Kübler

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

pulses for automation

Transmission Technology 2015

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

Kübler Service for worldwide Planning Reliability

Sample and Repair Service

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

Kübler online – www.kuebler.com

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

Safety Services

- Adapted service packages
- Individual customer solutions

10 by 10

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

48 h Express Service

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

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

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

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

Service-Center / Technical Hotline

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

Kübler Germany	+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
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
- Linear Measuring Technology
- Inclinometers
- Connection Technology

Functional Safety

- Encoders certified up to SIL3/PIe
- Modules for safe Drive Monitoring
- System Solutions for safe processing of Safety Sensors
- Adapted Service Packages

Transmission Technology

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

Counters and Process Devices

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

We offer Solutions for the following Industries:

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

www.kuebler.com/industries

Transmission Technology 2015

Table of contents

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 RPM	Temperature range max. in °C [°F]	Page
	Modular, construction system **SR085**	•	•	•	•	20	30 [1.18]	25	IP64	800	-35 ... +85 [-31 ... +185]	**20**
new 	Modular, construction system, bearingless **SR085B**	•	•	–	–	10	34 [1.34]	16	IP40	200	0 ... +75 [+32 ... +167]	**23**
new 	Modular, contactless signal transmission **SRI085**	•	•	–	–	9	30 [1.18]	16	IP64	800	-30 ... +85 [-22 ... +185]	**25**
new 	Compact, low-maintenance **SR060E**	•	•	–	–	5	25 [0.98]	20	IP64	500	0 ... +75 [+32 ... +167]	**27**

Optical fibre 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 fibre module, incremental **LWL**	RS422 HTL	1.000	400	-10 ... +60 [-14 ... +140]	5 10 ... 30	2	**32**
	Optical fibre module, absolute **LWL.A**	SSI	2.000	1.000	-10 ... +70 [-14 ... +158]	5 10 ... 30	1	**34**

Product overview

Connection technology
Cable, unprepared, cut to length

	PVC cable	PUR cable	TPE cable	Cross section in mm^2	Cable diameter in mm	for incremental encoders	for absolute encoders	Page
 5 core + shield	•	•	–	5 x 0.14 [AWG25] 5 x 0.75 [AWG18]	approx. 4.7 approx. 7.5	•	–	**40**
 8 core + shield	–	•	–	8 x 0.14 [AWG25]	approx. 5.5	–	•	**40**
 10 core + shield	–	•	–	4 x 2 x 0.25 [AWG23] + 2 x 1 [AWG17]	approx. 7.9	•	•	**40**
 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	•	•	**41**
 18 core + shield	•	–	–	18 x 0.14 [AWG25]	approx. 7.8	–	•	**41**
 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	•	•	**42**

Connection technology
Connectors, self-assembly

		N° of pins	Housing	Connection technology	Cable diameter Ø in mm	Straight connector	Right angle connector	Wall/panel lead-through	for fieldbus	Page
	M12	4/5/8/12	Metal	Screw terminals	6 - 8	•	•	•	•	**43**
	M23	12/17	Metal	Solder pins	5,5 - 10,5	•	–	•	–	**59**
	MIL	7/10	Metal	Solder pins	5 - 8	•	–	–	–	**65**
	RJ45	8	Plastic	Crimp connection	4,5 - 8	•	–	–	•	**66**
	Sub-D	9	ABS metallized	Solder pins	6 - 8	–	•	–	–	**69**

Product overview

Connection technology
Cordsets, pre-assembled

		PVC cable	PUR cable	TPE cable	Optical fibre	Straight connector	Right angle connector	for incremental encoders	for SSI / BiSS encoders	for fieldbus	for analogue interfaces	Page
	with M12 connector	•	•	–	–	•	•	•	•	•	•	**49**
	with M23 connector	•	•	•	–	•	–	•	•	–	•	**61**
	Simplex patch cable optical fibre	–	–	–	•	•	–	•	•	–	–	**32**
	with RJ45 connector	–	•	–	•	–	–	–	•	–	–	**67**
	with Sub-D connector	•	•	–	–	–	•	•	•	•	–	**70**

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.

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

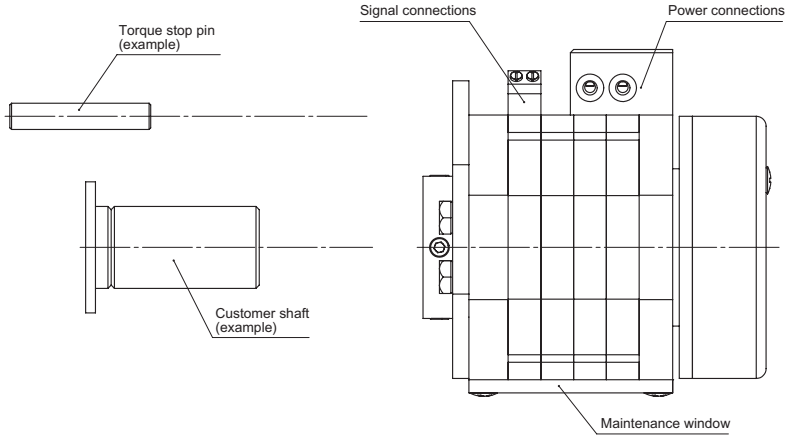
Kübler slip rings feature a particularly rugged compact design, long maintenance cycles and a long service life.

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

Slip ring mounting

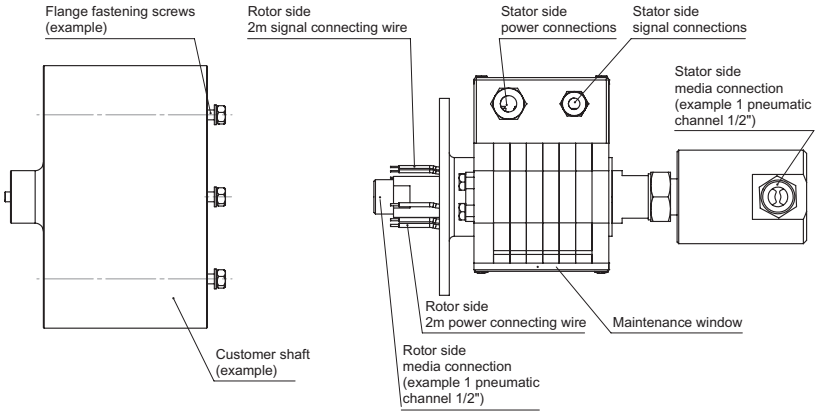
Hollow shaft mounting

- 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.

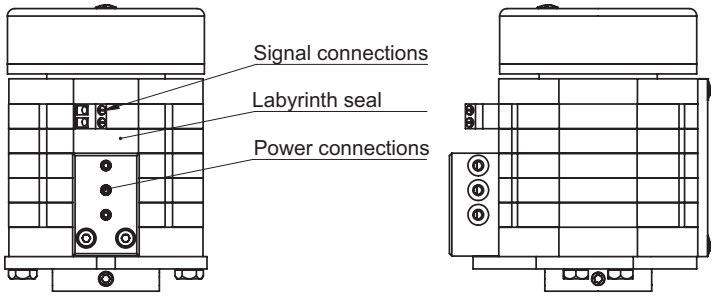
The mounting position is to be defined in the order code as follows:

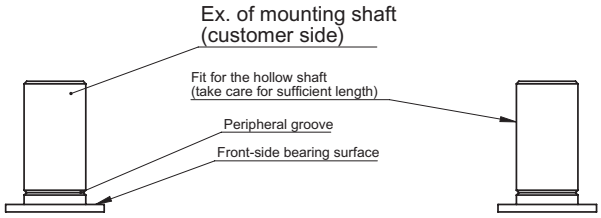
SR085-XX-XX-XX-X1XXX-VXXX
in case of standing and horizontal installation (flange at the bottom)

SR085-XX-XX-XX-X2XXX-VXXX
in case of suspended and horizontal installation (flange on top)

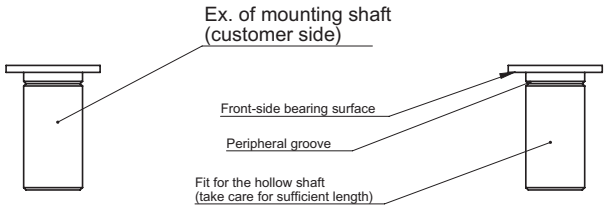
SR085-XX-XX-XX-X0XXX-VXXX
in case of only load or only signal transmission

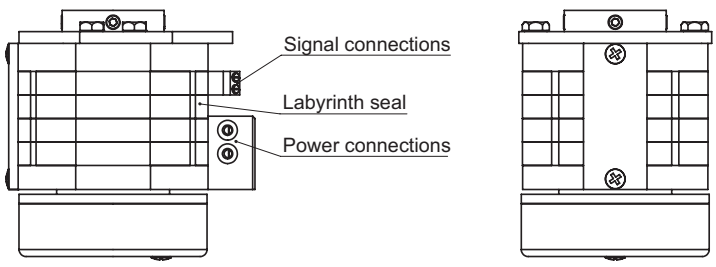
Mounting position standing





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)

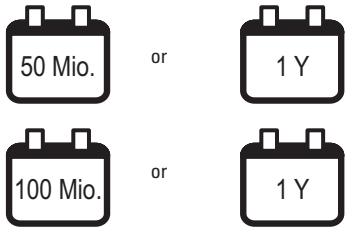
Slip rings out of special precious metal alloy with insulator

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:

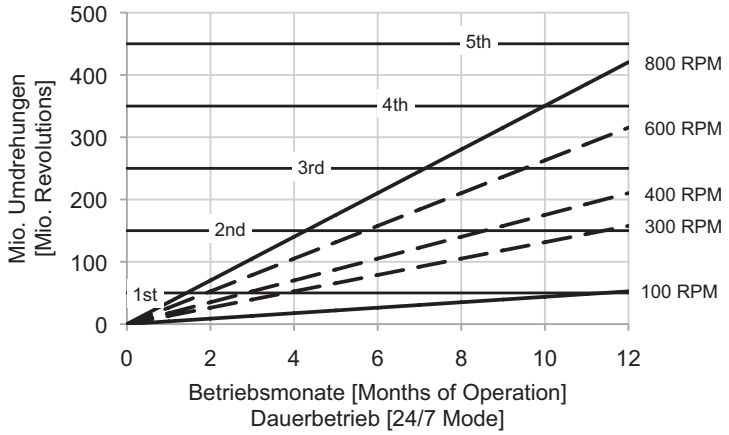
- 1st interval after max. 50 million revolutions or after 1 year
- Every further maintenance interval max. 100 million revolutions or at the minimum once per year



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:

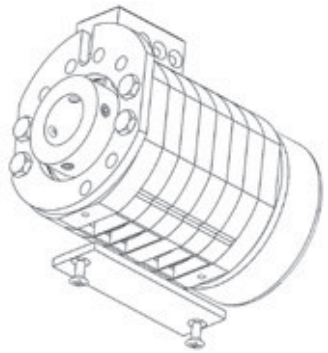
Signal/data channels, contact material silver alloy / precious metal



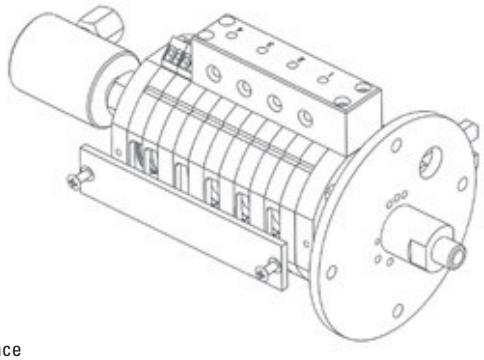
Slip rings | Maintenance

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)



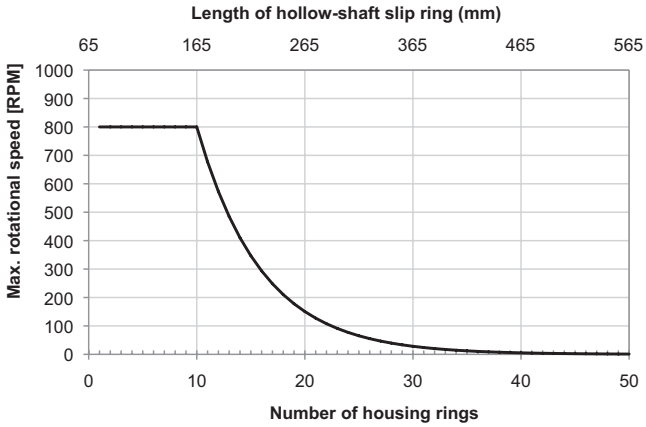
Note:

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 fibre signal transmission

General information

Description

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

The optical fibre transmitter converts the electrical signals of an encoder into optical fibre signals. A simple glass fibre allows reliable transmission up to distances of 1500 m.

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

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

Main advantages of an optical fibre transmission:

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

Mounting of optical fibre modules

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

The installation width for every module is only 22.5 mm.

Laying and connection of glass fibre cables

Laying the cable is generally easy.

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

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

Glass fibre cables

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

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

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

Connection technology | Introduction / Cables and connectors

Introduction

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

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

Your advantage:

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

Material information - Cables

PVC

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

PUR

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

Material information - Connectors

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

Metals for contacts and housings

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

Plastics for insulator and housing

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

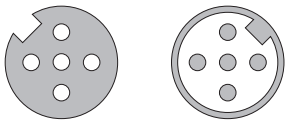
Coding of the M12 x 1 connectors

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.

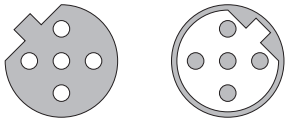
A-coding

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



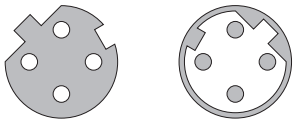
B-coding

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.

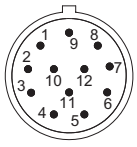
"Allround" shielding with Kübler cordsets

Counting direction cw/ccw

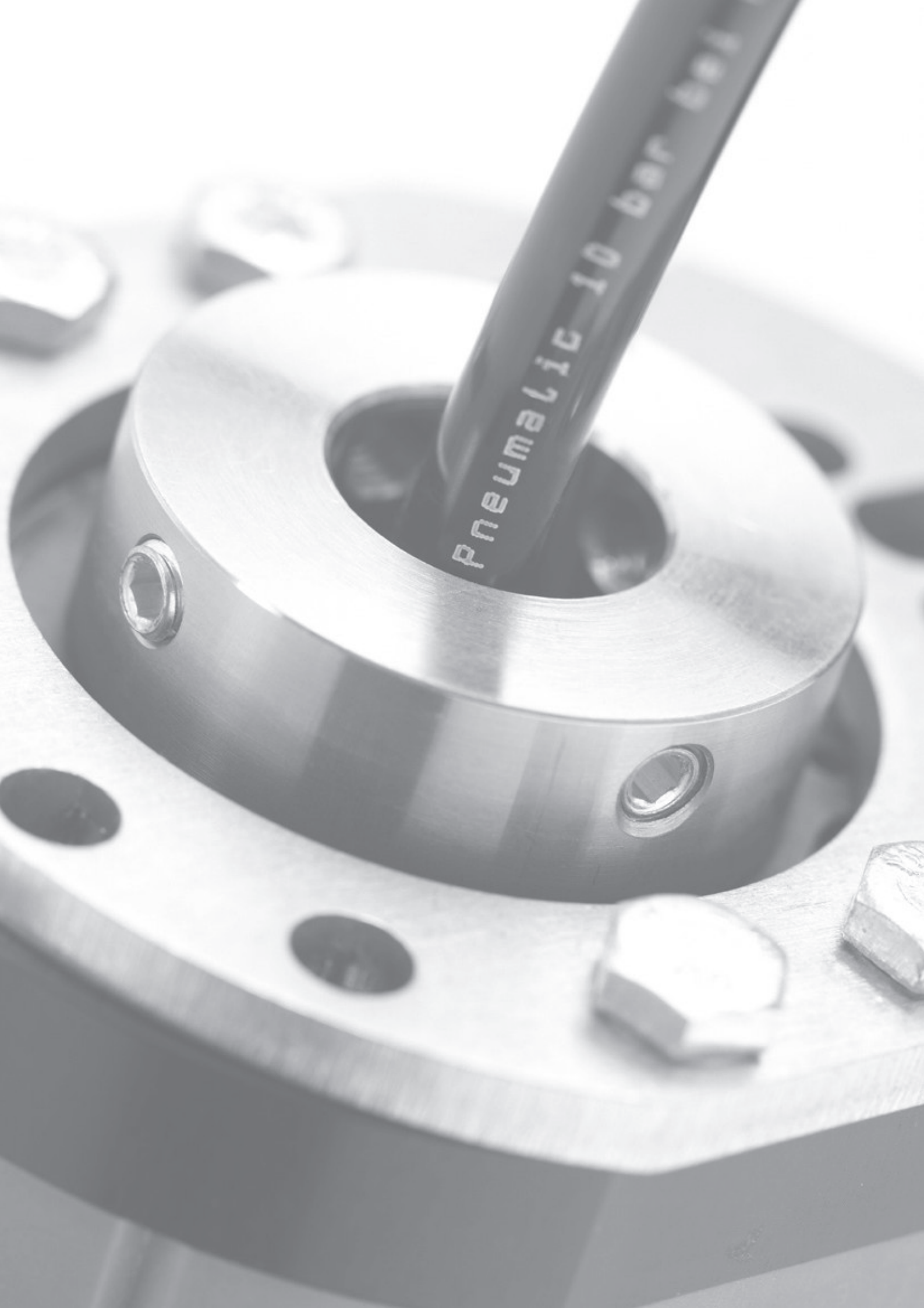
The counting direction of the connectors is indicated by cw for a clockwise arrangement and ccw for a counter-clockwise arrangement. The connector is always viewed from the mating side.

Top view of mating side

Counting direction cw
(e.g. female connector)



Counting direction ccw
(e.g. male connector)


Pneumatic 10 bar

Slip rings

Modular | Construction system | SR085

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

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

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

Flexible and rugged

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

Reliable with Safety-Trans™ Design

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

Applications

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

Standard models

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

10 by 10

	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 - X X X X X - V100

Type | a | b | c | d e f g h | i

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

a *Type of mounting*
00 = flange mounting
20 = hollow shaft, ø 20 mm [0.79"]
24 = hollow shaft, ø 24 mm [0.94"]
25 = hollow shaft, ø 25 mm [0.98"]
30 = hollow shaft, ø 30 mm [1.18"]
IN = hollow shaft, ø 1"
(other options on request)

b *Number of signal/ data channels* [1)]

c *Number of power (load) channels* [1)]

d *Max. load current*
0 = no load channels
1 = 16 A, 240 V AC/DC
2 = 25 A, 240 V AC/DC
3 = 10 A, 400 V AC/DC
4 = 20 A, 400 V AC/DC

e *Mounting position*
0 = any, only with either load or signal channels
1 = standing and horizontal (flange down)
2 = hanging and horizontal (flange up)

f *Contact material for signal/data channels* [2)]
0 = no signal channels
3 = silver / precious metal

g *Media lead-through*
0 = none
only flange mounting (00):
1 = air, connection 1/4"
2 = air, connection 1/2"
3 = air, connection 3/8"
4 = hydraulics, connection 1/2"
5 = hydraulics, connection 3/8"
hollow shaft or shaft mounting:
6 = air, rotatable connector (up to 300 rpm)

h *Protection rating*
1 = IP50
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 e.g. plug connectors

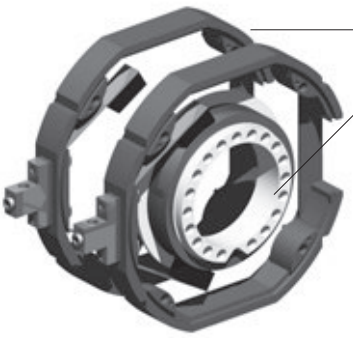
1) 20 combination max., for example 4 data channels and 16 load channels.
2) Contact material gold / gold and copper / bronze on request.

Modular | Construction system | SR085

Technical data (standard version)

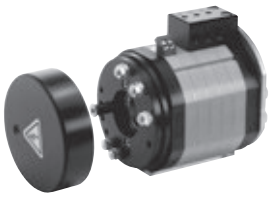
Overall length	dep. on the number of transmission paths
Hollow shaft diameter	up to ø 30 mm [1.18“]
Voltage/current loading	
load channels	240 V AC/DC, max. 16 A (order option 1) 240 V AC/DC, max. 25 A (order option 2) 400 V AC/DC, max. 10 A (order option 3) 400 V AC/DC, max. 20 A (order option 4)
signal / data channels	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
Dialectric 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)
Standards	EN 61010-1 2001, VDE 0110 part 1, VDE 0295/6.92, VDE 0100 part 523

Modular construction system

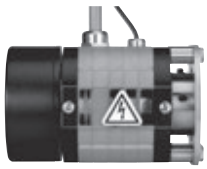


Technology in detail

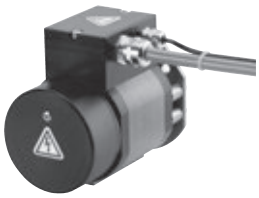
Easily accessible connections



Practical maintenance window



IP64 version with rotor and stator protective cover



Hollow shaft mounting with rotatable connector (air)

Version with media lead-through (air, hydraulics)

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.

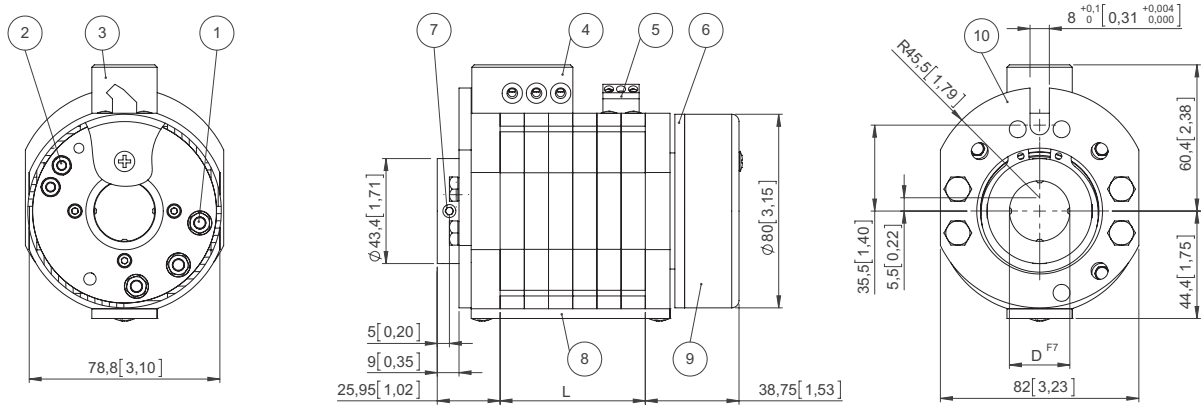
Modular | **Construction system** | **SR085**

Dimensions

Dimensions in mm [inch]

Standard version

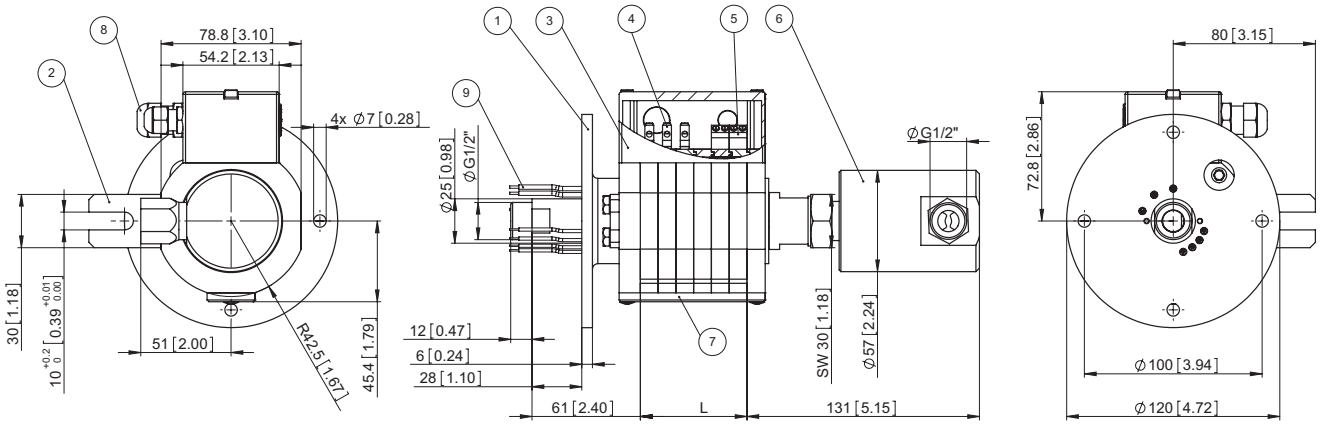
Example: Type SR085-25-02-03-11301-V100
(2 data channels, 3 load channels)



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

Air lead-through versions

Example: Type SR085-00-04-03-11322-V100

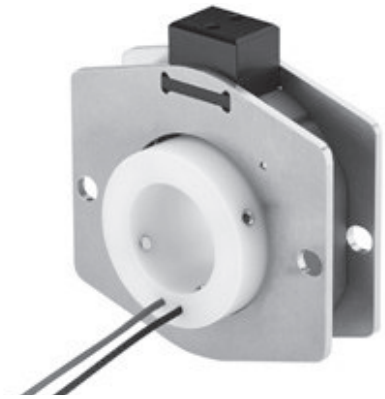


1 – Mounting flange
2 – Torque stop
3 – Stator protective cover
4 – Terminal clamp power
5 – Terminal clamp signal
6 – Media lead-through
7 – Maintenance window
8 – Cable gland
9 – Connection wires

Calculation of the overall length

Basic dimensions	
slip ring with hollow shaft	64.5 mm [2.54"]
slip ring with flange mounting and media lead-through 1/2" or 3/8"	185 mm [7.28"]
slip ring with flange mounting and media lead-through 1/4"	168 mm [6.61"]
Additional dimensions	
+ number of signal/data channels (silver / precious metal)	+ 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"]

Modular | Construction system, bearingless | SR085B



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

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

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

Flexible and slim

- Modular construction system, can be combined as desired.
- From 33 mm mounting depth.
- Cost-effective bearingless construction.
- Long service life and long maintenance cycles.

Applications

Revolving doors, rotary tables, rotary show cases, packaging machines, other low speed applications.

Order code

SR085B	-	XX	-	XX	-	1	0	X	-	V100
Type		a		b		c	d	e		f

a *Type of mounting*
20 = hollow shaft, ø 20 mm [0.79"]
24 = hollow shaft, ø 24 mm [0.94"]
25 = hollow shaft, ø 25 mm [0.98"]
30 = hollow shaft, ø 30 mm [1.18"]
34 = hollow shaft, ø 34 mm [1.34"]
(other options on request)

b *Number of channels*
max. 10 channels

c *Max. load current*
1 = 16 A, 240 V AC/DC

d *Mounting position*
0 = any

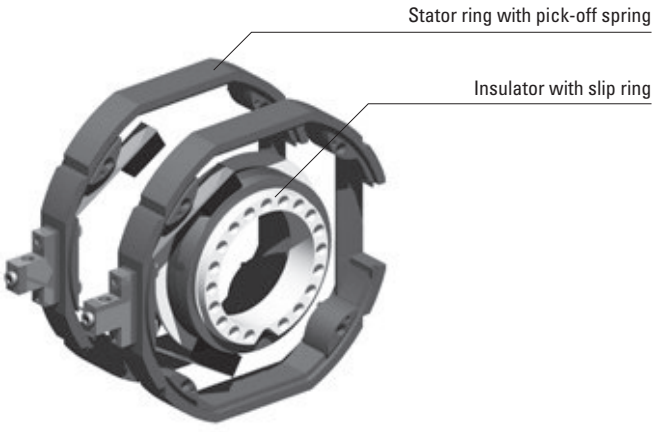
e *Contact material*
3 = silver / precious metal
5 = copper / bronze

f *Version number (options)*
V100 = without options
>V100 = options on request

Technical data (standard version)

Overall length	dep. on the number of transmission paths
Hollow shaft diameter	up to ø 34 mm [1.34"]
Voltage/current loading	240 V AC/DC, max. 16 A
Contact resistance	
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
Dialectric 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

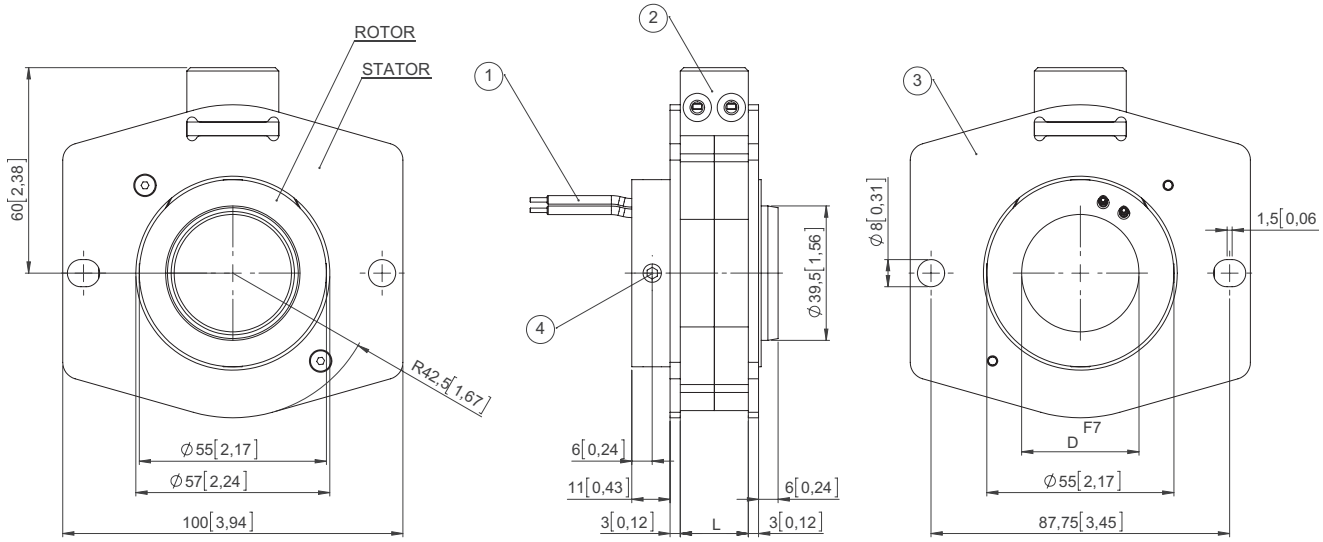


1) Voltage measurement, ambient temperature, DC series connection, ohmic load, min. 4 A test current.
2) 2-wire resistance measurement, ambient temperature, 6.5-digit digital multimeter or similar, values without testing cable.

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

Calculation of total length L:

Basic dimension:	23 mm [0.91“]
Additional dimension:	+10 mm [0.39“] per channel

Modular | Contactless signal transmission | SRI085

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

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

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

Flexible and rugged

- Modular construction system, load and signal/data channels can be combined as desired
- Rugged GFPC housing (glass-reinforced polycarbonate) for industrial usage

Maintenance-free

- Signal / data channels maintenance-free by means of inductive coupling
- Long service life

Applications

Packaging machines, rotary tables and textile machines

Standard versions

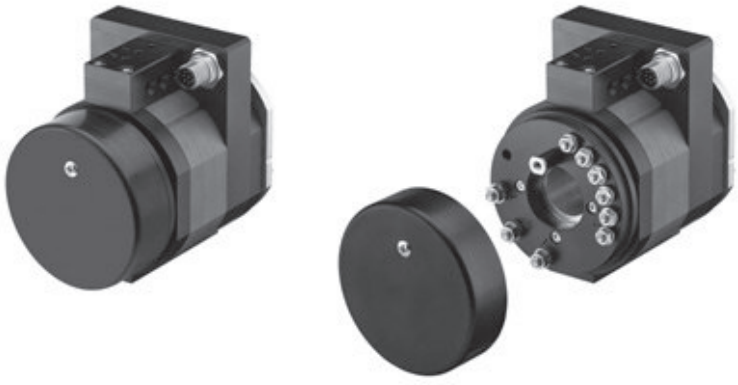
	Signal / data channels	*Load channels*	*max. load current*	*Order No.*
Hollow shaft 25 mm [0.98"]	3 x	4 x	16 A, 240 V AC/DC	**SRI085-25-03-04-1101-V100**

Other options on request:
- Hollow shaft up to ø 30 mm [1.18"]
- Number of data channels – max. 3 PT100 pairs
- Number of load channels – max. 6 channels
- Protection max. IP64

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



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	< 10^3 MOhm
Dielectric strength	1000 V eff.

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

Mechanical characteristics	**only data transmission** SRI085-XX-0X-00-010X-V100	**mixed data and load transmission** SRI085-XX-XX-XX-X101-V100
Speed	max. 800 min^{-1}	max. 800 min^{-1}
Service life	–	typ. 500 million revolutions
Maintenance cycles	maintenance-free	100 million revolutions
Operating temperature	-30°C ... +85°C [-22°F ... +185°F]	-30°C ... +85°C [-22°F ... +185°F]
Protection to EN 60529	max. IP64	max. IP50
Contact material load channel	–	copper/bronze

Terminal assignment

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

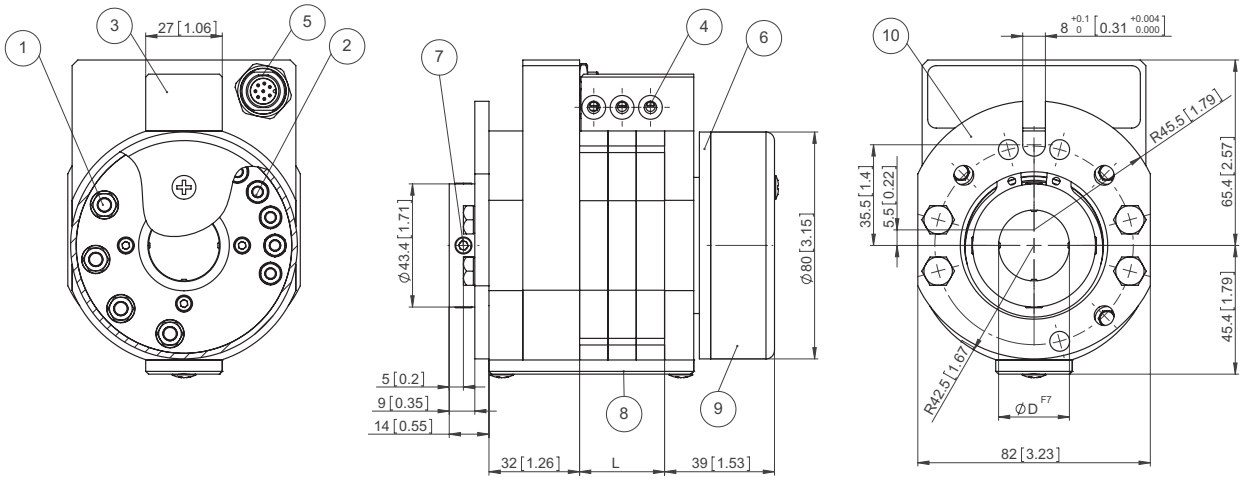
Top view of mating side, male contact base

Flange connector M12, 8 pin

Dimensions

Dimensions in mm [inch]

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



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

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

c UL us pending

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

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

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

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	-	X	X	2	-	V100
Type		a		b		c		d	e	f		g

a *Hollow shaft*
20 = ø 20 mm [0.79“]
22 = ø 22 mm [0.87“]
24 = ø 24 mm [0.94“]
25 = ø 25 mm [0.98“]
(other diameters on request)

b *Number of signal / data channels*
0 or 2

c *Number of load channels*
0, 2 or 3

d *Max. load current*
0 = no load channels
1 = 16 A, 240 V AC/DC
2 = 20 A, 240 V AC/DC

e *Contact material signal / data channels*
0 = no signal / data channels
3 = silver / precious metal

f *Protection*
2 = IP64

g *Version number (options)*
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 240 V AC/DC, max. 20 A (order option 2)
signal / data channels	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}

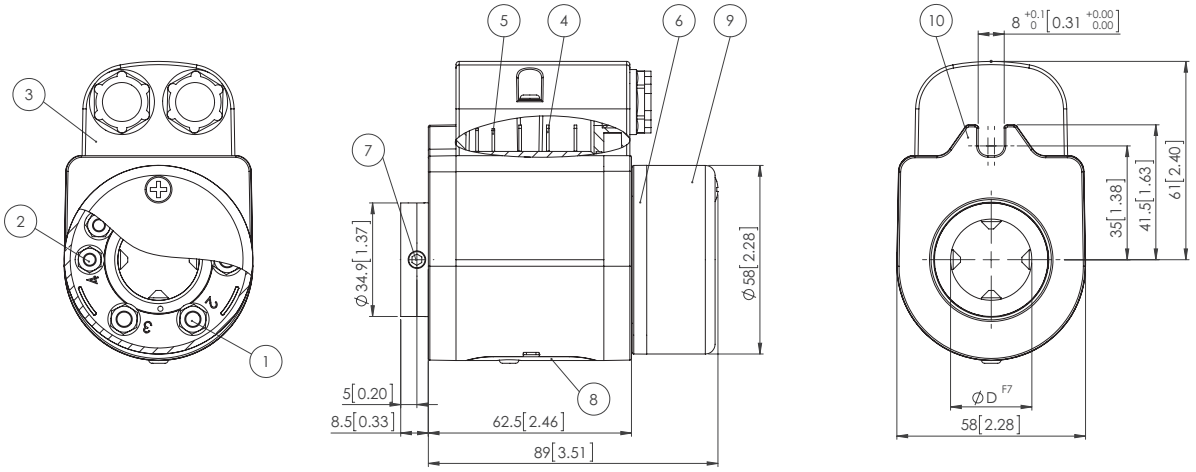
Service life	typ. 500 million revolutions (at room temperature) depends on installation position
Maintenance cycles	first maintenance after 50 million revolutions, all further maintenance intervals after 100 million revolutions
Maintenance	contact oil not required
Material pairing	
load channels	copper / bronze
signal / data channels	silver / precious metal
Operating temperature	0°C ... +75°C [+32°F ... +167°F]
Protection acc. to EN 60529	IP64
Standards	VDE 0110 and VDE 0295/6.92

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.

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

Dimensions

Dimensions in mm [inch]



1 – Screw terminal M5 for load transmission
2 – Screw terminal M4 for signal transmission
3 – Protective cover for the stator connections with screwed assembly (only IP64)
4 – Flat pin connection for load transmission
5 – Flat pin connection for signal transmission
6 – Rotating connection ring
7 – 4 x socket set screw DIN 914 M6
8 – Maintenance window
9 – Protective cover for connections
10 – Torque stop


Power/Sync
Local Error
Remote Err

Optical fibre transmission modules

Optical fibre signal transmission | **Transmitter and receiver** | **RS422/HTL**

eco plus

Cost advantage compared to conventional wiring over 150 m length*

The solution where signal transmission is difficult.

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

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

Innovative

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

Application areas

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

Compact

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

Order code Optical fibre transmitter / receiver

6.LWL X (a) . X (b) X (c)

a
S = Optical fibre transmitter
E = Optical fibre 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 fibre transmitter)
4 = RS422 / 5 V DC
5 = HTL / 10 ... 30 V DC, input

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

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

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

Accessories		Order no.
Simplex Patch cable ST-ST - Multimode 	Connector: 2 x ST/PC, optical fibre: 1 x 50/125	**05.B09-B09-821-XXXX** XXXX = Length in m Standard lengths: 2 m, 5 m, 8 m, 10 m, 15 m, 20 m, ... (in 5 m steps)
ST Multimode coupling 	Barrel: ceramic, slotted	**05.LWLK.001**

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

Optical fibre transmission modules

Optical fibre 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 fibre transmitter channels	A, $\overline{A}$, B, $\overline{B}$, 0, $\overline{0}$
Max. input frequency optical fibre transmitter and output frequency optical fibre receiver	400 kHz
Input level optical fibre transmitter	10 ... 30 V or RS 422
Optical wavelength	820 nm
Optical transmission rate	120 Mbit/s
Optical fibre synchronisation display	LED on the receiver
Optical fibre connection	ST connector, ø 9 mm [0.35] on the bottom side of the housing
Glass fibre	multimode fibre, 50/125 µm, 62.5/125 µm

Input signals sampling rate		10 MSamples/s
Optical fibre transmission distance		max. 1000 m [3280.8']
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	max. conductor diameter	protected against contact 2.5 mm² [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

Terminal assignment

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

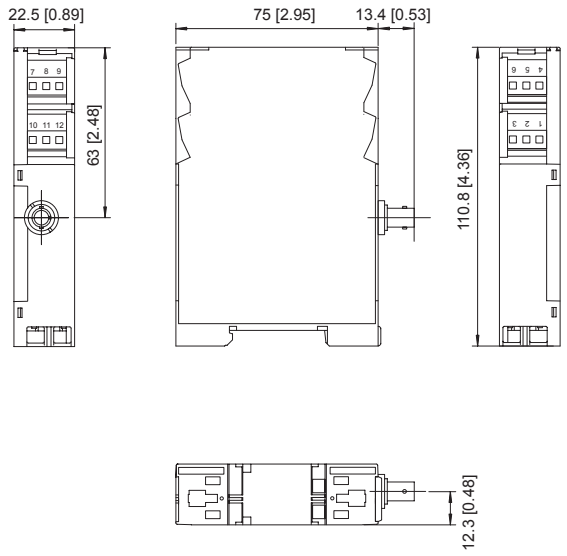
Type of connection	HD-Sub D15, optical fibre transmitter												Terminal	
1	Signal	$\overline{A}$	$\overline{B}$	$\overline{0}$ ($\overline{C}$)	A	B	0 (C)	$\overline{D}$	D	$+V_{out}$ to encoder	0 V linked internally	Shield	0 V linked internally	$+V_{out}$ to encoder, linked internally
	Terminal	8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

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

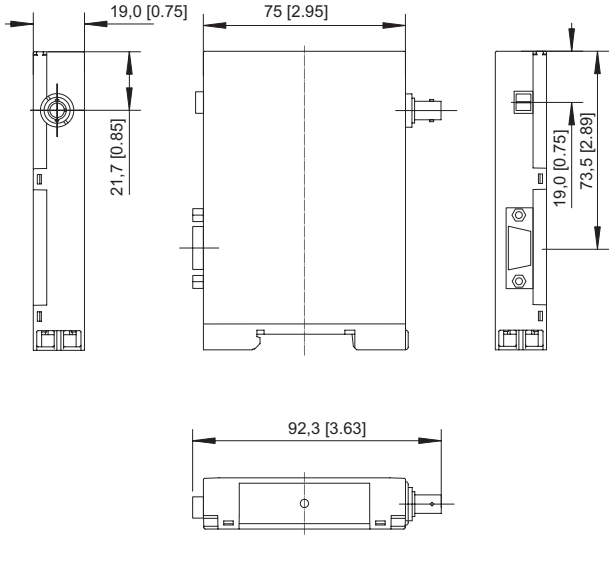
Dimensions

Dimensions in mm [inch]

Terminal clamp



Plug-in connector, HD-Sub D15



Optical fibre transmission modules

Optical fibre signal transmission | Transmitter and receiver | SSI

eco plus

Cost advantage compared to conventional wiring over 150 m length*

Optical fibre transmission system for SSI absolute encoders

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

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

Absolute signals can be transmitted safely through one glass fibre over distances of up to 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 fibre.
- 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 fibre transmitter / receiver

6.LWLA . X X X
(a) (b) (c)

(a)
S = Optical fibre transmitter
E = Optical fibre 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 fibre transmission module
- Operating manual, dual language, German and English

Accessories		Order no.
Simplex Patch cable ST-ST - Multimode 	Connector: 2 x ST/PC, Optical fibre: 1 x 50/125	**05.B09-B09-821-XXXX** XXXX = Length in m Standard lengths: 2 m, 5 m, 8 m, 10 m, 15 m, 20 m, ... (in 5 m steps)
ST Multimode coupling 	Barrel: ceramic, slotted	**05.LWLK.001**

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

Optical fibre transmission modules

Optical fibre 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 fibre 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	820 nm (infrared)
Optical fibre connection	ST connector, on the bottom side of the housing
Glass fibre	multimode fibre, 50/125 µm, 62.5/125 µm
Optical fibre 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 fibre 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 fibre 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

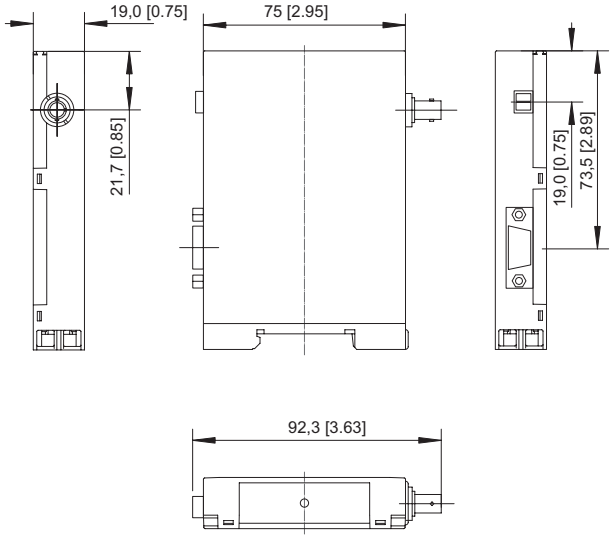
	Screw terminal, 2 pin		
	Signal:	0 V	+V
	Pin female contact:	1	2

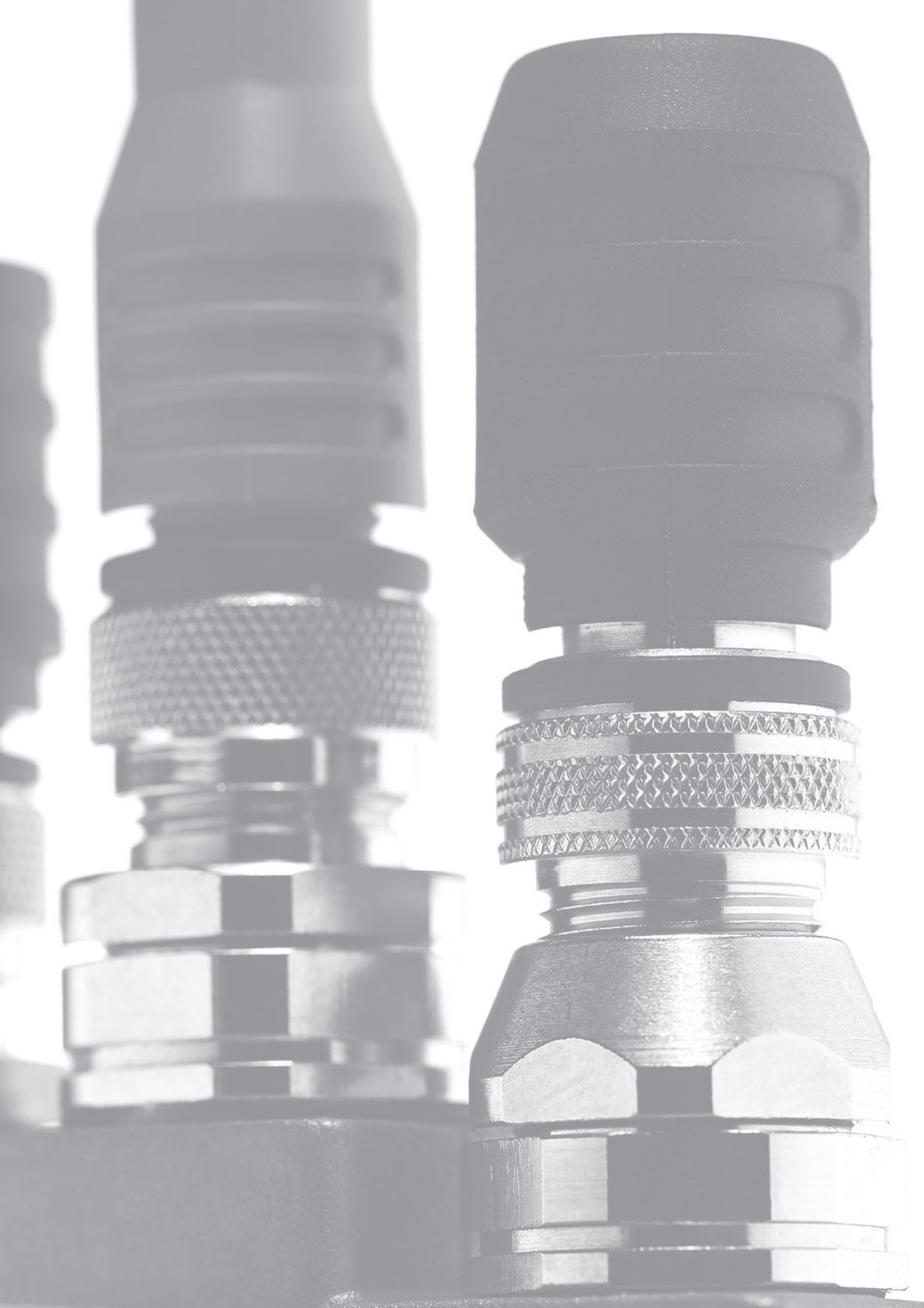
Contacts 1/2 of the 2-pin plug-in screw terminal are connected to contacts 1/2 of the 11-pin plug-in screw terminal or with contacts 1/2 of the Sub-D connector.

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

Dimensions

Dimensions in mm [inch]





Connection technology

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

Cable — Unprepared, cut to length

5 core + shield

				Order no.
PVC electronic cable LiYCY 	**Cross section**	5 x 0.14 mm² [AWG25]	suitable for: incremental encoders without inversions	**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]		
	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		
TPE electronic trailing cable halogen-free, silicon-free 	**Cross section**	5 x 0.75 mm² [AWG18]	suitable for: H100 with speed switch, robust incremental encoders without inversions	**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]		
	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

				Order no.
PUR trailing cable halogen-free 	**Cross section**	8 x 0.14 mm² [AWG25]	suitable for: Limes, 365X, 368X SSI and analogue Safety-M	**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]		
	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 mm² [AWG25] + 2 x 0.5 mm² [AWG20]	suitable for: Limes, 365X, 368X SSI and analogue Safety-M	**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]		
	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

				Order no.
PUR electronic trailing cable halogen-free 	**Cross section**	4 x 2 x 0.25 mm² [AWG23] + 2 x 1 mm² [AWG17]	suitable for: H100, H120 LA10 , LA50 Safety-M	**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]		
	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)

Cable — Unprepared, cut to length

12 core + shield				Order no.
PUR electronic trailing cable halogen-free 	**Cross section**	10 x 0.14 mm² [AWG25] + 2 x 0.5 mm² [AWG20]	suitable for:	**8.0000.6100.XXXX** [1]
	Permanent working temperature range flexible installation	-30°C ... +80°C [-22°F ... +176°F]	robust incremental encoders	
	Permanent working temperature range secure installation	-50°C ... +90°C [-58°F ... +194°F]		
	Bending radius flexible installation	min. 50 mm [1.97“]		
	Bending radius secure installation	min. 35 mm [1.38“]		
	Cable diameter	approx. 6.9 mm ±0.3 mm		
PVC electronic cable LiYCY 	**Cross section**	12 x 0.14 mm² [AWG25]	suitable for:	**8.0000.6200.XXXX** [1]
	Permanent working temperature range flexible installation	-10°C ... +90°C [+14°F ... +194°F]	incremental encoders standard cable	
	Permanent working temperature range secure installation	-30°C ... +90°C [-22°F ... +194°F]		
	Bending radius flexible installation	min. 100 mm [3.94“]		
	Bending radius secure installation	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 mm² [AWG25]	suitable for:	**8.0000.6Y00.XXXX** [1]
	Permanent working temperature range flexible installation	-30°C ... +90°C [-22°F ... +194°F]	robust incremental encoders LA10	
	Permanent working temperature range secure installation	-40°C ... +90°C [-40°F ... +194°F]		
	Bending radius flexible installation	min. 90 mm [3.54“]		
	Bending radius secure installation	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 mm² + 2 x 0.5 mm²	suitable for: high temperatures or encoders with sine wave output	**8.0000.6E00.XXXX** [1]
	Permanent working temperature range flexible installation	-25°C ... +110°C [-13°F ... +230°F]		
	Permanent working temperature range secure installation	-40°C ... +135°C [-40°F ... +275°F]		
	Bending radius flexible installation	min. 90 mm [3.54“]		
	Bending radius secure installation	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 mm² [AWG25]	suitable for:	**8.0000.6900.XXXX** [1]
	Permanent working temperature range flexible installation	-5°C ... +70°C [+23°F ... +158°F]	absolute encoders with SSI or 4 ... 20 mA analogue output, twisted pair conductors	
	Permanent working temperature range secure installation	-30°C ... +80°C [-22°F ... +176°F]		
	Bending radius flexible installation	min. 110 mm [4.33“]		
	Bending radius secure installation	min. 75 mm [2.95“]		
	Cable diameter	approx. 7.3 mm ±0.2 mm		

18 core + shield				Order no.
PVC electronic cable LiYCY 	**Cross section**	18 x 0.14 mm² [AWG25]	suitable for:	**8.0000.6700.XXXX** [1]
	Permanent working temperature range flexible installation	-5°C ... +70°C [+23°F ... +158°F]	absolute encoders with parallel output, twisted pair conductors	
	Permanent working temperature range secure installation	-30°C ... +80°C [-22°F ... +176°F]		
	Bending radius flexible installation	min. 120 mm [4.72“]		
	Bending radius secure installation	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)

Cable — Unprepared, cut to length

PROFIBUS DP - cable

PUR outer jacket, PE wire insulation halogen-free

Cross section		2 x 0.34 mm² [AWG22]	suitable for:
Permanent working temperature range	flexible installation	-25°C ... +60°C [-13°F ... +140°F]	all Profibus fieldbus encoders, Safety-M BM31, Safety-M modular SMBU and SMBS
	secure installation	-50°C ... +90°C [-58°F ... +194°F]	
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	

Order no.: **05.KABEL451.XXX** [1]

DeviceNet - cable

PUR outer jacket, PE wire insulation

Cross section		2 x 0.52 mm² [AWG24] + 2 x 1.04 mm² [AWG17]	suitable for:
Permanent working temperature range	flexible installation	-30°C ... +70°C [-22°F ... +158°F]	all DeviceNet fieldbus encoders, Safety-M BM11
	secure installation	-40°C ... +80°C [-40°F ... +176°F]	
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	

Order no.: **05.KABEL5723.XXX** [1]

CANopen - cable

PVC electronic cable

Cross section		3 x 2 x 0.25 mm² [AWG23]	suitable for:
Permanent working temperature range	flexible installation	-10°C ... +90°C [+14°F ... +194°F]	all CANopen field-bus encoders, Safety-M BM21, Safety-M modular SMBU
	secure installation	-30°C ... +90°C [-22°F ... +194°F]	
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	

Order no.: **8.0000.6V00.XXXX** [1]

Industrial EtherNet - cable

PUR electronic cable

Cross section		2 x 2 x 0.34 mm² [AWG22]	suitable for:
Permanent working temperature range	flexible installation	-30°C ... +70°C [-22°F ... +158°F]	all EtherCAT / PROFINET IO / EtherNet IP encoders, Safety-M BMB1 and BMC1, Safety-M modular SMBU and SMBS
	secure installation	-40°C ... +80°C [-40°F ... +176°F]	
Bending radius	flexible installation	min. 50 mm [1.97"]	
	secure installation	min. 25 mm [0.98"]	
Cable diameter		approx. 4.8 mm ±0.2 mm	

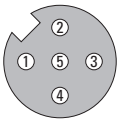
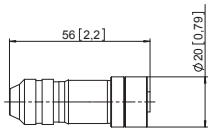
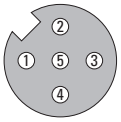
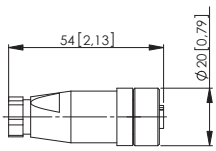
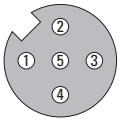
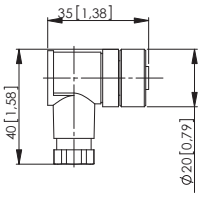
Order no.: **05.00.6031.1111.XXXM** [1]

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

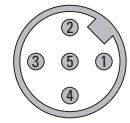
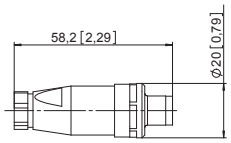
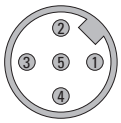
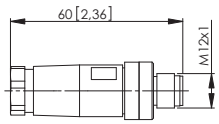
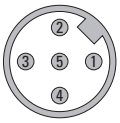
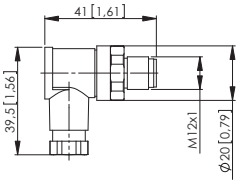
M12 connection technology | Connectors, self-assembly

4 pin			Order no.
Female connector with coupling nut A coded, straight power supply Housing: plastic, IP67	screw connections, for cable ø 4 ... 6 mm [0.16 ... 0.24“]	suitable for our series: EMIO.SIO.10xP 5858 / 5878 5868 / 5888 9080	**05.B8141-0**
Female connector with coupling nut A coded, right-angle power supply Housing: plastic, IP67	screw connections, for cable ø 4 ... 6 mm [0.16 ... 0.24“]	suitable for our series: EMIO.SIO.10xP 5858 / 5878 5868 / 5888 9080	**05.B8241-0**
Male connector with external thread A coded, straight power supply Housing: metal / plastic, IP67	screw connections, for cable ø 4 ... 6 mm [0.16 ... 0.24“]	suitable for: versions with cable outlet	**05.BS8141-0**
Male connector with external thread D coded, straight Housing: metal, IP67	screw connections, for cable ø 4 ... 9 mm [0.16 ... 0.35“]	suitable for our series: 5858 / 5878 5868 / 5888 EtherCAT Conformance tested PROFINET	**05.WASCSY4S**

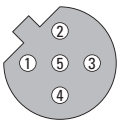
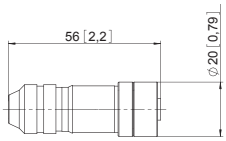
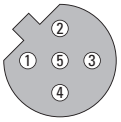
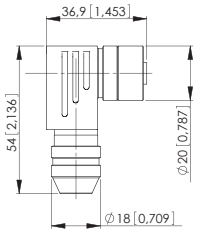
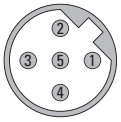
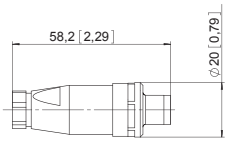
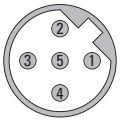
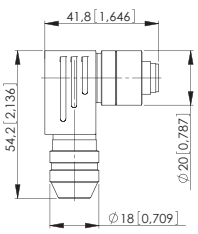
M12 connection technology | Connectors, self-assembly

5 pin			Order no.
Female connector with coupling nut **A coded, straight** Housing: metal, IP67 	screw connections, for cable ø 6 ... 8 mm [0.24 ... 0.32“]   	suitable for our series: A50, B80, C120, D135, IS40 3651 / 3671 F3658 / F3658 F3668 / F3688 M3658 / M3678 M3668 / M3688 M3668R / M3688R F5868 / F5888 5858 / 5878 5868 / 5888 9080 IS60 CANopen DeviceNet.	**8.0000.5116.0000**
Female connector with coupling nut **A coded, straight** Housing: plastic, IP67 	screw connections, for cable ø 6 ... 8 mm [0.24 ... 0.32“]   	suitable for our series: A50, B80, C120, D135, IS40 3651 / 3671 9080 IS60 DeviceNet.	**05.B-8151-0/9**
Female connector with coupling nut **A coded, right-angle** Housing: plastic , IP67 	screw connections, for cable ø 6 ... 8 mm [0.24 ... 0.32“]   	suitable for our series: A50, B80, C120, D135, IS40 3651 / 3671 9080 IS60 DeviceNet.	**05.B-8251-0/9**

M12 connection technology | Connectors, self-assembly

5 pin			Order no.
Male connector with external thread **A coded, straight** Housing: metal, IP67 	screw connections, for cable ø 6 ... 8 mm [0.24 ... 0.32“]   	suitable for our series: F3658 / F3658 F3668 / F3688 M3658 / M3678 M3668 / M3688 M3668R / M3688R F5868 / F5888 5858 / 5878 5868 / 5888 9080 IS60 CANopen DeviceNet	**8.0000.5111.0000**
Male connector with external thread **A coded, straight** Housing: metal / plastic, IP67 	screw connections, for cable ø 6 ... 8 mm [0.24 ... 0.32“]   	suitable for our series: 9080 IS60 EMIO.SIO.10xP DeviceNet	**05.BS-8151-0/9**
Male connector with external thread **A coded, right-angle** Housing: metal / plastic , IP67 	screw connections, for cable ø 6 ... 8 mm [0.24 ... 0.32“]   	suitable for our series: 9080 IS60 DeviceNet	**05.BS-8251-0/9**

M12 connection technology | Connectors, self-assembly

5 pin			Order no.
Female connector with coupling nut **B coded, straight** Housing: metal, IP67 	screw connections, for cable ø 4 ... 9 mm [0.16 ... 0.35“]   	suitable for our series: 5858 / 5878 5868 / 5888 9080 PROFIBUS	**05.BMWS 8151-8.5**
Female connector with coupling nut **B coded, right-angle** Housing: metal, IP67 	screw connections, for cable ø 4 ... 9 mm [0.16 ... 0.35“]   	suitable for our series: 5858 / 5878 5868 / 5888 9080 PROFIBUS	**05.BMWS 8251-8.5**
Male connector with external thread **B coded, straight** Housing: metal, IP67 	screw connections, for cable ø 4 ... 9 mm [0.16 ... 0.35“]   	suitable for our series: 5858 / 5878 5868 / 5888 9080 PROFIBUS	**05.BMSWS 8151-8.5**
Male connector with external thread **B coded, right-angle** Housing: metal, IP67 	screw connections, for cable ø 4 ... 9 mm [0.16 ... 0.35“]   	suitable for our series: 5858 / 5878 5868 / 5888 9080 PROFIBUS	**05.BMSWS 8251-8.5**

M12 connection technology | Connectors, self-assembly

8 pin

Order no.

Female connector with coupling nut
A coded, straight

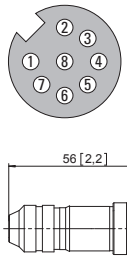
screw connections,
for cable ø 6 ... 8 mm [0.24 ... 0.32“]

suitable for our series:

3610 / 3620	5821
F3653 / F3673	5814 / 5834
F3663 / F3683	5853 / 5873
5000 / 5020	5863 / 5883
5006 / 5026	58x4FSx
A020 / A02H	5876

05.CMB 8181-0

Housing: metal, IP67



Male connector with external thread
A coded, straight

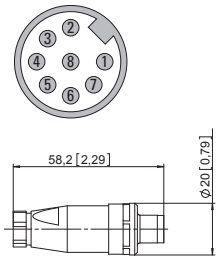
screw connections,
for cable ø 6 ... 8 mm [0.24 ... 0.32“]

suitable for:

versions with cable outlet

05.CMBS 8181-0

Housing: metal, IP67



12 pin

Order no.

Female connector with coupling nut
A coded, straight

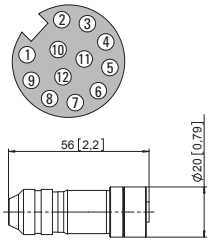
screw connections,
for cable ø 6 ... 8 mm [0.24 ... 0.32“]

suitable for:

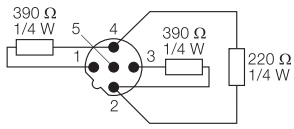
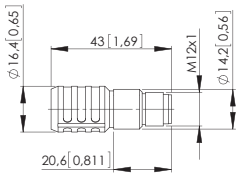
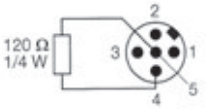
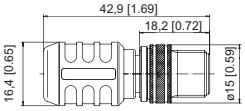
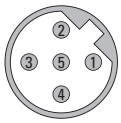
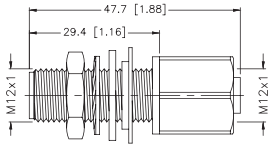
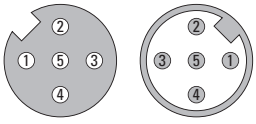
LA10

8.0000.5162.0000

Housing: metal, IP67



M12 connection technology — Connectors, self-assembly

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

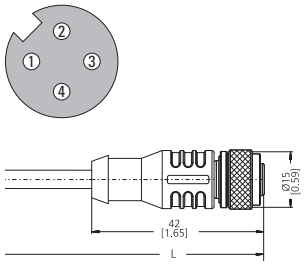
M12 connection technology — Cordsets, pre-assembled

With connector, 4 pin

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

Female connector with coupling nut + single-ended
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

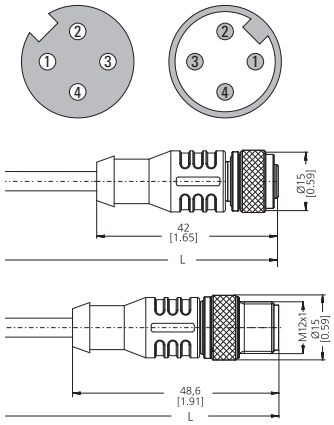
Terminal assignment

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

Cable length [1]	Order no.
2 m [6.56']	**05.00.6061.6211.002M**
5 m [16.40']	**05.00.6061.6211.005M**
10 m [32.81']	**05.00.6061.6211.010M**
15 m [49.21']	**05.00.6061.6211.015M**

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]	Order no.
2 m [6.56']	**05.00.6061.6462.002M**
5 m [16.40']	**05.00.6061.6462.005M**
10 m [32.81']	**05.00.6061.6462.010M**
15 m [49.21']	**05.00.6061.6462.015M**

1) Other cable lengths on request.

M12 connection technology | Cordsets, pre-assembled

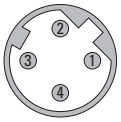
With connector, 4 pin

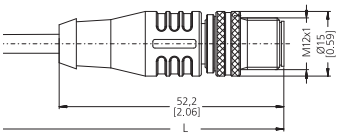
Working temp. -30°C ... +80°C [-22°F ... +176°F]

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

EtherCAT Conformance tested
PROFINET

Terminal assignment

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

Cable length [1]	Order no.
2 m [6.56']	**05.00.6031.4411.002M**
5 m [16.40']	**05.00.6031.4411.005M**
10 m [32.81']	**05.00.6031.4411.010M**
15 m [49.21']	**05.00.6031.4411.015M**

1) Other cable lengths on request.

M12 connection technology | Cordsets, pre-assembled

With connector, 5 pin

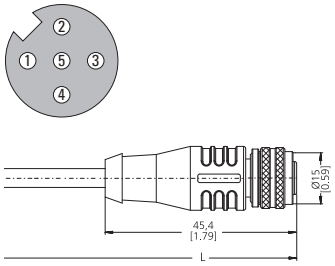
Working temp. -30°C ... +80°C [-22°F ... +176°F] | Order no.

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

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

suitable for our series:

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]

2 m [6.56']	**05.00.6081.2211.002M**
5 m [16.40']	**05.00.6081.2211.005M**
10 m [32.81']	**05.00.6081.2211.010M**
15 m [49.21']	**05.00.6081.2211.015M**

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

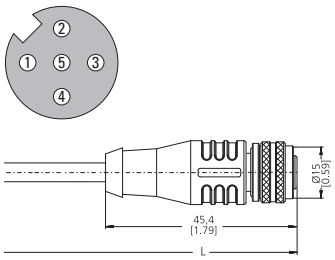
Bus-in

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

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]

2 m [6.56']	**05.00.6021.2211.002M**
5 m [16.40']	**05.00.6021.2211.005M**
10 m [32.81']	**05.00.6021.2211.010M**
15 m [49.21']	**05.00.6021.2211.015M**

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

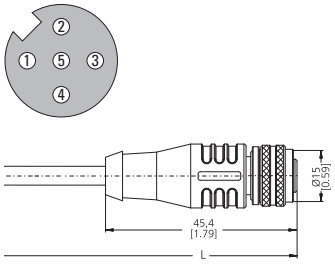
Bus-in

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

suitable for our series:

M3658 / M3678
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]

2 m [6.56']	**05.00.6091.A211.002M**
5 m [16.40']	**05.00.6091.A211.005M**
10 m [32.81']	**05.00.6091.A211.010M**
15 m [49.21']	**05.00.6091.A211.015M**

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

M12 connection technology — Cordsets, pre-assembled

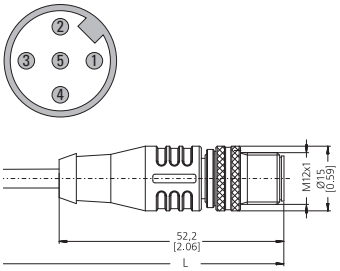
With connector, 5 pin

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

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

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

Bus out



suitable for our series:

9080
IS60

DeviceNet

Terminal assignment

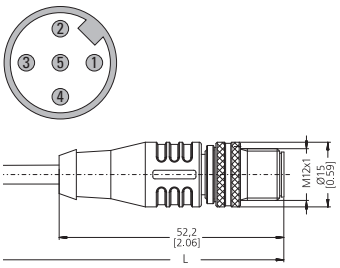
Pin male contacts:	1	2	3	4	5
Wire colour:	⏚ 3)	RD	BK	WH	BU

Cable length 1)	Order no.
2 m [6.56′]	**05.00.6021.2411.002M**
5 m [16.40′]	**05.00.6021.2411.005M**
10 m [32.81′]	**05.00.6021.2411.010M**
15 m [49.21′]	**05.00.6021.2411.015M**

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

Cable: PVC, 3 x 2 x 0.25 mm² [AWG23]
Housing: metal / plastic, IP67

Bus out



suitable for our series:

EMIO.SIO.10xP

M3658 / M3678
F5868 / F5888
5858 / 5878
5868 / 5888

CANopen

Terminal assignment

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

Cable length 1)	Order no.
2 m [6.56′]	**05.00.6091.A411.002M**
5 m [16.40′]	**05.00.6091.A411.005M**
10 m [32.81′]	**05.00.6091.A411.010M**
15 m [49.21′]	**05.00.6091.A411.015M**

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

M12 connection technology | Cordsets, pre-assembled

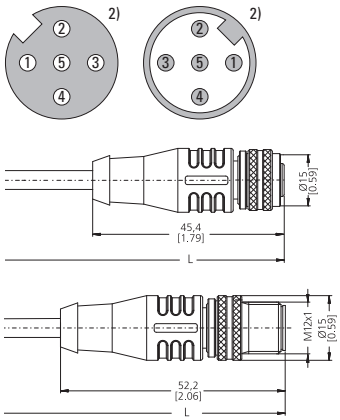
With connector, 5 pin

Working temp. -30°C ... +80°C [-22°F ... +176°F] | Order no.

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

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

Bus in / out



suitable for our series:

EMIO.SIO.10xP

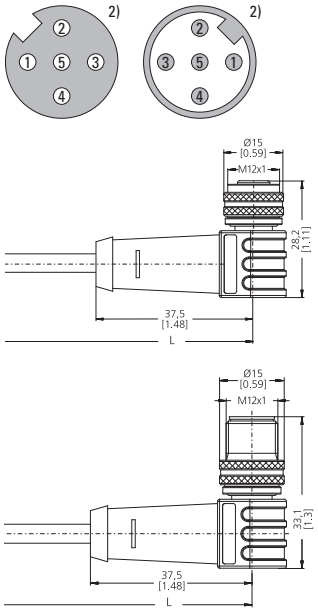
9080 DeviceNet

Cable length [1]	Order no.
2 m [6.56']	**05.00.6021.2422.002M**
5 m [16.40']	**05.00.6021.2422.005M**
10 m [32.81']	**05.00.6021.2422.010M**
15 m [49.21']	**05.00.6021.2422.015M**

Female connector with coupling nut + male connector with external thread
A coded, right-angle

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

Bus in / out



suitable for our series:

9080 DeviceNet

Cable length [1]	Order no.
2 m [6.56']	**05.00.6021.2523.002M**
5 m [16.40']	**05.00.6021.2523.005M**
10 m [32.81']	**05.00.6021.2523.010M**
15 m [49.21']	**05.00.6021.2523.015M**

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

M12 connection technology — Cordsets, pre-assembled

With connector, 5 pin

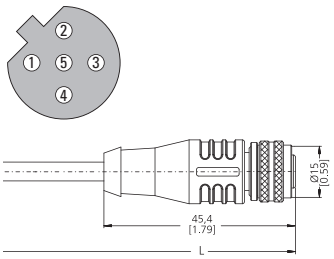
Working temp. -30°C ... +80°C [-22°F ... +176°F]

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

Bus in

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

suitable for our series:
5858 / 5878
5868 / 5888
9080



Terminal assignment

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

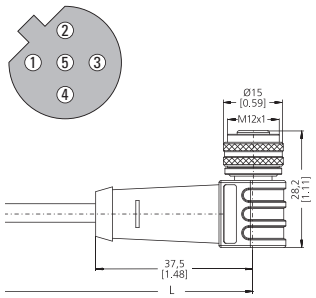
Cable length [1]	Order no.
2 m [6.56']	**05.00.6011.3211.002M**
5 m [16.40']	**05.00.6011.3211.005M**
10 m [32.81']	**05.00.6011.3211.010M**
15 m [49.21']	**05.00.6011.3211.015M**

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

Bus in

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

suitable for our series:
5858 / 5878
5868 / 5888
9080



Terminal assignment

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

Cable length [1]	Order no.
2 m [6.56']	**05.00.6011.3311.002M**
5 m [16.40']	**05.00.6011.3311.005M**
10 m [32.81']	**05.00.6011.3311.010M**
15 m [49.21']	**05.00.6011.3311.015M**

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

M12 connection technology | Cordsets, pre-assembled

With connector, 5 pin

Working temp. -30°C ... +80°C [-22°F ... +176°F] | Order no.

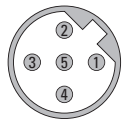
Male connector with external thread + single-ended
B coded, straight

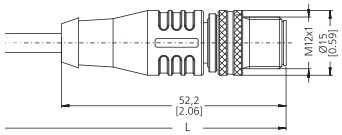
Bus out

suitable for our series:

5858 / 5878
5868 / 5888
9080

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





Terminal assignment

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

Cable length [1]

2 m [6.56']	**05.00.6011.3411.002M**
5 m [16.40']	**05.00.6011.3411.005M**
10 m [32.81']	**05.00.6011.3411.010M**
15 m [49.21']	**05.00.6011.3411.015M**

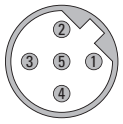
Male connector with external thread + single-ended
B coded, right-angle

Bus out

suitable for our series:

5858 / 5878
5868 / 5888
9080

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



Terminal assignment

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

Cable length [1]

2 m [6.56']	**05.00.6011.3511.002M**
5 m [16.40']	**05.00.6011.3511.005M**
10 m [32.81']	**05.00.6011.3511.010M**
15 m [49.21']	**05.00.6011.3511.015M**

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

M12 connection technology — Cordsets, pre-assembled

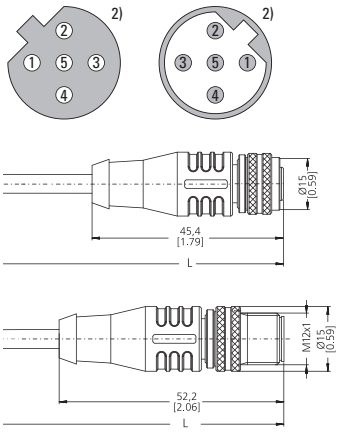
With connector, 5 pin

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

Female connector with coupling nut + male connector with external thread
B coded, straight

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

Bus in / out



suitable for our series:

5858 / 5878
5868 / 5888
9080

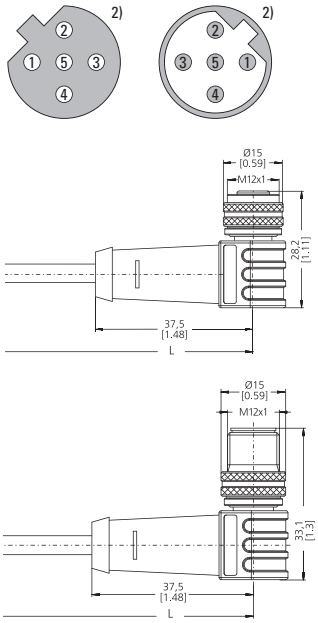
PROFIBUS

Cable length [1]	Order no.
2 m [6.56']	**05.00.6011.3432.002M**
5 m [16.40']	**05.00.6011.3432.005M**
10 m [32.81']	**05.00.6011.3432.010M**
15 m [49.21']	**05.00.6011.3432.015M**

Female connector with coupling nut + male connector with external thread
B coded, right-angle

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

Bus in / out



suitable for our series:

5858 / 5878
5868 / 5888
9080

PROFIBUS

Cable length [1]	Order no.
2 m [6.56']	**05.00.6011.3533.002M**
5 m [16.40']	**05.00.6011.3533.005M**
10 m [32.81']	**05.00.6011.3533.010M**
15 m [49.21']	**05.00.6011.3533.015M**

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

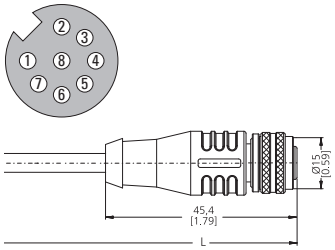
M12 connection technology | Cordsets, pre-assembled

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



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

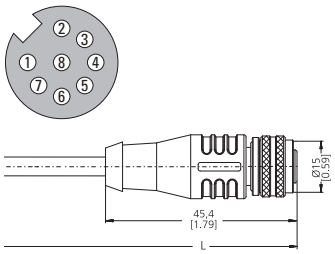
Pin female contacts:	1	2	3	4	5	6	7	8	PH [2]
Wire colour:	WH	BN	GN	YE	GY	PK	BU	RD	PH [2]

Cable length [1]

2 m [6.56']	**05.00.6041.8211.002M**
5 m [16.40']	**05.00.6041.8211.005M**
10 m [32.81']	**05.00.6041.8211.010M**
15 m [49.21']	**05.00.6041.8211.015M**

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

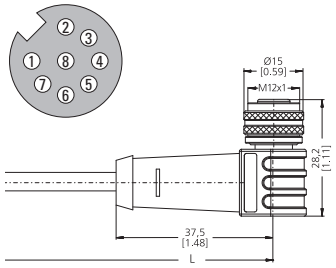
Pin female contacts:	1	2	3	4	5	6	7	8	PH [2]
Wire colour:	WH	BN	GN	YE	GY	PK	BU	RD	PH [2]

Cable length [1]

2 m [6.56']	**05.00.6051.8211.002M**
5 m [16.40']	**05.00.6051.8211.005M**
10 m [32.81']	**05.00.6051.8211.010M**
15 m [49.21']	**05.00.6051.8211.015M**

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

Cable: PVC, 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]

2 m [6.56']	**05.00.6041.8311.002M**
5 m [16.40']	**05.00.6041.8311.005M**
10 m [32.81']	**05.00.6041.8311.010M**
15 m [49.21']	**05.00.6041.8311.015M**

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

M12 connection technology — Cordsets, pre-assembled

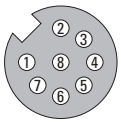
With connector, 8 pin

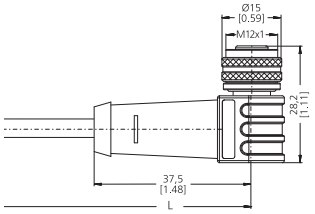
Working temp. -30°C ... +80°C [-22°F ... +176°F]

Order no.

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

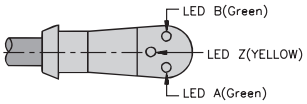
Cable: PVC, 8 x 0.25 mm² [AWG23]
Housing: metal / plastic, IP67





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']	**05.E-WKC 8T-PX3-930-0002**
5 m [16.40']	**05.E-WKC 8T-PX3-930-0005**
10 m [32.81']	**05.E-WKC 8T-PX3-930-0010**
15 m [49.21']	**05.E-WKC 8T-PX3-930-0015**

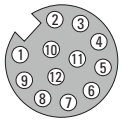
With connector, 12 pin

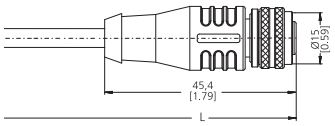
Working temp. -30°C ... +90°C [-22°F ... +194°F]

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]

2 m [6.56']	**05.00.60B1.B211.002M**
5m [16.40']	**05.00.60B1.B211.005M**
10 m [32.81']	**05.00.60B1.B211.010M**
15 m [49.21']	**05.00.60B1.B211.015M**

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

M23 connection technology | Connectors, self-assembly

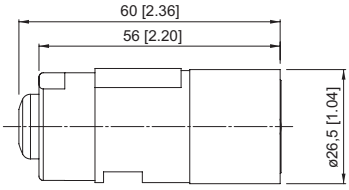
12 pin

Order no.

Male connector with external thread
pin assignment ccw

Housing: metal, IP67

solder connections,
for cable ø 5.5 ... 10.5 mm [0.22 ... 0.41“]



suitable for:

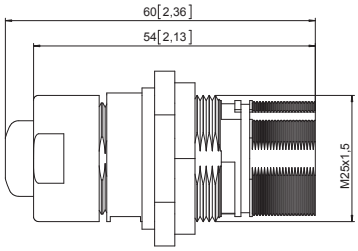
versions with cable outlet

8.0000.5015.0001

Male connector with external thread
pin assignment ccw
central fastening

Housing: metal, IP67

solder connections,
for cable ø 5.5 ... 10.5 mm [0.22 ... 0.41“]



suitable for:

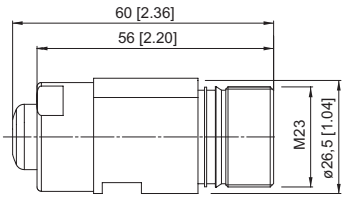
versions with cable outlet

8.0000.5015.0000

Female connector with coupling nut
pin socket assignment cw

Housing: metal, IP67

solder connections,
for cable ø 5.5 ... 10.5 mm [0.22 ... 0.41“]



suitable for:

5000 / 5020	580X / 582X
5814 / 5834	5814FSx / 5834FSx
F5863 / F5883	
585x / 587x	5853FSx /5873FSx
586x / 588x	5863FSx /5883FSx
9000	908x
A02x	

8.0000.5012.0000

M23 connection technology | Connectors, self-assembly

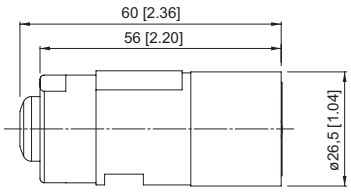
12 pin

Order no.

Female connector with coupling nut
pin socket assignment cw
(EX zone 2/22 on request)

Housing: metal, IP67

solder connections,
for cable ø 5.5 ... 10.5 mm [0.22 ... 0.41“]



suitable for:

5000 / 5020
5814 / 5834
F5863 / F5883
585X / 587X
586X / 588X
9000
A02X
580X / 582X
5814FSx / 5834FSx
5853FSx /5873FSx
5863FSx /5883FSx
908X

8.0000.5012.0000.Ex

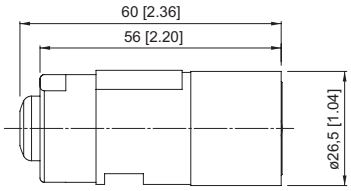
17 pin

Order no.

Female connector with coupling nut
pin socket assignment ccw

Housing: metal, IP67

solder connections,
for cable ø 5.5 ... 10.5 mm [0.22 ... 0.41“]



suitable for:

5850 / 5870
5852 / 5872

8.0000.5042.0000

M23 connection technology | Cordsets, pre-assembled

With connector, 12 pin

Working temp. -30°C ... +80°C [-22°F ... +176°F] | Order no.

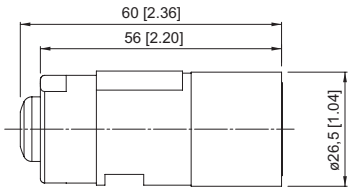
Female connector with coupling nut + single-ended

pin socket
assignment cw

suitable for our series with RS422 or SinCos output:

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

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



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]

2 m [6.56']	**8.0000.6901.0002**
5 m [16.40']	**8.0000.6901.0005**
10 m [32.81']	**8.0000.6901.0010**
15 m [49.21']	**8.0000.6901.0015**

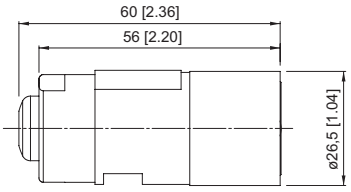
Female connector with coupling nut + single-ended

pin socket
assignment cw

suitable for our series with RS422 or SinCos output:

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

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



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 mm²	WH	BN 0.5 mm²	PH [2]

Cable length [1]

2 m [6.56']	**8.0000.6101.0002**
5 m [16.40']	**8.0000.6101.0005**
10 m [32.81']	**8.0000.6101.0010**
15 m [49.21']	**8.0000.6101.0015**

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

M23 connection technology | Cordsets, pre-assembled

With connector, 12 pin

Working temp. -30°C ... +80°C [-22°F ... +176°F] | Order no.

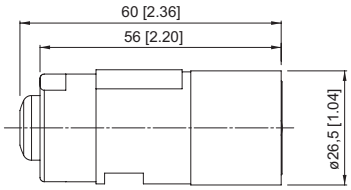
Female connector with coupling nut + single-ended

pin socket
assignment cw

suitable for our series with SSI or analogue output:

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

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



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

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

M23 connection technology | Cordsets, pre-assembled

With connector, 12 pin

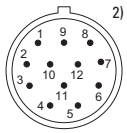
Working temp. -30°C ... +80°C [-22°F ... +176°F] | Order no.

Female connector with coupling nut + male connector with external thread

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

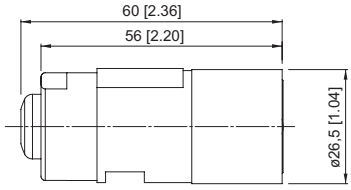
pin socket assignment cw

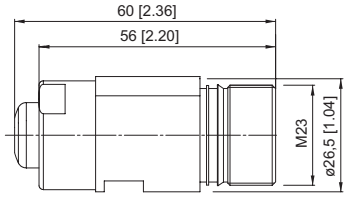
pin socket assignment ccw



suitable for our series:

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





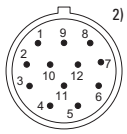
Cable length [1]	
2 m [6.56']	**8.0000.6905.0002**
5 m [16.40']	**8.0000.6905.0005**
10 m [32.81']	**8.0000.6905.0010**
15 m [49.21']	**8.0000.6905.0015**

Female connector with coupling nut + male connector with external thread

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

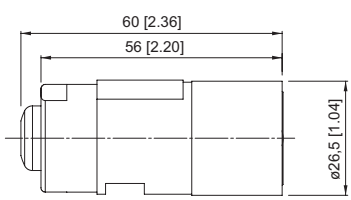
pin socket assignment cw

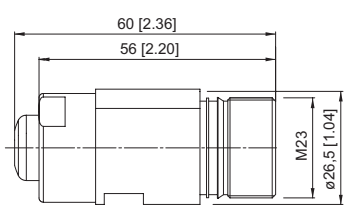
pin socket assignment ccw



suitable for our series with SSI output:

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





Cable length [1]	
2 m [6.56']	**8.0000.6905.0002.0032**
5 m [16.40']	**8.0000.6905.0005.0032**
10 m [32.81']	**8.0000.6905.0010.0032**
15 m [49.21']	**8.0000.6905.0015.0032**

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

M23 connection technology | Cordsets, pre-assembled

With connector, 17 pin

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

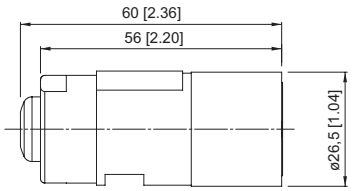
Female connector with coupling nut + single-ended

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

pin socket assignment ccw

suitable for our series:

5850 / 5870
5852 / 5872



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

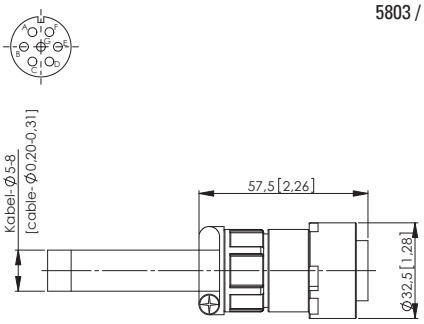
Cable length [1]	Order no.
2 m [6.56']	**8.0000.6741.0002**
5 m [16.40']	**8.0000.6741.0005**
10 m [32.81']	**8.0000.6741.0010**
15 m [49.21']	**8.0000.6741.0015**

1) Other cable lengths on request.

MIL connection technology | Connectors, self-assembly

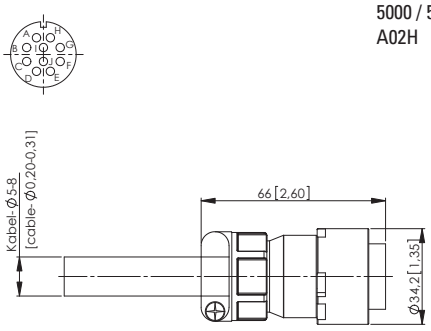
7 pin

			Order no.
Female connector with coupling nut Housing: metal, IP67	solder connections, for cable ø 5 ... 8 mm [0.20 ... 0.32“]	suitable for our series: 5803 / 5823	**8.0000.5052.0000**



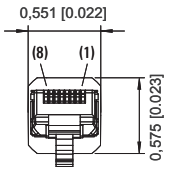
10 pin

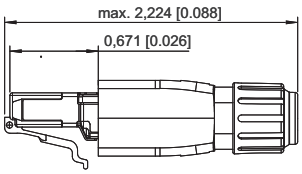
			Order no.
Female connector with coupling nut Housing: metal, IP67	solder connections, for cable ø 5 ... 8 mm [0.20 ... 0.32“]	suitable for our series: 5000 / 5020 5803 / 5823 A02H LM3	**8.0000.5062.0000**



RJ45 connection technology | Connectors, self-assembly

8 pin			Order no.
RJ45 connector straight Housing: plastic, IP20	screw connections, for cable ø 4.5 ... 8 mm [0.18 ... 0.32"]	suitable for: BMB1, BMC1, SMBU, SMBS, SMBD	**05.VS-08-RJ45-5-Q/IP20**



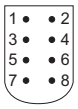


RJ45 connection technology | Cordsets, pre-assembled

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, metallised



suitable for our series:

EMAI
SMAS

Terminal assignment

Signal:	0 V	+V	B	$\overline{B}$	A	$\overline{A}$	⏚
Pin Mini-I/O:	8	n.c.	5	6	2	1	PH [2]
Pin RJ45:	2	1	4	5	7	8	PH [2]

Cable length [1]

Terminal ENC1, ENC2 1 m [3.28']
HTL, SinCos

8.SMAS.C21.001M

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

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

RJ45 connection technology | Cordsets, pre-assembled

Ethernet patch cable with 2 x RJ45 connector

Working temp. -20°C ... +60°C [-4°F ... +140°F]

Ethernet adapter cable

Cable: PVC, orange
category 6A acc. to EN 50173-1
6 x 2 x 0.14 mm² [AWG 25],
shielded twisted pairs
Housing: ABS, metallised

suitable for our series:

EMAA
SMAS

	Cable length [1]	Order no.
Terminal ENC1, ENC2	0.25 m [0.82']	**8.SMAS.C22.0M25**
SinCos, SSI	0.5 m [1.64']	**8.SMAS.C22.0M50**
	1 m [3.28']	**8.SMAS.C22.001M**

Ethernet patch cable

Cable: PUR, grey/white
4 x 2 x 0.15 mm² [AWG 25],
shielded
Housing: ABS, metallised

suitable for our series:

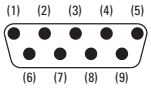
SMBD.32E
SMBU
SMBS
BMB1
BMC1

	Cable length [1]	Order no.
Terminal Ethernet	2 m [6.56']	**05.00.60A1.7272.002M**
Parameterizing interface	5 m [16.40']	**05.00.60A1.7272.005M**
	10 m [32.81']	**05.00.60A1.7272.010M**
	15 m [49.21']	**05.00.60A1.7272.015M**

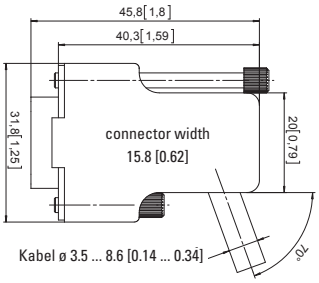
1) Other cable lengths on request.
2) Shield on housing.

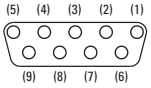
Sub-D connection technology | Connectors, self-assembly

9 pin			Order no.
Male connector with cable outlet 70° Housing: ABS, metallised, IP20	solder contacts, for cable ø 3.5 ... 8.6 mm [0.14 ... 0.34“]	suitable for our series: SMC1 MS1, MSP1, MS2, MSP2 BM21, BM31	**8.0000.514A.0000**
Female connector with cable outlet 70° Housing: ABS, metallised, IP20	solder contacts, for cable ø 3.5 ... 8.6 mm [0.14 ... 0.34“]	suitable for our series: SMC1	**8.0000.514B.0000**

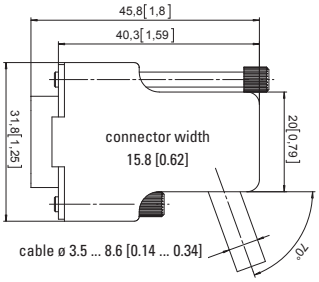


Shield on housing





Shield on housing



Sub-D connection technology Cordsets, pre-assembled

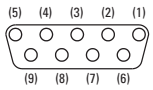
With Sub-D connector	Working temp. -30°C ... +80°C [-22°F ... +176°F]		Order no.

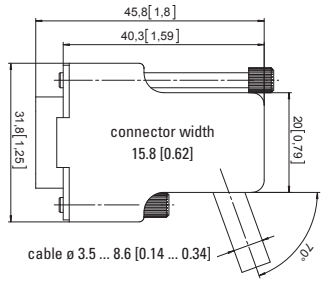
Sub-D female connector, 9-pin with cable outlet 70° + single-ended

Cable: PVC, 3 x 2 x 0.25 mm² [AWG 23]
Housing: ABS, metallised, IP20

suitable for our series:

SMC1





Terminal assignment

Signal:	0 V	+V	A	$\overline{A}$	B	$\overline{B}$	⏚
Pin Sub-D:	5	4	1	9	3	2	PH [1]
Wire colour:	WH	BR	GN	YE	GY	PK	

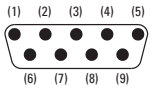
	Cable length [1]	
Terminal X6, X7	2 m [6.56']	**8.0000.6V00.0002.0086**
for SinCos signals	5 m [16.40']	**8.0000.6V00.0005.0086**
	10 m [32.81']	**8.0000.6V00.0010.0086**
	15 m [49.21']	**8.0000.6V00.0015.0086**

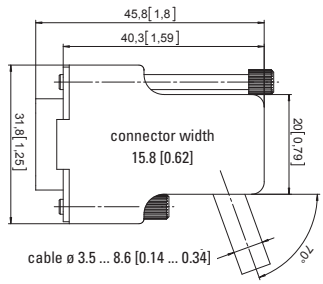
Sub-D male connector, 9-pin with cable outlet 70° + single-ended

Cable: PVC, 3 x 2 x 0.25 mm² [AWG 23]
Housing: ABS, metallised, IP20

suitable for our series:

SMC1





Terminal assignment

Signal:	0 V	+V	A	$\overline{A}$	B	$\overline{B}$	⏚
Pin Sub-D:	5	4	1	9	3	2	PH [1]
Wire colour:	WH	BR	GN	YE	GY	PK	

	Cable length [1]	
Terminal X5	2 m [6.56']	**8.0000.6V00.0002.0087**
for SinCos signals	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**

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

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

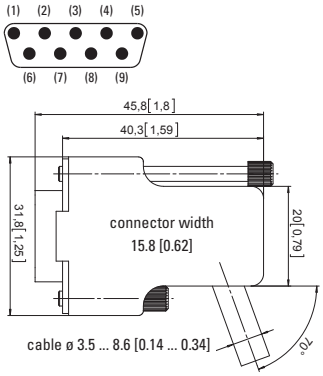
Sub-D connection technology | Cordsets, pre-assembled

With Sub-D connector

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

Sub-D male connector, 9-pin
with cable outlet 70° +
single-ended

Cable: PVC, 6 x 2 x 0.14 mm² [AWG 25]
Housing: ABS, metallised, IP20



suitable for our series:

MS1, MSP1, MS2, MSP2

Terminal assignment

Signal:	0 V	+V	A	$\overline{A}$	B	$\overline{B}$	⏚
Pin Sub-D:	2	9	8	4	5	6	PH [2]
Wire colour:	WH	BR	BK	VT	GY/PK	RD/BU	

	Cable length [1]	
Terminal X31, X32, X33, X34	2 m [6.56']	**8.0000.6900.0002.0076**
for SinCos signals + TTL	5 m [16.40']	**8.0000.6900.0005.0076**
(for absolute encoders)	10 m [32.81']	**8.0000.6900.0010.0076**
	15 m [49.21']	**8.0000.6900.0015.0076**

Signal:	0 V	+V	C+	C-	D+	D-	⏚
Pin Sub-D:	2	9	8	4	5	6	PH [2]
Wire colour:	WH	BR	GN	YE	GY	PK	

Terminal X31, X32	2 m [6.56']	**8.0000.6900.0002.0075**
for SSI signals	5 m [16.40']	**8.0000.6900.0005.0075**
(for absolute encoders)	10 m [32.81']	**8.0000.6900.0010.0075**
	15 m [49.21']	**8.0000.6900.0015.0075**

Signal:	0 V	+V	C+	C-	D+	D-	⏚
Pin Sub-D:	2	9	3	7	5	6	PH [2]
Wire colour:	WH	BR	GN	YE	GY	PK	

Terminal X33, X34	2 m [6.56']	**8.0000.6900.0002.0078**
for SSI signals	5 m [16.40']	**8.0000.6900.0005.0078**
(for absolute encoders)	10 m [32.81']	**8.0000.6900.0010.0078**
	15 m [49.21']	**8.0000.6900.0015.0078**

Cable: PVC, 3 x 2 x 0.25 mm² [AWG 23]
Housing: ABS, metallised, IP20

Signal:	0 V	+V	A	$\overline{A}$	B	$\overline{B}$	⏚
Pin Sub-D:	2	9	8	4	5	6	PH [2]
Wire colour:	WH	BR	GN	YE	GY	PK	

Terminal X31, X32, X33, X34	2 m [6.56']	**8.0000.6V00.0002.0082**
for SinCos signals	5 m [16.40']	**8.0000.6V00.0005.0082**
(for incremental encoders)	10 m [32.81']	**8.0000.6V00.0010.0082**
	15 m [49.21']	**8.0000.6V00.0015.0082**

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

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

Sub-D connection technology | Cordsets, pre-assembled

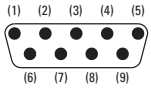
With Sub-D connector

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

Order no.

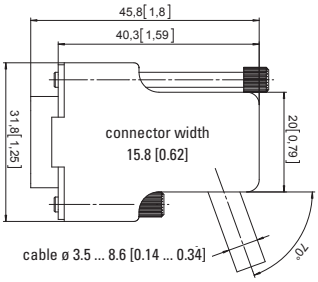
2 x Sub-D male connector, 9-pin
with cable outlet 70° +
single-ended

Cable: PVC, 6 x 2 x 0.14 mm² [AWG 25]
Housing: ABS, metallised, IP20



suitable for our series:

MSP1, MSP2



Terminal assignment

Signal:	0 V	+V	C+	C-	D+	D-	A	$\overline{A}$	B	$\overline{B}$	⏚
Pin Sub-D 1:	2	9	3	7	5	6	-	-	-	-	PH [2]
Pin Sub-D 2:	-	-	-	-	-	-	8	4	5	6	PH [2]
Wire colour:	WH	BR	GN	YE	GY	PK	BK	VT	GY/PK	RD/BU	

	Cable length [1]	Order no.
Terminal X31/X33, X32/X34	2 m [6.56']	**8.0000.6900.0002.0077**
for SSI signals and	5 m [16.40']	**8.0000.6900.0005.0077**
SinCos signals + TTL	10 m [32.81']	**8.0000.6900.0010.0077**
	15 m [49.21']	**8.0000.6900.0015.0077**

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

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

Sub-D connection technology | Cordsets, pre-assembled

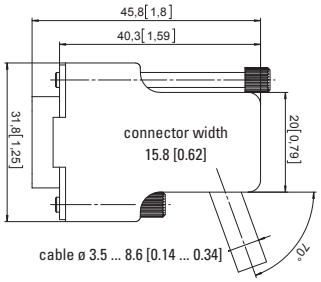
With Sub-D connector + M12 connector

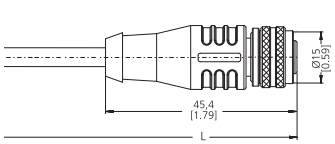
Working temp. -30°C ... +80°C [-22°F ... +176°F]

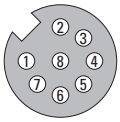
Order no.

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, metallised, IP20
Housing M12: metal / plastic, IP67







suitable for our series:

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

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

Cable length [1]	Order no.
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]

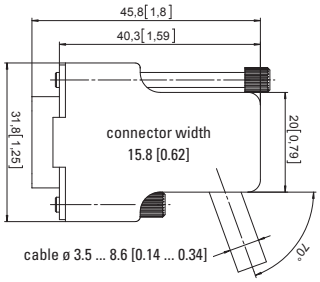
Order no.

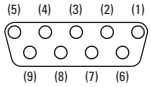
Sub-D female connector, 9-pin, cable outlet 70° + M23 female connector with coupling nut, 12 pin

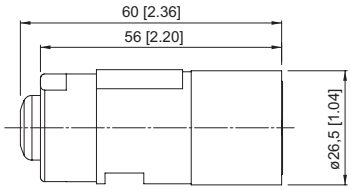
Cable: PVC, 3 x 2 x 0.25 mm² [AWG 23]
Housing Sub-D: ABS, metallised, IP20
Housing M23: metal, IP67

suitable for our series:

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







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

Cable length [1]	Order no.
2 m [6.56']	**8.0000.6V00.0002.0085**
5 m [16.40']	**8.0000.6V00.0005.0085**
10 m [32.81']	**8.0000.6V00.0010.0085**
15 m [49.21']	**8.0000.6V00.0015.0085**

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

Sub-D connection technology | Cordsets, pre-assembled

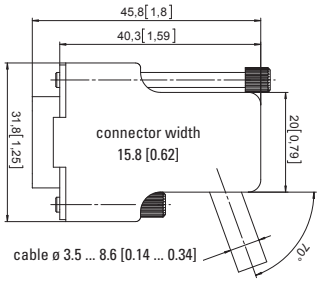
With Sub-D connector + M23 connector

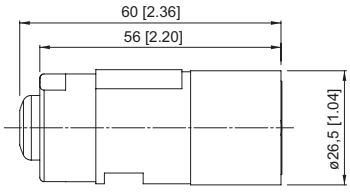
Working temp. -30°C ... +80°C [-22°F ... +176°F]

Order no.

Sub-D male 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, metallised, IP20
Housing M23: metal, IP67

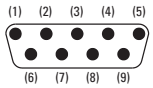




suitable for our series:

5000 / 5020 5006 / 5026
5814 / 5834 5814FSx / 5834FSx
5821

MS1, MSP1, MS2, MSP2



pin socket assignment cw

Terminal assignment

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

Cable length [1]

		Order no.
for terminal X31, X32, X33, X34 at MS1, MSP1, MS2, MSP2	2 m [6.56']	**8.0000.6V00.0002.0081**
	5 m [16.40']	**8.0000.6V00.0005.0081**
	10 m [32.81']	**8.0000.6V00.0010.0081**
	15 m [49.21']	**8.0000.6V00.0015.0081**

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]

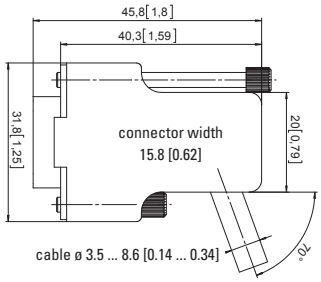
Order no.

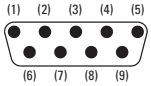
Sub-D male connector, 9-pin, cable outlet 70° + M23 female connector with coupling nut, 12 pin

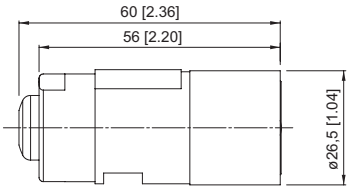
Cable: PVC, 6 x 2 x 0.14 mm² [AWG25]
Housing Sub-D: ABS, metallised, IP20
Housing M23: metal, IP67

suitable for our series:

5853 / 5873 5853FSx / 5873FSx
5863 / 5883 5863FSx / 5883FSx
F5863 / F5883
MS1, MSP1, MS2, MSP2







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]

for terminal X31, X32 at MS1, MSP1, MS2, MSP2

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						

for terminal X33, X34 at MSP1, MSP2

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.

Sub-D connection technology | Cordsets, pre-assembled

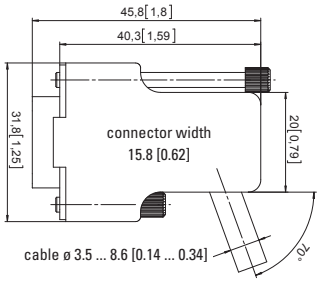
With Sub-D connector + M23 connector

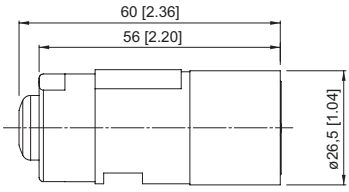
Working temp. -30°C ... +80°C [-22°F ... +176°F]

Order no.

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

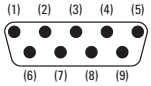
Cable: PVC, 6 x 2 x 0.14 mm² [AWG25]
Housing Sub-D: ABS, metallised, IP20
Housing M23: metal, IP67





suitable for our series:

5853 / 5873 5853FSx / 5873FSx
5863 / 5883 5863FSx / 5883FSx
MSP1, MSP2



pin socket assignment cw

Terminal assignment

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										

for terminal X31/X33, X32/X34 at MSP1, MSP2

Cable length [1]

2 m [6.56']	**8.0000.6900.0002.0070**
5 m [16.40']	**8.0000.6900.0005.0070**
10 m [32.81']	**8.0000.6900.0010.0070**
15 m [49.21']	**8.0000.6900.0015.0070**

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]

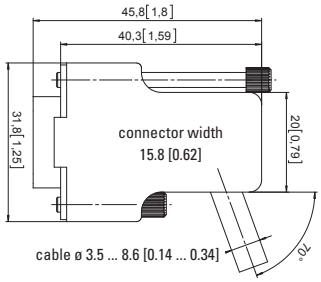
Order no.

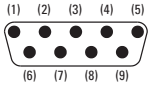
2 x Sub-D male connector, 9-pin with SET and DIR, cable outlet 70° + M23 female connector with coupling nut, 12 pin

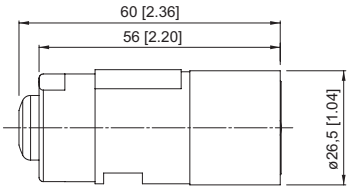
Cable: PVC, 6 x 2 x 0.14 mm² [AWG25]
Housing Sub-D: ABS, metallised, IP20
Housing M23: metal, IP67

suitable for our series:

5853 / 5873 5853FSx / 5873FSx
5863 / 5883 5863FSx / 5883FSx
MSP1, MSP2







pin socket assignment cw

Terminal assignment

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	7	8	9	10	11	12	PH [2]
Wire colour:							BU SET	RD DIR					
	pins arranged below each other are connected internally												

Cable length [1]

for terminal X31/X33, X32/X34 at MSP1, MSP2

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.

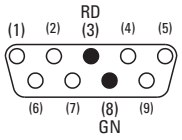
Sub-D connection technology | Cordsets, pre-assembled

With Sub-D connector

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

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

BM31

Terminal assignment

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

Cable length [1]	Order no.
2 m [6.56']	**05.00.6011.5511.002M**
5 m [16.40']	**05.00.6011.5511.005M**
10 m [32.81']	**05.00.6011.5511.010M**
15 m [49.21']	**05.00.6011.5511.015M**

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

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.

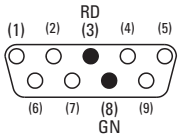
Sub-D male connector, 9 pin, cable outlet 90°
Profibus master with terminating resistor +
M12 female connector with coupling nut,
5 pin, B coded

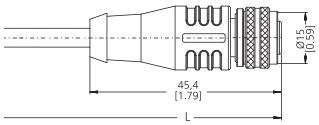
Bus in

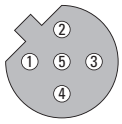
suitable for our series:

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

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 length [1]

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**

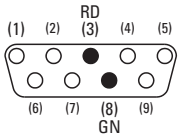
Sub-D male connector, 9 pin, cable outlet 90°
Profibus master with terminating resistor +
M12 male connector with external thread,
5 pin, B coded

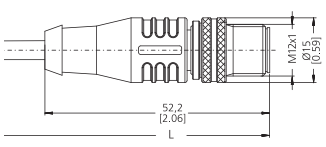
Bus out

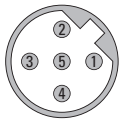
suitable for our series:

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

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 length [1]

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.

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.

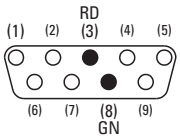
Sub-D male connector, 9 pin, cable outlet 90°
Profibus master with terminating resistor +
M12 male connector with external thread and
M12 female connector with coupling nut,
5 pin, B coded

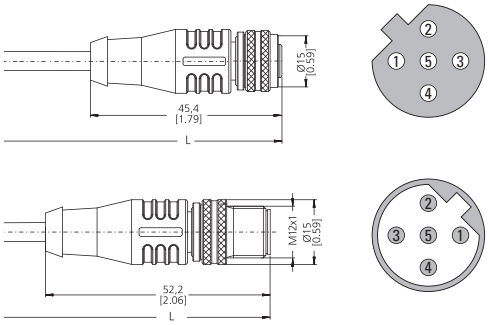
Bus in, Bus out

suitable for our series:

Cable: PUR, 2 x 0.34 mm² [AWG22]
Housing Sub-D: ABS, metallised
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 length [1]

2 x 2 m [6.56']	**05.00.6012.5536.002M**
2 x 5 m [16.40']	**05.00.6012.5536.005M**
2 x 10 m [32.81']	**05.00.6012.5536.010M**
2 x 15 m [49.21']	**05.00.6012.5536.015M**

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

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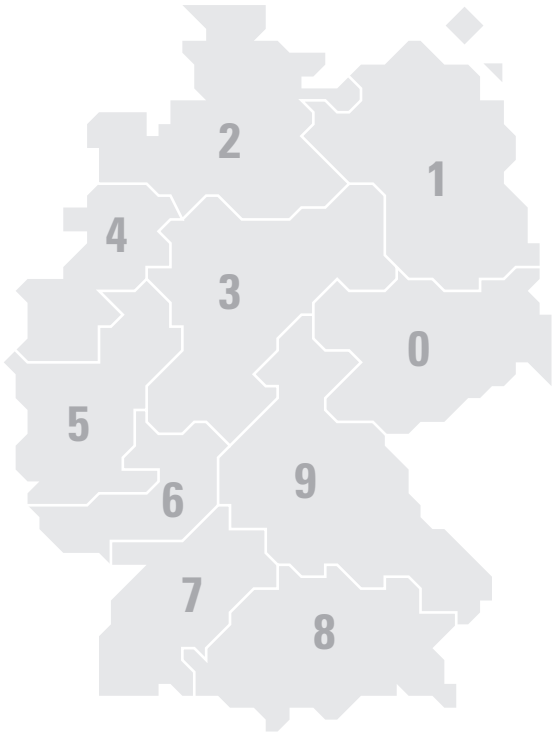

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