
4-pin, PROFIBUS DP power supply			Order No.
<p>Female connector with coupling nut straight, IP67</p> <p>Housing: plastic</p> 	<p>A coded, screw connections, for cable \varnothing 4 ... 6 mm [0.16 ... 0.24"]</p> 	<p>suitable for our series: 5858 / 5878 5868 / 5888 9080</p>	<p>05.B8141-0</p>
<p>Male connector with external thread straight, IP67</p> <p>Housing: metal / plastic</p> 	<p>A coded, screw connections, for cable \varnothing 4 ... 6 mm [0.16 ... 0.24"]</p> 	<p>suitable for: versions with cable outlet</p>	<p>05.BS8141-0</p>
<p>Female connector with coupling nut right-angle, IP67</p> <p>Housing: plastic</p> 	<p>A coded, screw connections, for cable \varnothing 4 ... 6 mm [0.16 ... 0.24"]</p> 	<p>suitable for our series: 5858 / 5878 5868 / 5888 9080</p>	<p>05.B8241-0</p>

Connection Technology

Connection Technology

M12 connection technology		PROFIBUS DP		Bus cable, pre-assembled	
With connector, 5-pin		Working temperature range -30°C ... +80°C [-22°F ... +176°F]			Order No.
Female connector with coupling nut Bus in, straight, IP67, single-ended Cable: PUR, 2 x 0.34 mm ² [AWG22] Housing: metal / plastic	B coded  1: n.c. 4: RD 2: GN 5: n.c. 3: n.c. Shield on housing	suitable for our series: 5858 / 5878 5868 / 5888 9080	Cable length 6 m [19.69'] 10 m [32.81'] 15 m [49.21']	05.00.6011.3211.006M 05.00.6011.3211.010M 05.00.6011.3211.015M	
					
Male connector with external thread, Bus out, straight, IP67, single-ended Cable: PUR, 2 x 0.34 mm ² [AWG22] Housing: metal / plastic	B coded  1: n.c. 4: RD 2: GN 5: n.c. 3: n.c. Shield on housing	suitable for our series: 5858 / 5878 5868 / 5888 9080	Cable length 6 m [19.69'] 10 m [32.81'] 15 m [49.21']		
					
Female connector with coupling nut Bus in, right-angle, IP67, single-ended Cable: PUR, 2 x 0.34 mm ² [AWG22] Housing: metal / plastic	B coded  1: n.c. 4: RD 2: GN 5: n.c. 3: n.c. Shield on housing	suitable for our series: 5858 / 5878 5868 / 5888 9080	Cable length 6 m [19.69'] 10 m [32.81'] 15 m [49.21']	05.00.6011.3311.006M 05.00.6011.3311.010M 05.00.6011.3311.015M	
					
Male connector with external thread Bus out, right-angle, IP67, single-ended Cable: PUR, 2 x 0.34 mm ² [AWG22] Housing: metal / plastic	B coded  1: n.c. 4: RD 2: GN 5: n.c. 3: n.c. Shield on housing	suitable for our series: 5858 / 5878 5868 / 5888 9080	Cable length 6 m [19.69'] 10 m [32.81'] 15 m [49.21']		
					

Connection Technology

M12 connection technology PROFIBUS DP Bus cable, pre-assembled

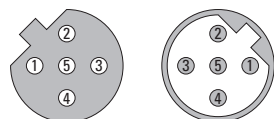
With connector, 5-pin Working temperature range -30°C ... +80°C [-22°F ... +176°F] Order No.

Female connector with coupling nut, Bus in
Male connector with external thread, Bus out
straight, IP67

Cable: PUR, 2 x 0.34 mm² [AWG22]
 Housing: metal / plastic



B coded



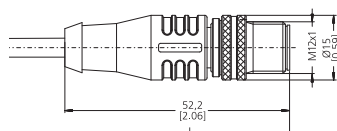
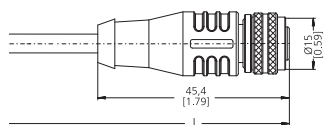
suitable for our series:

5858 / 5878
 5868 / 5888
 9080

Cable length

2 m [6.56']
 6 m [19.69']
 10 m [32.81']
 15 m [49.21']

05.00.6011.3432.002M
05.00.6011.3432.006M
05.00.6011.3432.010M
05.00.6011.3432.015M

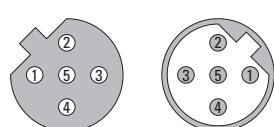


Female connector with coupling nut, Bus in
Male connector with external thread, Bus out
right-angle, IP67

Cable: PUR, 2 x 0.34 mm² [AWG22]
 Housing: metal / plastic



B coded



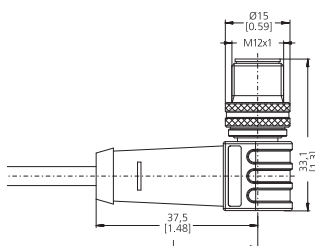
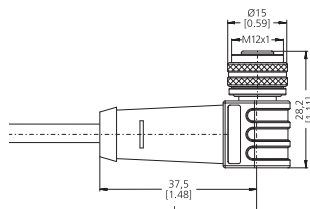
suitable for our series:

5858 / 5878
 5868 / 5888
 9080

Cable length


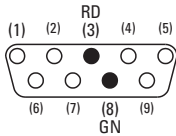

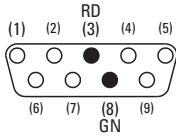
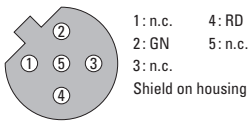
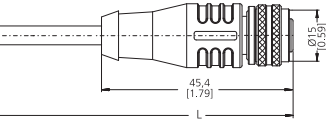

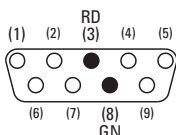
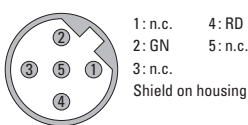
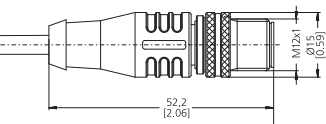
2 m [6.56']
 6 m [19.69']
 10 m [32.81']
 15 m [49.21']

05.00.6011.3533.002M
05.00.6011.3533.006M
05.00.6011.3533.010M
05.00.6011.3533.015M




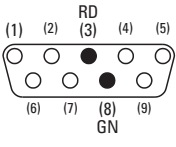
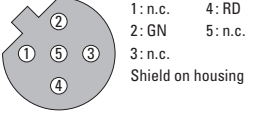
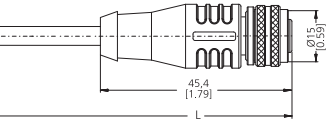
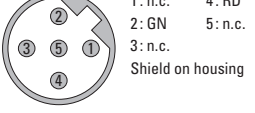
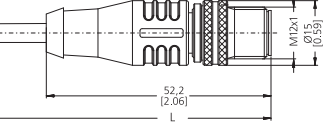
Connection Technology

Connection Technology

M12 connection technology		PROFIBUS DP	Bus cable, pre-assembled		Order No.
With Sub-D connector					
Working temperature range -30°C ... +80°C [-22°F ... +176°F]					
<p>Sub-D connector, Profibus master single-ended, with terminating resistor</p> <p>Cable: PUR, 2 x 0.34 mm² [AWG22] Housing: metal / plastic</p> 	<p>Sub-D connector</p>  <p>Shield on housing</p>	<p>suitable for our series:</p> <p>5858 / 5878 5868 / 5888 9080</p> <p>Safety-M safety modules</p>	<p><i>Cable length</i></p> <p>0.5 m [1.64'] 2 m [6.56']</p>	<p>05.00.6011.5511.00M5 05.00.6011.5511.002M</p>	
<p>Sub-D connector + M12 female connector with coupling nut Profibus master, Bus in, with terminating resistor</p> <p>Cable: PUR, 2 x 0.34 mm² [AWG22] Housing: metal / plastic</p> 	<p>Sub-D connector</p>  <p>Shield on housing</p> <p>M12 connector, B coded</p>  <p>Shield on housing</p> 	<p>suitable for our series:</p> <p>5858 / 5878 5868 / 5888 9080</p>	<p><i>Cable length</i></p> <p>0.5 m [1.64'] 2 m [6.56']</p>	<p>05.00.6011.5532.00M5 05.00.6011.5532.002M</p>	
<p>Sub-D connector + M12 male connector with external thread Profibus master, Bus out, with terminating resistor</p> <p>Cable: PUR, 2 x 0.34 mm² Housing: metal / plastic</p> 	<p>Sub-D connector</p>  <p>Shield on housing</p> <p>M12 connector, B coded</p>  <p>Shield on housing</p> 	<p>suitable for our series:</p> <p>5858 / 5878 5868 / 5888 9080</p>	<p><i>Cable length</i></p> <p>0.5 m [1.64'] 2 m [6.56']</p>	<p>05.00.6011.5534.00M5 05.00.6011.5534.002M</p>	


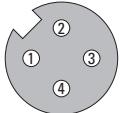
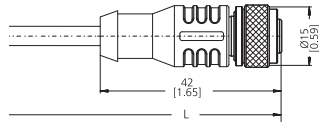

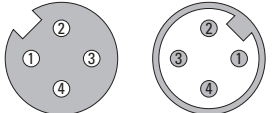
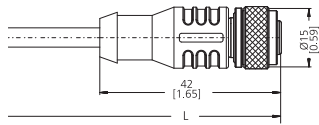
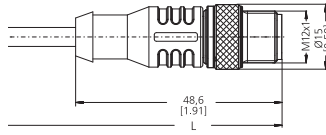
Connection Technology

M12 connection technology PROFIBUS DP Bus cable, pre-assembled


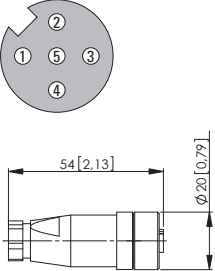

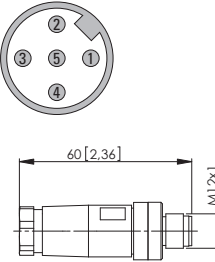

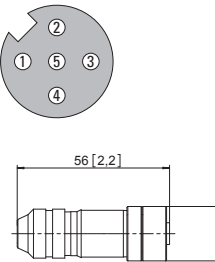

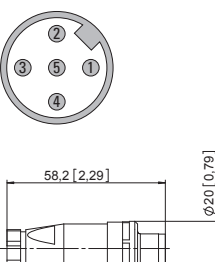
With Sub-D connector	Working temperature range -30°C ... +80°C [-22°F ... +176°F]	Order No.
<p>Sub-D connector + M12 female connector with coupling nut + M12 male connector with external thread Profibus Master, Bus in / Bus out with terminating resistor</p> <p>Cable: PUR, 2 x 0.34 mm² [AWG22] Housing: metal / plastic</p> 	<p>Sub-D connector</p>  <p>Shield on housing</p>	<p>suitable for our series: <i>Cable length</i></p> <p>5858 / 5878 2 x 0.5 m [1.64'] 5868 / 5888 2 x 2 m [6.56'] 9080</p> <p>05.00.6012.5536.00M5 05.00.6012.5536.002M</p>
<p>M12 connector, B coded</p>  <p>Shield on housing</p> 		
<p>M12 connector, B coded</p>  <p>Shield on housing</p> 		

Connection Technology

Connection Technology


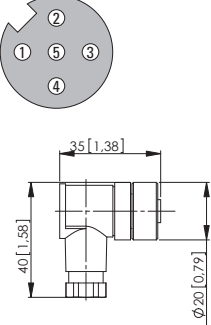

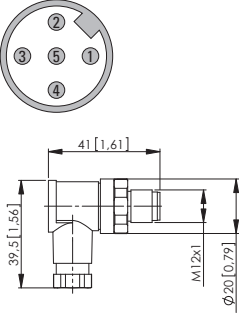

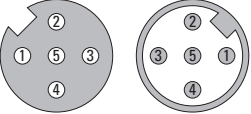

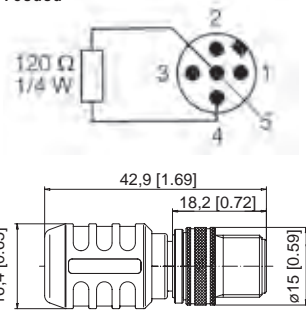
M12 connection technology		PROFIBUS DP	Bus cable, pre-assembled	
With connector 4-pin, power supply		Working temperature range -30°C ... +90°C [-22°F ... +194°F]		Order No.
<p>Female connector with coupling nut straight, single-ended, IP67</p> <p>Cable: PUR, 4 x 0.34 mm² [AWG22] Housing: metal / plastic</p> 	<p>A coded</p>  <p>1: BN 2: WH 3: BU 4: BK</p> 	<p>suitable for our series:</p> <p>5858 / 5878 5868 / 5888 9080</p>	<p><i>Cable length</i></p> <p>2 m [6.56'] 6 m [19.69'] 10 m [32.81']</p>	<p>05.00.6061.6211.002M 05.00.6061.6211.006M 05.00.6061.6211.010M</p>
<p>Female connector with coupling nut + Male connector with external thread straight, IP67</p> <p>Cable: PUR, 4 x 0.34 mm² [AWG22] Housing: metal / plastic</p> 	<p>A coded</p>   	<p>suitable for our series:</p> <p>5858 / 5878 5868 / 5888 9080</p>	<p><i>Cable length</i></p> <p>2 m [6.56'] 5 m [16.40'] 10 m [32.81']</p>	<p>05.00.6061.6462.002M 05.00.6061.6462.005M 05.00.6061.6462.010M</p>

Connection Technology


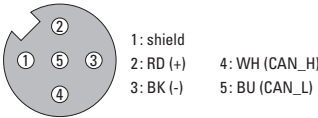
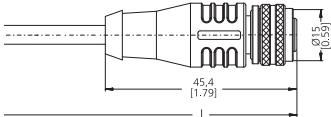

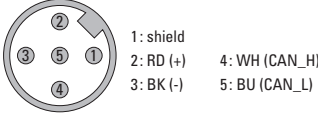
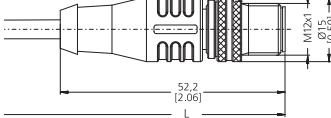

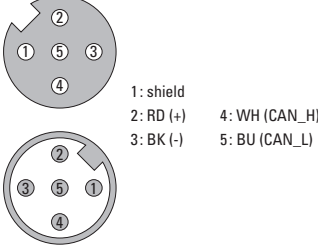
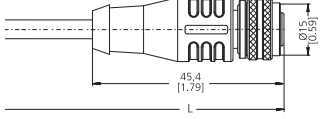
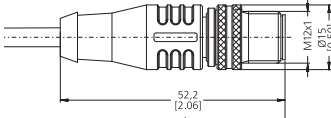
M12 connection technology	CANopen / DeviceNet	Connectors, self-assembly	
5-pin			Order No.
<p>Female connector with coupling nut, Bus in, straight, IP67</p> <p>Housing: plastic</p> 	<p>A coded, screw connections, for cable \varnothing 6 ... 8 mm [0.24 ... 0.32"]</p> 	<p>suitable for our series: F3658 / F3678 M3658 / M3678 5858 / 5878 9080 5868 / 5888 IS40 / IS60</p>	05.B-8151-0/9
<p>Male connector with external thread Bus out, straight, IP67</p> <p>Housing: metal / plastic</p> 	<p>A coded, screw connections, for cable \varnothing 6 ... 8 mm [0.24 ... 0.32"]</p> 	<p>suitable for our series: 9080 IS60</p>	05.BS-8151-0/9
<p>Female connector with coupling nut Bus in, straight, IP67</p> <p>Housing: metal</p> 	<p>A coded, screw connections, for cable \varnothing 6 ... 8 mm [0.24 ... 0.32"]</p> 	<p>suitable for our series: F3658 / F3678 M3658 / M3678 5858 / 5878 9080 5868 / 5888 IS60</p>	8.0000.5116.0000
<p>Male connector with external thread Bus out, straight, IP67</p> <p>Housing: metal</p> 	<p>A coded, screw connections, for cable \varnothing 6 ... 8 mm [0.24 ... 0.32"]</p> 	<p>suitable for our series: F3658 / F3678 M3658 / M3678 5858 / 5878 9080 5868 / 5888 IS60</p>	8.0000.5111.0000

Connection Technology

Connection Technology

M12 connection technology		CANopen / DeviceNet	Connectors, self-assembly	Order No.
5-pin				
Female connector with coupling nut Bus in, right-angle, IP67 Housing: plastic	A coded, screw connections, for cable \varnothing 4 ... 8 mm [0.16 ... 0.32]	suitable for our series: 9080 IS60		05.B-8251-0/9
				
Male connector with external thread Bus out, right-angle, IP67 Housing: metal / plastic	A coded, screw connections, for cable \varnothing 4 ... 8 mm [0.16 ... 0.32]	suitable for our series: 9080 IS60		05.BS-8251-0/9
				
Accessories				
T-junction, IP67 2 x Female connector with coupling nut 1 x Male connector with external thread Housing: metal / plastic	A coded	suitable for: M12 connector		05.FKM5-FKM5-FSM5
				
Terminating resistor, IP67 Housing: metal / plastic	A coded	suitable for our series: 5858 / 5878 5868 / 5888 9080		05.RSE 57 TR2
				

Connection Technology

M12 connection technology		DeviceNet	Bus cable, pre-assembled	
With connector, 5-pin		Working temperature range -30°C ... +80°C [-22°F ... +176°F]		Order No.
<p>Female connector with coupling nut Bus in, straight, IP67, single-ended</p> <p>Cable: PUR, 4 x 0.34 mm² [AWG22] Housing: metal / plastic</p> 	<p>A coded</p>  	<p>suitable for our series:</p> <p>9080 IS60</p>	<p><i>Cable length</i></p> <p>6 m [19.69'] 10 m [32.81'] 15 m [49.21']</p>	<p>05.00.6021.2211.006M 05.00.6021.2211.010M 05.00.6021.2211.015M</p>
<p>Male connector with external thread Bus out, straight, IP67, single-ended</p> <p>Cable: PUR, 4 x 0.34 mm² [AWG22] Housing: metal / plastic</p> 	<p>A coded</p>  	<p>suitable for our series:</p> <p>9080 IS60</p>	<p><i>Cable length</i></p> <p>6 m [19.69'] 10 m [32.81'] 15 m [49.21']</p>	<p>05.00.6021.2411.006M 05.00.6021.2411.010M 05.00.6021.2411.015M</p>
<p>Female connector with coupling nut + Male connector with external thread Bus in / out, straight, IP67</p> <p>Cable: PUR, 4 x 0.34 mm² [AWG22] Housing: metal / plastic</p> 	<p>A coded</p>   	<p>suitable for our series:</p> <p>9080</p>	<p><i>Cable length</i></p> <p>2 m [6.56'] 4 m [13.12'] 10 m [32.81']</p>	<p>05.00.6021.2422.002M 05.00.6021.2422.004M 05.00.6021.2422.010M</p>

Connection Technology

Connection Technology

M12 connection technology	DeviceNet	Bus cable, pre-assembled
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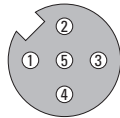
With connector, 5-pin	Working temperature range -30°C ... +80°C [-22°F ... +176°F]	Order No.
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**Female connector with coupling nut + male connector with external thread
Bus in / out, right-angle, IP67**

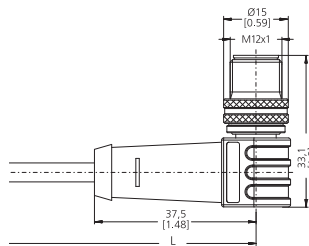
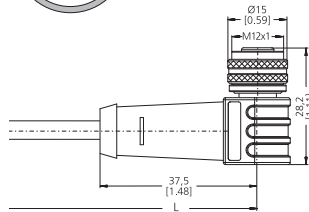
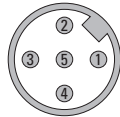
Cable: PUR, 4 x 0.34 mm² [AWG22]
Housing: metal /plastic



A coded



- 1: shield
- 2: RD (+)
- 3: BK (-)
- 4: WH (CAN_H)
- 5: BU (CAN_L)



suitable for our series: *Cable length*

9080

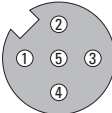

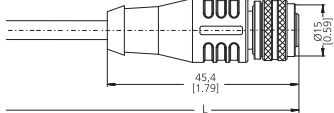


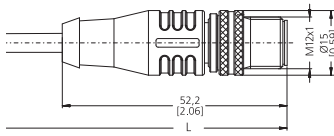
2 m [6.56']

6 m [19.69']


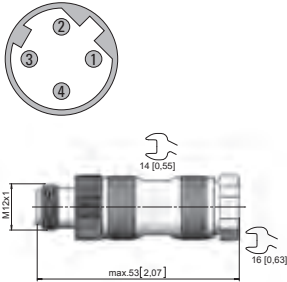

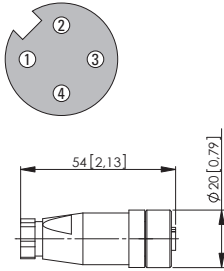

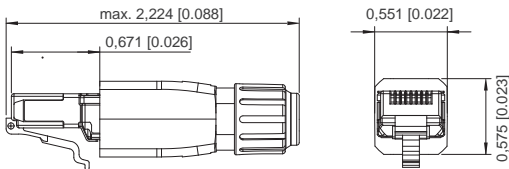
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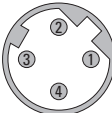

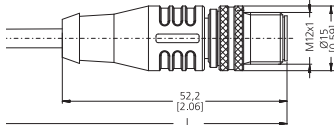
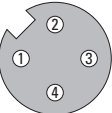

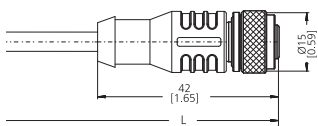
Connection Technology

M12 connection technology	CANopen	Bus cable, pre-assembled
With connector, 5-pin		Working temperature range -30°C ... +80°C [-22°F ... +176°F]
Female connector with coupling nut Bus in, straight, IP67, single-ended		Order No.
Cable: PVC, 3 x 2 x 0.25 mm ² [AWG23] Housing: metal / plastic	A coded  1: GY 4: GN 2: BN 5: YE 3: WH Shield on housing	suitable for our series: <i>Cable length</i> M3658 / M3678 6 m [19.69'] 5858 / 5878 10 m [32.81'] 5868 / 5888 15 m [49.21']
		05.00.6091.A211.006M 05.00.6091.A211.010M 05.00.6091.A211.015M
Male connector with external thread Bus out, straight, IP67, single-ended		Order No.
Cable: PVC, 3 x 2 x 0.25 mm ² [AWG23] Housing: metal / plastic	A coded  1: GY 4: GN 2: BN 5: YE 3: WH Shield on housing	suitable for our series: <i>Cable length</i> M3658 / M3678 6 m [19.69'] 5858 / 5878 10 m [32.81'] 5868 / 5888 15 m [49.21'] Safety-M safety modules
		05.00.6091.A411.006M 05.00.6091.A411.010M 05.00.6091.A411.015M

M12 and RJ45 connection technology **EtherCAT / PROFINET IO** **Connectors, self-assembly**

4-pin			Order No.	
<p>Male connector with external thread Port A (1) and B (2) straight, IP67</p> <p>Housing: metal</p> 	<p>D coded, screw connections, for cable \varnothing 4 ... 9 mm [0.16 ... 0.35"]</p> 	<p>suitable for our series: 5858 / 5878 5868 / 5888</p>	05.WASCSY4S	
<p>Female connector with coupling nut power supply, straight, IP67</p> <p>Housing: plastic</p> 	<p>A coded, screw connections, for cable \varnothing 4 ... 6 mm [0.16 ... 0.24"]</p> 	<p>suitable for our series: 5858 / 5878 5868 / 5888</p>		05.B8141-0
<p>RJ45 connector straight, IP20</p> <p>Housing: plastic</p> 	<p>screw connections, for cable \varnothing 4.5 ... 8 mm [0.18 ... 0.32"]</p> 	<p>suitable for: EtherCAT bus cable</p>		

M12 connection technology EtherCAT / PROFINET IO Cordsets, pre-assembled

With connector, 4-pin		Working temperature range -30°C ... +80°C [-22°F ... +176°F]		Order No.															
Male connector with external thread Port A (1) and B (2) straight, IP67, single-ended Cable: PUR, 2 x 2 x 0.34 mm ² [AWG22] Housing: metal /plastic	D coded  1: YE 2: OG 3: WH 4: BU Shield on housing	suitable for our series: <table border="1"> <tr> <td>5858 / 5878</td> <td>Cable length</td> <td>2 m [6.56']</td> </tr> <tr> <td>5868 / 5888</td> <td></td> <td>5 m [16.40']</td> </tr> <tr> <td></td> <td></td> <td>10 m [32.81']</td> </tr> </table>	5858 / 5878	Cable length	2 m [6.56']	5868 / 5888		5 m [16.40']			10 m [32.81']	<table border="1"> <tr> <td></td> <td>05.00.6031.4411.002M</td> </tr> <tr> <td></td> <td>05.00.6031.4411.005M</td> </tr> <tr> <td></td> <td>05.00.6031.4411.010M</td> </tr> </table>			05.00.6031.4411.002M		05.00.6031.4411.005M		05.00.6031.4411.010M
			5858 / 5878	Cable length	2 m [6.56']														
5868 / 5888		5 m [16.40']																	
		10 m [32.81']																	
	05.00.6031.4411.002M																		
	05.00.6031.4411.005M																		
	05.00.6031.4411.010M																		
																			
Female connector with coupling nut power supply straight, IP67, single-ended Cable: PUR, 4 x 0.34 mm ² [AWG22] Housing: metal /plastic	A coded  1: BN 2: WH 3: BU 4: BK Shield on housing	suitable for our series: <table border="1"> <tr> <td>5858 / 5878</td> <td>Cable length</td> <td>2 m [6.56']</td> </tr> <tr> <td>5868 / 5888</td> <td></td> <td>5 m [16.40']</td> </tr> <tr> <td></td> <td></td> <td>10 m [32.81']</td> </tr> </table>	5858 / 5878	Cable length	2 m [6.56']	5868 / 5888		5 m [16.40']			10 m [32.81']	<table border="1"> <tr> <td></td> <td>05.00.6061.6211.002M</td> </tr> <tr> <td></td> <td>05.00.6061.6211.005M</td> </tr> <tr> <td></td> <td>05.00.6061.6211.010M</td> </tr> </table>			05.00.6061.6211.002M		05.00.6061.6211.005M		05.00.6061.6211.010M
			5858 / 5878	Cable length	2 m [6.56']														
5868 / 5888		5 m [16.40']																	
		10 m [32.81']																	
	05.00.6061.6211.002M																		
	05.00.6061.6211.005M																		
	05.00.6061.6211.010M																		
																			

Connection Technology

Connection Technology

M23 connection technology	Standard	Connectors, self-assembly
12-pin		
Male connector with external thread IP67 Housing: metal	pin assignment ccw, solder connections, for cable \varnothing 5.5 ... 10.5 mm [0.22 ... 0.41"]	suitable for: versions with cable outlet
Male connector with external thread IP67, central fastening Housing: metal	pin assignment ccw, solder connections, for cable \varnothing 5.5 ... 10.5 mm [0.22 ... 0.41"]	suitable for: versions with cable outlet
Female connector with coupling nut IP67 Housing: metal	pin socket assignment cw, solder connections, for cable \varnothing 5.5 ... 10.5 mm [0.22 ... 0.41"]	suitable for our series: 5000 / 5020 5814 / 5834 580X / 582X 585X / 587X 586X / 588X 58xxFSx 9000 908X A02X
Order No.		
		8.0000.5015.0001
		8.0000.5015.0000
		8.0000.5012.0000

Connection Technology

M23 connection technology **Standard** **Connectors, self-assembly**

12-pin **Order No.**

Female connector with coupling nut
IP67, EX zone 2/22

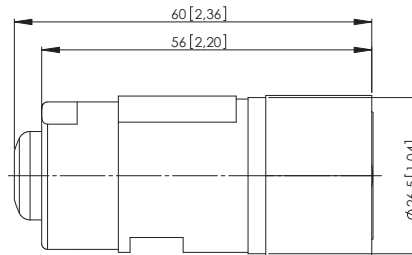
Housing: metal

pin socket assignment cw,
solder connections, for cable
ø 5.5 ... 10.5 mm [0.22 ... 0.41"]

suitable for our series:

- 5000 / 5020 5814 / 5834
- 580X / 582X 585X / 587X
- 586X / 588X 58xxFSx
- 9000 908X
- A02X

8.0000.5012.0000.Ex



17-pin **Order No.**

Female connector with coupling nut
IP67

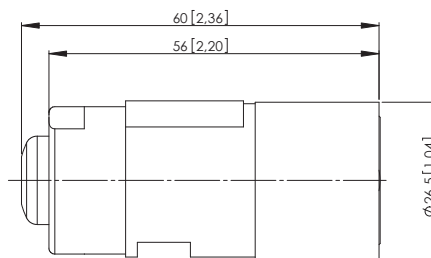
Housing: metal

pin socket assignment ccw,
solder connections, for cable
ø 5.5 ... 10.5 mm [0.22 ... 0.41"]

suitable for our series:

- 5850 / 5870
- with parallel interface

8.0000.5042.0000



Connection Technology

M23 connection technology	Standard	Cordsets, pre-assembled
----------------------------------	-----------------	--------------------------------

With connector, 12-pin, for incremental encoders	Working temperature range -30°C ... +80°C [-22°F ... +176°F]	Order No.
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Female connector with coupling nut IP67

Cable: PUR,
10 x 0.14 mm² [AWG25] +
2 x 0.5 mm² [AWG20]

Housing: metal

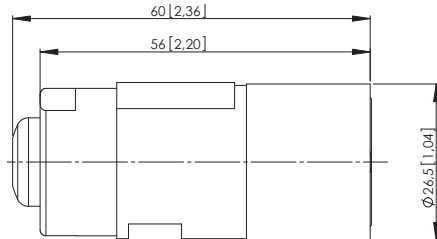
assignment cw

suitable for our series:
5000 / 5020 5814 / 5834
580X / 582X 9000
(Push-Pull output)

Cable length

2 m [6.56']
5 m [16.40']
10 m [32.81']
15 m [49.21']

8.0000.6101.0002
8.0000.6101.0005
8.0000.6101.0010
8.0000.6101.0015



PIN:	1	2	3	4	5	6	7	8	9	10	11	12
Cable colour:	PK	BN	BU	RD	GN	YE	-	GY	-	WH 0.5 mm ²	WH 0.5 mm ²	BN 0.5 mm ²

Female connector with coupling nut IP67

Cable: PVC,
12 x 0.14 mm² [AWG25]

Housing: metal

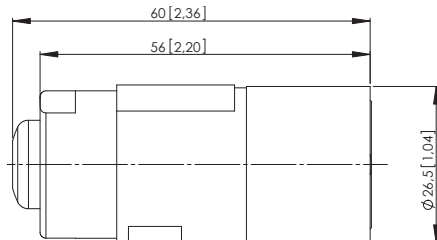
assignment cw

suitable for our series:
5000 / 5020 5814 / 5834
580X / 582X 9000
(Push-Pull output)

Cable length

2 m [6.56']
5 m [16.40']
10 m [32.81']
15 m [49.21']

8.0000.6201.0002
8.0000.6201.0005
8.0000.6201.0010
8.0000.6201.0015



PIN:	1	2	3	4	5	6	7	8	9	10	11	12
Cable colour:	PK	RD-BU	BU	RD	GN	YE	-	GY	-	WH	GY-PK	BN

Female connector with coupling nut IP67

Cable: PVC,
6 x 2 x 0.14 mm² [AWG25]

Housing: metal

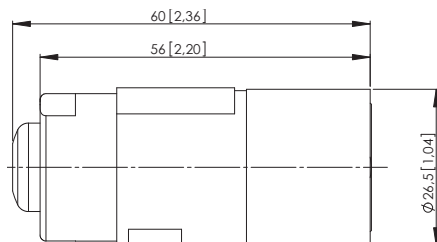
assignment cw

suitable for our series:
5000 / 5020 5814 / 5834
580X / 582X 58x4FSx
9000
(RS422 or SinCos output)

Cable length

2 m [6.56']
5 m [16.40']
10 m [32.81']
15 m [49.21']

8.0000.6901.0002
8.0000.6901.0005
8.0000.6901.0010
8.0000.6901.0015



PIN:	1	2	3	4	5	6	7	8	9	10	11	12
Cable colour:	PK	RD-BU	BU	RD	GN	YE	-	GY	-	WH	GY-PK	BN

M23 connection technology	Standard	Cordsets, pre-assembled
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With connector, 12-pin, for incremental encoders	Working temperature range -30°C ... +80°C [-22°F ... +176°F]	Order No.
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Female connector with coupling nut + male connector with external thread
IP67

Cable: PVC,
6 x 2 x 0.14 mm² [AWG25]
Housing: metal

assignment cw
assignment ccw

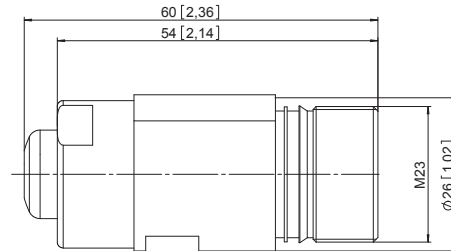
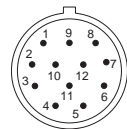
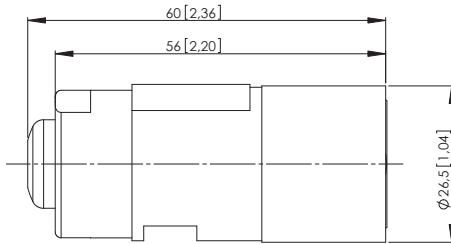
suitable for our series:

5000 / 5020	5803 / 5823
5804 / 5824	5805 / 5825
5814 / 5834	5006 / 5826
5814 FSx / 5834 FSx	
A020 / A02H	

Cable length

2 m [6.56']
5 m [16.40']
10 m [32.81']
15 m [49.21']

8.0000.6905.0002
8.0000.6905.0005
8.0000.6905.0010
8.0000.6905.0015



PIN:	10	12	5	6	8	1	3	4	7	8	11	2
Cable colour:	WH	BN	GN	YE	GY	PK	BU	RD	BK	VT	GY-PK	RD-BU

Connection Technology

M23 connection technology	Standard	Cordsets, pre-assembled
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With connector, 12-pin, for absolute encoders	Working temperature range -30°C ... +80°C [-22°F ... +176°F]	Order No.
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Female connector with coupling nut IP67

Cable: PVC,
6 x 2 x 0.14 mm² [AWG25]

Housing: metal

assignment cw

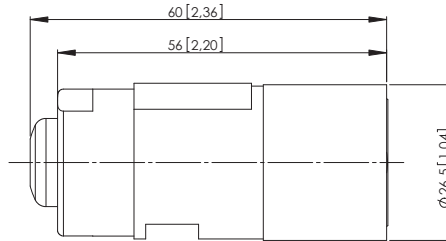
suitable for our series:

5850 / 5870	5853 / 5873
5863 / 5883	5862 / 5882
58x3FSx	9081

(SSI or analogue output)

Cable length

2 m [6.56']	8.0000.6901.0002.0031
5 m [16.40']	8.0000.6901.0005.0031
10 m [32.81']	8.0000.6901.0010.0031
15 m [49.21']	8.0000.6901.0015.0031



PIN:	1	2	3	4	5	6	7	8	9	10	11	12
Cable colour:	WH	BN	GN	YE	GY	PK	BU	RD	BK	VT	GY-PK	RD-BU

Female connector with coupling nut + male connector with external thread IP67

Cable: PVC,
6 x 2 x 0.14 mm² [AWG25]

Housing: metal

assignment cw
assignment ccw

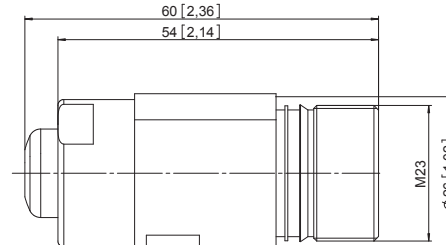
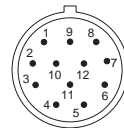
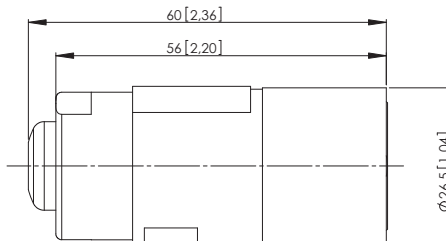
suitable for our series:

5850 / 5870	5853 / 5873
5863 / 5883	5862 / 5882
58x3FSx	9081

(SSI output)

Cable length

2 m [6.56']	8.0000.6905.0002.0032
5 m [16.40']	8.0000.6905.0005.0032
10 m [32.81']	8.0000.6905.0010.0032
15 m [49.21']	8.0000.6905.0015.0032



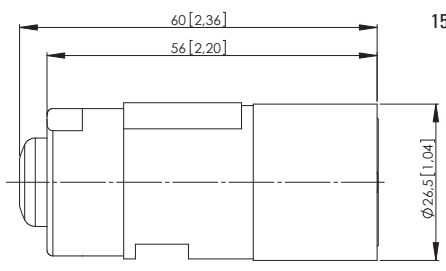
PIN:	1	2	3	4	5	6	7	8	9	10	11	12
Cable colour:	WH	BN	GN	YE	GY	PK	BU	RD	BK	VT	GY-PK	RD-BU

M23 connection technology	Standard	Cordsets, pre-assembled
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With connector, 17-pin, for absolute encoders	Working temperature range -30°C ... +80°C [-22°F ... +176°F]	Order No.
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<p>Female connector with coupling nut IP67</p> <p>Cable: PVC, 18 x 0.14 mm² [AWG25]</p> <p>Housing: metal</p>	<p>assignment ccw</p>	<p>suitable for our series:</p> <p>5850 / 5870 5852 / 5872 (Parallel interface)</p>	<p><i>Cable length</i></p> <p>2 m [6.56']</p> <p>5 m [16.40']</p> <p>10 m [32.81']</p> <p>15 m [49.21']</p>
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
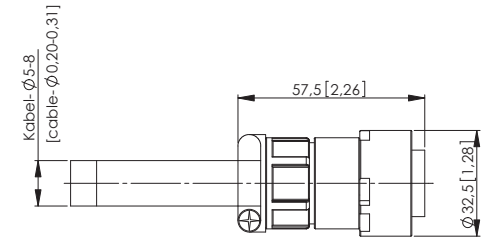

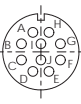
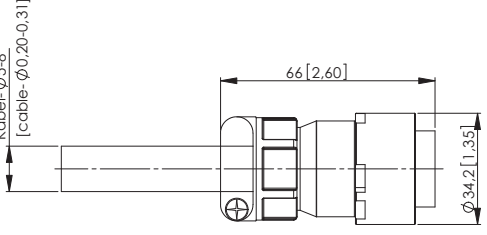
8.0000.6741.0002
8.0000.6741.0005
8.0000.6741.0010
8.0000.6741.0015



PIN:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Cable colour:	WH	BN	GN	YE	GY	PK	BU	RD	BK	VT	GY-PK	RD-BU	WH-GN	BN-GN	WH-YE	YE-BN	WH-GY

Connection Technology

Connection Technology

MIL connection technology	Standard	Connectors, self-assembly
7-pin		
Female connector with coupling nut IP67 Housing: metal	Solder connections, for cable \varnothing 5 ... 8 mm [0.20 ... 0.32"]	suitable for our series: 580X, 582X
		
		Order No. 8.0000.5052.0000
10-pin		
Female connector with coupling nut IP67 Housing: metal	Solder connections, for cable \varnothing 5 ... 8 mm [0.20 ... 0.32"]	suitable for our series: 580X, 582X, 5000, 5020
		
		Order No. 8.0000.5062.0000

Connection Technology

Functional Safety Connectors, self-assembly

Sub-D connector, 9-pin Order No.

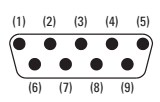
Connector with cable outlet 70°

solder contacts, self-assembly

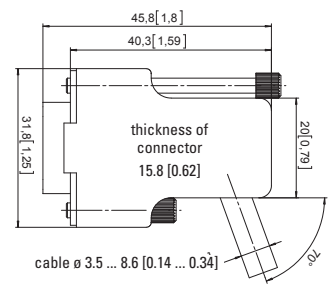
suitable for our Safety-M modules:
MS1, MSP1, MS2, MSP2,
BM21 (CANopen), BM31 (PROFIBUS DP)

8.0000.514A.0000

Housing: ABS, metallised



shield on housing



RJ45 connector Order No.

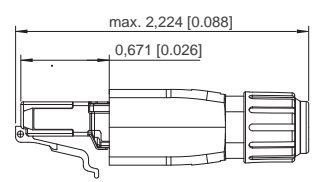
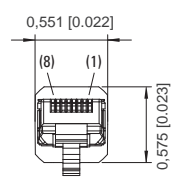
RJ45 connector straight, IP20

screw connections, for cable \varnothing 4.5 ... 8 mm [0.18 ... 0.32"]

suitable for our Safety-M modules:
BMB1 (EtherCAT), BMC1 (PROFINET IO)

05.VS-08-RJ45-5-Q/IP20

Housing: plastic



Connection Technology

Functional Safety

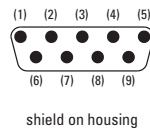
Cordsets, pre-assembled

With Sub-D connector, single-ended, 9-pin

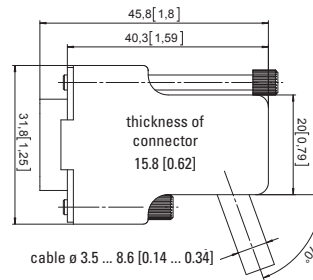
Order No.

Connector with cable outlet 70°

Cable: PVC, 6 x 2 x 0.14 mm² [AWG25]
Housing: ABS, metallised



suitable for our Safety-M modules:
MS1, MSP1, MS2, MSP2



Cable length

Terminal assignment SinCos signal

Signal SinCos	0 V	+V	A	\bar{A}	B	\bar{B}
Pin Sub-D	2	9	8	4	5	6
Cable colour	WH	BR	BK	VT	GY/PK	RD/BU

Connection X31, X32, X33, X34

for SinCos signal

1 m [3.28']

2 m [6.56']

5 m [16.40']

8.0000.6900.0001.0076

8.0000.6900.0002.0076

8.0000.6900.0005.0076

Terminal assignment SSI signal

Signal SSI	0 V	+V	C+	C-	D+	D-
Pin Sub-D	2	9	8	4	5	6
Cable colour	WH	BR	GN	YE	GY	PK

Connection X31, X32

for SSI signal

1 m [3.28']

2 m [6.56']

5 m [16.40']

8.0000.6900.0001.0075

8.0000.6900.0002.0075

8.0000.6900.0005.0075

Terminal assignment SSI signal

Signal SSI	0 V	+V	C+	C-	D+	D-
Pin Sub-D	2	9	3	7	5	6
Cable colour	WH	BR	GN	YE	GY	PK

Connection X33, X34

for SSI signal

1 m [3.28']

2 m [6.56']

5 m [16.40']

8.0000.6900.0001.0078

8.0000.6900.0002.0078

8.0000.6900.0005.0078

Connection Technology

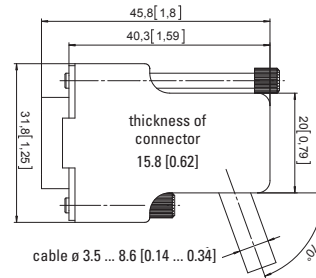
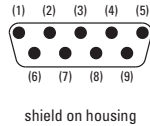
Functional Safety Cordsets, pre-assembled

With 2 Sub-D connector, single-ended, 9-pin Order No.

Connector with cable outlet 70°

Cable: PVC, 6 x 2 x 0.14 mm² [AWG25]
Housing: ABS, metallised

suitable for our Safety-M modules:
MSP1, MSP2



Cable length

Terminal assignment

Connection X31/X33, X32/X34
for SSI- and SinCos signals

1 m [3.28']
2 m [6.56']
5 m [16.40']

8.0000.6900.0001.0077
8.0000.6900.0002.0077
8.0000.6900.0005.0077

Signal	0 V	+V	C+	C-	D+	D-	A	\bar{A}	B	\bar{B}
Pin Sub-D 1	2	9	3	7	5	6				
Pin Sub-D 2							8	4	5	6
Cable colour	WH	BR	GN	YE	GY	PK	BK	VT	GY/PK	RD/BU

Functional Safety

Cordsets, pre-assembled

With M23 and Sub-D connector, 9-pin

Order No.

M23 female connector with coupling nut + Sub-D connector with cable outlet 70°

Cable: PVC,
6 x 2 x 0.14 mm² [AWG25]

Housing M23: metal

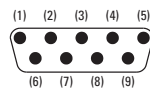
Housing Sub-D: ABS, metallised

suitable for our encoder series:

Sendix 58x3, 58x3FS2, 58x3FS3,
Sendix 58x4, 58x4FS2, 58x4FS3

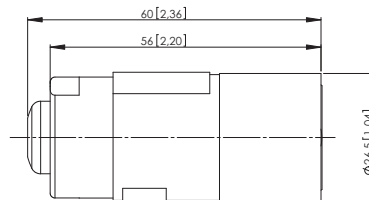
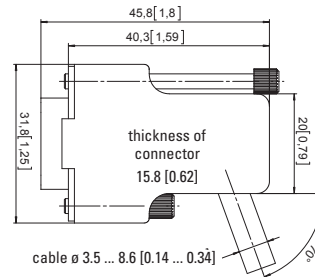
suitable for our Safety-M modules:

MS1, MSP1, MS2, MSP2



shield on housing

assignment cw



Cable length

Terminal assignment

Signal	0 V	+V	A	\bar{A}	B	\bar{B}
Pin Sub-D	2	9	8	4	5	6
Pin M23, 12-pin	1	2	9	10	11	12
Cable colour	WH	BR	BK	VT	GY/PK	RD/BU

Connection X31, X32, X33, X34

for SinCos signal

1 m [3.28']

8.0000.6900.0001.0069

2 m [6.56']

8.0000.6900.0002.0069

5 m [16.40']

8.0000.6900.0005.0069

Terminal assignment

Signal	0 V	+V	C+	C-	D+	D-
Pin Sub-D	2	9	8	4	5	6
Pin M23, 12-pin	1	2	3	4	5	6
Cable colour	WH	BR	GN	YE	GY	PK

Connection X31, X32

for SSI signal

1 m [3.28']

8.0000.6900.0001.0068

2 m [6.56']

8.0000.6900.0002.0068

5 m [16.40']

8.0000.6900.0005.0068

Terminal assignment

Signal	0 V	+V	C+	C-	D+	D-
Pin Sub-D	2	9	3	7	5	6
Pin M23, 12-pin	1	2	3	4	5	6
Cable colour	WH	BR	GN	YE	GY	PK

Connection X33, X34

for SSI signal

1 m [3.28']

8.0000.6900.0001.0072

2 m [6.56']

8.0000.6900.0002.0072

5 m [16.40']

8.0000.6900.0005.0072

Functional Safety Cordsets, pre-assembled

With M23 and 2 x Sub-D connector, 9-pin Order No.

**M23 female connector with coupling nut +
2 x Sub-D connector with cable outlet 70°**

Cable: PVC,
6 x 2 x 0.14 mm² [AWG25]

Housing M23: metal

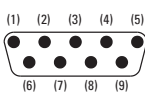
Housing Sub-D: ABS, metallised

suitable for our encoder series:

Sendix 58x3, 58x3FS2, 58x3FS3

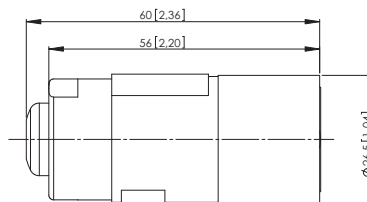
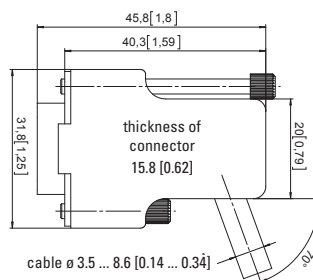
suitable for our Safety-M modules:

MSP1, MSP2



shield on housing

assignment cw



Cable length

Terminal assignment

Connection X31/X33, X32/X34
for SSI + SinCos signal

1 m [3.28']

8.0000.6900.0001.0070

2 m [6.56']

8.0000.6900.0002.0070

5 m [16.40']

8.0000.6900.0005.0070

Signal	0 V	+V	C+	C-	D+	D-	A	\bar{A}	B	\bar{B}
Pin Sub-D 1	2	9	3	7	5	6				
Pin Sub-D 2							8	4	5	6
Pin M23, 12-pin	1	2	3	4	5	6	9	10	11	12
Cable colour	WH	BR	GN	YE	GY	PK	BK	VT	GY/PK	RD/BU

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process devices:
Canaan Electric Corp.
6F-5, No. 63, Sec. 2
Chang An East Road
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Fax +886 225 08 47 44
sales@canaan-elec.com.tw
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Pravet, Khet Pravat
Bangkok 10250
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marketing@tic.co.th
www.tic.co.th

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h2m.tech@planet.tn

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Fax +1-704-733-9170
usa@kuebler.com
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Global Industrial Products Inc.
8129 North Austin AVE
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Toll-free number:
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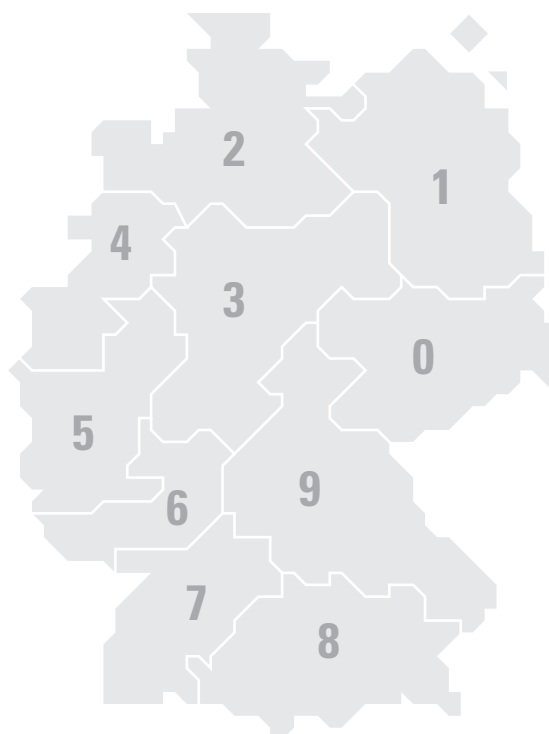
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 Phone +49 1805 2234-35
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92240 Hirschau
 Conrad Electronic SE
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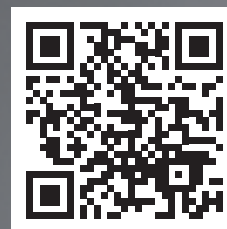




Kubler

www.kuebler.com

The logo features a stylized orange 'C' shape on the left, followed by the word 'Kübler' in a bold, orange, sans-serif font.



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