

# ARUSH SWITCHGEARS

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**Numerous Brands**  
**One Supplier**

ARUSH



At *Arush Switchgears*, it is our always our constant endeavour to help our esteemed customers get the best on most competitive market prices.

Our strong alliance with the broad-list of brands helps us to always offer an extensive range of items, new product introductions from latest technologies as soon as they are available in the market. There are new products that are introduced on regular basis, from over a ocean of brands.

We'd really appreciate if you can share your product requirements for following brands & categories to get the best quotes from us.

## Our Range

Automation & Control Gears	Lighting
Batteries	Pneumatics
Cables & Wires	Power Supplies
Connectors	Relays
Displays & Optoelectronics	ESD Control & Clean Room
Electricals	Sockets & Circuit Breakers
Enclosure & Storage	Switches
Fuses	Test & Measurement
HVAC, Fan & Thermal Management	Tools

## Our Top Brands





# Our Pulses for Innovations



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

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

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

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

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

Over 480 dedicated people worldwide make this success possible and ensure that customers can continue to place their trust in our company.



# Kübler Service for worldwide Planning Reliability



**24one**

## 24one delivery promise

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



## Sample Service

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

**10 by 10**

## 10 by 10

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



## Safety Services

- Adapted service packages
- Individual customer solutions

**48h**

## 48 h Express-Service

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



## 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.



## Technical Support

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

Kübler Germany / Austria ..... +49 7720 3903 952

Kübler France ..... +33 3 89 53 45 45

Kübler Italy ..... +39 026 423 345

Kübler Poland ..... +48 61 84 99 902

Kübler Turkey ..... +90 216 999 9791

Kübler China ..... +86 10 8471 0818

Kübler India ..... +91 8600 147 280

Kübler USA ..... +1 855 583 2537

# Our Product Portfolio



## Position and Motion Sensors

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

## Slip Rings

- Modular system
- Bearingless modular system
- Contactless transmission
- Compact and low-maintenance
- Ethernet transmission
- High current transmission

## Functional Safety

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

## Counters and Process Devices

- Pulse counters and preset counters
- Hour meters and timers
- Frequency meters and tachometers
- Combination time and energy meters
- Position displays
- Process displays and controllers for temperature, analog signals and strain-gauge
- Setpoint adjuster

## We offer Solutions for the following Industries:



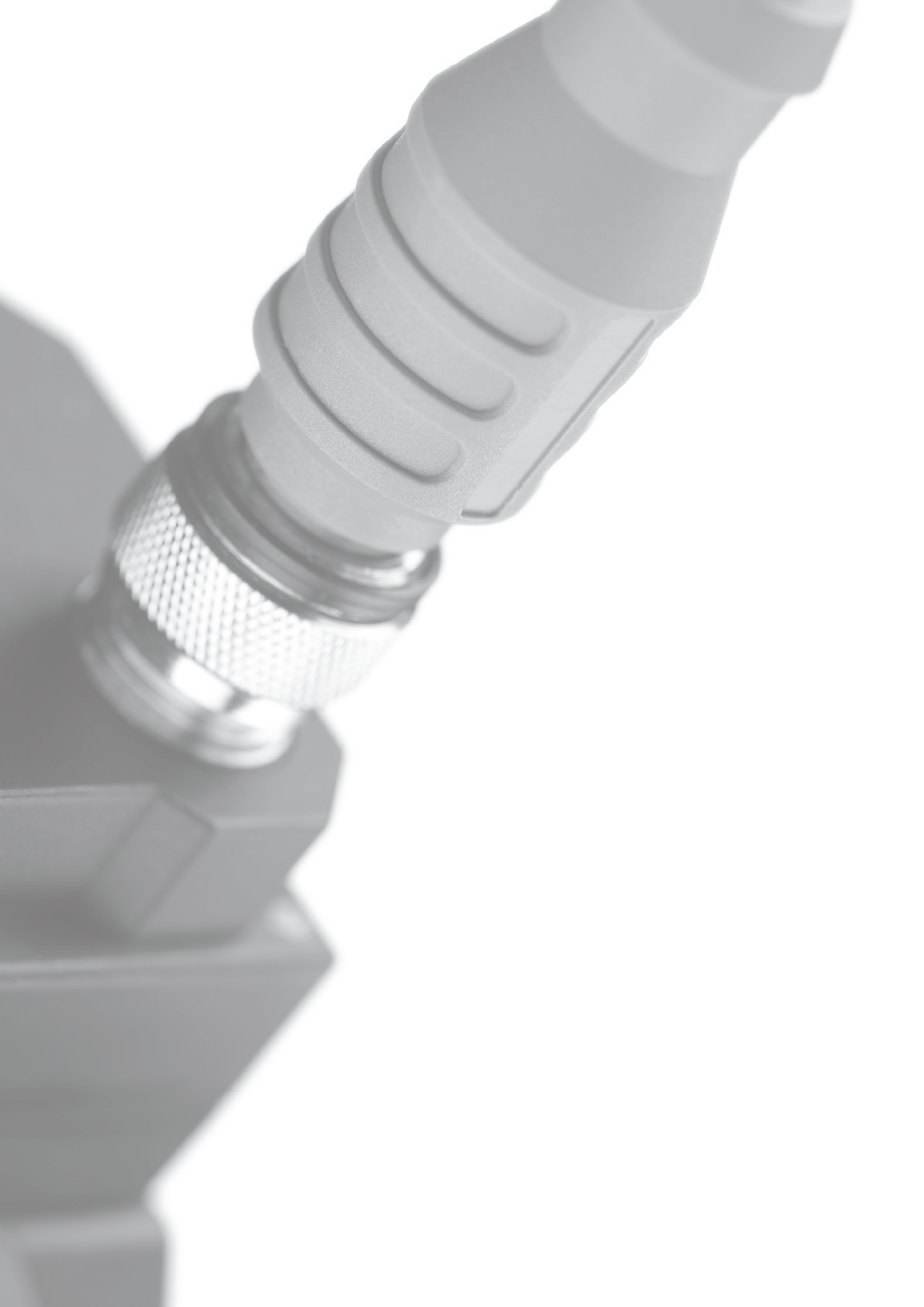
The high performance level and reliability of the Kübler products are based on our long experience in these demanding application sectors. Learn more about our application-specific solutions under:

[www.kuebler.com/industries](http://www.kuebler.com/industries)

# Slip Rings

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You will find comprehensive information about the basic technical knowledge relating to our products on our homepage, at the address [www.kuebler.com/basics](http://www.kuebler.com/basics)



## Product overview

### Slip rings

		Power / Current (Load)	Signal (Data)	Pneumatics	Hydraulics	N° of channels	Ø Hollow shaft max. in mm [inch]	Current max. in A	Protection max.	Speed max. in min <sup>-1</sup>	Temperature range max. in °C [°F]	Page
	Modular, construction system <b>SR085</b>	•	•	•	•	max. 20	30	25	IP64	800	-35 ... +85 [-31 ... +185]	14
	Modular, construction system, bearingless <b>SR085B</b>	•	•	–	–	max. 10	34	16	IP40	200	0 ... +75 [+32 ... +167]	17
	Modular, contactless signal transmission <b>SRI085</b>	•	•	–	–	max. 9	30	16	IP64	800	-30 ... +85 [-22 ... +185]	19
	Compact, low-maintenance <b>SR060E</b>	•	•	–	–	max. 5	25	20	IP64	500	0 ... +75 [+32 ... +167]	22
	Three chamber system, Ethernet transmission <b>SR120</b>	•	•	•	•	on request	–	25	IP64	300	-35 ... +85 [-31 ... +185]	24
	Modular, robust <b>SR160</b>	•	•	•	•	on request	–	25	IP65	150	-35 ... +85 [-31 ... +185]	28
	Modular, robust, high current <b>SR250H</b>	•	•	•	•	on request	–	80 <sup>1)</sup>	IP65	150	-35 ... +85 [-31 ... +185]	31

## Slip rings

## General information / Mounting

### Description

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

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

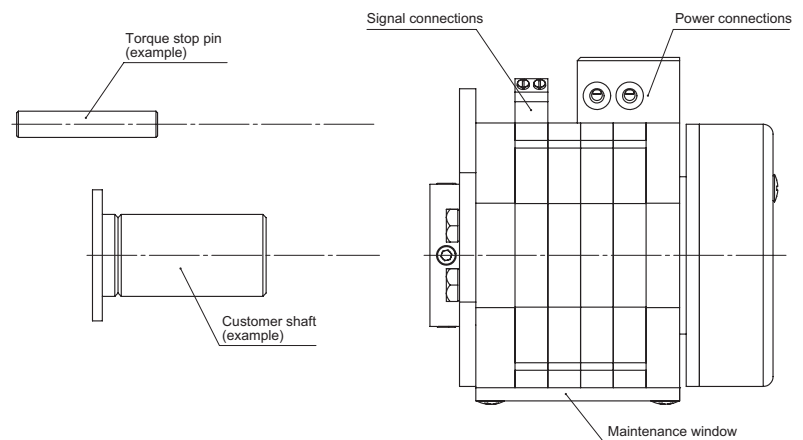
In slip rings, the electrical transmission between the stator and rotor units takes place via sliding contacts and is extremely reliable.

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

### Slip ring mounting

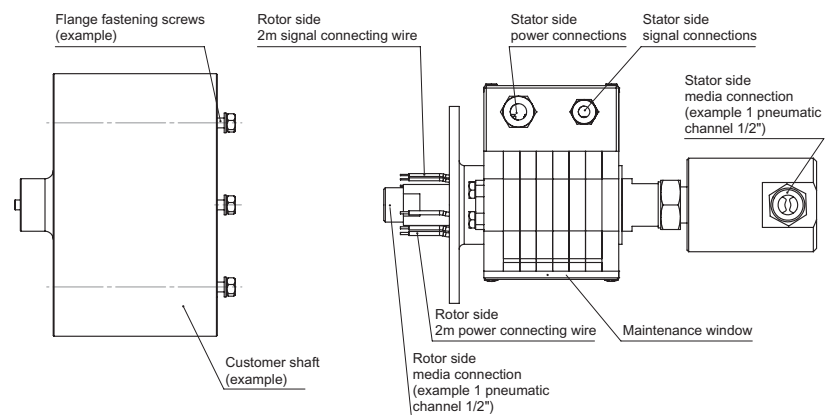
#### Hollow shaft mounting

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



#### Flange mounting

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



## Slip rings

## Mounting

### Mounting position

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

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

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

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

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

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

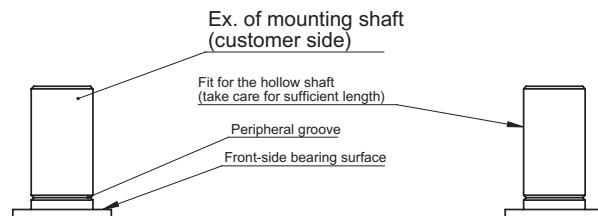
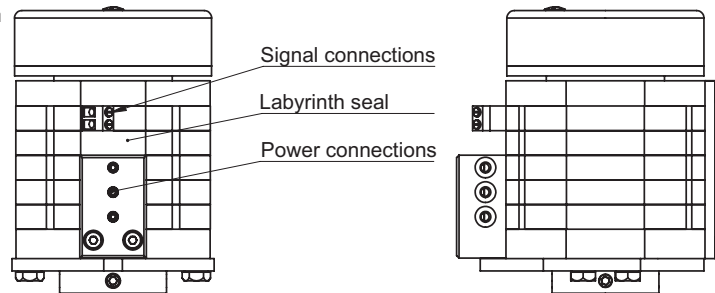
The mounting position is to be defined in the order code as follows:

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

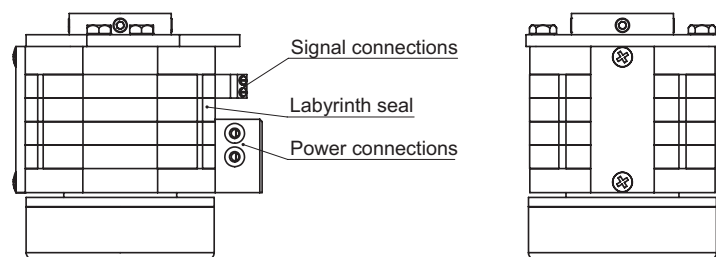
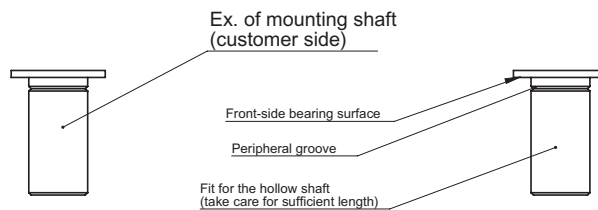
SR085-XX-XX-XX-X2XXX-VXXX  
in case of suspended and horizontal installation  
(flange on top)

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

### Mounting position standing



### Mounting position suspended



## Slip rings Contactmaterials and characteristics

### For load transmission

#### Copper alloy

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



Stator ring with copper alloy contacts

#### Bronze

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



Bronze slip rings with insulator

### For signal / data transmission

#### Silver alloy

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



Stator ring with silver alloy contacts

#### Precious metal alloy

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



Slip rings out of special precious metal alloy with insulator

## Slip rings Maintenance

### Maintenance

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

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

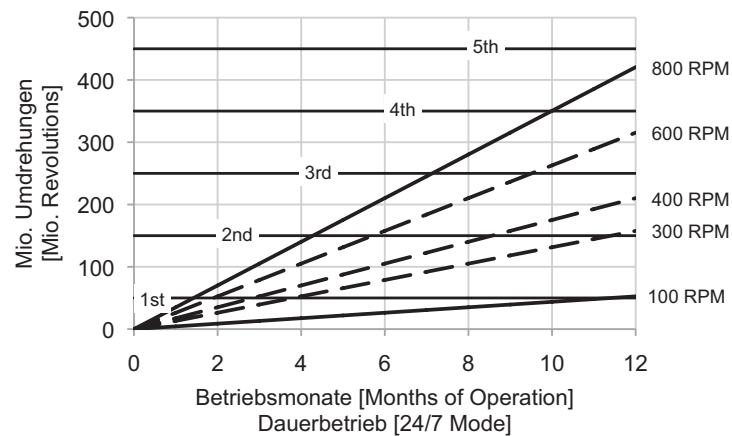
- 1st interval after max. 50 million revolutions or after 1 year
- Every further maintenance interval max. 100 million revolutions or at the minimum once per year



### 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:

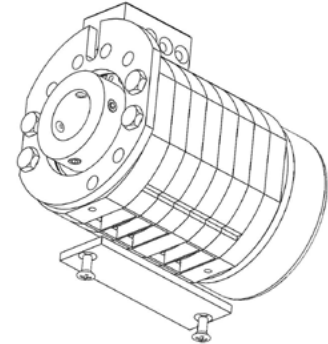
**Signal/data channels, contact material silver alloy / precious metal**



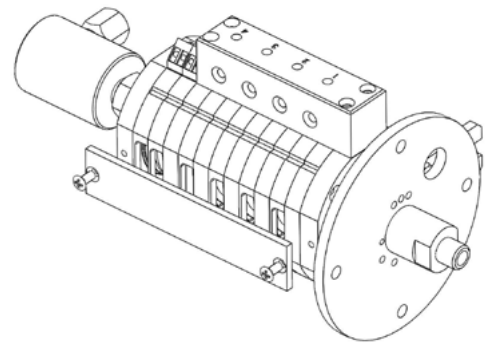
## Slip rings Maintenance

### 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)

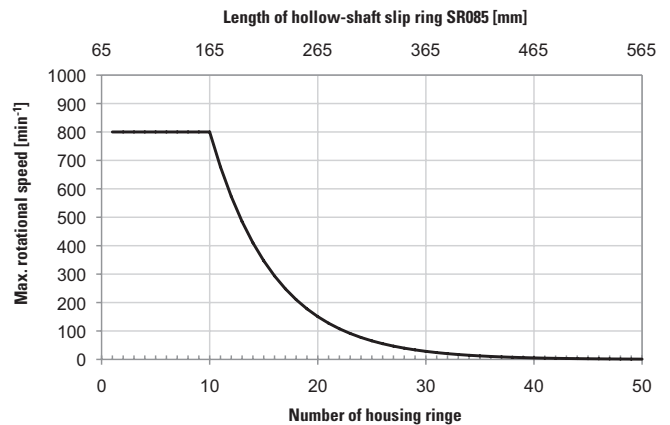


Note:  
The accurate description of the maintenance work can be found in the respective maintenance instructions.

### 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.



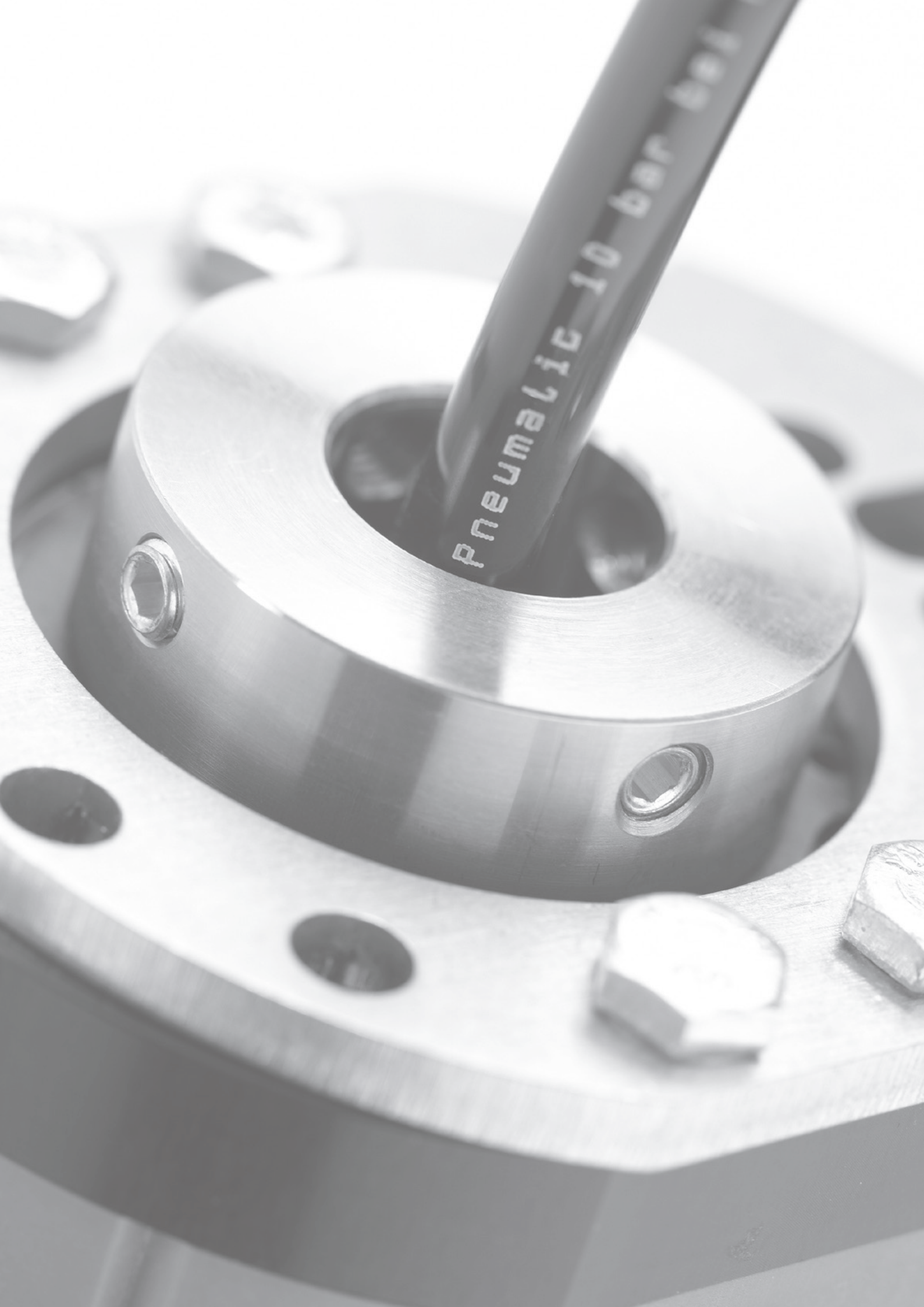
Slip rings are to be mounted by the customer so as to prevent them from oscillating and to ensure optimal rotation. The setscrews must be tightened evenly.

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.



# Slip rings

		Type	Page
<b>Slip rings</b>	Modular – Construction system	SR085	14
	Modular – Construction system, bearingless	SR085B	17
	Modular – Contactless signal transmission	SRI085	19
	Compact – Low-maintenance	SR060E	22
	 Three chamber system – Ethernet transmission	SR120	24
	 Modular – Robust	SR160	28
	 Modular – Robust, high current	SR250H	31

# 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-fiber content for industrial usage.
- Long service life and long maintenance cycles.

## Reliable with Safety-Trans™ Design

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

## Applications

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

## Standard models

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



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

## Order code

**SR085 - XX - XX - XX - XXXXX - V100**

Type    a    b    c    d e f g h    i

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

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

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

# Slip rings

<b>Modular</b>	<b>Construction system</b>	<b>SR085</b>
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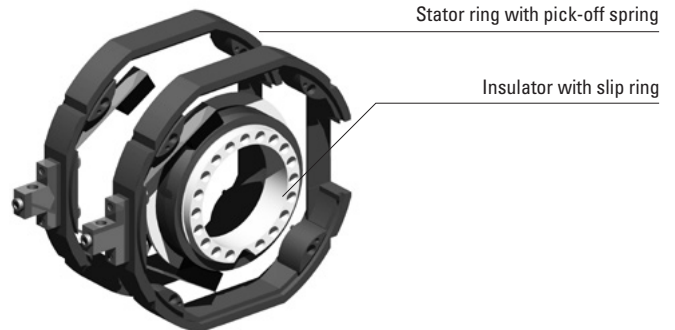
Technical data (standard version)		
<b>Overall length</b>	dep. on the number of transmission paths	
<b>Hollow shaft diameter</b>	up to $\varnothing$ 30 mm [1.18"]	
<b>Type of connection</b>		
hollow shaft mounting	stator:	terminal clamp
	rotor:	screw terminal
flange mounting	stator:	terminal clamp
	rotor:	single wires, 2 m [6.56"] (towards the assembly flange)
<b>Voltage/current loading</b>		
load channels	240 V AC/DC, max. 16 A (order option 1)	
	240 V AC/DC, max. 25 A (order option 2)	
	400 V AC/DC, max. 10 A (order option 3)	
	400 V AC/DC, max. 20 A (order option 4)	
signal channels	48 V AC/DC, max. 2 A	
<b>Contact resistance</b>		
load channels	$\leq$ 1 Ohm (dynamic) <sup>1)</sup>	
signal / data channels	$\leq$ 0.1 Ohm (silver / precious metal) <sup>2)</sup>	
<b>Insulation resistance</b>	$10^3$ MOhm, at 500 V DC	
<b>Dielectric strength</b>	1000 V eff. (60 sec.)	
<b>Speed max. (signal / data channels)</b>	800 min <sup>-1</sup> , up to 10 channels (depends on installation position and numbers of channels)	
<b>Service life (signal / data channels)</b>	typ. 500 million revolutions (at room temperature) depends on installation position	
<b>Maintenance cycles</b>	first maintenance after 50 million revolutions, all further maintenance intervals after 100 million revolutions	
<b>Maintenance</b>	contact oil not required	
<b>Material pairing</b>		
load channels	copper / bronze	
signal / data channels	silver / precious metal	
<b>Operating temperature</b>	-35° ... +85°C [-31°F ... +185°F]	
<b>Protection acc. to EN 60529</b>	max. IP64	
<b>Transmission paths</b>	max. 20 (> 20 on request)	

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

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

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

## Modular construction system



## Technology in detail

Easily accessible connections



IP64 version with rotor and stator protective cover



Practical maintenance window



Hollow shaft mounting with rotatable connector (air), for tube diameter 8 mm [0.31"]

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.

# Slip rings

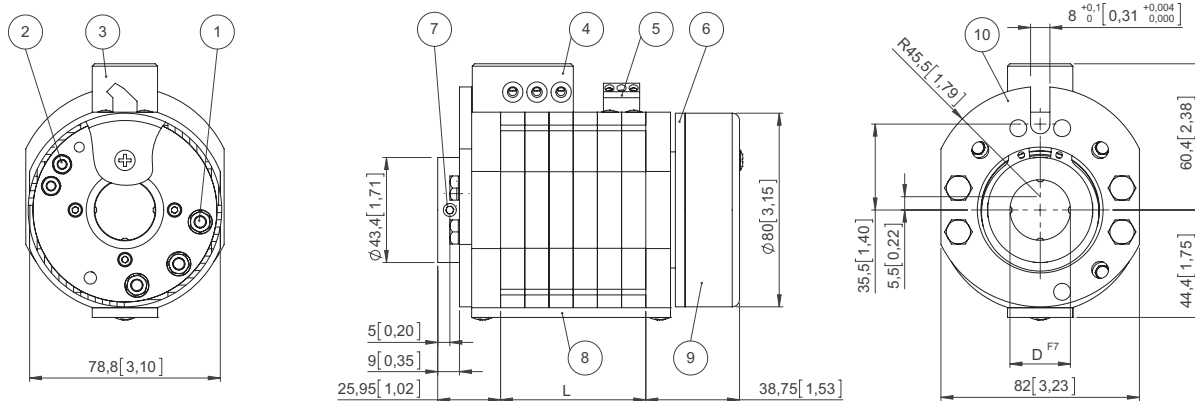
<b>Modular</b>	<b>Construction system</b>	<b>SR085</b>
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## Dimensions

Dimensions in mm [inch]

### Standard version

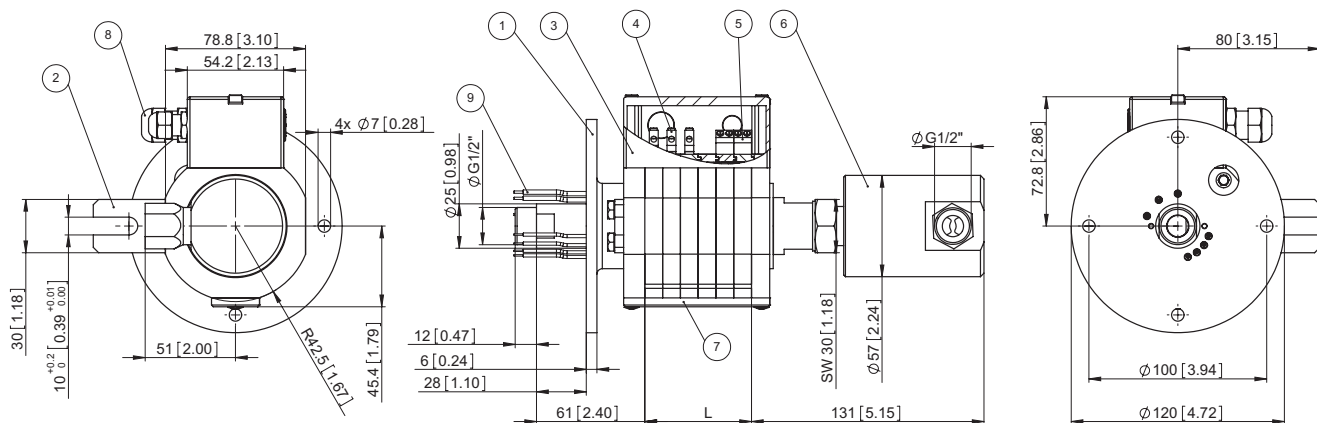
Example: Type SR085-25-02-03-11301-V100  
(2 data channels, 3 load channels)



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

### Air lead-through versions

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



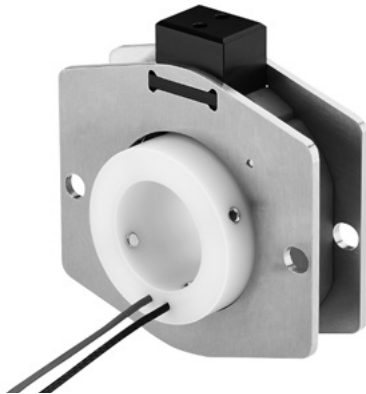
- |                             |                           |                                   |
|-----------------------------|---------------------------|-----------------------------------|
| 1 – Mounting flange         | 4 – Terminal clamp power  | 7 – Maintenance window            |
| 2 – Torque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

### Calculation of the overall length

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

# Slip rings

<b>Modular</b>	<b>Construction system, bearingless</b>	<b>SR085B</b>
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In general slip rings are used to transmit power, signals or data from a stationary to a rotating platform.

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

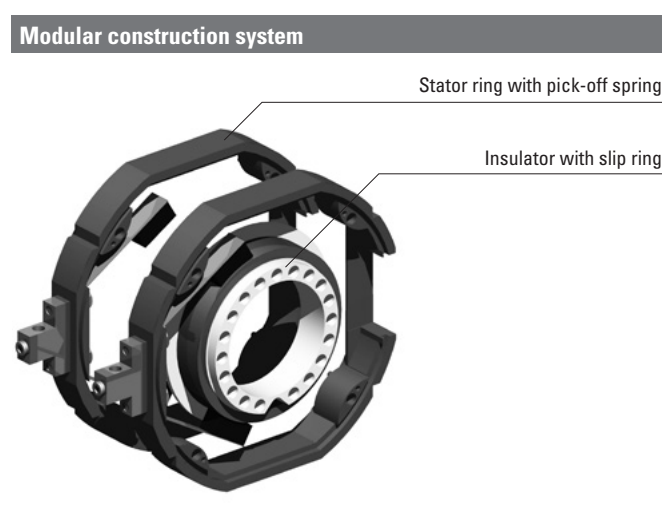
The SR085B is ideally suited for the transmission of signals, data and/or loads.

Slip rings

<h3>Flexible and slim</h3> <ul style="list-style-type: none"> <li>• Modular construction system, can be combined as desired.</li> <li>• From 33 mm mounting depth.</li> <li>• Cost-effective bearingless construction.</li> <li>• Long service life and long maintenance cycles.</li> </ul>	<h3>Applications</h3> <p>Revolving doors, rotary tables, rotary show cases, packaging machines, other low speed applications.</p>
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Order code	<b>SR085B - XX - XX - 1 0 X - V100</b> <small>Type      a      b      c d e      f</small>		
<b>a</b> <i>Type of mounting</i> 20 = hollow shaft, ø 20 mm [0.79"] 24 = hollow shaft, ø 24 mm [0.94"] 25 = hollow shaft, ø 25 mm [0.98"] 30 = hollow shaft, ø 30 mm [1.18"] 34 = hollow shaft, ø 34 mm [1.34"] (other options on request)	<b>b</b> <i>Number of channels</i> max. 10 channels  <b>c</b> <i>Max. load current</i> 1 = 16 A, 240 V AC/DC	<b>d</b> <i>Mounting position</i> 0 = any  <b>e</b> <i>Contact material</i> 3 = silver / precious metal 5 = copper / bronze	<b>f</b> <i>Version number (options)</i> V100 = without options >V100 = options on request

Technical data (standard version)	
<b>Overall length</b>	dep. on the number of transmission paths
<b>Hollow shaft diameter</b>	up to ø 34 mm [1.34"]
<b>Voltage/current loading</b>	240 V AC/DC, max. 16 A
<b>Contact resistance</b>	
load channels	≤ 1 Ohm (dynamic) <sup>1)</sup>
signal / data channels	≤ 0.1 Ohm (silver / precious metal) <sup>2)</sup>
<b>Insulation resistance</b>	10 <sup>3</sup> MOhm, at 500 V DC
<b>Dielectric strength</b>	1000 V eff. (60 sec.)
<b>Speed max.</b>	200 min <sup>-1</sup>
<b>Protection acc. to EN 60529</b>	IP40
<b>Service life</b>	typ. 500 million revolutions (at room temperature) depends on installation position
<b>Maintenance cycles</b>	typ. 100 million revolutions
<b>Maintenance</b>	contact oil not required
<b>Operating temperature</b>	0°C ... +75°C [+32°F ... +167°F]



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

# Slip rings

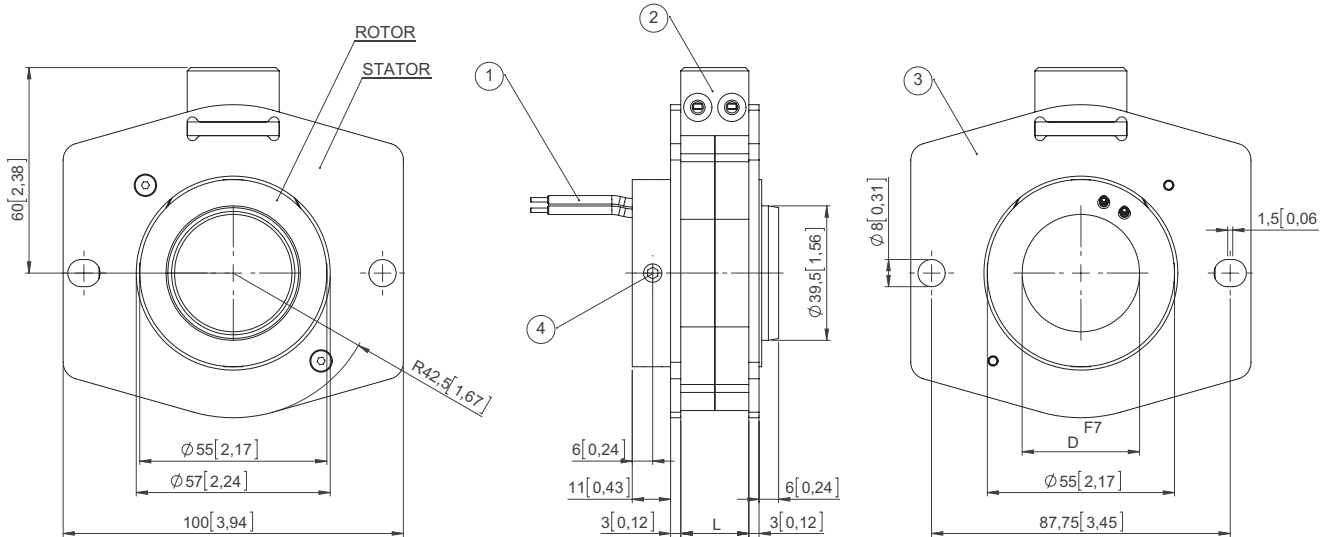
**Modular**

**Construction system, bearingless**

**SR085B**

## Dimensions

Dimensions in mm [inch]



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

- 1 – Connection wires, length 1 m [3.28']
- 2 – Terminal clamp for power without wire protection, with shock-hazard touch protection
- 3 – Stator cover, mounting plate
- 4 – 4 x socket set screw DIN 914 M6

Calculation of the total length L:

Basic size: 23 mm

Additional dimension: +10 mm per channel

# Slip rings

<b>Modular</b>	<b>Contactless signal transmission</b>	<b>SRI085</b>
----------------	--	---------------



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

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

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

Slip rings

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

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

Connection technology	Order no.
<b>Cordset, pre-assembled</b>	M12 female connector with coupling nut, 8 pin 2 m [6.56'] PUR cable
<b>Connector, self-assembly (straight)</b>	M12 female connector with coupling nut, 8 pin
	<b>05.00.6051.8211.002M</b>
	<b>05.CMB 8181-0</b>

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](http://www.kuebler.com/connection_technology).

### Easily accessible connections



# Slip rings

## Modular Contactless signal transmission SRI085

### Technical data

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

Data transmission	
<b>Data signal</b>	PT100
<b>Measuring range</b>	0°C ... +300°C [+32°F ... + 572°F] (4 ... 20 mA)
<b>Power supply</b>	24 V DC, ±10%
<b>Interface</b>	4 ... 20 mA
<b>Power consumption</b>	max. 250 mA at 24 V DC
<b>Max. load of the current source</b>	400 Ohm
<b>Type of connection</b>	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
<b>Speed</b>	max. 800 min <sup>-1</sup>	max. 800 min <sup>-1</sup>
<b>Service life</b>	–	typ. 500 million revolutions
<b>Maintenance cycles</b>	maintenance-free	150 million revolutions
<b>Operating temperature</b>	-30°C ... +85°C [-22°F ... +185°F]	-30°C ... +85°C [-22°F ... +185°F]
<b>Protection to EN 60529</b>	max. IP65	max. IP50
<b>Contact material load channel</b>	–	copper/bronze

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

### Terminal assignment

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

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

### Top view of mating side, male contact base



Flange connector M12, 8 pin

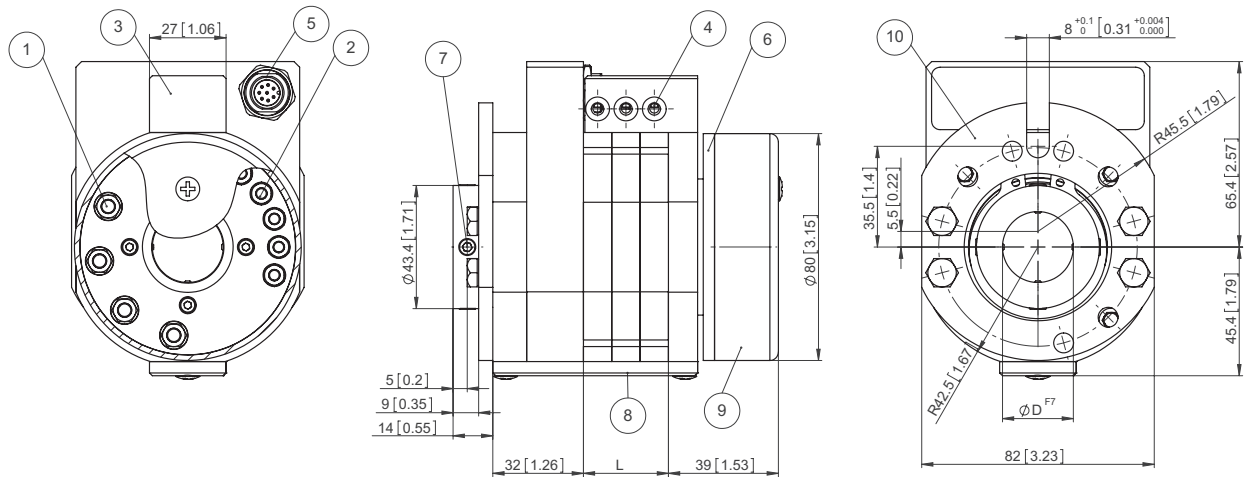
# Slip rings

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

## Dimensions

Dimensions in mm [inch]

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



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

Slip rings

# Slip rings

**Compact**

**Low-maintenance**

**SR060E**



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

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

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

## Compact

- Dimensions 60 x 98 mm.
- Can be used as a pair starting from just 60 mm shaft distance of the sealing rollers.
- Various component configurations for the transmission paths, max. 3 x load and 2 x signal transmission.
- Easily accessible connections.
- Load current up to 20 A.

## Low-maintenance

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

## Applications for slip rings

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

## Order code

for standard versions

**SR060E** - **XX** - **X** - **X** - **XX** **2** - **V100**

Type

**a**

**b**

**c**

**d**

**e**

**f**

**g**

**a** *Hollow shaft*

20 = ø 20 mm [0.79"]  
 21 = ø 21 mm [0.83"]  
 22 = ø 22 mm [0.87"]  
 24 = ø 24 mm [0.94"]  
 25 = ø 25 mm [0.98"]  
 (other diameters on request)

**b** *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

<b>Hollow shaft diameter</b>	up to max. ø 25 mm [0.98"]
<b>Voltage/current loading</b>	
load channels	240 V AC/DC, max. 16 A
signal / data channels	240 V AC/DC, max. 20 A (order option 2) 48 V AC/DC, max. 2 A
<b>Contact resistance</b>	
load channels	≤ 1 Ohm (dynamic) <sup>1)</sup>
signal / data channels	≤ 0.1 Ohm (silver / precious metal) <sup>2)</sup>
<b>Insulation resistance</b>	10 <sup>3</sup> MOhm (at 500 V DC)
<b>Dielectric strength</b>	1000 V eff. (60 sec.)
<b>Speed max.</b>	500 min <sup>-1</sup>
<b>Torque</b>	< 0,2 Nm

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

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

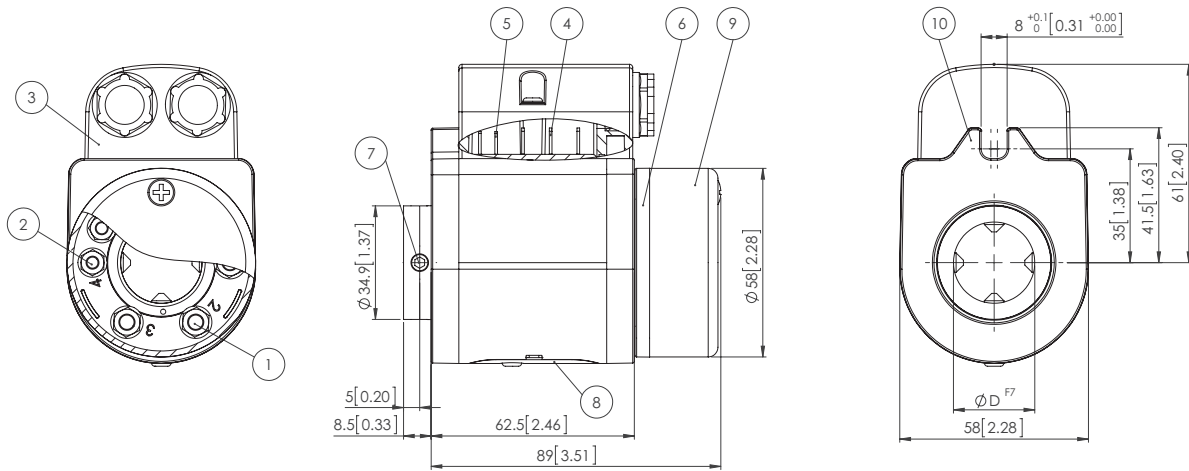
2) 2-wire resistance measurement, ambient temperature, 6.5-digit digital multimeter or similar, values without testing cable.

# Slip rings

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

## Dimensions

Dimensions in mm [inch]



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

# Slip rings

<b>Three chamber system</b>	<b>Ethernet transmission</b>	<b>SR120</b>
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In general slip rings are used to transmit power, signals or data, pneumatic and hydraulic, from a stationary to a rotating platform.

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

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

### Rugged

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

### Flexible

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

### Reliable with the three chamber system

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

### Application areas for slip rings

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

### Order code

for standard versions

**SR120** - **XX** - **XX** - **XX** - **XX** - **X0X2** - **V100**  
Type                      a                      b                      c                      d                      e f g h                      i

#### a Type of mounting

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

#### b Number of Ethernet transmissions

- 00 = none
- 01 = Ethernet transmission up to 100 Mbit/s

#### c Module signal / data channels <sup>1)</sup>

- 00 = none
- 02 = 2 channels
- 04 = 4 channels
- 06 = 6 channels
- C0 = CANopen
- D0 = DeviceNet
- M0 = Modbus
- P0 = Profibus

#### d Module load channels <sup>2)</sup>

- 00 = none
- 02 = 2 x load
- 04 = 4 x load
- 06 = 6 x load
- L3 = 3 x load + ground PE
- L4 = 4 x load + ground PE

#### e Load channels max. load current

- 0 = none
- 1 = 230 V / 16 A
- 2 = 230 V / 25 A
- 3 = 400 V / 10 A
- 4 = 400 V / 20 A

#### f Type of connection

- 0 = cable <sup>3)</sup>

#### g Central lead-through

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

#### h Protection rating

- 2 = IP64

#### i Version number (options)

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

Connection technology	Order no.
<b>Cordset, pre-assembled</b>	M12 male connector with external thread, 4-pin 2 m [6.56'] PUR cable <b>05.00.6031.4411.002M</b>
<b>Connector, self-assembly (straight)</b>	M12 male connector with external thread, 4-pin <b>05.WASCSY4S</b>
<b>Industrial Ethernet - cable</b>	PUR electronic cable <b>05.00.6031.1111.XXXM <sup>4)</sup></b>

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](http://www.kuebler.com/connection_technology).

1) Additional signal / data channels on request (option)

e.g. C2 = CAN module expansion with 2 additional channels

Connection lines for CAN and signal transmission separated on stator and rotor side.

2) Additional load channels on request (option).

3) Except Ethernet channel (M12 connector).

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

# Slip rings

## Three chamber system      Ethernet transmission      SR120

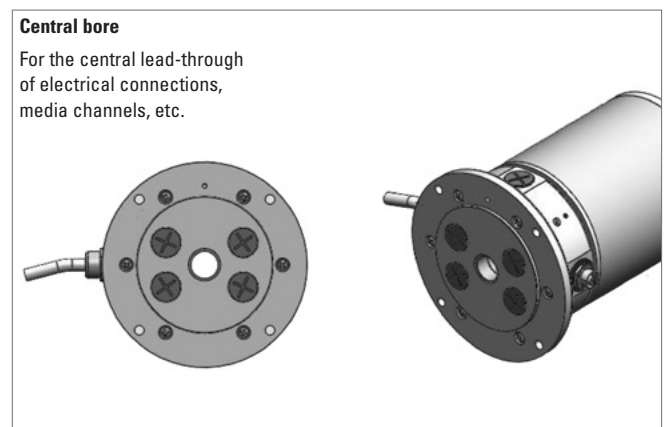
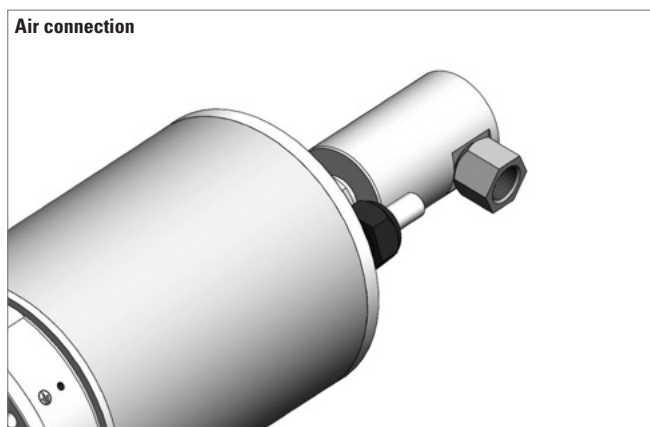
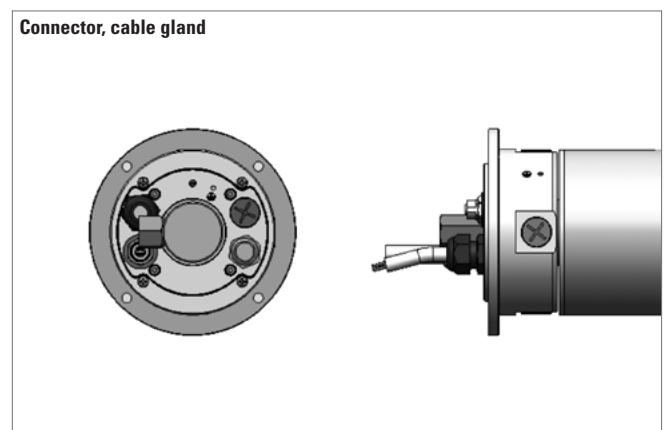
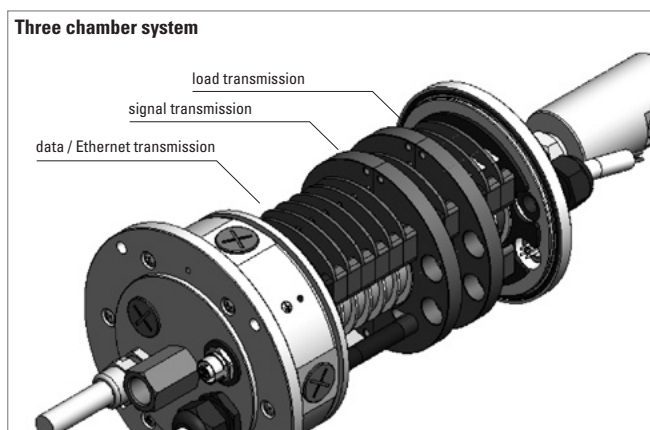
Technical data	
<b>Overall length</b>	dep. on the number of transmission paths
<b>Type of connection</b> (stator and rotor)	load cable 2 m [6.56'] signal / data cable 2 m [6.56'] Ethernet M12 connector 4-pin, D coded
<b>Material pairing</b>	load copper / bronze signal / data silver / precious metal Ethernet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

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

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

Slip rings

### Technology in detail



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

# Slip rings

<b>Three chamber system</b>	<b>Ethernet transmission</b>	<b>SR120</b>
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## Terminal assignment

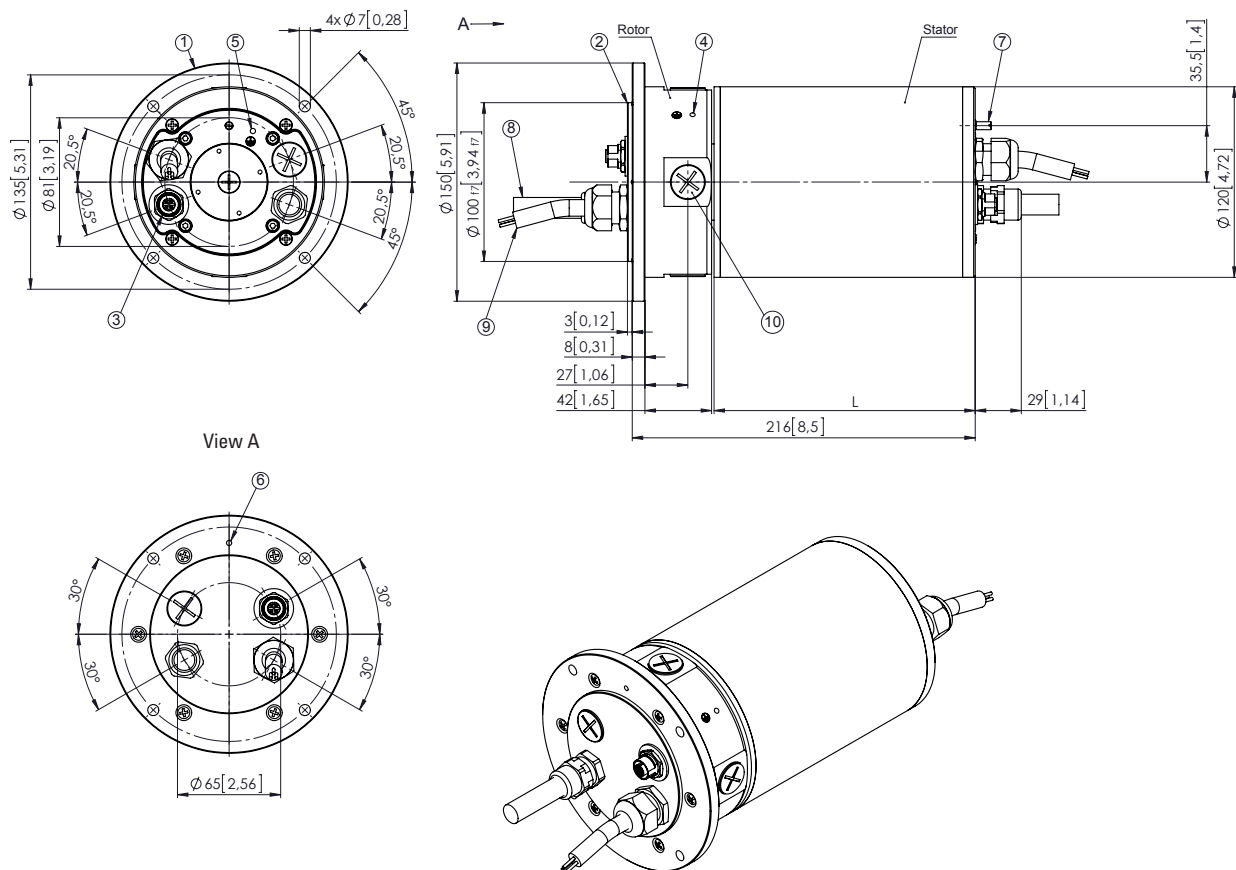
M12 connector, 4-pin					
Signal:	Transmit data +	Receive data +	Transmit data -	Receive data -	
Abbreviation:	TxD+	RxD+	TxD-	RxD-	
Pin:	1	2	3	4	

## Dimensions

Dimensions in mm [inch]

### Standard version

Example: Type SR120-02-01-02-03-2002-V100



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

# Slip rings

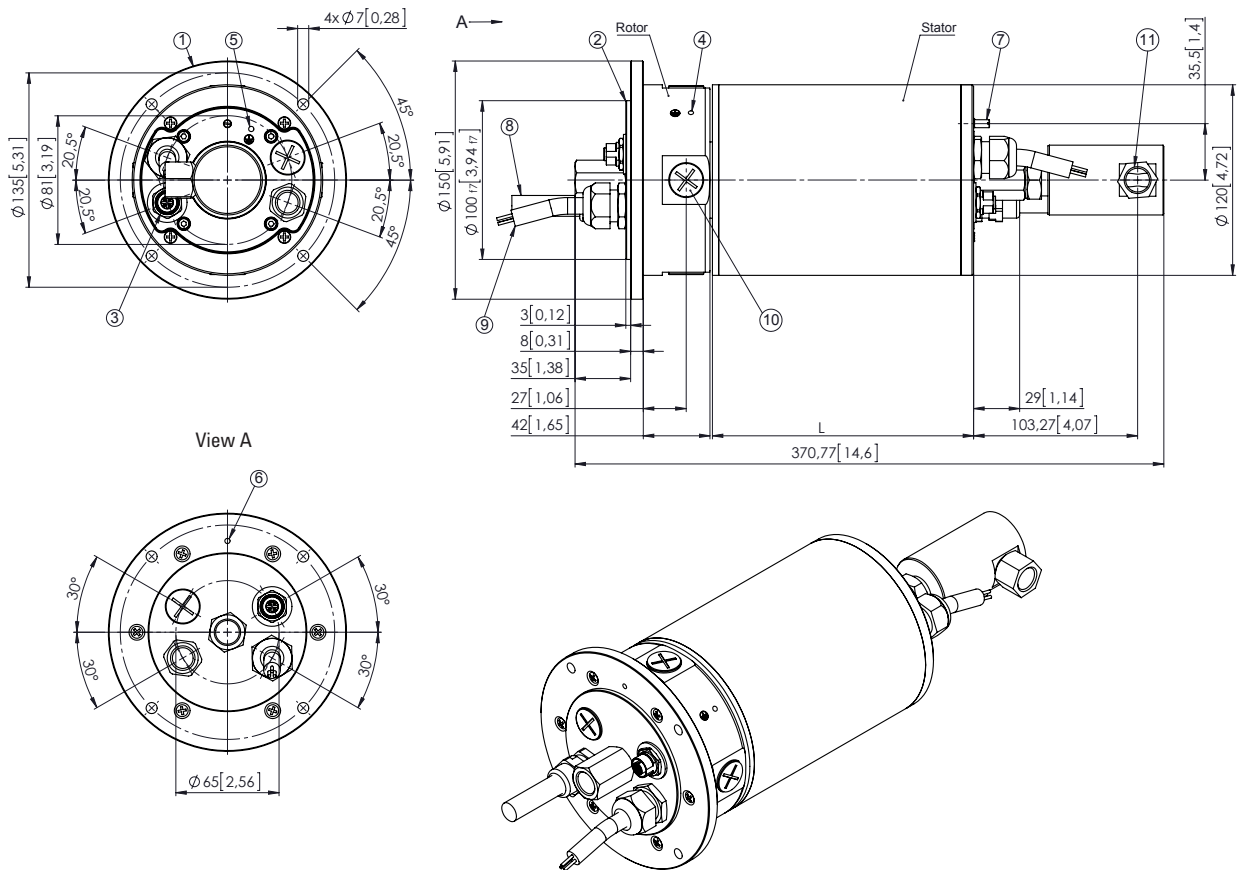
**Three chamber system**      **Ethernet transmission**      **SR120**

## Dimensions

Dimensions in mm [inch]

### Version with media lead-through

Example: Type SR120-02-01-02-03-2032-V100



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

# Slip rings

<b>Modular</b>	<b>Robust</b>	<b>SR160</b>
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In general slip rings are used to transmit power, signals or data, pneumatic and hydraulic, from a stationary to a rotating platform.

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

The SR160 is a robust modular slip ring. Its innovative contact technology ensures long maintenance-free operation. Connectors for signals/data and load allow fast and simple installation.

## Rugged

- Reliable operation in harsh environments.
- Rugged metal housing.
- High protection level IP65.

## Flexible

- Modular construction – individual product.
- Transmission of Ethernet, signal, load, pneumatics and hydraulics.

## Reliable

- Pluggable connections – error prevention.
- Innovative contact technology, low-maintenance and durable.
- Transmission rate up to 100 Mbit/s.

## Application areas for slip rings

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

## Order code

for standard versions

**SR160** - **XX** - **XX** - **XX** - **XX** - **X1X2** - **V100**  
Type      a      b      c      d      e f g h      i

### a Type of mounting

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

### b Number of Ethernet transmissions

- 00 = none
- 01 = Ethernet transmission up to 100 Mbit/s

### c Module signal / data channels <sup>1)</sup>

- 00 = none
- 02 = 2 channels
- 04 = 4 channels
- 06 = 6 channels
- C0 = CANopen
- D0 = DeviceNet
- M0 = Modbus
- P0 = Profibus

### d Module load channels <sup>2)</sup>

- 00 = none
- 02 = 2 x load
- 04 = 4 x load
- 06 = 6 x load
- L3 = 3 x load + ground PE
- L4 = 4 x load + ground PE

### e Load channels max. load current

- 0 = none
- 1 = 230 V / 16 A
- 2 = 230 V / 25 A
- 3 = 400 V / 10 A
- 4 = 400 V / 20 A

### f Type of connection

- 1 = connector

### g Central lead-through

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

### h Protection rating

- 2 = IP65

### i Version number (options)

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

Connection technology		Order no.
<b>Cordset, pre-assembled</b>	M12 male connector with external thread, 4-pin 2 m [6.56'] PUR cable	<b>05.00.6031.4411.002M</b>
<b>Connector, self-assembly (straight)</b>	M12 male connector with external thread, 4-pin	<b>05.WASCSY4S</b>
<b>Industrial Ethernet - cable</b>	PUR electronic cable	<b>05.00.6031.1111.XXXM <sup>3)</sup></b>

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](http://www.kuebler.com/connection_technology).

1) Additional signal / data channels on request (option)

e.g. C2 = CAN module expansion with 2 additional channels  
 Connection lines for CAN and signal transmission separated on stator and rotor side.

2) Additional load channels on request (option).

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

# Slip rings

<b>Modular</b>	<b>Robust</b>	<b>SR160</b>
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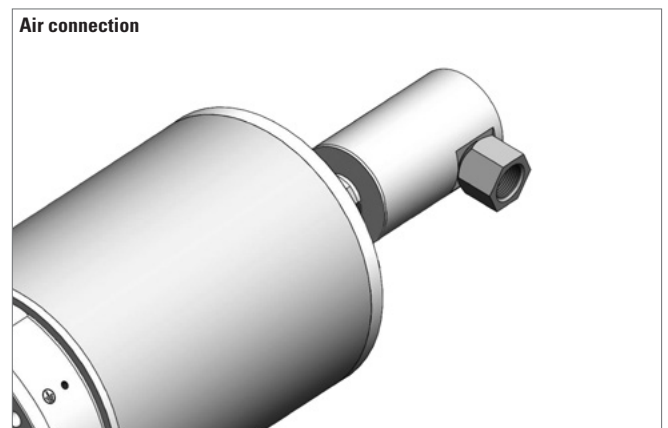
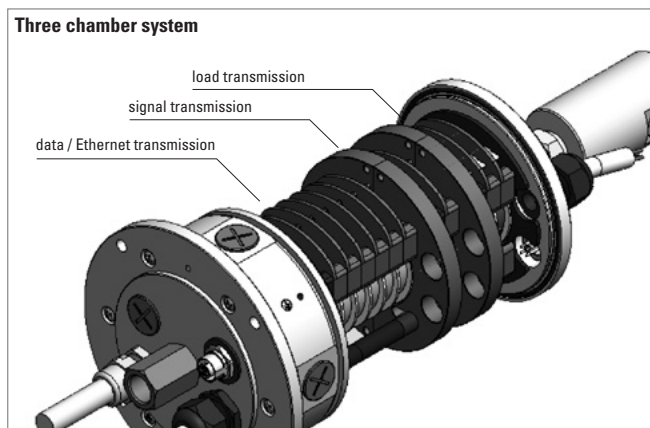
Technical data	
<b>Overall length</b>	dep. on the number of transmission paths
<b>Type of connection (stator and rotor)</b>	load M23 connector signal / data M12 connector Ethernet M12 connector 4-pin, D coded
<b>Material pairing</b>	load copper / bronze signal / data silver / precious metal Ethernet silver / precious metal
<b>Voltage/current loading</b>	
load channels	order option 1 230 V AC/DC, max. 16 A, 50/60 Hz order option 2 230 V AC/DC, max. 25 A, 50/60 Hz order option 3 400 V AC/DC, max. 10 A, 50/60 Hz order option 4 400 V AC/DC, max. 20 A, 50/60 Hz
signal channels	48 V AC/DC, max. 2 A
<b>Contact resistance</b>	load channels $\leq 1 \text{ Ohm (dynamic)}^{1)}$ signal / data channels $\leq 0.1 \text{ Ohm (silver / precious metal)}^{2)}$
<b>Insulation resistance</b>	$10^3 \text{ MOhm, at } 500 \text{ V DC}$
<b>Dielectric strength</b>	$1000 \text{ V eff. (60 sec.)}$
<b>Speed max. (signal / data channels)</b>	$150 \text{ min}^{-1}$ (depends on installation position and numbers of channels)
<b>Service life (signal / data channels)</b>	typ. 500 million revolutions (at room temperature) depends on installation position

<b>Maintenance cycles</b>	maintenance free (if necessary all 100 million revolutions)
<b>Maintenance</b>	Remove contact abrasion dust – do not use compressed air
<b>Operating temperature</b>	$-35^\circ \dots +85^\circ \text{C} [-31^\circ \text{F} \dots +185^\circ \text{F}]$
<b>Protection acc. to EN 60529</b>	max. IP65
<b>Transmission paths</b>	max. 20 (> 20 on request)

Air connection (media lead-through no. 1 - 3)	
<b>Air pressure max.</b>	10 bar (150 psi)
<b>Vacuum max.</b>	7 kPa (2" Hg)
<b>Speed max.</b>	$150 \text{ min}^{-1}$

Slip rings

## Technology in detail



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

# Slip rings

<b>Modular</b>	<b>Robust</b>	<b>SR160</b>
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## Terminal assignment

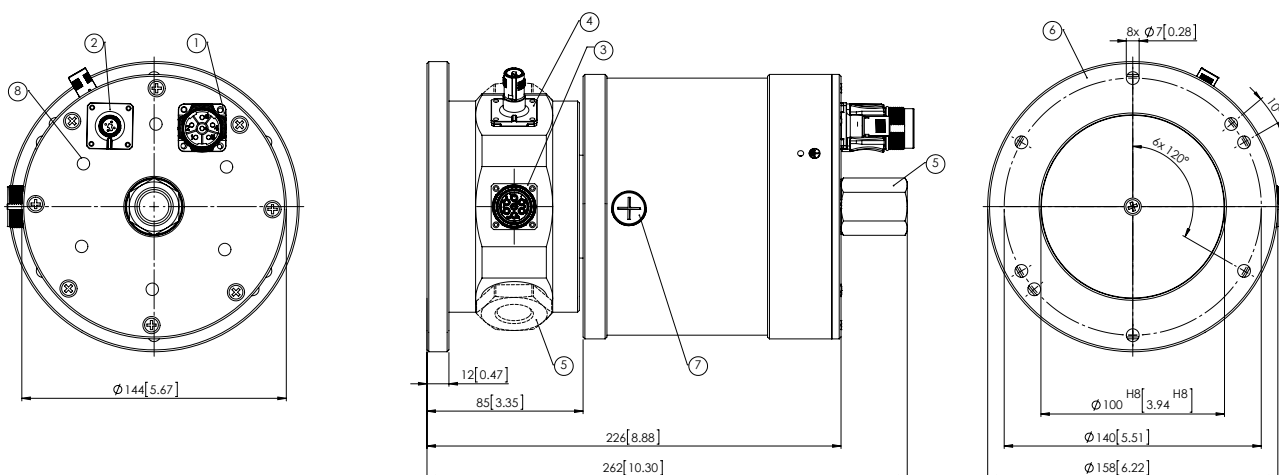
M12 connector, 4-pin, EtherNet transmission						Stator IN	Rotor OUT	
Signal:	Transmit data +	Receive data +	Transmit data -	Receive data -		 D coded	 D coded	
Abbreviation:	TxD+	RxD+	TxD-	RxD-				
Pin:	1	2	3	4				
M12 connector, 5-pin, module Profibus						Stator IN	Rotor OUT	
Channel:	1	2	3	4	5	6		
Pin:	1	2	3	4	5	PH	 B coded	 B coded
M12 connector, 5-pin, module DeviceNet, CANopen, Modbus						Stator IN	Rotor OUT	
Channel:	1	2	3	4	5	6		
Pin:	1	2	3	4	5	PH	 A coded	 A coded
M12 connector, 8-pin, signal / data channels						Stator IN	Rotor OUT	
Channel:	1	2	3	4	5	6	7	8
Pin:	1	2	3	4	5	6	7	8
							 A coded	 A coded
M23 connector, 6-pin, load channels						Stator IN	Rotor OUT	
Channel:	1	2	3	4	5	PE		
Pin:	1	2	4	5	6	⊥	 A coded	 A coded

## Dimensions

Dimensions in mm [inch]

### Standard version

Example: Type SR160-01-01-06-04-3132-V100



- 1 – Stator power connection, M23 connector
- 2 – Stator signal connection, M12 connector (coding depending on interface)
- 3 – Rotor power connection, M23 connector

- 4 – Rotor signal connection, M12 connector (coding depending on interface)
- 5 – Rotor media connection (optional)
- 6 – Mounting flange
- 7 – Maintenance opening (on both sides)

# Slip rings

<b>Modular</b>	<b>Robust, high current</b>	<b>SR250H</b>
----------------	-----------------------------	---------------



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

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

The slip ring SR250H transmits in parallel signals and data, as well as loads up to 80 A for high-power drives.

The robust modular construction and many different connection possibilities ensure flexible and reliable operation.

Slip rings

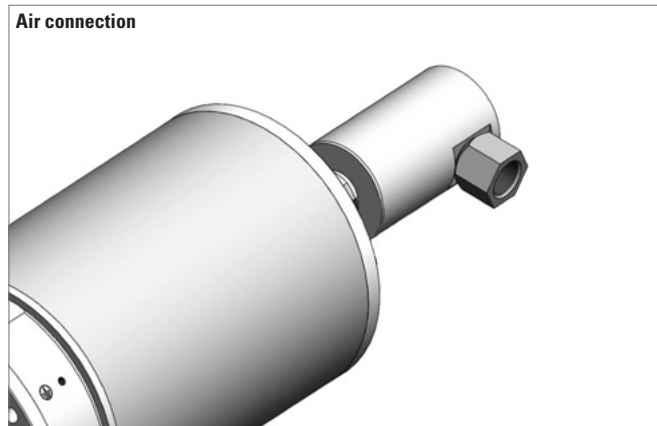
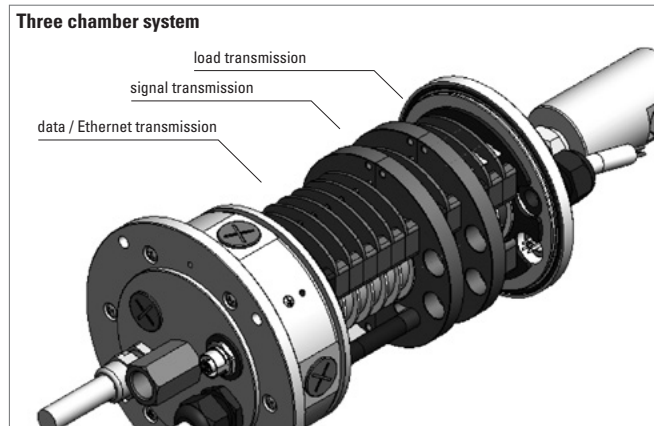
<p><b>Powerful</b></p> <ul style="list-style-type: none"> <li>Reliable operation in harsh environments.</li> <li>Load transmission up to 80 A.</li> <li>High protection level up to IP65.</li> </ul> <p><b>Flexible</b></p> <ul style="list-style-type: none"> <li>Modular construction – individual product.</li> <li>Transmission of Ethernet, signal, load, pneumatics and hydraulics.</li> </ul>	<p><b>Reliable</b></p> <ul style="list-style-type: none"> <li>Pluggable connections – error prevention.</li> <li>Innovative contact technology, low-maintenance and durable.</li> <li>Transmission rate up to 100 Mbit/s.</li> </ul> <p><b>Application areas for slip rings</b></p> <p>Bottling plants, labelling machines, wear test machines, rotary transfer machines, construction machinery, cranes.</p>
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Configuration – Options		
<p><i>Type of mounting</i></p> <ul style="list-style-type: none"> <li>flange mounting (s. dimensional drawing)</li> <li>hollow shaft up to 30 mm (s. dimensional drawing)</li> <li>other types of mounting on request</li> </ul> <p><i>Signal / data channels</i></p> <ul style="list-style-type: none"> <li>Ethernet transmission</li> <li>PT100, 2-wire</li> <li>PT100, 4-wire</li> <li>thermocouples</li> <li>CANopen</li> <li>DeviceNet</li> <li>Modbus</li> <li>Profibus</li> <li>switching signals</li> <li>other signal- /data channels on request</li> </ul>	<p><i>Load channels</i></p> <ul style="list-style-type: none"> <li>10 A, 400 V AC/DC</li> <li>16 A, 240 V AC/DC</li> <li>20 A, 400 V AC/DC</li> <li>25 A, 240 V AC/DC</li> <li>63 A, 500 V AC/DC</li> <li>80 A, 500 V AC/DC</li> <li>other load channels on request</li> </ul> <p><i>Central lead-through</i></p> <ul style="list-style-type: none"> <li>air connection 1/4"</li> <li>air connection 1/2"</li> <li>air connection 3/8"</li> <li>hydraulics connection 1/2"</li> <li>hydraulics connection 3/8"</li> <li>central bore, inside diameter 15 mm or 20 mm</li> <li>other central lead-throughs on request</li> </ul>	<p><i>Type of connection (stator and rotor)</i></p> <ul style="list-style-type: none"> <li>M23 connector (load, signal)</li> <li>M12 connector (depending on the interface)</li> <li>RJ45 connector (Ethernet)</li> <li>SUB-D connector</li> <li>cable (load, signal)</li> <li>connector assembled on the cable</li> <li>other connection types, such as for example assembled motor or servo cables, on request</li> </ul> <p><i>Protection rating</i></p> <ul style="list-style-type: none"> <li>IP50</li> <li>IP64</li> <li>IP65</li> <li>other protection ratings on request</li> </ul>

# Slip rings

<b>Modular</b>	<b>Robust, high current</b>	<b>SR250H</b>
----------------	-----------------------------	---------------

## Technology in detail



## Applications



Technical data							
<b>Overall length</b>	dep. on the number of transmission paths						
<b>Material pairing</b>	<table border="0"> <tr> <td>load</td> <td>copper / bronze</td> </tr> <tr> <td>signal / data</td> <td>silver / precious metal</td> </tr> <tr> <td>Ethernet</td> <td>silver / precious metal</td> </tr> </table>	load	copper / bronze	signal / data	silver / precious metal	Ethernet	silver / precious metal
load	copper / bronze						
signal / data	silver / precious metal						
Ethernet	silver / precious metal						
<b>Contact resistance</b>	<table border="0"> <tr> <td>load channels</td> <td><math>\leq 1 \text{ Ohm (dynamic)}^1</math></td> </tr> <tr> <td>signal / data channels</td> <td><math>\leq 0.1 \text{ Ohm (silver / precious metal)}^2</math></td> </tr> </table>	load channels	$\leq 1 \text{ Ohm (dynamic)}^1$	signal / data channels	$\leq 0.1 \text{ Ohm (silver / precious metal)}^2$		
load channels	$\leq 1 \text{ Ohm (dynamic)}^1$						
signal / data channels	$\leq 0.1 \text{ Ohm (silver / precious metal)}^2$						
<b>Insulation resistance</b>	$10^3 \text{ MOhm, at } 500 \text{ V DC}$						
<b>Dialectric strength</b>	$1000 \text{ V eff. (60 sec.)}$						
<b>Speed max. (signal / data channels)</b>	$150 \text{ min}^{-1}$ (depends on installation position and numbers of channels)						

<b>Service life (signal / data channels)</b>	typ. 500 million revolutions (at room temperature) depends on installation position
<b>Maintenance cycles</b>	maintenance free (if necessary all 100 million revolutions)
<b>Maintenance</b>	Remove contact abrasion dust – do not use compressed air
<b>Operating temperature</b>	$-35^\circ\text{C} \dots +85^\circ\text{C} [-31^\circ\text{F} \dots +185^\circ\text{F}]$
<b>Protection acc. to EN 60529</b>	max. IP65
<b>Transmission paths</b>	on request

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

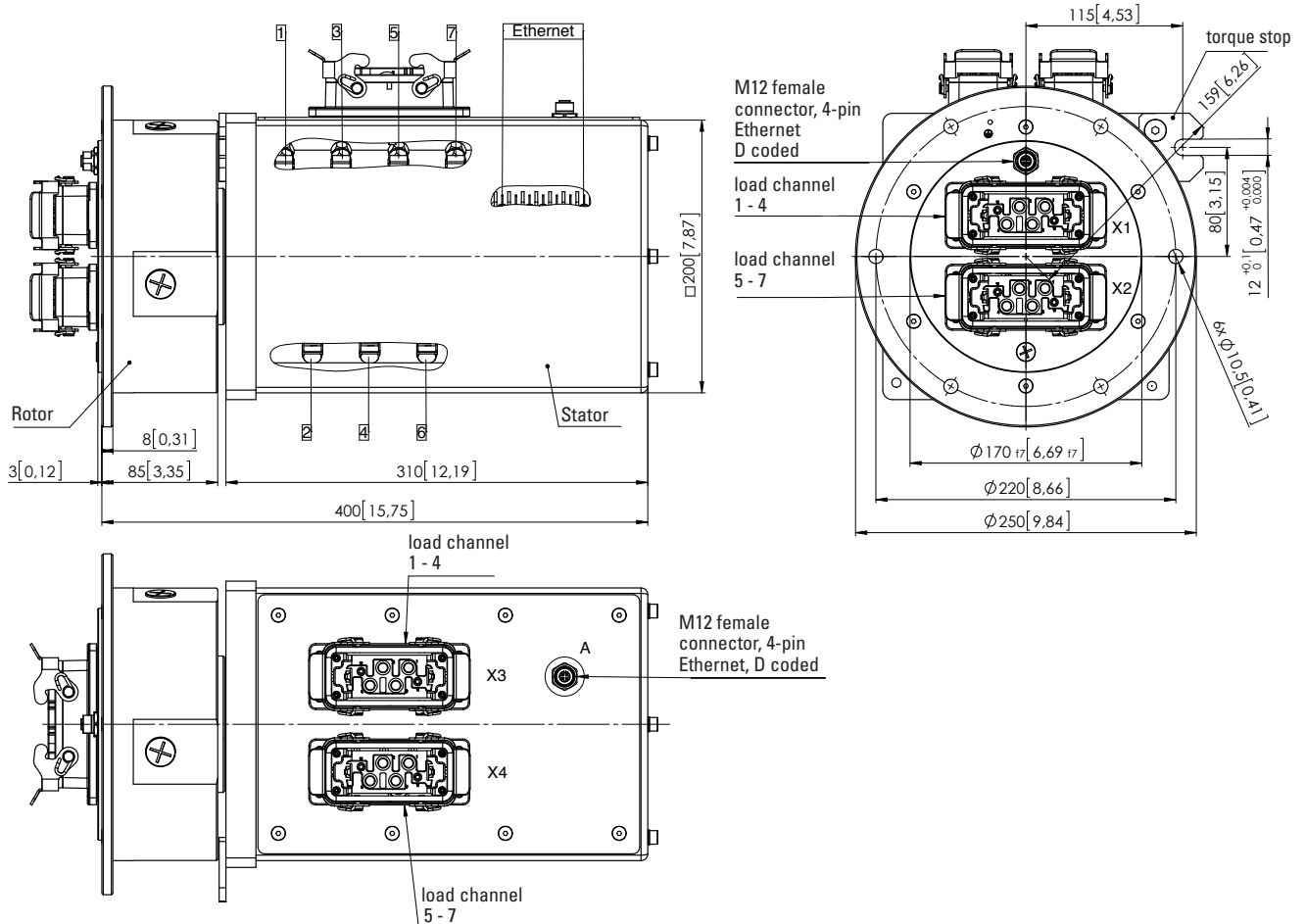
# Slip rings

<b>Modular</b>	<b>Robust, high current</b>	<b>SR250H</b>
----------------	-----------------------------	---------------

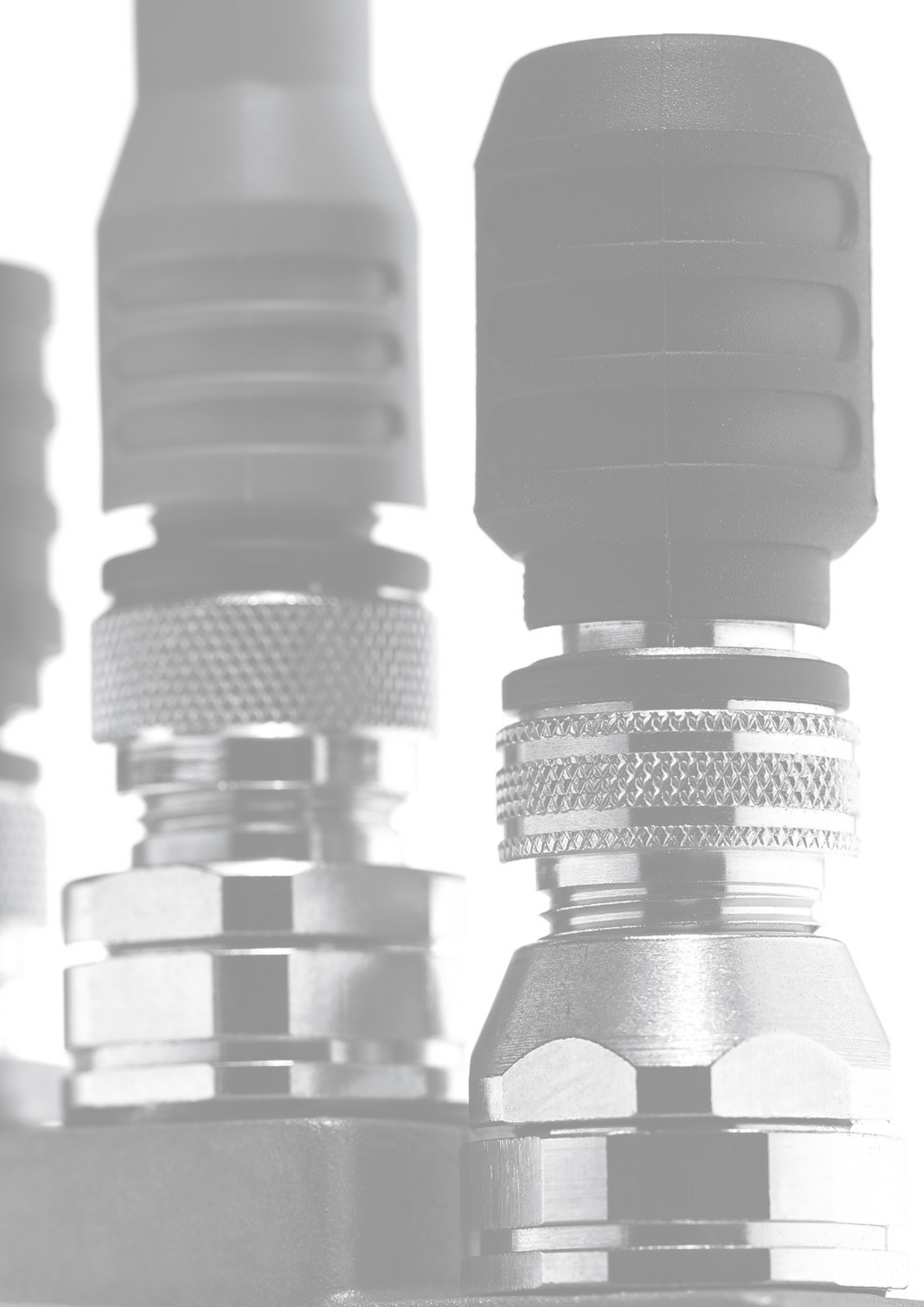
## Dimensions

Dimensions in mm [inch]

Example:



Slip rings



## Connection technology

		Page
<b>Cable</b>	Unprepared, cut to length	<b>36</b>
<b>M12 connection technology</b>	Connectors, self-assembly	<b>37</b>
	Cordsets, pre-assembled	<b>38</b>

### 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.


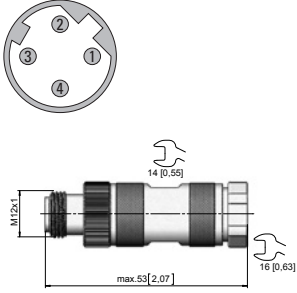

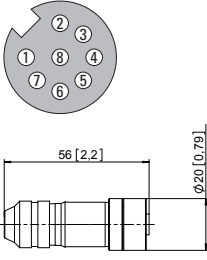
#### Your benefit:

- 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			
Industrial Ethernet - cable			Order no.		
<b>PUR electronic cable</b>  	<b>Cross section</b>	2 x 2 x 0.34 mm <sup>2</sup> [AWG22]	 Conformance tested  <b>EtherNet/IP</b> <sup>®</sup>	<b>05.00.6031.1111.XXXM</b> <sup>1)</sup>	
	<b>Permanent working temperature range</b>	flexible installation			-30°C ... +70°C [-22°F ... +158°F]
		secure installation			-40°C ... +80°C [-40°F ... +176°F]
	<b>Bending radius</b>	flexible installation			min. 50 mm [1.97"]
		secure installation			min. 25 mm [0.98"]
<b>Cable diameter</b>		approx. 4.8 mm ±0.2 mm			

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

# Connection technology

M12 connection technology		Connectors, self-assembly		Order no.
<b>4 pin</b>				
<p><b>Male connector with external thread</b>  <b>D coded, straight</b>            Housing: metal, IP67</p> 	<p>screw connections,            for cable <math>\varnothing</math> 4 ... 9 mm [0.16 ... 0.35"]</p> 	<p>EtherCAT®            Conformance tested</p> <p>PROFI®            NET</p> <p>EtherNet/IP</p>	<p><b>05.WASCSY4S</b></p>	
<b>5 pin</b>				
<p><b>Female connector with coupling nut</b>  <b>A coded, straight</b>            Housing: metal, IP67</p> 	<p>screw connections,            for cable <math>\varnothing</math> 6 ... 8 mm [0.24 ... 0.32"]</p> 	<p><b>05.CMB 8181-0</b></p>		

Connection technology

# Connection technology


## M12 connection technology

## Cordsets, pre-assembled

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

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

Cable: PUR, 2 x 2 x 0.34 mm<sup>2</sup> [AWG22]  
Housing: metal / plastic, IP67



Port A (1) and B (2)

**EtherCAT**  
Conformance tested

**PROFI**  
**NET**

**EtherNet/IP**

*cable length <sup>1)</sup>*

standard cable length	2 m [6.56']	<b>05.00.6031.4411.002M</b>	
(available from 1 piece)	5 m [16.40']		<b>05.00.6031.4411.005M</b>
	10 m [32.81']		<b>05.00.6031.4411.010M</b>
	15 m [49.21']		<b>05.00.6031.4411.015M</b>
other cable lengths		<b>05.00.6031.4411.0xxM</b>	
(minimum order quantity 4 pieces)		xx = length in meters: 1, 3, 8, 12, 20, 25, 30	


*Terminal assignment*

Pin Stift:	1	2	3	4
Litzenfarbe:	YE	OG	WH	BU

**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 mm<sup>2</sup> [AWG23]  
Housing: metal / plastic, IP67



Port A (1) and B (2)

**EtherCAT**  
Conformance tested

**PROFI**  
**NET**

**EtherNet/IP**

*cable length <sup>1)</sup>*

standard cable length	2 m [6.56']	<b>05.00.6041.8211.002M</b>	
(available from 1 piece)	5 m [16.40']		<b>05.00.6041.8211.005M</b>
	10 m [32.81']		<b>05.00.6041.8211.010M</b>
	15 m [49.21']		<b>05.00.6041.8211.015M</b>
other cable lengths		<b>05.00.6041.8211.0xxM</b>	
(minimum order quantity 4 pieces)		xx = length in meters: 1, 3, 8, 12, 20, 25, 30	

*Terminal assignment*

Pin female contacts:	1	2	3	4	5	6	7	8	PH <sup>2)</sup>
Wire color:	WH	BN	GN	YE	GY	PK	BU	RD	PH <sup>2)</sup>

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





# Addresses

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<b>Kübler worldwide</b>	<b>42</b>
<b>Contact partners in Germany</b>	<b>44</b>



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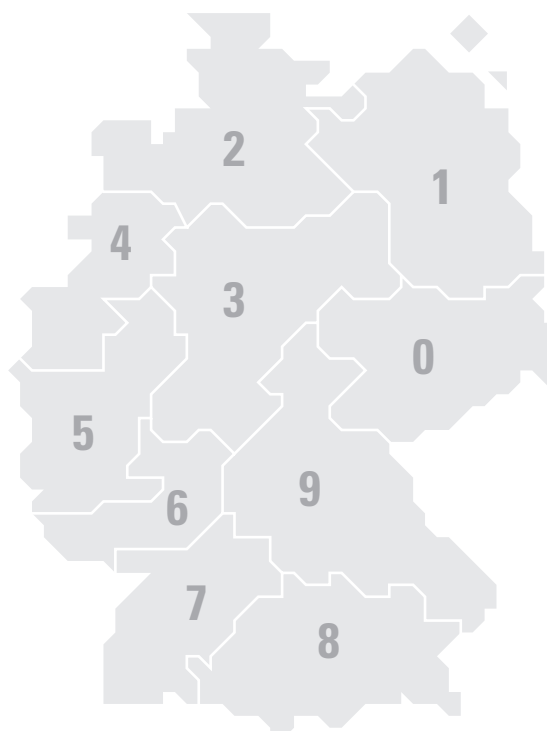
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