

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

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.

Ten 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 480 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



24one

24one delivery promise

Manufacturing in 24 hours. For orders placed on working days before 9 AM, the product will be ready for dispatch on that same day. 24one is limited to 20 pieces per delivery.

10 by 10

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.)

48h

48 h Express-Service

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



Technical Support

Kübler' applications team is present on site all over the world for advice, analysis and support.

Kübler Germany / Austria +49 7720 3903 952

Kübler France +33 3 89 53 45 45

Kübler Italy +39 026 423 345

Kübler Poland +48 61 84 99 902



Sample Service

We manufacture samples of special designs or according to customer specification within shortest time.



Safety Services

- Adapted service packages
- Individual customer solutions



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.

Kübler Turkey +90 216 999 9791

Kübler China +86 10 8471 0818

Kübler India +91 8600 147 280

Kübler USA +1 855 583 2537

Our Product Portfolio



Position and Motion Sensors

- Incremental and absolute encoders
- Fieldbus and Industrial Ethernet encoders
- Bearingless encoders
- Explosion protected encoders ATEX / IECEx
- Linear magnetic measuring systems
- Draw-wire encoders
- Inclinometers
- Connection technology

Transmission Technology

- Slip rings, modular system
- Slip rings, bearingless modular system
- Slip rings, contactless transmission
- Slip rings, compact and low-maintenance
- Slip rings, Ethernet transmission
- Optical fiber signal transmission modules
- Cables, connectors and pre-assembled cordsets

Functional Safety

- Certified incremental and absolute encoders
- Certified explosion-protected encoders ATEX / IECEx
- Modules for safe drive monitoring
- Safe fieldbus gateways
- Safe speed monitors
- Adapted service packages
- Connection technology

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, analog 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

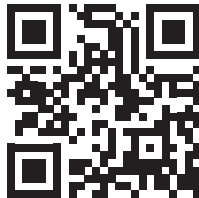
Transmission Technology

Table of contents	
Product Overview / Basics	5
Slip Rings	19
Optical Fiber Signal Transmission Modules	35
Connection Technology	43
Addresses	87








		Page
Product overview		6
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Technical basics	Slip rings	10
	Optical fiber transmission modules	15
	Cables and connectors	16

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 max.	Speed max. in min ⁻¹	Temperature range max. in °C [°F]	Page
	Modular, construction system SR085	•	•	•	•	20	30	25	IP64	800	-35 ... +85 [-31 ... +185]	20
	Modular, construction system, bearingless SR085B	•	•	–	–	10	34	16	IP40	200	0 ... +75 [+32 ... +167]	23
	Modular, contactless signal transmission SRI085	•	•	–	–	9	30	16	IP64	800	-30 ... +85 [-22 ... +185]	25
	Compact, low-maintenance SR060E	•	•	–	–	5	25	20	IP64	500	0 ... +75 [+32 ... +167]	28
	Three chamber system, Ethernet transmission SR120	•	•	•	•	20	–	25	IP64	300	-35 ... +85 [-31 ... +185]	30







Optical fiber transmission modules (LWL)

		Interface	Transmission distance in m	Input frequency in kHz	Temperature in °C [°F]	Power / Current in VDC	Power consumption in W	Page
	Optical fiber module, incremental LWL	RS422 HTL	2.000	400	-10 ... +60 [-14 ... +140]	5 10 ... 30	2	36
	Optical fiber module, absolute LWL.A	SSI	2.000	1000	-10 ... +70 [-14 ... +158]	5 10 ... 30	1	38






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	for safety modules	RoHS compliant	Page
	5 core + shield	•	•	–	5 x 0.14 [AWG25] 5 x 0.75 [AWG18]	approx. 4.7 approx. 7.5	•	–	–	•	44
	8 core + shield	–	•	–	8 x 0.14 [AWG25]	approx. 5.5	–	•	•	•	44
	10 core + shield	–	•	–	4 x 2 x 0.25 [AWG23] + 2 x 1 [AWG17]	approx. 7.9	•	•	•	•	44
	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	•	•	–	•	45
	18 core + shield	•	–	–	18 x 0.14 [AWG25]	approx. 7.8	–	•	–	•	45
	PROFIBUS DP DeviceNet CANopen EtherCAT, PROFINET IO, EtherNet/IP	•	•	–	2 x 0.34 [AWG25] 2 x 0.52 [AWG20] + 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	•	•	•	•	46

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	4 - 8	•	•	•	•	47
	M23	12/17	Metal	Solder pins	5.5 - 10.5	•	–	•	–	65
	MIL	7/10	Metal	Solder pins	5 - 8	•	–	–	–	71
	RJ45	8	Plastic	Crimp connection	4.5 - 8	•	–	–	•	72
	Sub-D	9	ABS metallized	Solder pins	3.5 - 8.6	–	•	–	–	75

Product overview

Connection technology Cordsets, pre-assembled

	PVC cable	PUR cable	TPE cable	Optical fiber	Straight connector	Right angle connector	for incremental encoders	for absolute SSI/ BiSS encoders	for fieldbus	for analog interfaces	for safety modules	Page
 with M12 connector	•	•	–	–	•	•	•	•	•	•	•	53
 with M23 connector	•	•	•	–	•	–	•	•	–	•	–	67
 Simplex patch cable optical fiber	–	–	–	•	•	–	•	•	–	–	–	36
 with RJ45 connector	–	•	–	•	–	–	–	•	–	–	•	73
 with Sub-D connector	•	•	–	–	–	•	•	•	•	–	•	76

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.

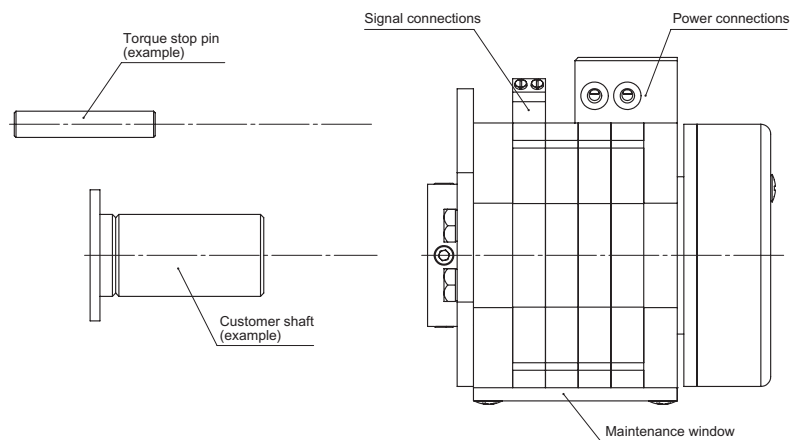
In slip rings, the electrical transmission between the stator and rotor units takes place via sliding contacts and is extremely reliable.

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

Slip ring mounting

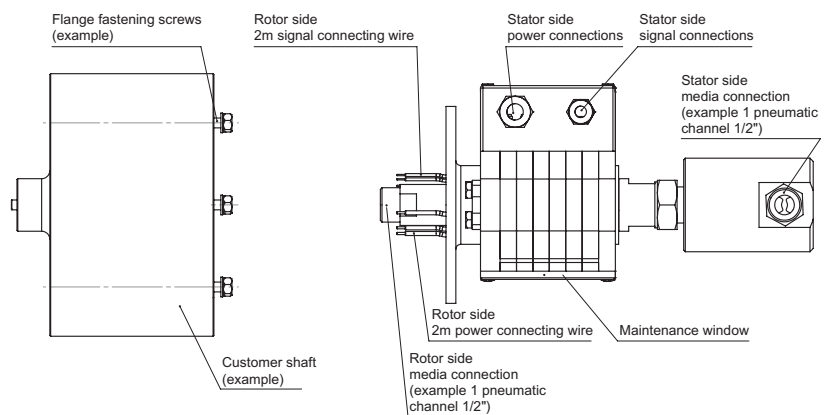
Hollow shaft mounting

- 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



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)

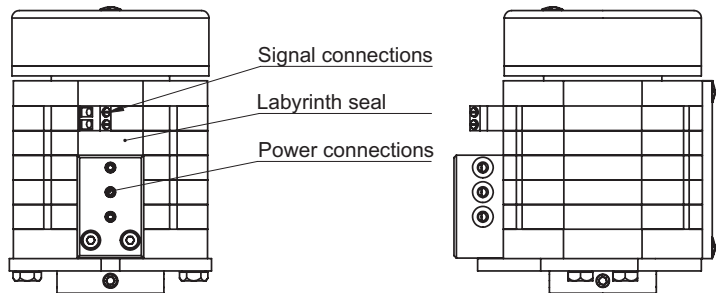
SR085-XX-XX-XX-X2XXX-VXXX

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

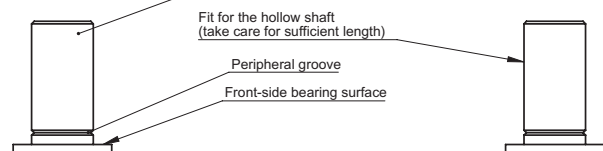
SR085-XX-XX-XX-X0XXX-VXXX

in case of only load or only signal transmission

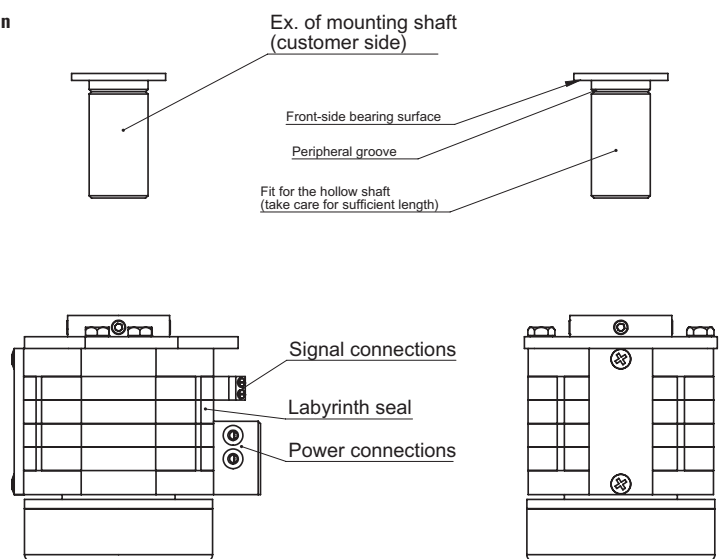
Mounting position standing



Ex. of mounting shaft (customer side)



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

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

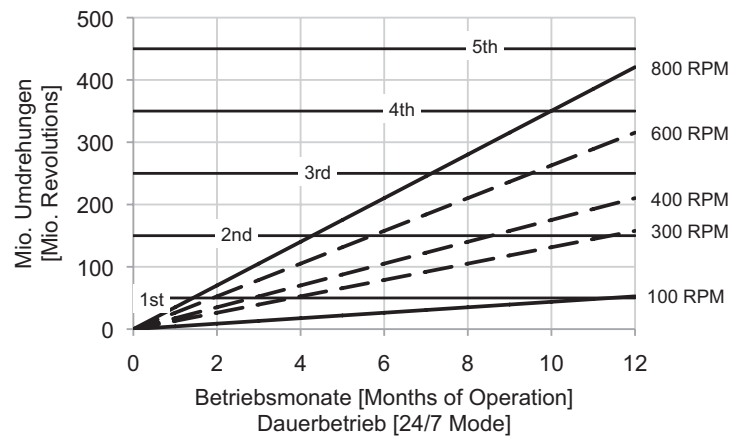


Product overview
Basics

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

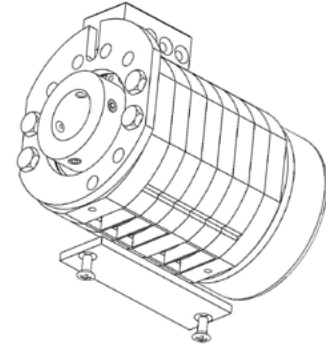


Slip rings

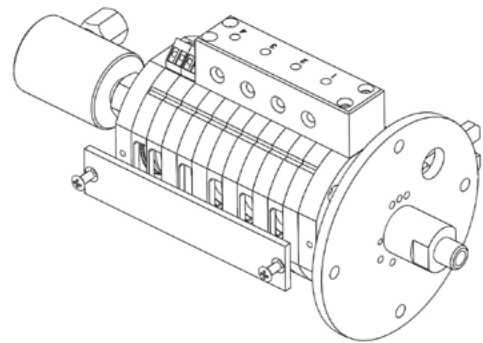
Maintenance

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)



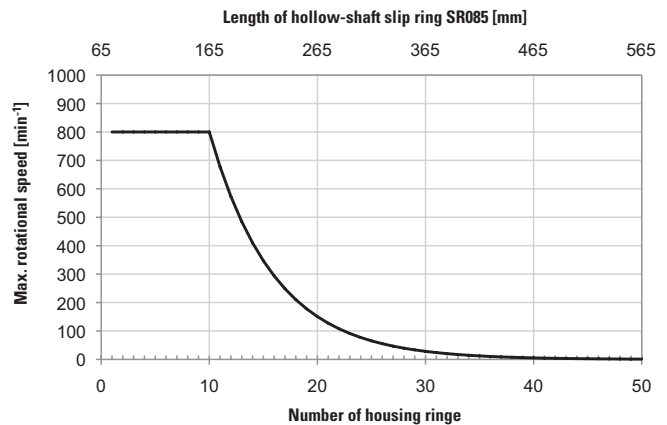
Note:

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 fiber signal transmission	General information	
<p>Description</p>	<p>The system is made up of an optical fiber transmitter and an optical fiber receiver.</p> <p>The optical fiber transmitter converts the electrical signals of an encoder into optical fiber signals. A simple glass fiber allows reliable transmission up to distances of 1500 m.</p> <p>The receiver module converts the optical signals back into electrical signals.</p> <p>The modules are available in various level and power supply voltage variants.</p>	<p>Main advantages of an optical fiber transmission:</p> <ul style="list-style-type: none"> • Insensitivity to electromagnetic interferences and to leakage effects between lines routed parallel • Significantly higher transmission speeds • The optical fiber cable can be routed through explosive atmospheres • Cost and weight savings thanks to reduced cabling work, especially for important cable lengths
<p>Mounting of optical fiber modules</p>	<p>The optical fiber modules can be mounted directly on a TS35 DIN rail (top-hat rail) according to EN 50022.</p> <p>The installation width for every module is only 22.5 mm.</p>	
<p>Laying and connection of glass fiber cables</p>	<p>Laying the cable is generally easy.</p> <p>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.</p> <p>When connecting the cable, make sure that the bayonet catch is locked and remove the dust protection caps only just before connecting the cable.</p>	
<p>Glass fiber cables</p>	<p>The modules can be connected together using 50/125 µm or 62.5/125 µm multimode glass fiber cables with ST/PC type connectors with bayonet catch. Single-mode Simplex patch cables are not suitable.</p> <p>Kübler offers finished confectioned patch cables adapted to the optical fiber modules as accessories.</p> <p>They ensure the full functionality and high signal quality of our sensors.</p>	

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 catalog:

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

Product overview
Basics

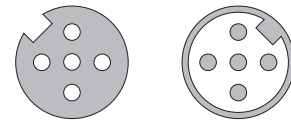
Coding of the M12 x 1 connectors

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.

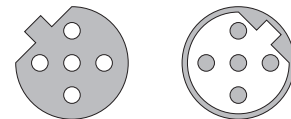
A-coding

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



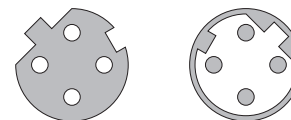
B-coding

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



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.

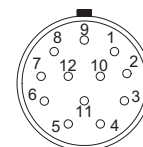


"Allround" shielding with Kübler cordsets

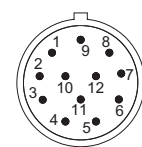
Counting direction cw/ccw

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.

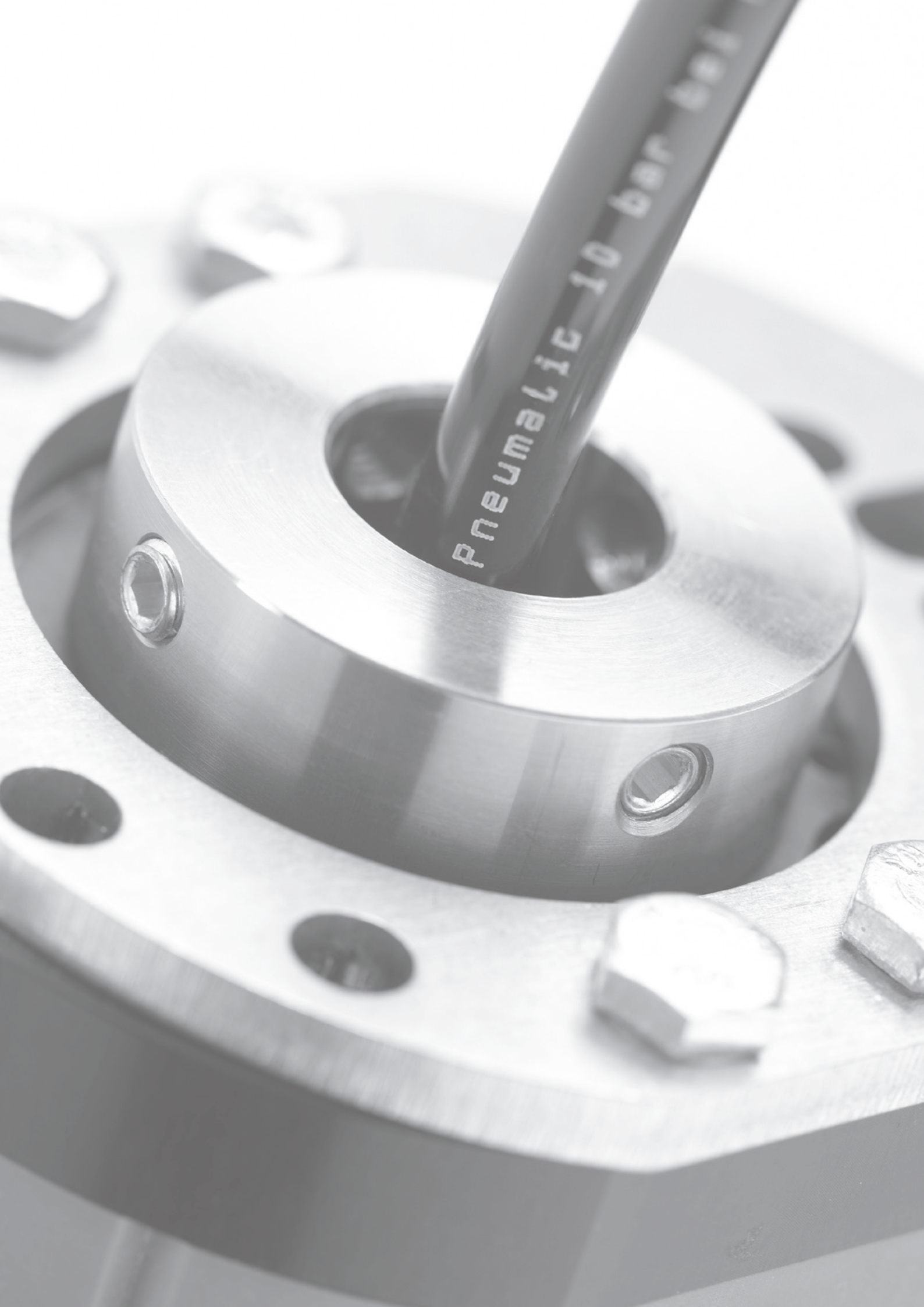
Top view of mating side





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	28
	 Three chamber system – Ethernet transmission	SR120	30

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-fiber 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, 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 25 mm [0.98"]	4 x	4 x	silver / precious metal	SR085-25-04-04-11301-V100
	6 x	6 x	silver / precious metal	SR085-25-06-06-11301-V100
Hollow shaft 30 mm [1.18"]	2 x	3 x	silver / precious metal	SR085-30-02-03-11301-V100
	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

Non-standard models will be checked for availability - an alternative model may be proposed. Minimum order quantity 5 pieces for new models. For orders < 5 pieces, we will invoice a one-shot lump sum for new variants. For list of all available types, see www.kuebler.com/sr-list

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

1) Max. 20 signal/data channels (no load), combinations of data and load channels > 13 upon request.
 2) Contact material gold / gold and copper / bronze on request.

Slip rings

Modular	Construction system	SR085
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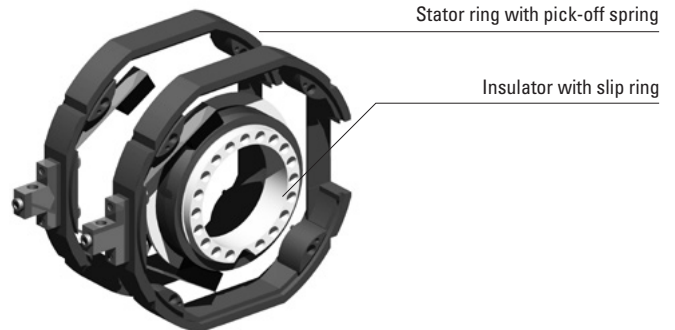
Technical data (standard version)	
Overall length	dep. on the number of transmission paths
Hollow shaft diameter	up to \varnothing 30 mm [1.18"]
Type of connection	
hollow shaft mounting	stator: terminal clamp rotor: screw terminal
flange mounting	stator: terminal clamp rotor: single wires, 2 m [6.56"] (towards the assembly flange)
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	
load channels	\leq 1 Ohm (dynamic) ¹⁾
signal / data channels	\leq 0.1 Ohm (silver / precious metal) ²⁾
Insulation resistance	10^3 MOhm, at 500 V DC
Dielectric strength	1000 V eff. (60 sec.)
Speed max. (signal / data channels)	
	800 min ⁻¹ , up to 10 channels (depends on installation position and numbers of channels)
Service life (signal / data channels)	
	typ. 500 million revolutions (at room temperature) depends on installation position
Maintenance cycles	first maintenance after 50 million revolutions, all further maintenance intervals after 100 million revolutions
Maintenance	contact oil not required
Material pairing	
load channels	copper / bronze
signal / data channels	silver / precious metal
Operating temperature	-35° ... +85°C [-31°F ... +185°F]
Protection acc. to EN 60529	max. IP64
Transmission paths	max. 20 (> 20 on request)

Air connection (media lead-through no. 1 - 3)	
Air pressure max.	10 bar (150 psi)
Vacuum max.	7 kPa (2" Hg)
Speed max.	800 min ⁻¹

Hydraulics connection (media lead-through no. 4 + 5)	
Hydraulic pressure max.	35 bar (510 psi)
Speed max.	800 min ⁻¹

Rotatable connector, air (media lead-through no. 6)	
Air pressure max.	10 bar (150 psi)
Speed max.	300 min ⁻¹
For tube diameter	8 mm [0.31"]

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), for tube diameter 8 mm [0.31"]



1) Voltage measurement, ambient temperature, DC series connection, ohmic load, min. 4 A test current.
2) 2-wire resistance measurement, ambient temperature, 6.5-digit digital multimeter or similar, values without testing cable.

Slip rings

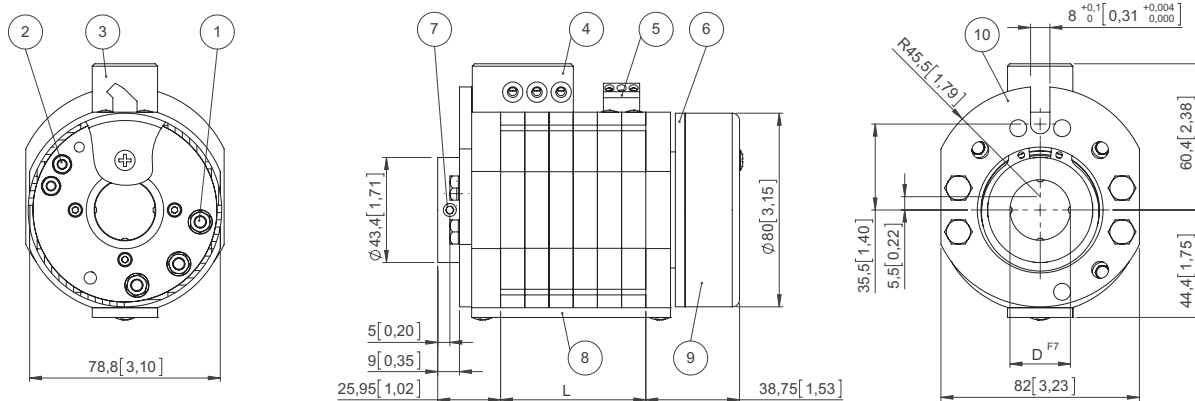
Modular	Construction system	SR085
----------------	----------------------------	--------------

Dimensions

Dimensions in mm [inch]

Standard version

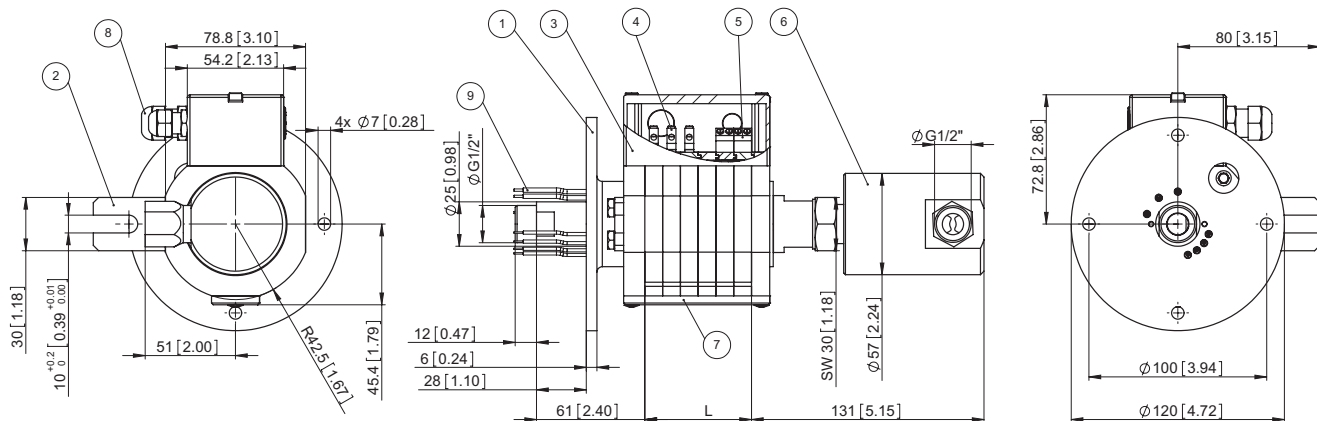
Example: Type SR085-25-02-03-11301-V100
(2 data channels, 3 load channels)



- | | | |
|--|---|--------------------------------------|
| 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 SR085-00-04-03-11322-V100



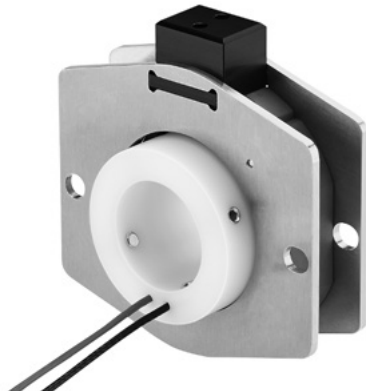
- | | | |
|-----------------------------|---------------------------|-----------------------------------|
| 1 – Mounting flange | 4 – Terminal clamp power | 7 – Maintenance window |
| 2 – Torque stop | 5 – Terminal clamp signal | 8 – Cable gland |
| 3 – Stator protective cover | 6 – Media lead-through | 9 – Connection wires, 2 m [6.56'] |

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)	+ 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
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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.

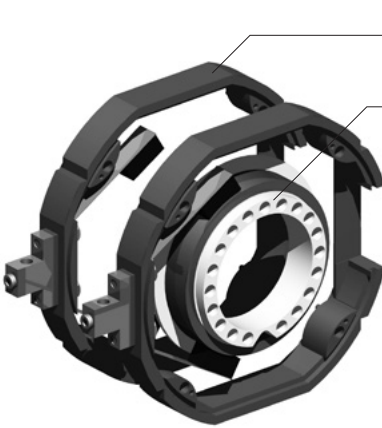
The SR085B is ideally suited for the transmission of signals, data and/or loads.

Slip rings

Flexible and slim	Applications
<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>Revolving doors, rotary tables, rotary show cases, packaging machines, other low speed applications.</p>

Order code	SR085B - XX - XX - 1 0 X - V100							
	<table border="1"> <tr> <td>Type</td> <td>a</td> <td>b</td> <td>c</td> <td>d</td> <td>e</td> <td>f</td> </tr> </table>	Type	a	b	c	d	e	f
Type	a	b	c	d	e	f		
a Type of mounting	b Number of channels	d Mounting position	f Version number (options)					
20 = hollow shaft, ø 20 mm [0.79"]	max. 10 channels	0 = any	V100 = without options					
24 = hollow shaft, ø 24 mm [0.94"]			>V100 = options on request					
25 = hollow shaft, ø 25 mm [0.98"]	c Max. load current	e Contact material						
30 = hollow shaft, ø 30 mm [1.18"]	1 = 16 A, 240 V AC/DC	3 = silver / precious metal						
34 = hollow shaft, ø 34 mm [1.34"]		5 = copper / bronze						
(other 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	
load channels	≤ 1 Ohm (dynamic) ¹⁾
signal / data channels	≤ 0.1 Ohm (silver / precious metal) ²⁾
Insulation resistance	10 ³ MOhm, at 500 V DC
Dielectric strength	1000 V eff. (60 sec.)
Speed max.	200 min ⁻¹
Protection acc. to EN 60529	IP40
Service life	typ. 500 million revolutions (at room temperature) depends on installation position
Maintenance cycles	typ. 100 million revolutions
Maintenance	contact oil not required
Operating temperature	0°C ... +75°C [+32°F ... +167°F]

Modular construction system	
	Stator ring with pick-off spring
	Insulator with slip ring

1) Voltage measurement, ambient temperature, DC series connection, ohmic load, min. 4 A test current.
 2) 2-wire resistance measurement, ambient temperature, 6.5-digit digital multimeter or similar, values without testing cable.

Slip rings

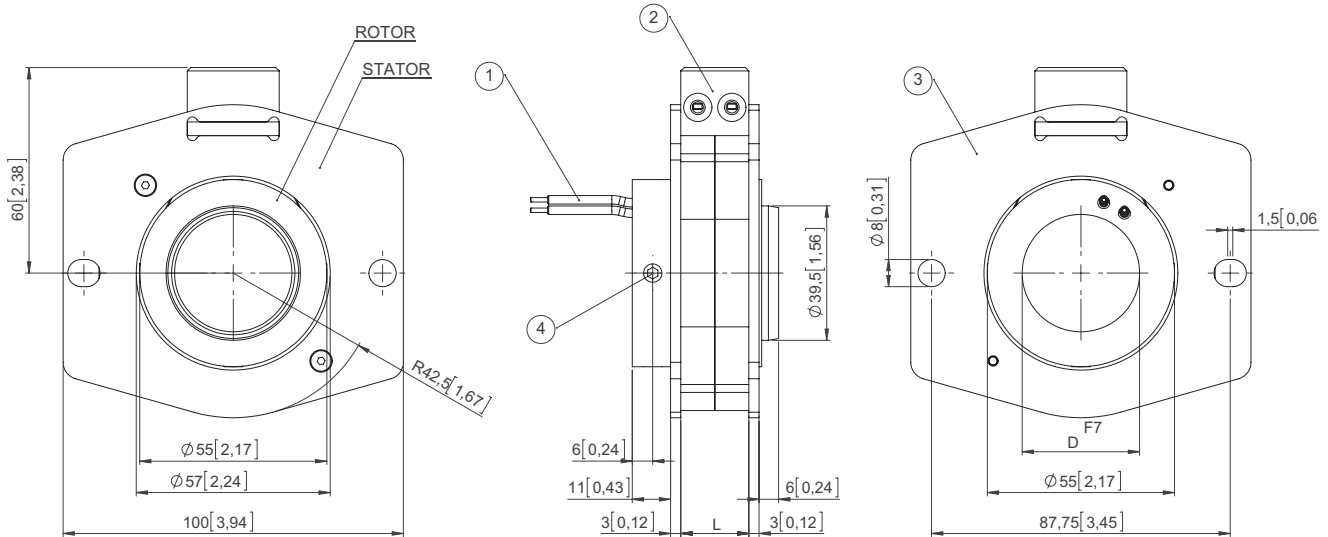
Modular

Construction system, bearingless

SR085B

Dimensions

Dimensions in mm [inch]



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

- 1 – Connection wires, length 1 m [3.28']
- 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 the total length L:

Basic size: 23 mm

Additional dimension: +10 mm per channel

Slip rings

Modular	Contactless signal transmission	SRI085
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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

Flexible and rugged	Maintenance-free
<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. Low signal noise. 	<ul style="list-style-type: none"> Signal / data channels maintenance-free by means of inductive coupling. Long service life.
Applications	
Packaging machines, rotary tables and textile machines	

Order code	SRI085 - XX - XX - XX - X 1 X 1 - V100 <small>Type a b c d e f g h</small>
a <i>Type of mounting</i> 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)	b <i>Number of sensor channels</i> 01 = 1 x PT100 03 = 3 x PT100 c <i>Number of power channels</i> 01 ... 06 = max. 6 power channels d <i>Max. load current</i> 0 = no load channels 1 = 16 A, 240 V AC/DC
e <i>Interface</i> 1 = output 4 ... 20 mA	f <i>Media lead-through</i> 0 = none 6 = air, rotatable connector (up to 300 min ⁻¹)
g <i>Protection rating</i> 1 = IP50	h <i>Version number (options)</i> V100 = without options >V100 = options on request

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 [6.56'] 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%
Interface	4 ... 20 mA
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 min ⁻¹	max. 800 min ⁻¹
Service life	–	typ. 500 million revolutions
Maintenance cycles	maintenance-free	150 million revolutions
Operating temperature	-30°C ... +85°C [-22°F ... +185°F]	-30°C ... +85°C [-22°F ... +185°F]
Protection to EN 60529	max. IP65	max. IP50
Contact material load channel	–	copper/bronze

Rotatable connector, air (media lead-through no. 6)	
Air pressure max.	10 bar (150 psi)
Speed max.	300 min ⁻¹
For tube diameter	8 mm [0.31"]

Terminal assignment

Number of sensor channels	Flange connector M12, 8 pin								
1 x PT100	Signal:	–	–	–	0 V	24 VDC	channel 1, PT100	channel 1, 0 V	–
	Pin:	1	2	3	4	5	6	7	8

Number of sensor channels	Flange connector M12, 8 pin								
3 x PT100	Signal:	channel 2, PT100	channel 3, PT100	channel 3, 0 V	0 V	24 VDC	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

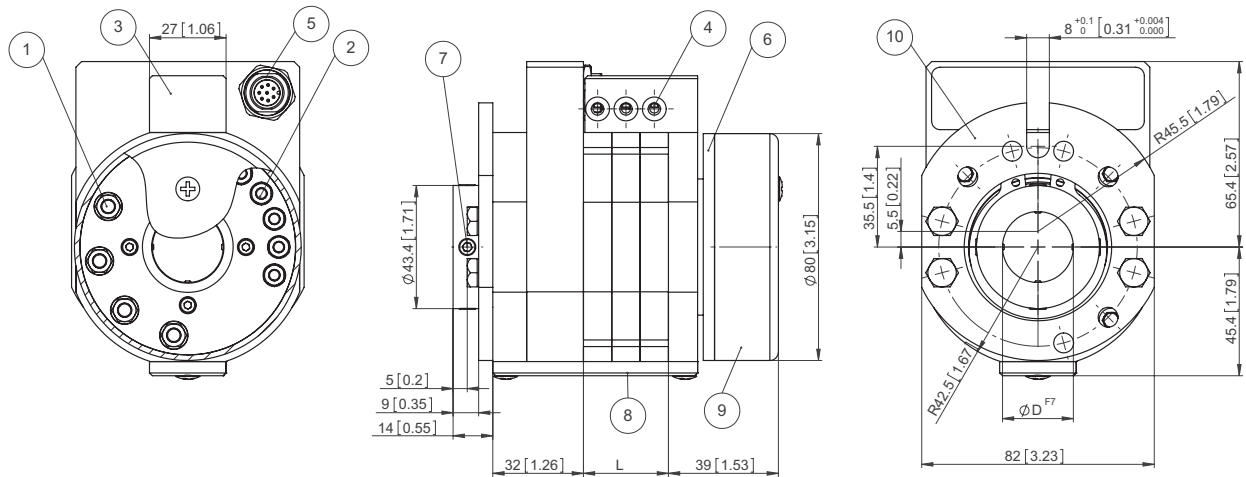
Slip rings

Modular **Contactless signal transmission** **SRI085**

Dimensions

Dimensions in mm [inch]

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



- | | | |
|--|---|--------------------------------------|
| 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 – Flange connector M12, A coded | 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 | |

Slip rings

Slip rings

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



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.

Compact

- 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.

Low-maintenance

- Maintenance cycles only every 100 million revolutions.
- No contact oil required.
- Easy cleaning – high protection level IP64.

Applications for slip rings

Flowpack and blister packaging machines, robots and handling equipment, rotary tables

Order code for standard versions	SR060E	-XX-	X-	X-	-XX	X2-	V100
	Type	a	b	c	d	e	f
a <i>Hollow shaft</i> 20 = ø 20 mm [0.79"] 21 = ø 21 mm [0.83"] 22 = ø 22 mm [0.87"] 24 = ø 24 mm [0.94"] 25 = ø 25 mm [0.98"] (other diameters on request)	b <i>Number of signal / data channels</i> 0 or 2	c <i>Number of load channels</i> 0, 2 or 3	d <i>Max. load current</i> 0 = no load channels 1 = 16 A, 240 V AC/DC 2 = 20 A, 240 V AC/DC	e <i>Contact material signal / data channels</i> 0 = no signal / data channels 3 = silver / precious metal	f <i>Protection</i> 2 = IP64	g <i>Version number (options)</i> V100 = without option > V100 = option on request	

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 / data channels	240 V AC/DC, max. 20 A (order option 2) 48 V AC/DC, max. 2 A
Contact resistance	
load channels	≤ 1 Ohm (dynamic) ¹⁾
signal / data channels	≤ 0.1 Ohm (silver / precious metal) ²⁾
Insulation resistance	10 ³ MOhm (at 500 V DC)
Dielectric strength	1000 V eff. (60 sec.)
Speed max.	500 min ⁻¹
Torque	< 0,2 Nm

Service life	typ. 500 million revolutions (at room temperature) depends on installation position
Maintenance cycles	first maintenance after 50 million revolutions, all further maintenance intervals after 100 million revolutions
Maintenance	contact oil not required
Material pairing	
load channels	copper / bronze
signal / data channels	silver / precious metal
Operating temperature	0°C ... +75°C [+32°F ... +167°F]
Protection acc. to EN 60529	IP64

1) Voltage measurement, ambient temperature, DC series connection, ohmic load, min. 4 A test current.

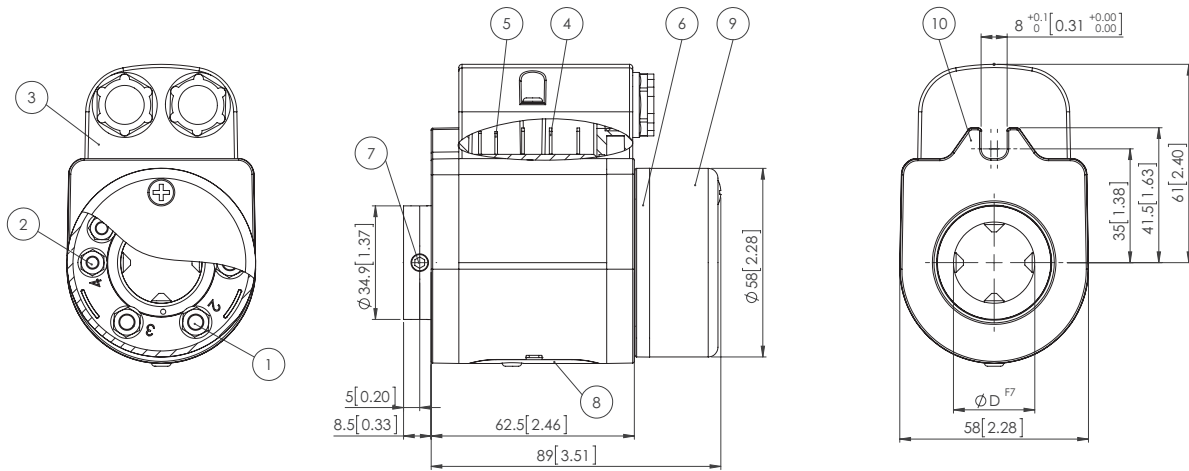
2) 2-wire resistance measurement, ambient temperature, 6.5-digit digital multimeter or similar, values without testing cable.

Slip rings

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

Dimensions

Dimensions in mm [inch]



- | | | |
|---|---|--|
| <ul style="list-style-type: none"> 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) | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 8 – Maintenance window 9 – Protective cover for connections 10 – Torque stop |
|---|---|--|

Slip rings

Three chamber system	Ethernet transmission	SR120
-----------------------------	------------------------------	--------------



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 slip ring SR120 is ideal for applications requiring high transmission rates. The three chamber system allows parallel transmission of signals, load and data up to 100 Mbit/s.

Rugged

- Reliable operation in harsh environments.
- Rugged metal housing.
- High protection level IP64.

Flexible

- Fast and easy installation.
- Modular construction.
- Wide variety of connector and cable connections.

Reliable with the three chamber system

- Reliable thanks to interference-proof transmission.
- Transmission of Ethernet, signal, load, pneumatics and hydraulics.
- Innovative contact technology, low-maintenance and durable.
- Field bus or Ethernet up to 100 Mbit/s.
- UL approval in preparation.

Application areas for slip rings

Industrial automation, bottling plants, labelling machines, rotary tables, ...

Order code ¹⁾

for standard versions

SR120	-	XX	-	XX	-	XX	-	XX	-	XXXX	-	V100
Type		a		b		c		d		e f g h		i

a Type of mounting

- 01 = flange mounting, rotor connections radial
- 02 = flange mounting, rotor connections axial

b Number of Ethernet transmissions

- 01 = 1 x Ethernet transmission up to 100 Mbit/s

c Number of signal / data channels²⁾

d Number of power channels²⁾

e Max. load current

- 1 = 230 V / 16 A
- 2 = 230 V / 25 A
- 3 = 400 V / 10 A
- 4 = 400 V / 20 A

f Mounting position

- 0 = any, only with either load or signal channels only with either data / Ethernet transmission
- 1 = standing and horizontal (flange down)
- 2 = hanging and horizontal (flange up)

g Central lead-through

- 0 = none
- 1 = air connection 1/4"
- 2 = air connection 1/2"
- 3 = air connection 3/8"
- A = central bore, inside diameter 20 mm
- B = central bore, inside diameter 15 mm

h Protection rating

- 2 = IP64

i Version number (options)

- V100 = without options
- > V100 = options on request, e.g.:
 - > 20 channels
 - other types of mounting
 - other types of connection (cable, connector, ...)
 - hydraulics connection

Connection technology		Order no.
Connector, self-assembly (straight)	M12 male connector with external thread	05.WASCSY4S
Cordset, pre-assembled	M12 male connector with external thread, 2 m [6.56'] PUR cable Industrial EtherNet - cable, PUR	05.00.6031.4411.002M 05.00.6031.1111.XXXM³⁾

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.

1) Series availability as from April 2016.

2) With Ethernet transmission: max. 13 channels, combination of signal / data / load channels.
Without Ethernet transmission: max. 20 channels, combination of signal / data / load channels.

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

Slip rings

Three chamber system Ethernet transmission SR120

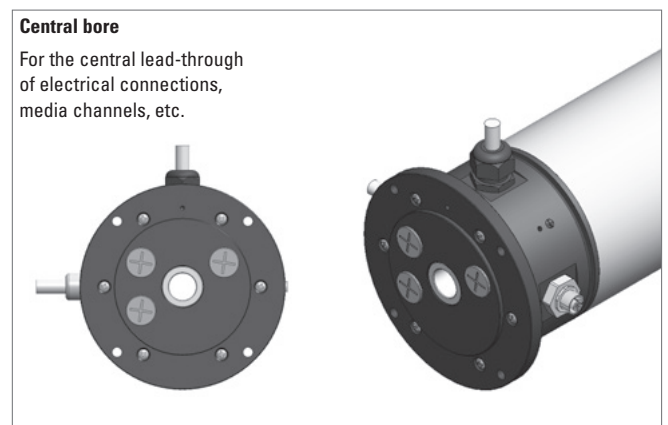
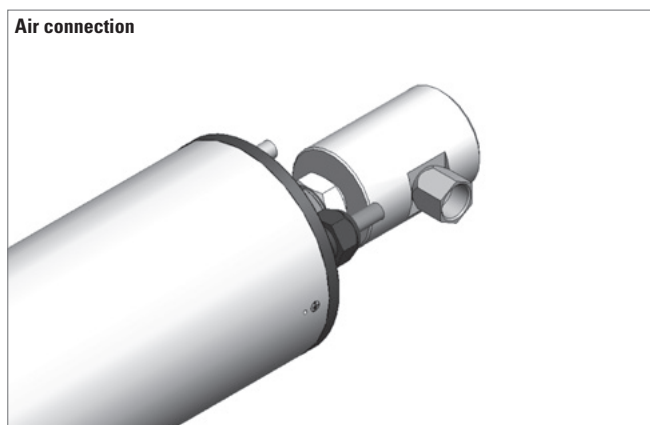
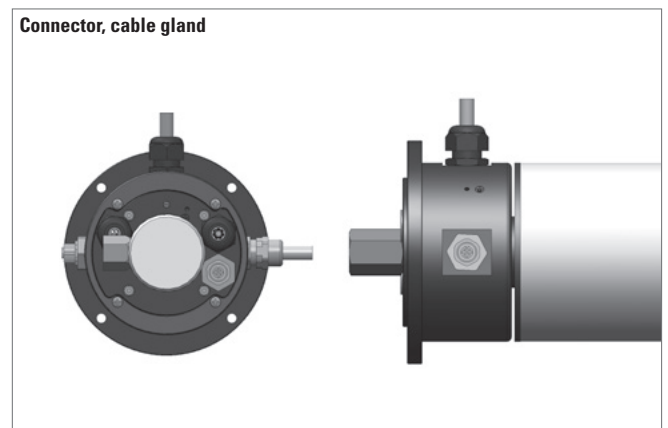
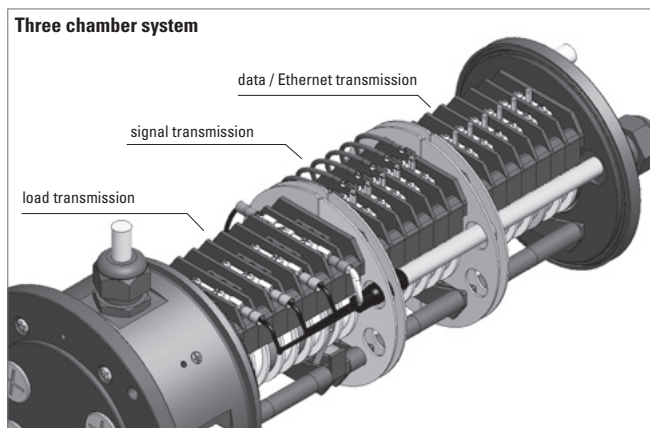
Technical data	
Overall length	dep. on the number of transmission paths
Type of connection (stator and rotor)	load cable 2 m [6.56'] signal / data cable 2 m [6.56'] Ethernet M12 connector 4-pin, D coded
Material pairing	load copper / bronze signal / data silver / precious metal Ethernet silver / precious metal
Voltage/current loading	
load channels	order option 1 230 V AC/DC, max. 16 A, 50/60 Hz order option 2 230 V AC/DC, max. 25 A, 50/60 Hz order option 3 400 V AC/DC, max. 10 A, 50/60 Hz order option 4 400 V AC/DC, max. 20 A, 50/60 Hz
signal channels	48 V AC/DC, max. 2 A
Contact resistance	
load channels	$\leq 1 \text{ Ohm}$ (dynamic) ¹⁾
signal / data channels	$\leq 0,1 \text{ Ohm}$ (silver / precious metal) ²⁾
Insulation resistance	10^3 MOhm , at 500 V DC
Dielectric strength	1000 V eff. (60 sec.)
Speed max. (signal / data channels)	300 min ⁻¹ (depends on installation position and numbers of channels)
Service life (signal / data channels)	typ. 500 million revolutions (at room temperature) depends on installation position

Maintenance cycles	maintenance free (if necessary all 100 million revolutions)
Maintenance	Remove contact abrasion dust – do not use compressed air
Operating temperature	-35° ... +85°C [-31°F ... +185°F]
Protection acc. to EN 60529	max. IP64
Transmission paths	max. 20 (> 20 on request)

Air connection (media lead-through no. 1 - 3)	
Air pressure max.	10 bar (150 psi)
Vacuum max.	7 kPa (2" Hg)
Speed max.	300 min ⁻¹

Slip rings

Technology in detail



1) Voltage measurement, ambient temperature, DC series connection, ohmic load, min. 4 A test current.
2) 2-wire resistance measurement, ambient temperature, 6,5-digit digital multimeter or similar, values without testing cable.

Slip rings

Three chamber system	Ethernet transmission	SR120
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Terminal assignment

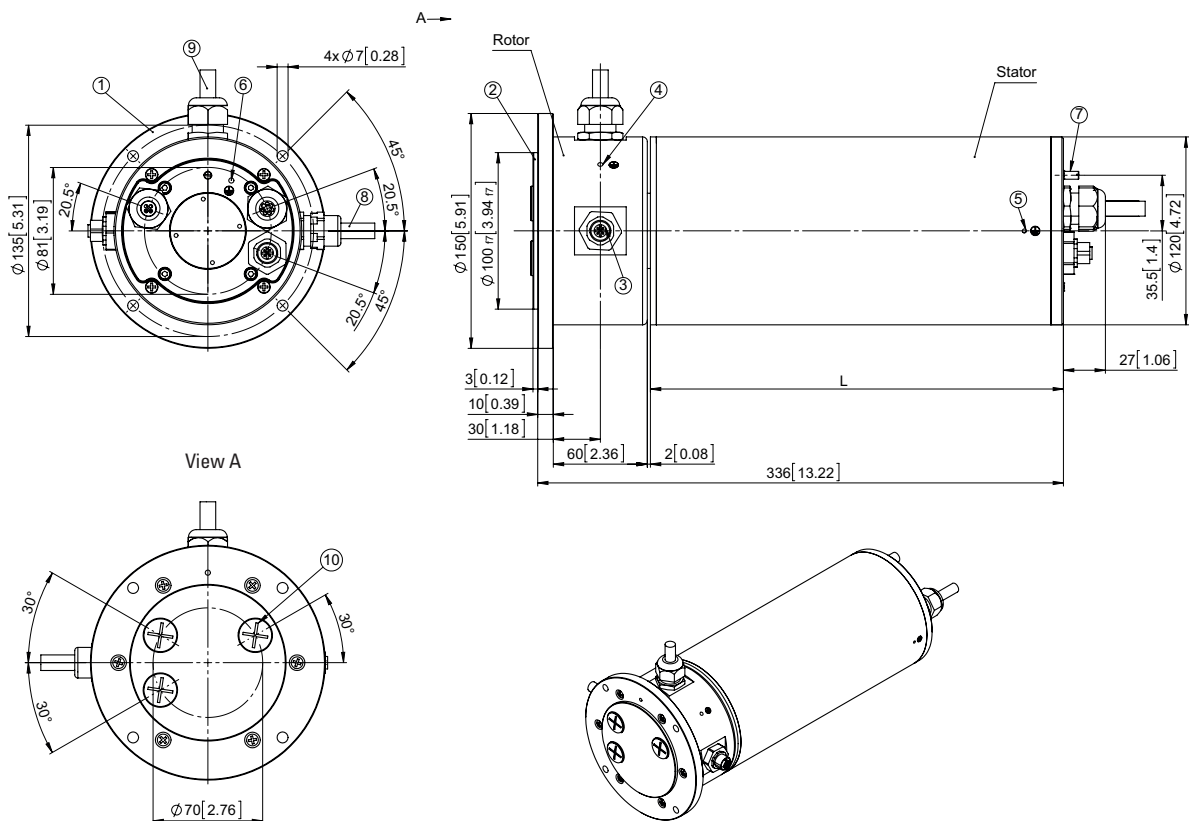
M12 connector					
Signal:	Transmit data +	Receive data +	Transmit data -	Receive data -	
Abbreviation:	TxD+	RxD+	TxD-	RxD-	
Pin:	1	2	3	4	

Dimensions

Dimensions in mm [inch]

Standard version

Example: Type SR120-02-01-06-04-3102-V100



- | | | |
|--|--|---|
| 1 – Mounting flange | 4 – Grounding PE (optional connectivity) | 8 – 2 m [6.56'] connecting cable for power transmission |
| 2 – Centering diameter | 5 – Grounding PE (optional connectivity) | 9 – 2 m [6.56'] connecting cable for signal transmission |
| 3 – M12 female connector (4-pin)
Ethernet (data transmission) (D-coded) | 6 – Grounding PE (optional connectivity) | 10 – Blind plug – depending on order code rotor
connections exit axially |
| | 7 – Anti-rotating-pin | |

Slip rings

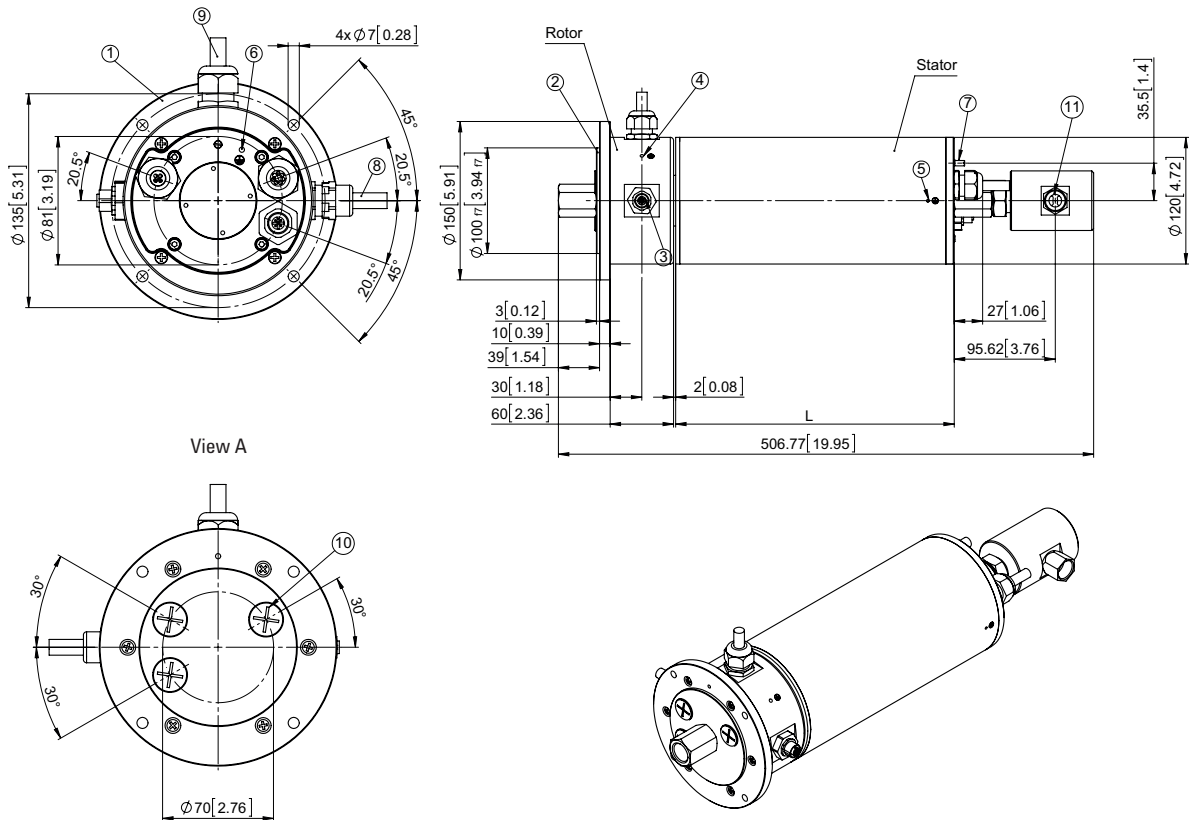
Three chamber system **Ethernet transmission** **SR120**

Dimensions

Dimensions in mm [inch]

Version with media lead-through

Example: Type SR120-02-01-06-04-31X2-V100



- | | | |
|--|--|--|
| 1 – Mounting flange | 4 – Grounding PE (optional connectivity) | 8 – 2 m [6.56'] connecting cable for power transmission |
| 2 – Centering diameter | 5 – Grounding PE (optional connectivity) | 9 – 2 m [6.56'] connecting cable for signal transmission |
| 3 – M12 female connector (4-pin)
Ethernet (data transmission) (D-coded) | 6 – Grounding PE (optional connectivity) | 10 – Blind plug – depending on order code rotor
connections exit axially |
| | 7 – Anti-rotating-pin | 11 – Media lead-through – depending on order code
connection thread G 1/2, G 1/4, G 3/8 |



Power/Sync


Local Error

Remote Err

Power

Sync

Optical fiber transmission modules

			Page	
Optical fiber transmission modules		RS422/HTL (incremental)	transmitter and receiver	36
		SSI (absolute)	transmitter and receiver	38

Optical fiber transmission modules

Optical fiber 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 fiber transmitter and an optical fiber receiver. The optical fiber transmitter converts the electrical signals of a normal incremental encoder into a light signal for transmission by means of a glass fiber.

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 fiber.
- Safe signal transmission up to 2000 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 fiber transmitter / receiver

6.LWL X . XX
a b c

a
 S = Optical fiber transmitter
 E = Optical fiber receiver

b *Input or output circuit / Power supply*
 1 = RS422 / 10 ... 30 V DC
 2 = HTL, without inverted signals / 10 ... 30 V DC (only for optical fiber 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 fiber module
 - Multilingual operating manual

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

Accessories

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



Connector:
 2 x ST/PC, glass fiber:
 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 fiber signal cable + costs of transmitter + costs of receiver.

Optical fiber transmission modules

Optical fiber signal transmission Transmitter and receiver RS422/HTL

Technical data

General technical data	
Power supply	10 ... 30 DC V eg. 5 V DC ±5%
Power consumption per module	< 2 W
Operating voltage reverse connection protection	available
Encoder inputs optical fiber transmitter channels	A, \bar{A} , B, \bar{B} , 0, $\bar{0}$
Max. input frequency optical fiber transmitter and output frequency optical fiber receiver	400 kHz
Input level optical fiber transmitter	10 ... 30 V or RS 422
Optical wavelength	850 nm
Optical transmission rate	120 Mbit/s
Optical fiber synchronisation display	LED on the receiver
Optical fiber connection	ST connector, \varnothing 9 mm [0.35] on the bottom side of the housing
Glass fiber	multimode fiber, 50/125 μ m, 62.5/125 μ m

Input signals sampling rate	10 MSamples/s	
Optical fiber transmission distance	max. 2000 m [6561']	
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"]
	Plug-in connector	19.0 x 110.8 x 88.4 mm [0.75 x 4.36 x 3.48"]
Protection acc. to EN 60529	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. 95 g [3.35 oz]	

EMC		
Standards	Emitted interference	EN 55011 class B1
	Immunity to interference	EN 61000-6-2

Optical fiber transmission modules

Terminal assignment

Type of connection	Terminal clamp, optical fiber transmitter and optical fiber 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	–

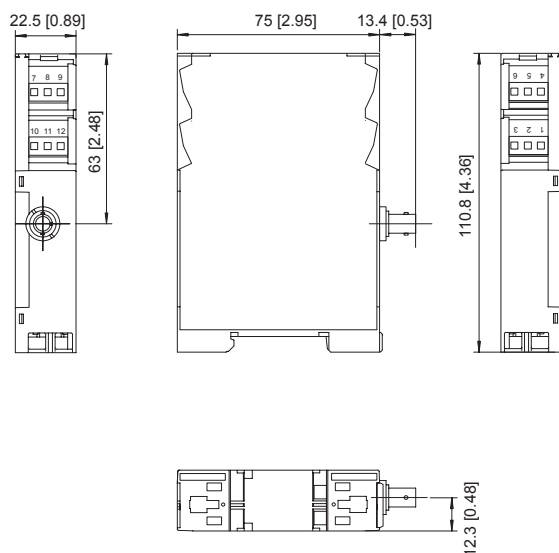
Type of connection	HD-Sub D15, optical fiber transmitter											Terminal		
1	Signal	\bar{A}	\bar{B}	$\bar{0}$ (\bar{C})	A	B	0 (C)	\bar{D}	D	+V _{out} to encoder	0 V linked internally	Shield	0 V linked internally	+V _{out} to encoder, linked internally
	Terminal	8	6	3	9	7	4	1	2	15	11, 12	13	1	2

Type of connection	HD-Sub D15, optical fiber 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

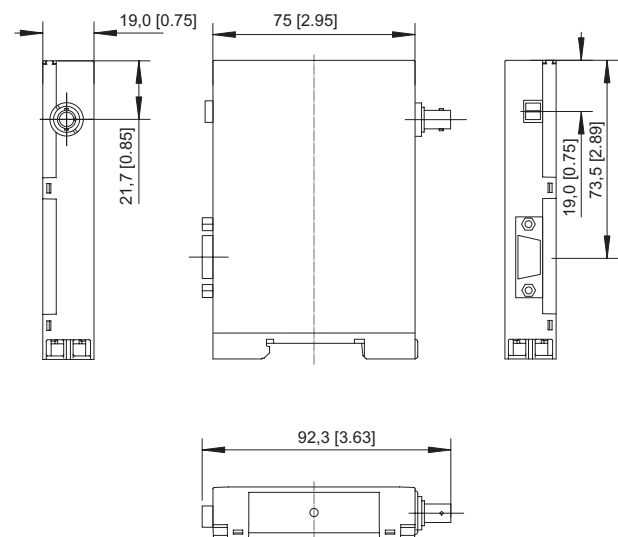
Dimensions

Dimensions in mm [inch]

Terminal clamp



Plug-in connector, HD-Sub D15



Optical fiber transmission modules

Optical fiber signal transmission	Transmitter and receiver	SSI
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eco plus

Cost advantage compared to conventional wiring over 150 m length*



Optical fiber transmission system for SSI absolute encoders

The system is made up of an optical fiber transmitter and an optical fiber receiver. The optical fiber 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 fiber. The receiving module converts the optical signal back into electrical signals.

Absolute signals can be transmitted safely through one glass fiber over distances of up to 2000 m. A rotary switch on the front side of the module allows adjusting the SSI clock between 1 and 99 bits.

Reliable transmission

- Safe signal transmission up to 2000 m.
- Resists extremely strong electro-magnetic fields.

Easy installation

- Signal transmission via a single glass fiber.
- Clock of 1 ... 99 bit can be set via rotary switch.
- LED for monitoring of power supply and clock.
- DIN-rail mounting – requires min. installation space – only 19 mm wide.

Application areas

- Process control technology and automation technology.
- Crane systems.
- High voltage plants.
- Heavy industry.
- Wind power plants.
- Drive technology.
- Rolling mills.

Order code

Optical fiber transmitter / receiver

6.LWLA . XXX
a b c

a
 S = Optical fiber transmitter
 E = Optical fiber receiver

b Power supply
 1 = 10 ... 30 V DC
 4 = 5 V DC

c Type of connection
 0 = Terminal clamp
 1 = Plug-in connector Sub-D9

Scope of delivery:
 - Optical fiber transmission module
 - Operating manual, dual language, German and English

Accessories	Order no.
<p>Simplex Patch cable ST-ST - Multimode</p>	<p>Connector: 2 x ST/PC, glass fiber: 1 x 50/125</p> <p style="text-align: right;">05.B09-B09-821-XXXX</p> <p style="text-align: right; font-size: small;">XXXX = Length in m Standard lengths: 2 m, 5 m, 8 m, 10 m, 15 m, 20 m, ... (in 5 m steps)</p>
<p>ST Multimode coupling</p>	<p>Barrel: ceramic, slotted</p> <p style="text-align: right;">05.LWLK.001</p>

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

Optical fiber transmission modules

Optical fiber signal transmission Transmitter and receiver SSI

Technical data

General technical data	
Power supply	10 ... 30 DC V eg. 5 V DC ±5 %
Power consumption per module	< 1 W
Operating voltage reverse connection protection	available
Electrical inputs / outputs (Optical fiber transmitter / receiver)	Clock C+ and C-, RS422 Data D+ and D-, RS422 NPN error input on transmitter Open-Drain outut on receiver
SSI clock rate	max. 1 MHz
Optical wavelength	850 nm (infrared)
Optical fiber connection	ST connector, on the bottom side of the housing
Glass fiber	multimode fiber, 50/125 µm, 62.5/125 µm
Optical fiber transmission distance	max. 2000 m [6561']

Dimensions (W x L x H)	19.0 x 110.8 x 92.3 mm [0.75 x 4.36 x 3.63"]	
Protection acc. to EN 60529	IP40, terminals IP20	
Connection	terminal clamps	11-pin plug-in screw terminal, RM 3.5 Sub-D9 9-pin Sub-D female contacts (for signals)
	power supply	2-pin plug-in screw terminal
Temperature range	-10°C ... +70°C [+14°F ... +158°F]	
Weight	appr. 70 g [2.47 oz]	

EMC		
Standards	Emitted interference	EN 55011 class B1
	Immunity to interference	EN 61000-6-2

Terminal assignment

Optical fiber transmitter

Type of connection	Terminal clamp											
0	Signal:	0 V	+V	C+	C-	D+	D-	input/error	-	-	-	⊥
	Pin female contact:	1	2	3	4	5	6	7	8	9	10	11

Type of connection	Plug-in connector, Sub-D9										
1	Signal:	0 V	+V	input/error	D-	D+	C-	C+	-	⊥	
	Pin female contact:	1	2	3	4	5	6	7	8	9	

Optical fiber receiver

Type of connection	Terminal clamp											
0	Signal:	0 V	+V	C+	C-	D+	D-	output/error	-	-	-	⊥
	Pin female contact:	1	2	3	4	5	6	7	8	9	10	11

Type of connection	Plug-in connector, Sub-D9										
1	Signal:	0 V	+V	output/error	D-	D+	C-	C+	-	⊥	
	Pin female contact:	1	2	3	4	5	6	7	8	9	

Power supply

Screw terminal, 2 pin			
Signal:	0 V	+V	
Pin female contact:	1	2	

Contacts 1/2 of the 2-pin plug-in screw terminal are connected to contacts 1/2 of the 11-pin plug-in screw terminal or with contacts 1/2 of the Sub-D connector.

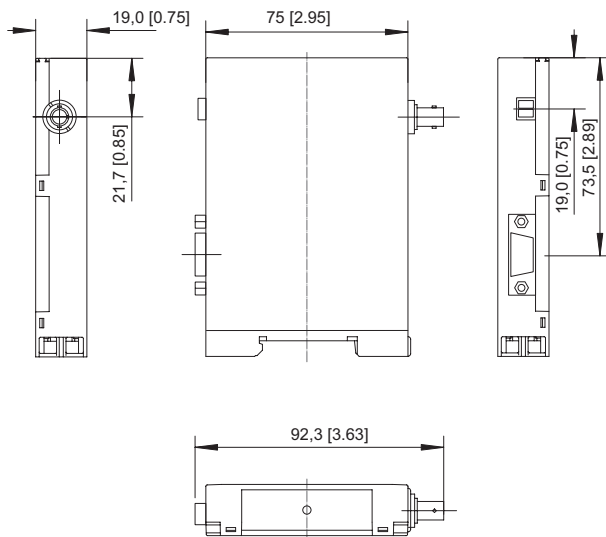
- +V: Power supply +V DC
- 0 V: Power supply ground GND (0 V)
- C+, C-: Clock signal
- D+, D-: Data signal
- ⊥: Shield

Optical fiber transmission modules

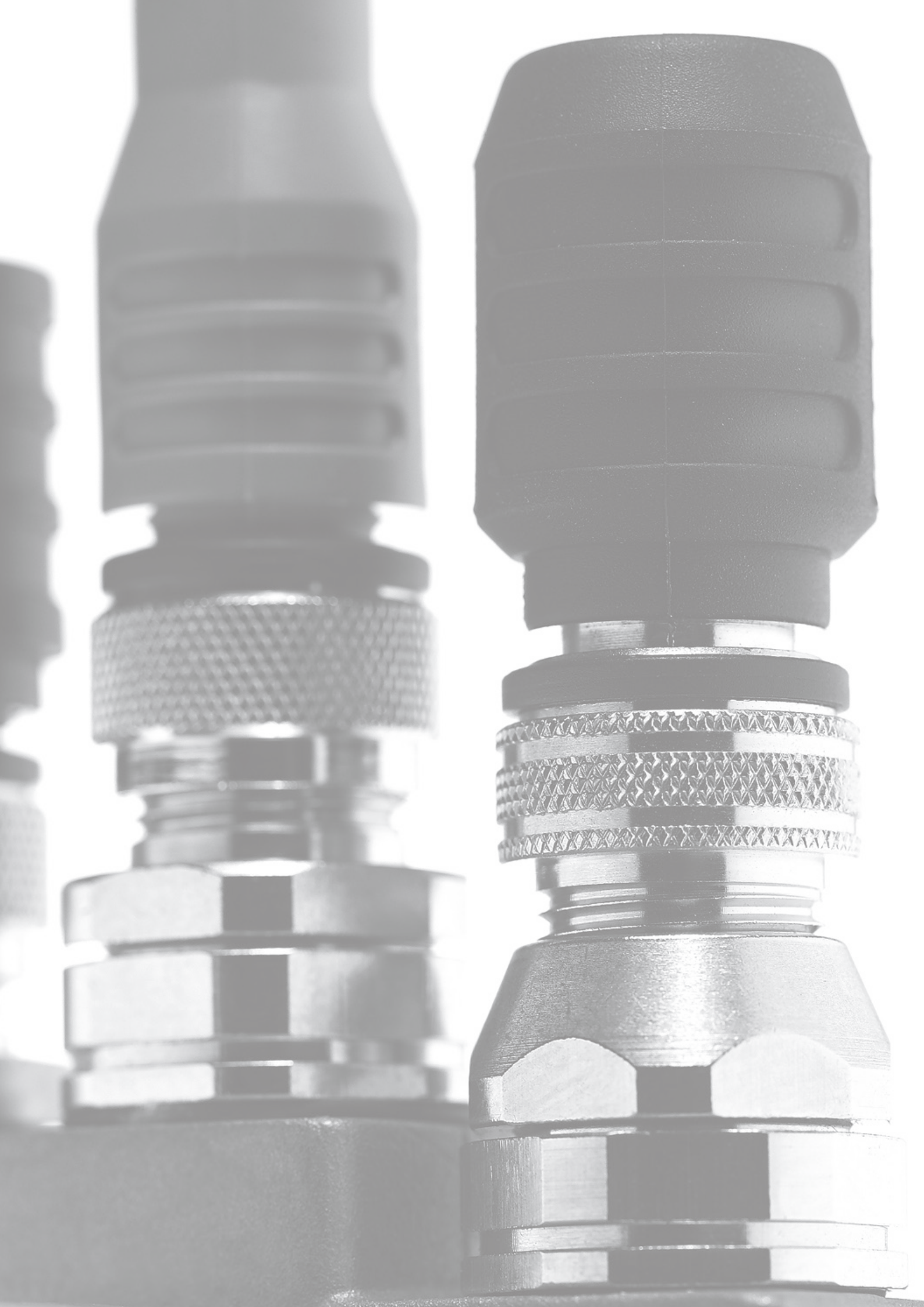
Optical fiber signal transmission	Transmitter and receiver	SSI
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Dimensions

Dimensions in mm [inch]



Optical fiber transmission modules



Connection technology

		Page
Cable	Unprepared, cut to length	44
M12 connection technology	Connectors, self-assembly	47
	Cordsets, pre-assembled	53
M23 connection technology	Connectors, self-assembly	65
	Cordsets, pre-assembled	67
MIL connection technology	Connectors, self-assembly	71
RJ45 connection technology	Connectors, self-assembly	72
	Cordsets, pre-assembled	73
Sub-D connection technology	Connectors, self-assembly	75
	Cordsets, pre-assembled	76

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			Order no.
5 core + shield					
PVC electronic cable LiVCY  	Cross section	5 x 0.14 mm ² [AWG25]	suitable for:	8.0000.6300.XXXX ¹⁾	
	Permanent working temperature range	flexible installation -5°C ... +70°C [+23°F ... +158°F] secure installation -30°C ... +70°C [-22°F ... +158°F]	incremental encoders without inversions		
	Bending radius	flexible installation min. 70 mm [2.76"] secure installation min. 45 mm [1.77"]			
	Cable diameter	approx. 4.7 mm ±0.2 mm			
8 core + shield					
TPE electronic trailing cable halogen-free, silicon-free  	Cross section	5 x 0.75 mm ² [AWG18]	suitable for:	8.0000.6600.XXXX ¹⁾	
	Permanent working temperature range	flexible installation -35°C ... +100°C [-31°F ... +212°F] secure installation -40°C ... +100°C [-40°F ... +212°F]	H100 with speed switch, robust incremental encoders without inversions		
	Bending radius	flexible installation min. 40 mm [1.57"] secure installation min. 25 mm [0.98"]			
	Cable diameter	approx. 7.5 mm ±0.3 mm			
8 core + shield					
PUR trailing cable halogen-free    	Cross section	8 x 0.14 mm ² [AWG25]	suitable for:	8.0000.6P00.XXXX ¹⁾	
	Permanent working temperature range	flexible installation -20°C ... +90°C [-4°F ... +194°F] secure installation -40°C ... +90°C [-40°F ... +194°F]	Limes, 365X, 368X SSI and analog Safety-M		
	Bending radius	flexible installation min. 65 mm [2.56"] secure installation min. 45 mm [1.77"]			
	Cable diameter	approx. 5.5 mm ±0.2 mm			
PUR trailing cable halogen-free    	Cross section	3 x 2 x 0.14 mm ² [AWG25] + 2 x 0.5 mm ² [AWG20]	suitable for:	8.0000.6F00.XXXX ¹⁾	
	Permanent working temperature range	flexible installation -40°C ... +90°C [-40°F ... +194°F] secure installation -50°C ... +90°C [-58°F ... +194°F]	Limes, 365X, 368X SSI and analog Safety-M		
	Bending radius	flexible installation min. 111 mm [4.37"] secure installation min. 55 mm [2.17"]			
	Cable diameter	approx. 7.4 mm ±0.3 mm			
10 core + shield					
PUR electronic trailing cable halogen-free  	Cross section	4 x 2 x 0.25 mm ² [AWG23] + 2 x 1 mm ² [AWG17]	suitable for:	8.0000.6400.XXXX ¹⁾	
	Permanent working temperature range	flexible installation -40°C ... +90°C [-40°F ... +194°F] secure installation -50°C ... +90°C [-58°F ... +194°F]	H100, H120 LA10, LA50 Safety-M		
	Bending radius	flexible installation min. 95 mm [3.74"] secure installation min. 40 mm [1.57"]			
	Cable diameter	approx. 7.9 mm ±0.8 mm			














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

Connection technology

Cable		Unprepared, cut to length			Order no.
12 core + shield					
PUR electronic trailing cable halogen-free 	Cross section		10 x 0.14 mm ² [AWG25] + 2 x 0.5 mm ² [AWG20]	suitable for:	8.0000.6100.XXXX ¹⁾
	Permanent working temperature range	flexible installation secure installation	-30°C ... +80°C [-22°F ... +176°F] -50°C ... +90°C [-58°F ... +194°F]	robust incremental encoders	
	Bending radius	flexible installation secure installation	min. 50 mm [1.97"] min. 35 mm [1.38"]		
	Cable diameter		approx. 6.9 mm ±0.3 mm		
					
PVC electronic cable LiYCY 	Cross section		12 x 0.14 mm ² [AWG25]	suitable for:	8.0000.6200.XXXX ¹⁾
	Permanent working temperature range	flexible installation secure installation	-10°C ... +90°C [+14°F ... +194°F] -30°C ... +90°C [-22°F ... +194°F]	incremental encoders standard cable	
	Bending radius	flexible installation secure installation	min. 100 mm [3.94"] min. 65 mm [2.56"]		
	Cable diameter		approx. 6.7 mm ±0.2 mm		
					
PUR electronic trailing cable halogen-free 	Cross section		6 x 2 x 0.14 mm ² [AWG25]	suitable for:	8.0000.6Y00.XXXX ¹⁾
	Permanent working temperature range	flexible installation secure installation	-30°C ... +90°C [-22°F ... +194°F] -40°C ... +90°C [-40°F ... +194°F]	robust incremental encoders LA10	
	Bending radius	flexible installation secure installation	min. 90 mm [3.54"] min. 40 mm [1.57"]		
	Cable diameter		approx. 7.5 mm ±0.2 mm		
					
TPE electronic cable halogen-free 	Cross section		5 x 2 x 0.14 mm ² + 2 x 0.5 mm ²	suitable for:	8.0000.6E00.XXXX ¹⁾
	Permanent working temperature range	flexible installation secure installation	-25°C ... +110°C [-13°F ... +230°F] -40°C ... +135°C [-40°F ... +275°F]	high temperatures or encoders with sine wave output	
	Bending radius	flexible installation secure installation	min. 90 mm [3.54"] min. 70 mm [2.76"]		
	Cable diameter		approx. 8.5 mm ±0.9 mm		
					
PVC electronic cable LiYCY 	Cross section		6 x 2 x 0.14 mm ² [AWG25]	suitable for:	8.0000.6900.XXXX ¹⁾
	Permanent working temperature range	flexible installation secure installation	-5°C ... +70°C [+23°F ... +158°F] -30°C ... +80°C [-22°F ... +176°F]	absolute encoders with SSI or 4 ... 20 mA analog output, twisted pair conductors	
	Bending radius	flexible installation secure installation	min. 110 mm [4.33"] min. 75 mm [2.95"]		
	Cable diameter		approx. 7.3 mm ±0.2 mm		
					
18 core + shield					
PVC electronic cable LiYCY 	Cross section		18 x 0.14 mm ² [AWG25]	suitable for:	8.0000.6700.XXXX ¹⁾
	Permanent working temperature range	flexible installation secure installation	-5°C ... +70°C [+23°F ... +158°F] -30°C ... +80°C [-22°F ... +176°F]	absolute encoders with parallel output, twisted pair conductors	
	Bending radius	flexible installation secure installation	min. 120 mm [4.72"] min. 100 mm [3.94"]		
	Cable diameter		approx. 7.8 mm ±0.2 mm		
					


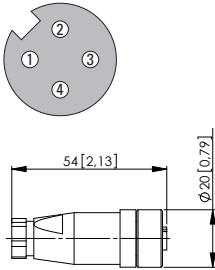

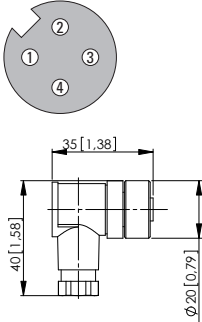

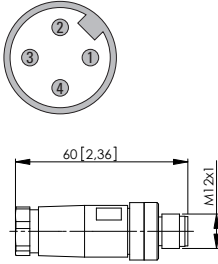

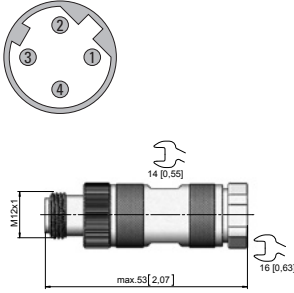
1) XXXX = cable length in meters (e.g. 10 m = 0010)

Connection technology

Cable		Unprepared, cut to length		
PROFIBUS DP - cable				Order no.
PUR outer jacket, PE wire insulation halogen-free  	Cross section	2 x 0.34 mm ² [AWG22]	suitable for:	05.KABEL451.XXX ¹⁾
	Permanent working temperature range	flexible installation -25°C ... +60°C [-13°F ... +140°F] secure installation -50°C ... +90°C [-58°F ... +194°F]	all Profibus fieldbus encoders, Safety-M modular SMBU and SMBS	
	Bending radius	flexible installation min. 80 mm [3.15"] secure installation min. 40 mm [1.57"]		
	Cable diameter	approx. 7.6 mm ±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:	05.KABEL5723.XXX ¹⁾
	Permanent working temperature range	flexible installation -30°C ... +70°C [-22°F ... +158°F] secure installation -40°C ... +80°C [-40°F ... +176°F]	all DeviceNet fieldbus encoders	
	Bending radius	flexible installation min. 70 mm [2.76"] secure installation min. 50 mm [1.97"]		
	Cable diameter	approx. 8.4 mm ±0.2 mm		
CANopen - cable				Order no.
PVC electronic cable  	Cross section	3 x 2 x 0.25 mm ² [AWG23]	suitable for:	8.0000.6V00.XXXX ¹⁾
	Permanent working temperature range	flexible installation -10°C ... +90°C [+14°F ... +194°F] secure installation -30°C ... +90°C [-22°F ... +194°F]	all CANopen fieldbus encoders, Safety-M modular SMBU	
	Bending radius	flexible installation min. 130 mm [5.12"] secure installation min. 60 mm [2.36"]		
	Cable diameter	approx. 6.2 mm ±0.2 mm		
Industrial Ethernet - cable				Order no.
PUR electronic cable  	Cross section	2 x 2 x 0.34 mm ² [AWG22]	suitable for:	05.00.6031.1111.XXXM ¹⁾
	Permanent working temperature range	flexible installation -30°C ... +70°C [-22°F ... +158°F] secure installation -40°C ... +80°C [-40°F ... +176°F]	all EtherCAT / PROFINET I/O / EtherNet/IP encoders, Safety-M modular SMBU and SMBS	
	Bending radius	flexible installation min. 50 mm [1.97"] secure installation min. 25 mm [0.98"]		
	Cable diameter	approx. 4.8 mm ±0.2 mm	  EtherNet/IP	

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

Connection technology

M12 connection technology		Connectors, self-assembly		Order no.
4 pin				
<p>Female connector with coupling nut A coded, straight power supply</p> <p>Housing: plastic, IP67</p> 	<p>screw connections, for cable \varnothing 4 ... 6 mm [0.16 ... 0.24"]</p> 	<p>suitable for our series:</p> <p>EMIO.SIO.10xP</p> <p>F5858 / F5878 F5868 / F5888 5858 / 5878 5868 / 5888 9080</p>	<p>05.B8141-0</p>	
<p>Female connector with coupling nut A coded, right-angle power supply</p> <p>Housing: plastic, IP67</p> 	<p>screw connections, for cable \varnothing 4 ... 6 mm [0.16 ... 0.24"]</p> 	<p>suitable for our series:</p> <p>EMIO.SIO.10xP</p> <p>5858 / 5878 5868 / 5888 9080</p>	<p>05.B8241-0</p>	
<p>Male connector with external thread A coded, straight power supply</p> <p>Housing: metal / plastic, IP67</p> 	<p>screw connections, for cable \varnothing 4 ... 6 mm [0.16 ... 0.24"]</p> 	<p>suitable for:</p> <p>versions with cable outlet</p>	<p>05.BS8141-0</p>	
<p>Male connector with external thread D coded, straight</p> <p>Housing: metal, IP67</p> 	<p>screw connections, for cable \varnothing 4 ... 9 mm [0.16 ... 0.35"]</p> 	<p>suitable for our series:</p> <p>F5858 / F5878 F5868 / F5888 5858 / 5878 5868 / 5888</p> <p>EtherCAT Conformance tested</p> <p>PROFINET</p> <p>EtherNet/IP</p>	<p>05.WASCSY4S</p>	

Connection technology

Connection technology

M12 connection technology Connectors, self-assembly


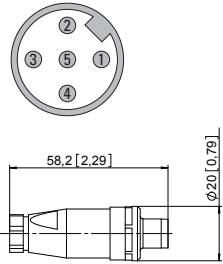

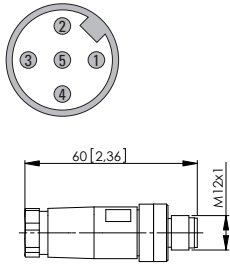

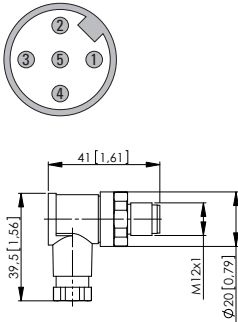
5 pin			Order no.
<p>Female connector with coupling nut A coded, straight</p> <p>Housing: metal, IP67</p>	<p>screw connections, for cable \varnothing 6 ... 8 mm [0.24 ... 0.32"]</p>	<p>suitable for our series:</p> <p>A50, B80, C120, D135, IS40 3651 / 3671 M3661 / M3681 M3661R</p> <p>F3658 / F3658 F5868 / F5888 F3668 / F3688 5858 / 5878 M3658 / M3678 5868 / 5888 M3668 / M3688 9080 M3668R IS60</p>	<p>8.0000.5116.0000</p>
<p>Female connector with coupling nut A coded, straight</p> <p>Housing: plastic, IP67</p>	<p>screw connections, for cable \varnothing 6 ... 8 mm [0.24 ... 0.32"]</p>	<p>suitable for our series:</p> <p>A50, B80, C120, D135, IS40 3651 / 3671</p> <p>9080 IS60</p>	<p>05.B-8151-0/9</p>
<p>Female connector with coupling nut A coded, right-angle</p> <p>Housing: plastic, IP67</p>	<p>screw connections, for cable \varnothing 6 ... 8 mm [0.24 ... 0.32"]</p>	<p>suitable for our series:</p> <p>A50, B80, C120, D135, IS40 3651 / 3671</p> <p>9080 IS60</p>	<p>05.B-8251-0/9</p>

CANopen
DeviceNet


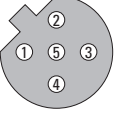
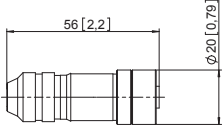


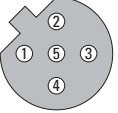
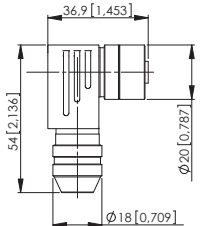


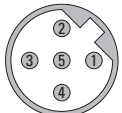
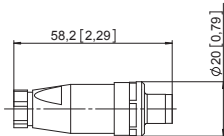



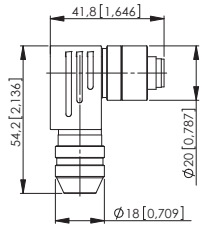

DeviceNet

DeviceNet


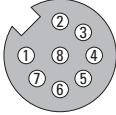
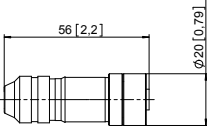


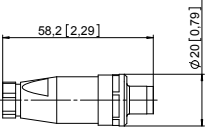

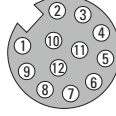
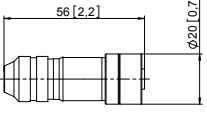
Connection technology

M12 connection technology		Connectors, self-assembly		Order no.												
5 pin																
<p>Male connector with external thread A coded, straight</p> <p>Housing: metal, IP67</p> 	<p>screw connections, for cable \varnothing 6 ... 8 mm [0.24 ... 0.32"]</p> 	<p>suitable for our series:</p> <table border="0"> <tr> <td>F3658 / F3658</td> <td>F3668 / F3688</td> </tr> <tr> <td>M3658 / M3678</td> <td>M3668 / M3688</td> </tr> <tr> <td>M3668R / M3688R</td> <td>F5868 / F5888</td> </tr> <tr> <td>5858 / 5878</td> <td>5868 / 5888</td> </tr> <tr> <td>9080</td> <td></td> </tr> <tr> <td>IS60</td> <td></td> </tr> </table> <p>CANopen DeviceNet</p>	F3658 / F3658	F3668 / F3688	M3658 / M3678	M3668 / M3688	M3668R / M3688R	F5868 / F5888	5858 / 5878	5868 / 5888	9080		IS60		<p>8.0000.5111.0000</p>	
F3658 / F3658	F3668 / F3688															
M3658 / M3678	M3668 / M3688															
M3668R / M3688R	F5868 / F5888															
5858 / 5878	5868 / 5888															
9080																
IS60																
<p>Male connector with external thread A coded, straight</p> <p>Housing: metal / plastic, IP67</p> 	<p>screw connections, for cable \varnothing 6 ... 8 mm [0.24 ... 0.32"]</p> 	<p>suitable for our series:</p> <p>9080 IS60</p> <p>EMIO.SIO.10xP</p> <p>DeviceNet</p>	<p>05.BS-8151-0/9</p>													
<p>Male connector with external thread A coded, right-angle</p> <p>Housing: metal / plastic, IP67</p> 	<p>screw connections, for cable \varnothing 6 ... 8 mm [0.24 ... 0.32"]</p> 	<p>suitable for our series:</p> <p>9080 IS60</p> <p>DeviceNet</p>	<p>05.BS-8251-0/9</p>													

Connection technology



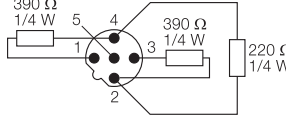
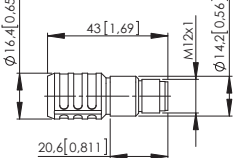


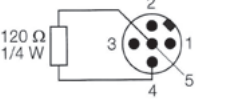
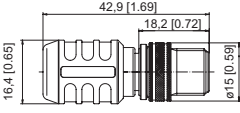


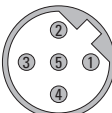
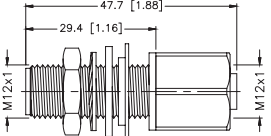


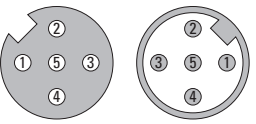

M12 connection technology		Connectors, self-assembly		Order no.
5 pin				
Female connector with coupling nut B coded, straight Housing: metal, IP67 	screw connections, for cable \varnothing 4 ... 9 mm [0.16 ... 0.35"]  	suitable for our series: 5858 / 5878 5868 / 5888 9080 	05.BMWS 8151-8.5	
Female connector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

Connection technology

M12 connection technology		Connectors, self-assembly		Order no.
8 pin				
Female connector with coupling nut A coded, straight Housing: metal, IP67 	screw connections, for cable \varnothing 6 ... 8 mm [0.24 ... 0.32"]  	suitable for our series: 3610 / 3620 5814 / 5834 F3653 / F3673 5853 / 5873 F3663 / F3683 5863 / 5883 M3663 / M3683 58x4FSx M3663R F5883M 5000 / 5020 5821 5006 / 5026 5876 K1S50 / K1H50 A020 / A02H H120	05.CMB 8181-0	
Male connector with external thread A coded, straight Housing: metal, IP67 	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 A coded, straight Housing: metal, IP67 	screw connections, for cable \varnothing 6 ... 8 mm [0.24 ... 0.32"]  	suitable for: LA10	8.0000.5162.0000	

Connection technology

M12 connection technology **Connectors, self-assembly**

Accessories		Order no.	
<p>Securing clip for M12 connectors</p> <p>Material: plastic</p> 	<p>against accidental disconnection under load</p> <p>working temperature range -25°C ... +90°C [-13°F ... +194°F]</p>	<p>8.0000.5000.0006</p>	
<p>Terminating resistor Male connector with external thread B coded, straight</p> <p>Housing: metal / plastic, IP67</p> 	 	<p>suitable for our series:</p> <p>5858 / 5878 5868 / 5888 9080</p> 	<p>05.RSS4.5-PDP-TR</p>
<p>Terminating resistor Male connector with external thread A coded, straight</p> <p>Housing: metal / plastic, IP67</p> 	 	<p>suitable for our series:</p> <p>F5868 / F5888 5858 / 5878 5868 / 5888 9080</p> 	<p>05.RSE 57 TR2</p>
<p>M12 lead-through B coded, straight</p> <p>Housing: metal, IP67</p> 	 	<p>suitable for our series:</p> <p>5858 / 5878 5868 / 5888 9080</p> 	<p>05.FKW-FSW45/M12</p>
<p>T-junction A coded, 5 pin</p> <p>Housing: metal / plastic, IP67</p> 	<p>2 x female connector with coupling nut 1 x male connector with external thread</p> 	<p>suitable for:</p> <p>M12 connectors</p> 	<p>05.FKM5-FKM5-FSM5</p>

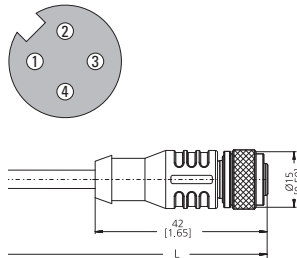
Connection technology

M12 connection technology Cordsets, pre-assembled

With connector, 4 pin Working temp. -30°C ... +80°C [-22°F ... +176°F] Order no.

Female connector with coupling nut + single-ended A coded, straight power supply

Cable: PUR, 4 x 0.34 mm² [AWG22]
Housing: metal / plastic, IP67



Terminal assignment

Pin female contacts:	1	2	3	4
Wire colour:	BN	WH	BU	BK

suitable for our series:

EMIO.SIO.10xP
5858 / 5878
5868 / 5888
F5858 / F5878
F5868 / F5888
9080

cable length ¹⁾

standard cable length 2 m [6.56']
(available from 1 piece) 5 m [16.40']
10 m [32.81']
15 m [49.21']

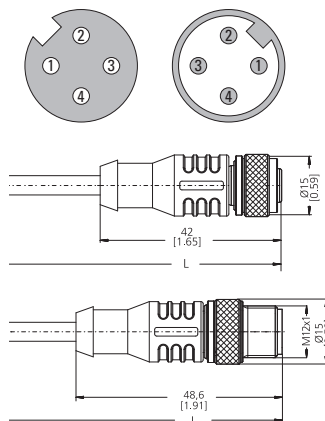
05.00.6061.6211.002M
05.00.6061.6211.005M
05.00.6061.6211.010M
05.00.6061.6211.015M

other cable lengths
(minimum order quantity 4 pieces)

05.00.6061.6211.0xxM
xx = length in meters:
1, 3, 8, 12, 20, 25, 30

Female connector with coupling nut + male connector with external thread A coded, straight power supply

Cable: PUR, 4 x 0.34 mm² [AWG22]
Housing: metal / plastic, IP67



suitable for our series:

EMIO.SIO.10xP
5858 / 5878
5868 / 5888
9080

cable length ¹⁾

standard cable length 2 m [6.56']
(available from 1 piece) 5 m [16.40']
10 m [32.81']
15 m [49.21']

05.00.6061.6462.002M
05.00.6061.6462.005M
05.00.6061.6462.010M
05.00.6061.6462.015M

other cable lengths
(minimum order quantity 4 pieces)

05.00.6061.6462.0xxM
xx = length in meters:
1, 3, 8, 12, 20, 25, 30

1) Other cable lengths on request.

Connection technology

M12 connection technology Cordsets, pre-assembled

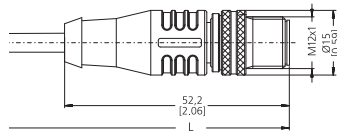
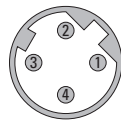
With connector, 4 pin Working temp. -30°C ... +80°C [-22°F ... +176°F] Order no.

**Male connector with external thread
single-ended
D coded, straight**

Cable: PUR, 2 x 2 x 0.34 mm² [AWG22]
Housing: metal / plastic, IP67



Port A (1) and B (2)



suitable for our series:

5858 / 5878 5868 / 5888
F5858 / F5878 F5868 / F5888

EtherCAT
Conformance tested

PROFI
NET

EtherNet/IP

Terminal assignment

Pin male contacts:	1	2	3	4
Wire colour:	YE	OG	WH	BU

*cable length*¹⁾

standard cable length 2 m [6.56']
(available from 1 piece) 5 m [16.40']
10 m [32.81']
15 m [49.21']

05.00.6031.4411.002M
05.00.6031.4411.005M
05.00.6031.4411.010M
05.00.6031.4411.015M

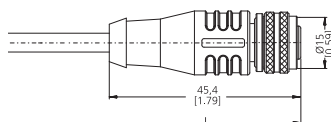
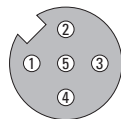
other cable lengths
(minimum order quantity 4 pieces)

05.00.6031.4411.0xxM
xx = length in meters:
1, 3, 8, 12, 20, 25, 30

With connector, 5 pin Working temp. -30°C ... +80°C [-22°F ... +176°F] Order no.

**Female connector with coupling nut +
single-ended
A coded, straight**

Cable: PVC, 5 x 0.25 mm² [AWG23]
Housing: metal / plastic, IP67



suitable for our series:

M3661 / M3681
M3661R

A50, B80, C120, D135
IS40

Terminal assignment

Pin female contacts:	1	2	3	4	5	PH ²⁾
Wire colour:	BN	WH	BU	BK	GY	PH ²⁾

*cable length*¹⁾

standard cable length 2 m [6.56']
(available from 1 piece) 5 m [16.40']
10 m [32.81']
15 m [49.21']

05.00.6081.2211.002M
05.00.6081.2211.005M
05.00.6081.2211.010M
05.00.6081.2211.015M

other cable lengths
(minimum order quantity 4 pieces)

05.00.6081.2211.0xxM
xx = length in meters:
1, 3, 8, 12, 20, 25, 30

1) Other cable lengths on request.
2) Shield on housing.

Connection technology

M12 connection technology Cordsets, pre-assembled

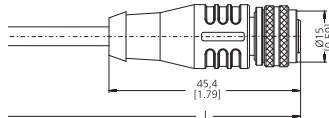
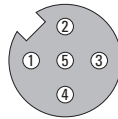
With connector, 5 pin Working temp. -30°C ... +80°C [-22°F ... +176°F] Order no.

Female connector with coupling nut + single-ended A coded, straight

Cable: PUR, 4 x 0.34 mm² [AWG22]
Housing: metal / plastic, IP67



Bus-in



suitable for our series:

9080
IS60

DeviceNet

Terminal assignment

Pin female contacts:	1	2	3	4	5
Wire colour:	± 3)	RD	BK	WH	BU

cable length ¹⁾

standard cable length 2 m [6.56']
(available from 1 piece) 5 m [16.40']
10 m [32.81']
15 m [49.21']

05.00.6021.2211.002M
05.00.6021.2211.005M
05.00.6021.2211.010M
05.00.6021.2211.015M

other cable lengths
(minimum order quantity 4 pieces)

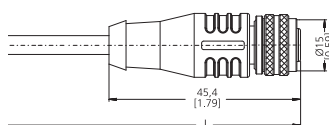
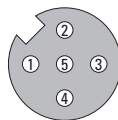
05.00.6021.2211.0xxM
xx = length in meters:
1, 3, 8, 12, 20, 25, 30

Female connector with coupling nut + single-ended A coded, straight

Cable: PVC, 3 x 2 x 0.25 mm²
Housing: metal / plastic, IP67



Bus-in



suitable for our series:

M3658 / M3678 M3668 / M3688
M3668R F5868 / F5888
5858 / 5878 5868 / 5888

CANopen

Terminal assignment

Pin female contacts:	1	2	3	4	5	PH ²⁾
Wire colour:	GY	BN	WH	GN	YE	PH ²⁾

cable length ¹⁾

standard cable length 2 m [6.56']
(available from 1 piece) 5 m [16.40']
10 m [32.81']
15 m [49.21']

05.00.6091.A211.002M
05.00.6091.A211.005M
05.00.6091.A211.010M
05.00.6091.A211.015M

other cable lengths
(minimum order quantity 4 pieces)


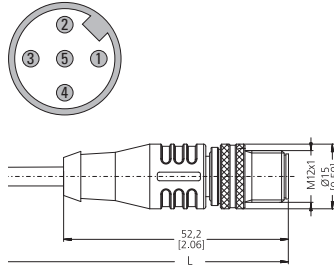

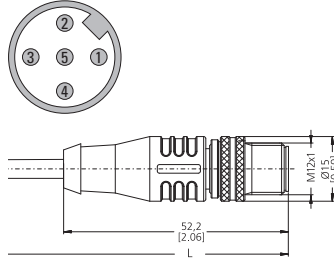
05.00.6091.A211.0xxM
xx = length in meters:
1, 3, 8, 12, 20, 25, 30

1) Other cable lengths on request.
2) Shield on housing.
3) Shield with pin 1.

Connection technology

M12 connection technology


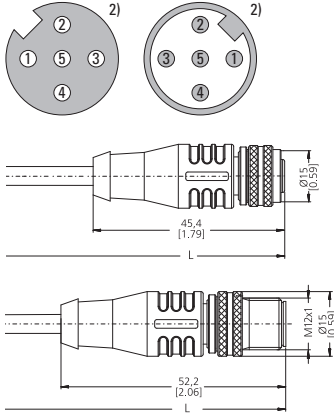

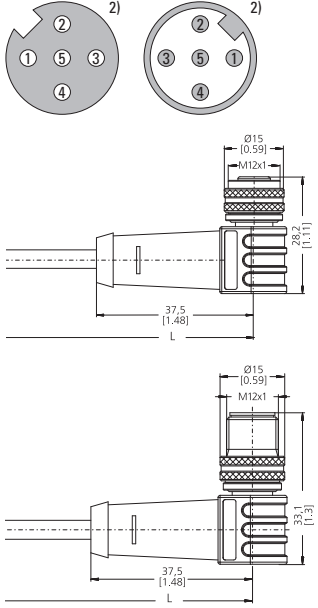
Cordsets, pre-assembled

With connector, 5 pin		Working temp. -30°C ... +80°C [-22°F ... +176°F]	Order no.													
<p>Male connector with external thread + single-ended A coded, straight</p> <p>Cable: PUR, 4 x 0.34 mm² [AWG22] Housing: metal / plastic, IP67</p> 		<p>Bus out</p> 	<p>suitable for our series:</p> <p>9080 IS60</p> <p>DeviceNet</p>	<p><i>cable length</i>¹⁾</p> <p>standard cable length 2 m [6.56'] (available from 1 piece) 5 m [16.40'] 10 m [32.81'] 15 m [49.21']</p> <p>other cable lengths (minimum order quantity 4 pieces)</p> <p>05.00.6021.2411.002M 05.00.6021.2411.005M 05.00.6021.2411.010M 05.00.6021.2411.015M</p> <p>05.00.6021.2411.0xxM xx = length in meters: 1, 3, 8, 12, 20, 25, 30</p>												
<p><i>Terminal assignment</i></p> <table border="1"> <tr> <td>Pin male contacts:</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>Wire colour:</td> <td>⊥³⁾</td> <td>RD</td> <td>BK</td> <td>WH</td> <td>BU</td> </tr> </table>		Pin male contacts:	1		2	3	4	5	Wire colour:	⊥ ³⁾	RD	BK	WH	BU	<p>standard cable length 2 m [6.56'] (available from 1 piece) 5 m [16.40'] 10 m [32.81'] 15 m [49.21']</p> <p>other cable lengths (minimum order quantity 4 pieces)</p>	
Pin male contacts:	1	2	3	4	5											
Wire colour:	⊥ ³⁾	RD	BK	WH	BU											
<p>Male connector with external thread + single-ended A coded, straight</p> <p>Cable: PVC, 3 x 2 x 0.25 mm² [AWG23] Housing: metal / plastic, IP67</p> 		<p>Bus out</p> 	<p>suitable for our series:</p> <p>EMIO.SIO.10xP M3658 / M3678 F5868 / F5888 5858 / 5878 5868 / 5888</p> <p>CANopen</p>	<p><i>cable length</i>¹⁾</p> <p>standard cable length 2 m [6.56'] (available from 1 piece) 5 m [16.40'] 10 m [32.81'] 15 m [49.21']</p> <p>other cable lengths (minimum order quantity 4 pieces)</p> <p>05.00.6091.A411.002M 05.00.6091.A411.005M 05.00.6091.A411.010M 05.00.6091.A411.015M</p> <p>05.00.6091.A411.0xxM xx = length in meters: 1, 3, 8, 12, 20, 25, 30</p>												
<p><i>Terminal assignment</i></p> <table border="1"> <tr> <td>Pin male contacts:</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>PH²⁾</td> </tr> <tr> <td>Wire colour:</td> <td>GY</td> <td>BN</td> <td>WH</td> <td>GN</td> <td>YE</td> <td>PH²⁾</td> </tr> </table>		Pin male contacts:	1		2	3	4	5	PH ²⁾	Wire colour:	GY	BN	WH	GN	YE	PH ²⁾
Pin male contacts:	1	2	3	4	5	PH ²⁾										
Wire colour:	GY	BN	WH	GN	YE	PH ²⁾										

1) Other cable lengths on request.
 2) Shield on housing.
 3) Shield with pin 1.

Connection technology

M12 connection technology Cordsets, pre-assembled

With connector, 5 pin		Working temp. -30°C ... +80°C [-22°F ... +176°F]	Order no.								
<p>Female connector with coupling nut + male connector with external thread A coded, straight</p> <p>Cable: PUR, 4 x 0.34 mm² [AWG22] Housing: metal / plastic, IP67</p> 	<p>Bus in / out</p> 	<p>suitable for our series:</p> <p>EMIO.SIO.10xP</p> <p>9080</p> <p>DeviceNet.</p> <p><i>cable length ¹⁾</i></p> <table border="0"> <tr> <td>standard cable length</td> <td>2 m [6.56']</td> </tr> <tr> <td>(available from 1 piece)</td> <td>5 m [16.40']</td> </tr> <tr> <td></td> <td>10 m [32.81']</td> </tr> <tr> <td></td> <td>15 m [49.21']</td> </tr> </table> <p>other cable lengths (minimum order quantity 4 pieces)</p>	standard cable length	2 m [6.56']	(available from 1 piece)	5 m [16.40']		10 m [32.81']		15 m [49.21']	<p>05.00.6021.2422.002M 05.00.6021.2422.005M 05.00.6021.2422.010M 05.00.6021.2422.015M</p> <p>05.00.6021.2422.0xxM xx = length in meters: 1, 3, 8, 12, 20, 25, 30</p>
standard cable length	2 m [6.56']										
(available from 1 piece)	5 m [16.40']										
	10 m [32.81']										
	15 m [49.21']										
<p>Female connector with coupling nut + male connector with external thread A coded, right-angle</p> <p>Cable: PUR, 4 x 0.34 mm² [AWG22] Housing: metal / plastic, IP67</p> 	<p>Bus in / out</p> 	<p>suitable for our series:</p> <p>9080</p> <p>DeviceNet.</p> <p><i>cable length ¹⁾</i></p> <table border="0"> <tr> <td>standard cable length</td> <td>2 m [6.56']</td> </tr> <tr> <td>(available from 1 piece)</td> <td>5 m [16.40']</td> </tr> <tr> <td></td> <td>10 m [32.81']</td> </tr> <tr> <td></td> <td>15 m [49.21']</td> </tr> </table> <p>other cable lengths (minimum order quantity 4 pieces)</p>	standard cable length	2 m [6.56']	(available from 1 piece)	5 m [16.40']		10 m [32.81']		15 m [49.21']	<p>05.00.6021.2523.002M 05.00.6021.2523.005M 05.00.6021.2523.010M 05.00.6021.2523.015M</p> <p>05.00.6021.2523.0xxM xx = length in meters: 1, 3, 8, 12, 20, 25, 30</p>
standard cable length	2 m [6.56']										
(available from 1 piece)	5 m [16.40']										
	10 m [32.81']										
	15 m [49.21']										

Connection technology

1) Other cable lengths on request.
2) Shield on housing.

Connection technology

M12 connection technology

Cordsets, pre-assembled

With connector, 5 pin

Working temp. -30°C ... +80°C [-22°F ... +176°F]

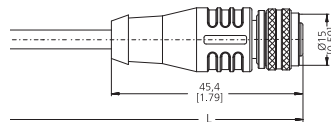
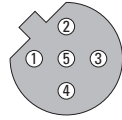
Order no.

Female connector with coupling nut + single-ended
B coded, straight

Cable: PUR, 2 x 0.34 mm²
Housing: metal / plastic, IP67



Bus-in



suitable for our series:

5858 / 5878
5868 / 5888
9080



cable length ¹⁾

standard cable length 2 m [6.56']
(available from 1 piece) 5 m [16.40']
10 m [32.81']
15 m [49.21']

other cable lengths
(minimum order quantity 4 pieces)

05.00.6011.3211.002M
05.00.6011.3211.005M
05.00.6011.3211.010M
05.00.6011.3211.015M

05.00.6011.3211.0xxM

xx = length in meters:
1, 3, 8, 12, 20, 25, 30

Terminal assignment

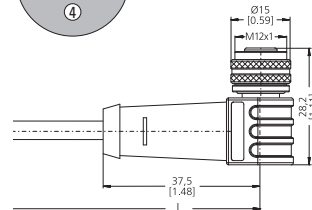
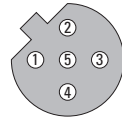
Pin female contacts:	1	2	3	4	5	PH ²⁾
Wire colour:	n.c.	GN	n.c.	RD	n.c.	PH ²⁾

Female connector with coupling nut + single-ended
B coded, right-angle

Cable: PUR, 2 x 0.34 mm² [AWG22]
Housing: metal / plastic, IP67



Bus-in



suitable for our series:

5858 / 5878
5868 / 5888
9080



cable length ¹⁾

standard cable length 2 m [6.56']
(available from 1 piece) 5 m [16.40']
10 m [32.81']
15 m [49.21']

other cable lengths
(minimum order quantity 4 pieces)

05.00.6011.3311.002M
05.00.6011.3311.005M
05.00.6011.3311.010M
05.00.6011.3311.015M

05.00.6011.3311.0xxM

xx = length in meters:
1, 3, 8, 12, 20, 25, 30

Terminal assignment

Pin female contacts:	1	2	3	4	5	PH ²⁾
Wire colour:	n.c.	GN	n.c.	RD	n.c.	PH ²⁾

1) Other cable lengths on request.
2) Shield on housing.

Connection technology

M12 connection technology Cordsets, pre-assembled

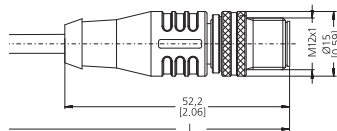
With connector, 5 pin Working temp. -30°C ... +80°C [-22°F ... +176°F] Order no.

Male connector with external thread + single-ended
B coded, straight

Cable: PUR, 2 x 0.34 mm²
 Housing: metal / plastic, IP67



Bus-out



suitable for our series:

5858 / 5878
 5868 / 5888
 9080



cable length ¹⁾

standard cable length 2 m [6.56']
 (available from 1 piece) 5 m [16.40']
 10 m [32.81']
 15 m [49.21']

05.00.6011.3411.002M
05.00.6011.3411.005M
05.00.6011.3411.010M
05.00.6011.3411.015M

other cable lengths
 (minimum order quantity 4 pieces)

05.00.6011.3411.0xxM

xx = length in meters:
 1, 3, 8, 12, 20, 25, 30

Terminal assignment

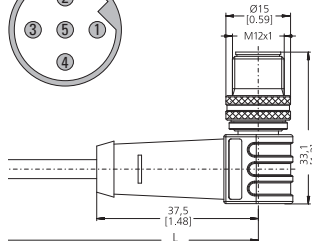
Pin male contacts:	1	2	3	4	5	PH ²⁾
Wire colour:	n.c.	GN	n.c.	RD	n.c.	PH ²⁾

Male connector with external thread + single-ended
B coded, right-angle

Cable: PUR, 2 x 0.34 mm²
 Housing: metal / plastic, IP67



Bus-out



suitable for our series:

5858 / 5878
 5868 / 5888
 9080



cable length ¹⁾

standard cable length 2 m [6.56']
 (available from 1 piece) 5 m [16.40']
 10 m [32.81']
 15 m [49.21']

05.00.6011.3511.002M
05.00.6011.3511.005M
05.00.6011.3511.010M
05.00.6011.3511.015M

other cable lengths
 (minimum order quantity 4 pieces)

05.00.6011.3511.0xxM

xx = length in meters:
 1, 3, 8, 12, 20, 25, 30

Terminal assignment


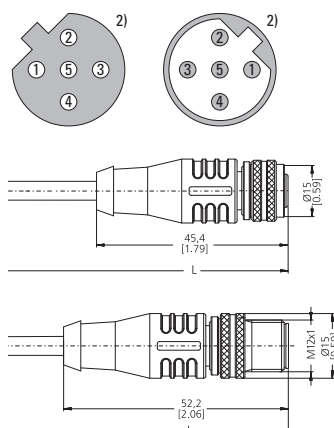


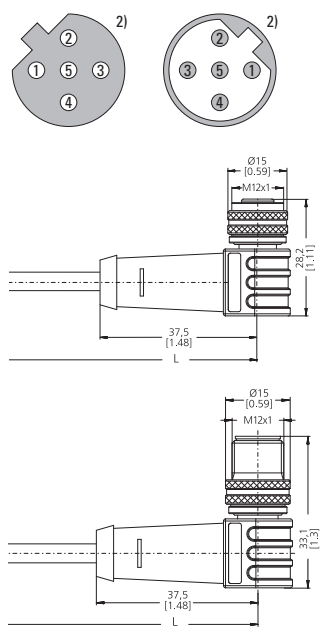

Pin male contacts:	1	2	3	4	5	PH ²⁾
Wire colour:	n.c.	GN	n.c.	RD	n.c.	PH ²⁾

1) Other cable lengths on request.
 2) Shield on housing.

Connection technology

M12 connection technology

Cordsets, pre-assembled

With connector, 5 pin		Working temp. -30°C ... +80°C [-22°F ... +176°F]	Order no.
<p>Female connector with coupling nut + male connector with external thread B coded, straight</p> <p>Cable: PUR, 2 x 0.34 mm² Housing: metal / plastic, IP67</p> 	<p>Bus in / out</p> 	<p>suitable for our series:</p> <p>5858 / 5878 5868 / 5888 9080</p>  <p><i>cable length ¹⁾</i></p> <p>standard cable length 2 m [6.56'] (available from 1 piece) 5 m [16.40'] 10 m [32.81'] 15 m [49.21']</p> <p>other cable lengths (minimum order quantity 4 pieces)</p>	<p>05.00.6011.3432.002M 05.00.6011.3432.005M 05.00.6011.3432.010M 05.00.6011.3432.015M</p> <p>05.00.6011.3432.0xxM xx = length in meters: 1, 3, 8, 12, 20, 25, 30</p>
<p>Female connector with coupling nut + male connector with external thread B coded, right-angle</p> <p>Cable: PUR, 2 x 0.34 mm² Housing: metal / plastic, IP67</p> 	<p>Bus in / out</p> 	<p>suitable for our series:</p> <p>5858 / 5878 5868 / 5888 9080</p>  <p><i>cable length ¹⁾</i></p> <p>standard cable length 2 m [6.56'] (available from 1 piece) 5 m [16.40'] 10 m [32.81'] 15 m [49.21']</p> <p>other cable lengths (minimum order quantity 4 pieces)</p>	<p>05.00.6011.3533.002M 05.00.6011.3533.005M 05.00.6011.3533.010M 05.00.6011.3533.015M</p> <p>05.00.6011.3533.0xxM xx = length in meters: 1, 3, 8, 12, 20, 25, 30</p>

1) Other cable lengths on request.
2) Shield on housing.

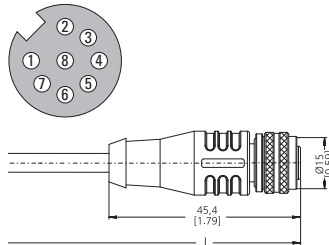
Connection technology

M12 connection technology Cordsets, pre-assembled

With connector, 8 pin Working temp. -30°C ... +80°C [-22°F ... +176°F] Order no.

Female connector with coupling nut + single-ended A coded, straight

Cable: PVC, 8 x 0.25 mm² [AWG23]
Housing: metal / plastic, IP67



Terminal assignment

Pin female contacts:	1	2	3	4	5	6	7	8	PH ²⁾
Wire colour:	WH	BN	GN	YE	GY	PK	BU	RD	PH ²⁾

suitable for our series:

- 3610 / 3620 KIS50 / KIH50
- 5000 / 5020 5006 / 5026
- 5814 / 5834 5814FSx / 5834FSx
- 5821 A020 / A02H
- F3653 / F3673
- 5853 / 5873
- M3663 / M3683 M3663R / M3683R
- F3663 / F3683 F5863 / F5883
- 5863 / 5883 F5883M
- 5876

cable length ¹⁾

- standard cable length 2 m [6.56']
- (available from 1 piece) 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**

other cable lengths

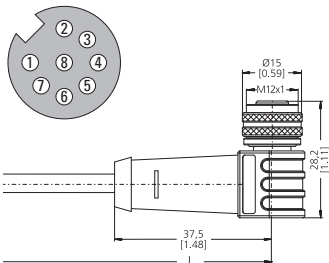
(minimum order quantity 4 pieces)

05.00.6041.8211.0xxM

xx = length in meters:
1, 3, 8, 12, 20, 25, 30

Female connector with coupling nut + single-ended A coded, right-angle

Cable: PVC, 8 x 0.25 mm² [AWG23]
Housing: metal / plastic, IP67



Terminal assignment

Pin female contacts:	1	2	3	4	5	6	7	8	PH ²⁾
Wire colour:	WH	BN	GN	YE	GY	PK	BU	RD	PH ²⁾

suitable for our series:

- 3610 / 3620 5000 / 5020
- 5814 / 5834 5814FSx / 5834FSx
- 5006 / 5026 5821
- A020 / A02H
- F3653 / F3673
- 5853 / 5873
- M3663 / M3683 M3663R / M3683R
- F3663 / F3683 F5863 / F5883
- 5863 / 5883
- 5876

cable length ¹⁾

- standard cable length 2 m [6.56']
- (available from 1 piece) 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**

other cable lengths

(minimum order quantity 4 pieces)

05.00.6041.8311.0xxM

xx = length in meters:
1, 3, 8, 12, 20, 25, 30

1) Other cable lengths on request.
2) Shield on housing.


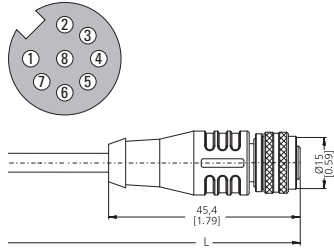
Connection technology

M12 connection technology Cordsets, pre-assembled

With connector, 8 pin Working temp. -30°C ... +80°C [-22°F ... +176°F] Order no.

Female connector with coupling nut + single-ended
A coded, straight

Cable: PUR, 8 x 0.25 mm² [AWG23]
Housing: metal / plastic, IP67

suitable for our series:

3610 / 3620	5000 / 5020
5814 / 5834	5814FSx / 5834FSx
5006 / 5026	5821
A020 / A02H	
F3653 / F3673	
5853 / 5873	
M3663 / M3683	M3663R / M3683R
F3663 / F3683	F5863 / F5883
5863 / 5883	
5876	

Terminal assignment

Pin female contacts:	1	2	3	4	5	6	7	8	PH ²⁾
Wire colour:	WH	BN	GN	YE	GY	PK	BU	RD	PH ²⁾

cable length ¹⁾


standard cable length	2 m [6.56']	05.00.6051.8211.002M 05.00.6051.8211.005M 05.00.6051.8211.010M 05.00.6051.8211.015M
(available from 1 piece)	5 m [16.40']	
	10 m [32.81']	
	15 m [49.21']	

other cable lengths
(minimum order quantity 4 pieces)

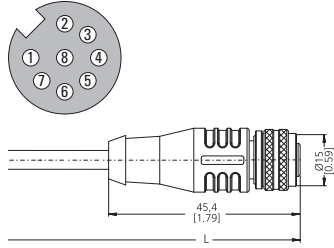
05.00.6051.8211.0xxM
xx = length in meters:
1, 3, 8, 12, 20, 25, 30

Female connector with coupling nut + single-ended
A coded, straight

Cable: PUR, 4 x 2 x 0.25 mm² [AWG23]
Housing: Metall / Kunststoff, IP67



Twisted-pair cables - for particularly interference-free transmission



suitable for our series with RS422, RS485 or SinCos output:

3610 / 3620	5000 / 5020
5814 / 5834	5814FSx / 5834FSx
5006 / 5026	5821
A020 / A02H	
F3653 / F3673	
5853 / 5873	
M3663 / M3683	M3663R / M3683R
F3663 / F3683	F5863 / F5883
5863 / 5883	5876

Terminal assignment

Pin female contacts:	1	2	3	4	5	6	7	8	PH ²⁾
Wire colour:	WH	BN	GN	YE	GY	PK	BU	RD	PH ²⁾

cable length ¹⁾

standard cable length	2 m [6.56']	05.00.60E1.8211.002M 05.00.60E1.8211.005M 05.00.60E1.8211.010M 05.00.60E1.8211.015M
(available from 1 piece)	5 m [16.40']	
	10 m [32.81']	
	15 m [49.21']	

other cable lengths
(minimum order quantity 4 pieces)

05.00.60E1.8211.0xxM
xx = length in meters:
1, 3, 8, 12, 20, 25, 30

1) Other cable lengths on request.
2) Shield on housing.

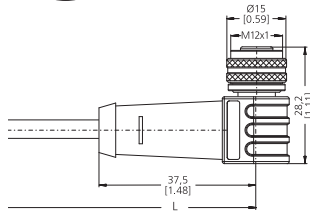
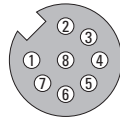
Connection technology

M12 connection technology Cordsets, pre-assembled

With connector, 8 pin Working temp. -30°C ... +80°C [-22°F ... +176°F] Order no.

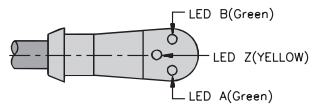
Female connector with coupling nut + single-ended
A coded, right-angle
with integrated control LEDs

Cable: PVC, 8 x 0.25 mm² [AWG23]
 Housing: metal / plastic, IP67



suitable for our series:

3610 / 3620	5006
5000 / 5020	5821
A020	A02H



Terminal assignment

Pin female contacts:	1	2	3	4	5	6	7	8	PH ²⁾
Wire colour:	WH	BN	YE	GN	PK	GY	RD	BU	PH ²⁾

cable length ¹⁾

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

05.E-WKC 8T-PX3-930-0002
05.E-WKC 8T-PX3-930-0005
05.E-WKC 8T-PX3-930-0010
05.E-WKC 8T-PX3-930-0015

1) Other cable lengths on request.
 2) Shield on housing.

M23 connection technology

Connectors, self-assembly

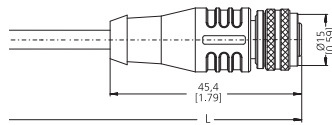
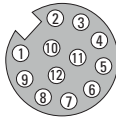
With connector, 12 pin

Working temp. -30°C ... +90°C [-22°F ... +194°F]

Order no.

Female connector with coupling nut + single-ended
A coded, straight

Cable: PUR, 6 x 2 x 0.14 mm²
 Housing: metal / plastic, IP67



suitable for our series:

LA10

Terminal assignment

Pin female contacts:	1	2	3	4	5	6	7	8	9	10	11	12	PH 2)
Wire colour:	WH	BN	GN	YE	GY	PK	BU	RD	BK	VT	GY/PK	RD/BU	PH 2)

cable length ¹⁾

standard cable length	2 m [6.56']
(available from 1 piece)	5 m [16.40']
	10 m [32.81']
	15 m [49.21']

other cable lengths
 (minimum order quantity 4 pieces)


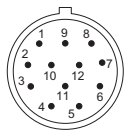
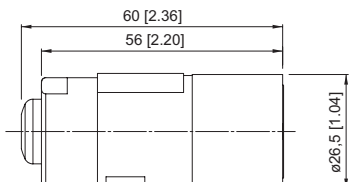

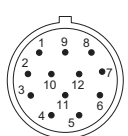
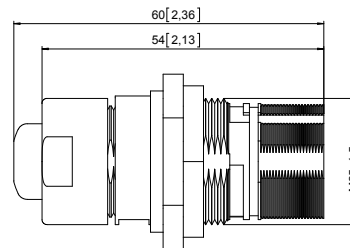


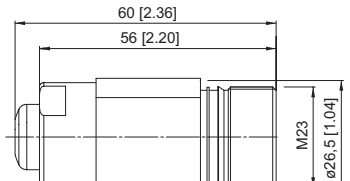
05.00.60B1.B211.002M
05.00.60B1.B211.005M
05.00.60B1.B211.010M
05.00.60B1.B211.015M

05.00.60B1.B211.0xxM

xx = length in meters:
 1, 3, 8, 12, 20, 25, 30

1) Other cable lengths on request.
 2) Shield on housing.

Connection technology

M23 connection technology		Connectors, self-assembly		Order no.
12 pin				
<p>Male connector with external thread pin assignment ccw</p> <p>Housing: metal, IP67</p> 	<p>solder connections, for cable \varnothing 5.5 ... 10.5 mm [0.22 ... 0.41"]</p>  	<p>suitable for:</p> <p>versions with cable outlet</p>	<p>8.0000.5015.0001</p>	
<p>Male connector with external thread pin assignment ccw central fastening</p> <p>Housing: metal, IP67</p> 	<p>solder connections, for cable \varnothing 5.5 ... 10.5 mm [0.22 ... 0.41"]</p>  	<p>suitable for:</p> <p>versions with cable outlet</p>	<p>8.0000.5015.0000</p>	
<p>Female connector with coupling nut pin socket assignment cw</p> <p>Housing: metal, IP67</p> 	<p>solder connections, for cable \varnothing 5.5 ... 10.5 mm [0.22 ... 0.41"]</p>  	<p>suitable for:</p> <p>KIS50 / KIH50 5000 / 5020 5814 / 5834 5814FSx / 5834FSx 580X / 582X</p> <p>F5863 / F5883 F5883M 585x / 587x 5853FSx / 5873FSx 586x / 588x 5863FSx / 5883FSx 9000 908x A02x</p>	<p>8.0000.5012.0000</p>	

Connection technology

M23 connection technology Connectors, self-assembly

17 pin Order no.

**Female connector with coupling nut
pin socket assignment ccw**

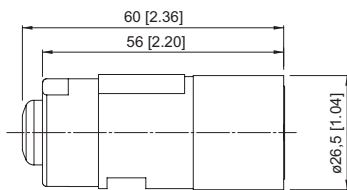
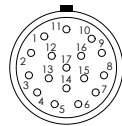
Housing: metal, IP67

solder connections,
for cable \varnothing 5.5 ... 10.5 mm [0.22 ... 0.41"]

suitable for:

5850 / 5870
5852 / 5872

8.0000.5042.0000



Connection technology

M23 connection technology Cordsets, pre-assembled

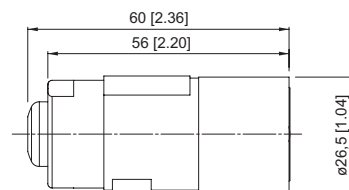
With connector, 12 pin Working temp. -30°C ... +80°C [-22°F ... +176°F] Order no.

Female connector with coupling nut + single-ended

Cable: PVC, 6 x 2 x 0.14 mm² [AWG25]
Housing: metal, IP67



pin socket assignment cw



suitable for our series with RS422 or SinCos output:

KIS50 / KIH50 5000 / 5020
5803 / 5823 5804 / 5824
5805 / 5825
5814 / 5834 5814FSx / 5834FSx
A020 / A02H H120

Terminal assignment

Pin female contacts:	1	2	3	4	5	6	7	8	9	10	11	12	PH 2)
Wire colour:	PK	RD-BU	BU	RD	GN	YE	-	GY	-	WH	GY-PK	BN	PH 2)

cable length ¹⁾

standard cable length 2 m [6.56']
(available from 1 piece) 5 m [16.40']
10 m [32.81']
15 m [49.21']

other cable lengths
(available from 1 piece)

8.0000.6901.0002
8.0000.6901.0005
8.0000.6901.0010
8.0000.6901.0015

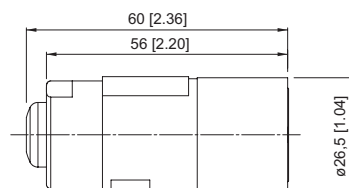
8.0000.6901.00xx
xx = length in meters:
1, 3, 8, 12, 20, 25, 30

Female connector with coupling nut + single-ended

Cable: PUR, 10 x 0.14 mm² [AWG25] +
2 x 0.5 mm² [AWG20]
Housing: metal, IP67



pin socket assignment cw



suitable for our series with RS422 or SinCos output:

KIS50 / KIH50 5000 / 5020
5803 / 5823 5804 / 5824
5805 / 5825
5814 / 5834 5814FSx / 5834FSx
A020 / A02H H120

Terminal assignment

Pin female contacts:	1	2	3	4	5	6	7	8	9	10	11	12	PH 2)
Wire colour:	PK	BN	BU	RD	GN	YE	-	GY	-	WH 0.5 mm ²	WH 0.5 mm ²	BN 0.5 mm ²	PH 2)

cable length ¹⁾

standard cable length 2 m [6.56']
(available from 1 piece) 5 m [16.40']
10 m [32.81']
15 m [49.21']

other cable lengths
(available from 1 piece)

8.0000.6101.0002
8.0000.6101.0005
8.0000.6101.0010
8.0000.6101.0015

8.0000.6101.00xx
xx = length in meters:
1, 3, 8, 12, 20, 25, 30

1) Other cable lengths on request.
2) Shield on housing.

Connection technology

M23 connection technology Cordsets, pre-assembled

With connector, 12 pin

Working temp. -30°C ... +80°C [-22°F ... +176°F]

Order no.

Female connector with coupling nut + single-ended

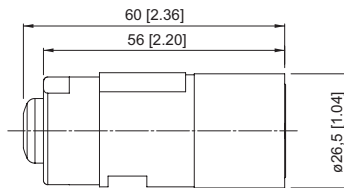
Cable: PVC, 6 x 2 x 0.14 mm² [AWG25]
Housing: metal, IP67

pin socket assignment cw



suitable for our series with SSI or analog output:

5850 / 5870
F5863 / F5883 F5883M
5853 / 5873 5853FSx / 5873FSx
5863 / 5883 5863FSx / 5883FSx
9081



Terminal assignment

cable length ¹⁾

Pin female contacts:	1	2	3	4	5	6	7	8	9	10	11	12	PH ²⁾
Wire colour:	WH	BN	GN	YE	GY	PK	BU	RD	BK	VT	GY-PK	RD-BU	PH ²⁾

standard cable length 2 m [6.56']
(available from 1 piece) 5 m [16.40']
10 m [32.81']
15 m [49.21']

other cable lengths
(available from 1 piece)

8.0000.6901.0002.0031
8.0000.6901.0005.0031
8.0000.6901.0010.0031
8.0000.6901.0015.0031

8.0000.6901.00xx.0031

xx = length in meters:
1, 3, 8, 12, 20, 25, 30

1) Other cable lengths on request.
2) Shield on housing.

Connection technology

M23 connection technology Cordsets, pre-assembled

With connector, 12 pin Working temp. -30°C ... +80°C [-22°F ... +176°F] Order no.

Female connector with coupling nut + male connector with external thread

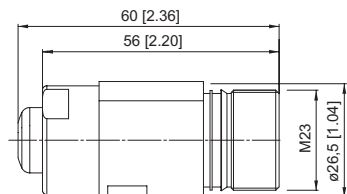
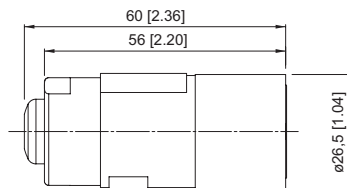
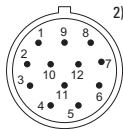
Cable: PVC, 6 x 2 x 0.14 mm² [AWG25]
Housing: metal, IP67



pin socket assignment cw



pin socket assignment ccw



suitable for our series:

5000 / 5020 5803 / 5823
5804 / 5824 5805 / 5825
5814 / 5834 5814FSx / 5834FSx
A020 / A02H H120

*cable length*¹⁾

standard cable length 2 m [6.56']
(available from 1 piece) 5 m [16.40']
10 m [32.81']
15 m [49.21']

other cable lengths
(available from 1 piece)

8.0000.6905.0002
8.0000.6905.0005
8.0000.6905.0010
8.0000.6905.0015

8.0000.6905.00xx
xx = length in meters:
1, 3, 8, 12, 20, 25, 30

Female connector with coupling nut + male connector with external thread

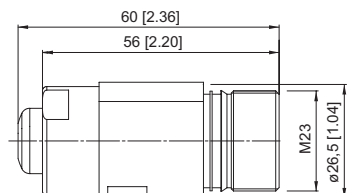
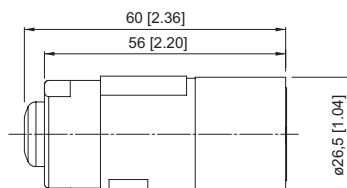
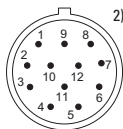
Cable: PVC, 6 x 2 x 0.14 mm² [AWG25]
Housing: metal, IP67



pin socket assignment cw



pin socket assignment ccw



suitable for our series:

5850 / 5870 F5863 / F5883
5853 / 5873 5853FSx / 5873FSx
5863 / 5883 5863FSx / 5883FSx
9081

*cable length*¹⁾

standard cable length 2 m [6.56']
(available from 1 piece) 5 m [16.40']
10 m [32.81']
15 m [49.21']

other cable lengths
(available from 1 piece)

8.0000.6905.0002.0.032
8.0000.6905.0005.0.032
8.0000.6905.0010.0.032
8.0000.6905.0015.0.032

8.0000.6905.00xx.0032
xx = length in meters:
1, 3, 8, 12, 20, 25, 30

1) Other cable lengths on request.
2) Shield on housing.

Connection technology

M23 connection technology

Cordsets, pre-assembled

With connector, 17 pin

Working temp. -30°C ... +80°C [-22°F ... +176°F]

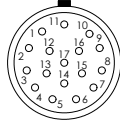
Order no.

Female connector with coupling nut + single-ended

Cable: PVC, 18 x 0.14 mm² [AWG25]
Housing: metal, IP67



pin socket assignment ccw



suitable for our series:

5850 / 5870
5852 / 5872

cable length ¹⁾

standard cable length 2 m [6.56']
(available from 1 piece) 5 m [16.40']
 10 m [32.81']
 15 m [49.21']

other cable lengths
(available from 1 piece)

8.0000.6741.0002
8.0000.6741.0005
8.0000.6741.0010
8.0000.6741.0015


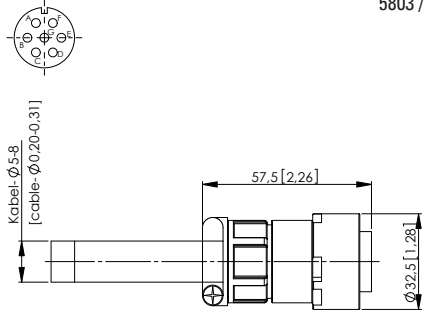

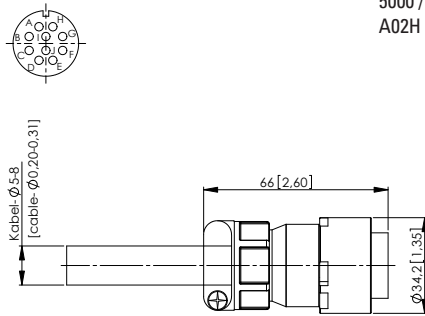
8.0000.6741.00xx
xx = length in meters:
1, 3, 8, 12, 20, 25, 30

Terminal assignment

Pin female contacts:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Wire 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


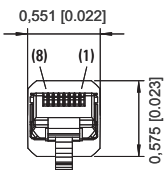
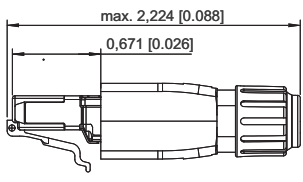
1) Other cable lengths on request.

Connection technology

MIL connection technology		Connectors, self-assembly		Order no.
7 pin				
Female connector with coupling nut Housing: metal, IP67	solder connections, for cable \varnothing 5 ... 8 mm [0.20 ... 0.32"]	suitable for our series: 5803 / 5823		8.0000.5052.0000
				
10 pin				
Female connector with coupling nut Housing: metal, IP67	solder connections, for cable \varnothing 5 ... 8 mm [0.20 ... 0.32"]	suitable for our series: 5000 / 5020 5803 / 5823 A02H LM3		8.0000.5062.0000
				

Connection technology

RJ45 connection technology **Connectors, self-assembly**

8 pin			Order no.
RJ45 connector straight Housing: plastic, IP20	screw connections, for cable \varnothing 4.5 ... 8 mm [0.18 ... 0.32"]	suitable for: SMBU, SMBS, SMBD	05.VS-08-RJ45-5-Q/IP20
			

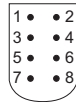
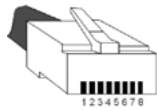
Connection technology

RJ45 connection technology Cordsets, pre-assembled

With RJ45 and Mini-IO connector, 8 pin Working temp. -20°C ... +60°C [-4°F ... +140°F] Order no.

RJ45 connector + Mini-IO connector

Cable: PVC, 6 x 2 x 0.14 mm² [AWG 25]
Housing: ABS, metallized



suitable for our series:

EMAI
SMAS

Terminal assignment

Signal:	0 V	+V	B	\bar{B}	A	\bar{A}	\perp
Pin Mini-I/O:	8	n.c.	5	6	2	1	PH ²⁾
Pin RJ45:	2	1	4	5	7	8	PH ²⁾

cable length¹⁾

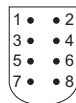
Terminal ENC1, ENC2
HTL, SinCos

1 m [3.28']

8.SMAS.C21.001M

Mini-IO connector + single-ended

Cable: PVC, 6 x 2 x 0.14 mm² [AWG 25]
Housing: ABS, metallized



suitable for our series:

EMAI

Terminal assignment

Signal:	0 V	+V	B	\bar{B}	A	\bar{A}	\perp
Pin Mini-I/O:	8	7	5	6	2	1	PH ²⁾
Cable colour:	WH	BN	GN	YE	GY	PK	PH ²⁾

cable length¹⁾

Terminal ENC1, ENC2
HTL, SinCos

5 m [16.40']

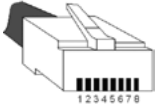

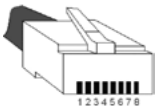

8.SMAS.C01.005M

- +V: encoder power supply +V DC
- 0 V: encoder power supply ground GND (0 V)
- A, \bar{A} : cosine signal, incremental signal A
- B, \bar{B} : sine signal, incremental signal B
- PH \perp : plug connector housing (shield)

1) Other cable lengths on request.
2) Shield on housing.

Connection technology

RJ45 connection technology Cordsets, pre-assembled

Ethernet patch cable with 2 x RJ45 connector		Working temp. -20°C ... +60°C [-4°F ... +140°F]	Order no.
Ethernet adapter cable Cable: PVC, orange category 6A acc. to EN 50173-1 6 x 2 x 0.14 mm ² [AWG 25], shielded twisted pairs Housing: ABS, metallized		suitable for our series: EMAA SMAS	
			
			
		<i>cable length</i> ¹⁾	
		Terminal ENC1, ENC2 0.25 m [0.82'] SinCos, SSI 0.5 m [1.64'] 1 m [3.28'] 2 m [6.56']	
Ethernet patch cable Cable: PUR, grey/white 4 x 2 x 0.15 mm ² [AWG 25], shielded Housing: ABS, metallized		suitable for our series: SMBD.32E SMBU SMBS	
			
			
		<i>cable length</i> ¹⁾	
		Terminal Ethernet 2 m [6.56'] Parameterizing interface 5 m [16.40'] 10 m [32.81'] 15 m [49.21']	

1) Other cable lengths on request.
 2) Shield on housing.

Connection technology


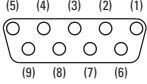
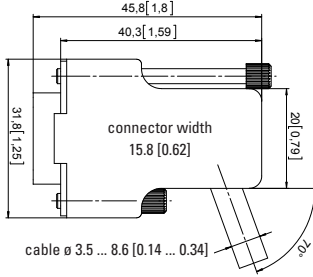

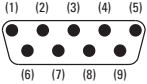
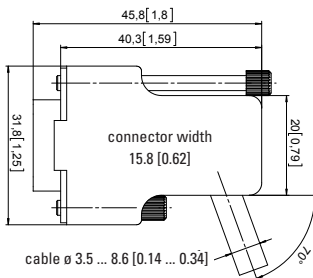
Sub-D connection technology Connectors, self-assembly

9 pin			Order no.
<p>Male connector with cable outlet 70°</p> <p>Housing: ABS, metallized, IP20</p>	<p>solder contacts, for cable \varnothing 3.5 ... 8.6 mm [0.14 ... 0.34"]</p>	<p>suitable for our series:</p> <p>SMC1, SMC2</p>	<p>8.0000.514A.0000</p>
<p>Female connector with cable outlet 70°</p> <p>Housing: ABS, metallized, IP20</p>	<p>solder contacts, for cable \varnothing 3.5 ... 8.6 mm [0.14 ... 0.34"]</p>	<p>suitable for our series:</p> <p>SMC1, SMC2</p>	<p>8.0000.514B.0000</p>

Connection technology

Connection technology

Sub-D connection technology Cordsets, pre-assembled

With Sub-D connector		Working temp. -30°C ... +80°C [-22°F ... +176°F]	Order no.																							
Sub-D female connector, 9-pin with cable outlet 70° + single-ended Cable: PVC, 3 x 2 x 0.25 mm ² [AWG 23] Housing: ABS, metallized, IP20   		suitable for our series: SMC1, SMC2	<table border="1"> <thead> <tr> <th>Terminal</th> <th>cable length ¹⁾</th> <th>Order no.</th> </tr> </thead> <tbody> <tr> <td rowspan="4">Terminal X6, X7 for SinCos signals</td> <td>2 m [6.56']</td> <td>8.0000.6V00.0002.0086</td> </tr> <tr> <td>5 m [16.40']</td> <td>8.0000.6V00.0005.0086</td> </tr> <tr> <td>10 m [32.81']</td> <td>8.0000.6V00.0010.0086</td> </tr> <tr> <td>15 m [49.21']</td> <td>8.0000.6V00.0015.0086</td> </tr> </tbody> </table>	Terminal	cable length ¹⁾	Order no.	Terminal X6, X7 for SinCos signals	2 m [6.56']	8.0000.6V00.0002.0086	5 m [16.40']	8.0000.6V00.0005.0086	10 m [32.81']	8.0000.6V00.0010.0086	15 m [49.21']	8.0000.6V00.0015.0086											
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Terminal assignment <table border="1"> <thead> <tr> <th>Signal:</th> <th>0 V</th> <th>+V</th> <th>A</th> <th>\bar{A}</th> <th>B</th> <th>\bar{B}</th> <th>\perp</th> </tr> </thead> <tbody> <tr> <td>Pin Sub-D:</td> <td>5</td> <td>4</td> <td>1</td> <td>9</td> <td>3</td> <td>2</td> <td>PH ¹⁾</td> </tr> <tr> <td>Wire colour:</td> <td>WH</td> <td>BR</td> <td>GN</td> <td>YE</td> <td>GY</td> <td>PK</td> <td></td> </tr> </tbody> </table>	Signal:	0 V	+V	A	\bar{A}	B	\bar{B}	\perp	Pin Sub-D:	5	4	1	9	3	2	PH ¹⁾	Wire colour:	WH	BR	GN	YE	GY	PK			
Signal:	0 V	+V	A	\bar{A}	B	\bar{B}	\perp																			
Pin Sub-D:	5	4	1	9	3	2	PH ¹⁾																			
Wire colour:	WH	BR	GN	YE	GY	PK																				
Sub-D male connector, 9-pin with cable outlet 70° + single-ended Cable: PVC, 3 x 2 x 0.25 mm ² [AWG 23] Housing: ABS, metallized, IP20   		suitable for our series: SMC1, SMC2	<table border="1"> <thead> <tr> <th>Terminal</th> <th>cable length ¹⁾</th> <th>Order no.</th> </tr> </thead> <tbody> <tr> <td rowspan="4">Terminal X5 for SinCos signals</td> <td>2 m [6.56']</td> <td>8.0000.6V00.0002.0087</td> </tr> <tr> <td>5 m [16.40']</td> <td>8.0000.6V00.0005.0087</td> </tr> <tr> <td>10 m [32.81']</td> <td>8.0000.6V00.0010.0087</td> </tr> <tr> <td>15 m [49.21']</td> <td>8.0000.6V00.0015.0087</td> </tr> </tbody> </table>	Terminal	cable length ¹⁾	Order no.	Terminal X5 for SinCos signals	2 m [6.56']	8.0000.6V00.0002.0087	5 m [16.40']	8.0000.6V00.0005.0087	10 m [32.81']	8.0000.6V00.0010.0087	15 m [49.21']	8.0000.6V00.0015.0087											
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Signal:	0 V	+V	A	\bar{A}	B	\bar{B}	\perp																			
Pin Sub-D:	5	4	1	9	3	2	PH ¹⁾																			
Wire colour:	WH	BR	GN	YE	GY	PK																				

- +V: encoder power supply +V DC
- 0 V: encoder power supply ground GND (0 V)
- C+, C-: clock signal
- D+, D-: data signal
- A, \bar{A} : cosine signal
- B, \bar{B} : sine signal
- PH \perp : plug connector housing (shield)

1) Other cable lengths on request.
 2) Shield on housing.

Connection technology

Sub-D connection technology Cordsets, pre-assembled

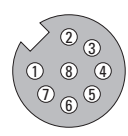
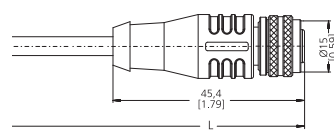
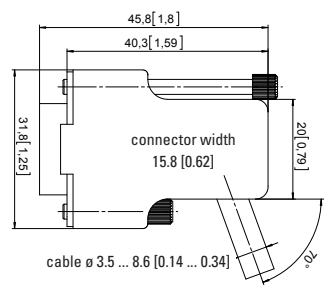
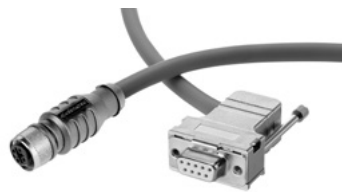
With Sub-D connector + M12 connector Working temp. -30°C ... +80°C [-22°F ... +176°F] Order no.

Sub-D male connector, 9 pin, cable outlet 70° + M12 female connector with coupling nut, 8 pin, A coded

Cable: PVC, 3 x 2 x 0.25 mm² [AWG 23]
 Housing Sub-D: ABS, metallized, IP20
 Housing M12: metal / plastic, IP67

suitable for our series:

5000 / 5020 5006 / 5026
 5814 / 5834 5814FSx / 5834FSx
 5821
 SMC1, SMC2



Terminal assignment

Pin Sub-D:	5	4	1	9	3	2	PH ²⁾
Pin M12:	1	2	3	4	5	6	PH ²⁾
pins arranged below each other are connected internally							

for terminal X6, X7 at SMC1, SMC2

cable length ¹⁾

2 m [6.56']	8.0000.6V00.0002.0084
5 m [16.40']	8.0000.6V00.0005.0084
10 m [32.81']	8.0000.6V00.0010.0084
15 m [49.21']	8.0000.6V00.0015.0084

1) Other cable lengths on request.
 2) Shield on housing.

Sub-D connection technology Cordsets, pre-assembled

With Sub-D connector + M23 connector

Working temp. -30°C ... +80°C [-22°F ... +176°F]

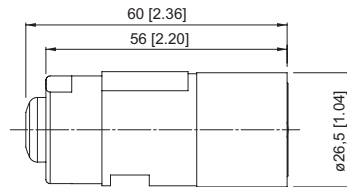
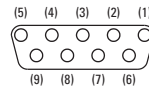
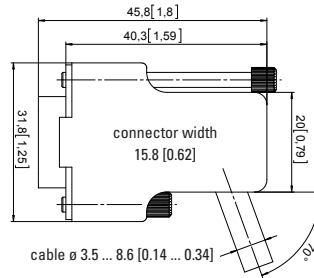
Order no.

**Sub-D female connector, 9-pin, cable outlet 70°
+ M23 female connector with coupling nut,
12 pin**

Cable: PVC, 3 x 2 x 0.25 mm² [AWG 23]
Housing Sub-D: ABS, metallized, IP20
Housing M23: metal, IP67

suitable for our series:

5000 / 5020 5006 / 5026
5814 / 5834 5814FSx / 5834FSx
5821
SMC1, SMC2



pin socket
assignment cw

Terminal assignment

Pin Sub-D:	5	4	1	9	3	2	PH ²⁾
Pin M23:	10	12	5	6	8	1	PH ²⁾
pins arranged below each other are connected internally							

for terminal X6, X7
at SMC1, SMC2

cable length¹⁾

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

8.0000.6V00.0002.0085
8.0000.6V00.0005.0085
8.0000.6V00.0010.0085
8.0000.6V00.0015.0085

1) Other cable lengths on request.
2) Shield on housing.

Connection technology

Sub-D connection technology Cordsets, pre-assembled

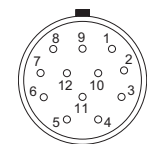
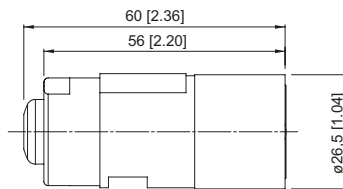
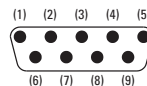
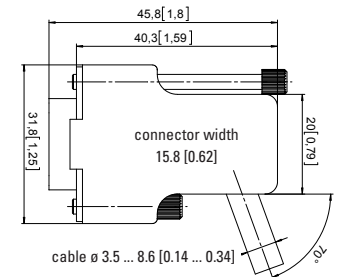
With Sub-D connector + M23 connector Working temp. -30°C ... +80°C [-22°F ... +176°F] Order no.

Sub-D male connector, 9-pin, cable outlet 70° + M23 female connector with coupling nut, 12 pin

Cable: PVC, 6 x 2 x 0.14 mm² [AWG25]
 Housing Sub-D: ABS, metallized, IP20
 Housing M23: metal, IP67

suitable for our series:

5853 / 5873 5853FSx / 5873FSx
 5863 / 5883 5863FSx / 5883FSx
 F5863 / F5883



pin socket assignment cw

Terminal assignment

Pin Sub-D:	2	9	8	4	5	6	PH ²⁾
Pin M23:	1	2	3	4	5	6	PH ²⁾
pins arranged below each other are connected internally							

cable length ¹⁾

2 m [6.56']	8.0000.6900.0002.0068
5 m [16.40']	8.0000.6900.0005.0068
10 m [32.81']	8.0000.6900.0010.0068
15 m [49.21']	8.0000.6900.0015.0068

Pin Sub-D:	2	9	3	7	5	6	PH ²⁾
Pin M23:	1	2	3	4	5	6	PH ²⁾
pins arranged below each other are connected internally							

2 m [6.56']	8.0000.6900.0002.0072
5 m [16.40']	8.0000.6900.0005.0072
10 m [32.81']	8.0000.6900.0010.0072
15 m [49.21']	8.0000.6900.0015.0072

1) Other cable lengths on request.
 2) Shield on housing.

Connection technology

Sub-D connection technology Cordsets, pre-assembled

With Sub-D connector + M23 connector

Working temp. -30°C ... +80°C [-22°F ... +176°F]

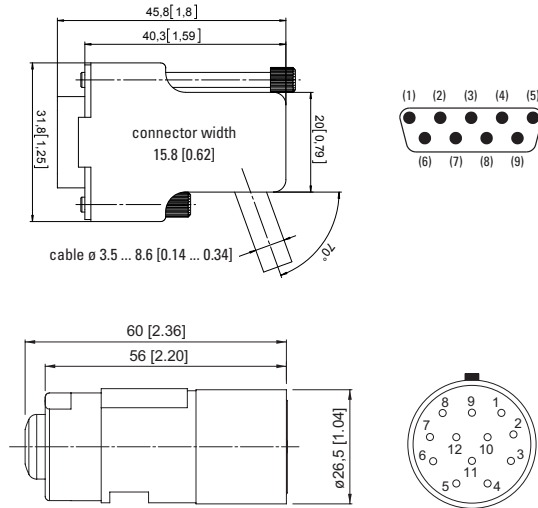
Order no.

2 x Sub-D male connector, 9-pin, cable outlet 70° + M23 female connector with coupling nut, 12 pin

Cable: PVC, 6 x 2 x 0.14 mm² [AWG25]
 Housing Sub-D: ABS, metallized, IP20
 Housing M23: metal, IP67

suitable for our series:

5853 / 5873 5853FSx / 5873FSx
 5863 / 5883 5863FSx / 5883FSx



Terminal assignment

cable length ¹⁾

Pin Sub-D 1:	2	9	3	7	5	6	-	-	-	-	PH ²⁾
Pin Sub-D 2:	-	-	-	-	-	-	8	4	5	6	PH ²⁾
Pin M23:	1	2	3	4	5	6	9	10	11	12	PH ²⁾
pins arranged below each other are connected internally											

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

8.0000.6900.0002.0070
8.0000.6900.0005.0070
8.0000.6900.0010.0070
8.0000.6900.0015.0070

1) Other cable lengths on request.
 2) Shield on housing.

Connection technology

Sub-D connection technology Cordsets, pre-assembled

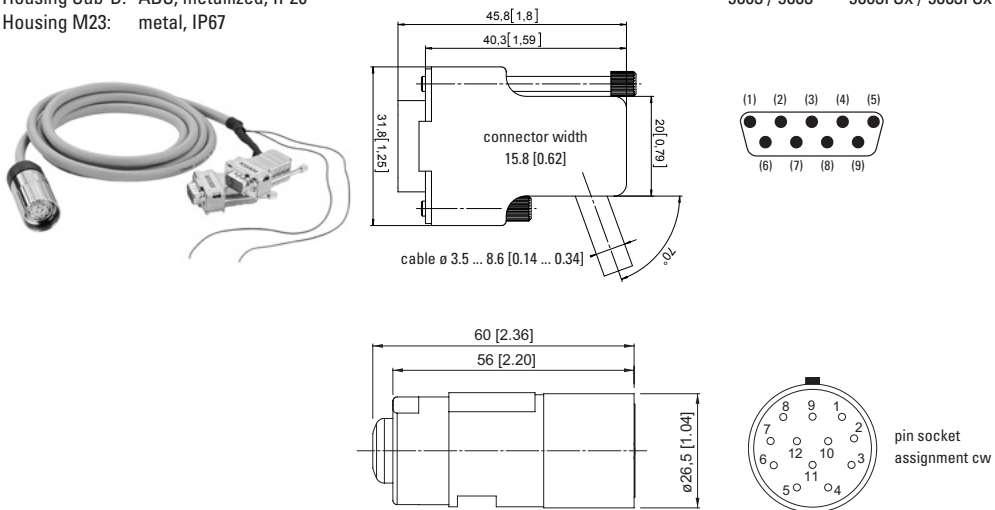
With Sub-D connector + M23 connector Working temp. -30°C ... +80°C [-22°F ... +176°F] Order no.

2 x Sub-D male connector, 9-pin with SET and DIR, cable outlet 70° + M23 female connector with coupling nut, 12 pin

Cable: PVC, 6 x 2 x 0.14 mm² [AWG25]
 Housing Sub-D: ABS, metallized, IP20
 Housing M23: metal, IP67

suitable for our series:

5853 / 5873 5853FSx / 5873FSx
 5863 / 5883 5863FSx / 5883FSx



Terminal assignment

Pin Sub-D 1:	2	9	3	7	5	6	-	-	-	-	-	PH ²⁾
Pin Sub-D 2:	-	-	-	-	-	-	-	-	8	4	5	6
Pin M23:	1	2	3	4	5	6	7	8	9	10	11	12
Wire colour:							BU SET	RD DIR				
pins arranged below each other are connected internally												

cable length¹⁾

2 m [6.56']	8.0000.6900.0002.0080
5 m [16.40']	8.0000.6900.0005.0080
10 m [32.81']	8.0000.6900.0010.0080
15 m [49.21']	8.0000.6900.0015.0080

1) Other cable lengths on request.
 2) Shield on housing.

Sub-D connection technology Cordsets, pre-assembled

With Sub-D connector

Working temp. -30°C ... +80°C [-22°F ... +176°F]

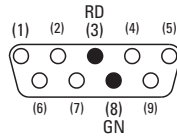
Order no.

Sub-D female connector, cable outlet 90° + single-ended

Profibus master with terminating resistor

Cable: PUR, 2 x 0.34 mm² [AWG22]

Housing: metal / plastic



suitable for our series:

5858 / 5878

5868 / 5888

9080

SMBU.031

SMBS.S31



Terminal assignment

Pin Sub-D:	1	2	3	4	5	6	7	8	9	PH ²⁾
Wire colour:	-	-	RD	-	-	-	-	GN	-	

cable length¹⁾

2 m [6.56']

5 m [16.40']

10 m [32.81']

15 m [49.21']

05.00.6011.5511.002M

05.00.6011.5511.005M

05.00.6011.5511.010M

05.00.6011.5511.015M

1) Other cable lengths on request.

2) Shield on housing.

Connection technology

Sub-D connection technology Cordsets, pre-assembled

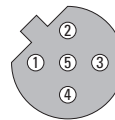
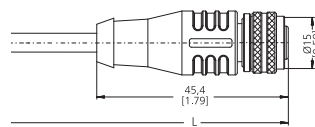
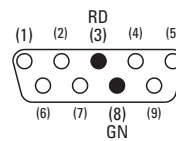
With Sub-D connector + M12 connector Working temp. -30°C ... +80°C [-22°F ... +176°F] Order no.

Sub-D male connector, 9 pin, cable outlet 90° Bus in
Profibus master with terminating resistor + M12 female connector with coupling nut, 5 pin, B coded

Cable: PUR, 2 x 0.34 mm² [AWG22]
 Housing Sub-D: ABS, metallized
 Housing M12: metal / plastic

suitable for our series:

5858 / 5878
 5868 / 5888
 9080



Terminal assignment

Pin Sub-D:		3		8		PH ²⁾
Pin M12:	1	2	3	4	5	PH ²⁾
pins arranged below each other are connected internally						

cable length¹⁾

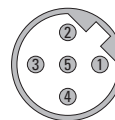
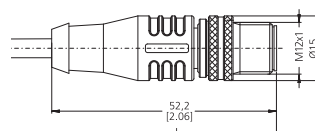
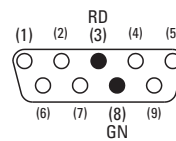
2 m [6.56']	05.00.6011.5532.002M
5 m [16.40']	05.00.6011.5532.005M
10 m [32.81']	05.00.6011.5532.010M
15 m [49.21']	05.00.6011.5532.015M

Sub-D male connector, 9 pin, cable outlet 90° Bus out
Profibus master with terminating resistor + M12 male connector with external thread, 5 pin, B coded

Cable: PUR, 2 x 0.34 mm² [AWG22]
 Housing Sub-D: ABS, metallized
 Housing M12: metal / plastic

suitable for our series:

5858 / 5878
 5868 / 5888
 9080



Terminal assignment

Pin Sub-D:		8		3		PH ²⁾
Pin M12:	1	2	3	4	5	PH ²⁾
pins arranged below each other are connected internally						

cable length¹⁾

2 m [6.56']	05.00.6011.5534.002M
5 m [16.40']	05.00.6011.5534.005M
10 m [32.81']	05.00.6011.5534.010M
15 m [49.21']	05.00.6011.5534.015M

1) Other cable lengths on request.
 2) Shield on housing.

Connection technology

Connection technology

Sub-D connection technology Cordsets, pre-assembled

With Sub-D connector + M12 connector

Working temp. -30°C ... +80°C [-22°F ... +176°F]

Order no.

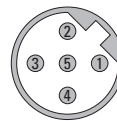
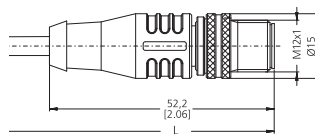
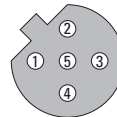
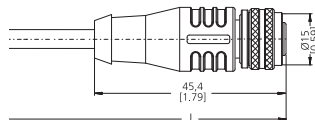
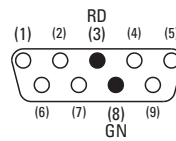
**Sub-D male connector, 9 pin, cable outlet 90°
Profibus master with terminating resistor +
M12 male connector with external thread and
M12 female connector with coupling nut,
5 pin, B coded**

Bus in, Bus out

suitable for our series:

Cable: PUR, 2 x 0.34 mm² [AWG22]
Housing Sub-D: ABS, metallized
Housing M12: metal / plastic

5858 / 5878
5868 / 5888
9080



Terminal assignment

Pin Sub-D:		8		3		PH ²⁾
Pin M12 female contacts:	1	2	3	4	5	PH ²⁾
Pin M12 male contacts:	1	2	3	4	5	PH ²⁾
pins arranged below each other are connected internally						

cable length¹⁾

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

05.00.6012.5536.002M
05.00.6012.5536.005M
05.00.6012.5536.010M
05.00.6012.5536.015M

1) Other cable lengths on request.
2) Shield on housing.

Connection technology



Addresses

	Page
Kübler worldwide	88
Contact partners in Germany	90



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Elektrik San. ve Tic. Ltd. Sti.
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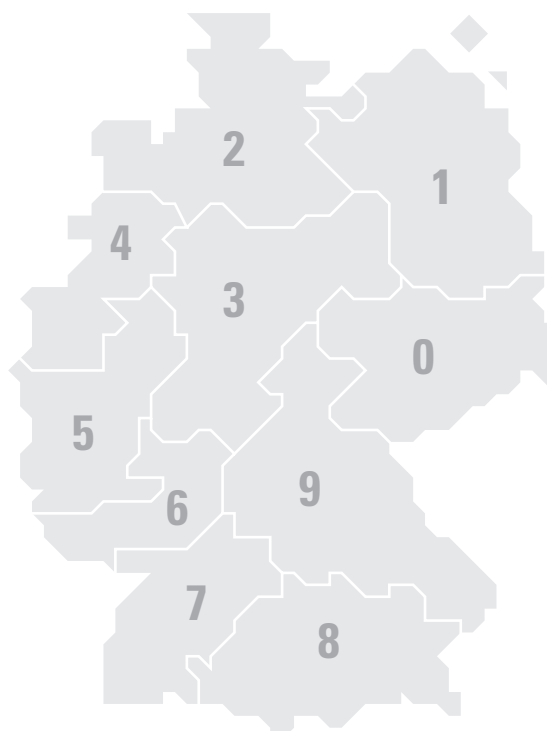
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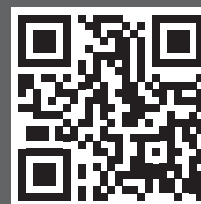




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