

Rotary Joint | BN 637426

Contactless Data Transmission

100 mm free inner bore



This contactless rotary joint for data transmission is a high-performance substitute for traditional data sliprings.

- no sliding contacts / no contact wear
- improved life / maintenance free
- no contact interruptions / no bit errors
- suitable for real-time ethernet protocols
- protocol independent (only using OSI-Layer 1)
- high data rates (up to 3 Gbps)
- large free inner bore
- designed for high rotational speed
- supports e.g. the following protocols:

POWERLINK, PROFINET, EtherCAT, SERCOS III
EtherNet/IP, VARAN, DRIVE-CLiQ

Available Configurations

Type	Description	Standard product ordering number
1	1000BASE-T Ethernet	637426C0001
4	1 Channel ethernet for real-time applications 100BASE-TX, full duplex	637426C0004
5	1 Channel ethernet for real-time applications 100BASE-TX, half duplex	637426C0005
7	2 Channel ethernet (multiplexed) for real-time applications 100BASE-TX, full duplex	637426C0007
8	2 Channel ethernet (multiplexed) for real-time applications 100BASE-TX, half duplex	637426C0008

Transmission Type 1:

1000BASE-T Ethernet-Channel	one contactless coupler for one channel
Supported Ethernet Standards	10BASE-T (IEEE802.3 Clause 14) 100BASE-TX (IEEE802.3 Clause 25) 1000BASE-T (IEEE802.3 Clause 40) auto negotiation provided to select Ethernet-Standard and full/ half duplex mode automatically
OSI Layer operation	layer 1 - 2
Supported Protocols	not for real-time ethernet applications
Ethernet Frame Loss Ratio	< 1 x 10 ⁻⁹ measured with 64 byte frames at 99% channel utilization, corresponds to BER ≤ 1 x 10 ⁻¹²
Data Interface Connection	Cat.6A S/FTP 4x2xAWG26/7 (PiMF) at Body and Hollow shaft side (or special cable type according to specific circuit diagram)

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Template TD-00015.dotx

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Transmission Type 4 + Type 5:

100BASE-TX Ethernet Channel	one signal channel provided	
	Type 4	Type 5
Supported Ethernet Standards	100BASE-TX (IEEE802.3 Clause 25), autonegotiation (full duplex only)	100BASE-TX (IEEE802.3 Clause 25), autonegotiation (half duplex only)
Supported Protocols	real-time ethernet protocols	
OSI Layer operation	layer 1 (physical)	
Ethernet Frame Loss Ratio	$< 1 \times 10^{-9}$ measured with 64 byte frames at 99% channel utilization, corresponds to $BER \leq 1 \times 10^{-12}$	
Data Interface Connection	Cat.6A S/FTP 4x2xAWG26/7 (PiMF) at Body and Hollow shaft side (or special cable type according to specific circuit diagram)	

Transmission Type 7 + Type 8:

100BASE-TX Ethernet Channel	two signal channels over one contactless transmission channel, signals are multiplexed, no redundancy	
	Type 7	Type 8
Supported Ethernet Standards	100BASE-TX (IEEE802.3 Clause 25), autonegotiation (full duplex only)	100BASE-TX (IEEE802.3 Clause 25), autonegotiation (half duplex only)
Supported Protocols	real-time ethernet protocols	
OSI Layer operation	layer 1 (physical)	
Multiplexer	time domain multiplexing	
Ethernet Frame Loss Ratio	$< 1 \times 10^{-9}$ measured with 64 byte frames at 99% channel utilization, corresponds to $BER \leq 1 \times 10^{-12}$	
Data Interface Connection	Cat.6A S/FTP 4x2xAWG26/7 (PiMF) at Body and Hollow shaft side (or special cable type according to specific circuit diagram)	

Operating condition

External Power Supply	power supply has to be a ES1 type acc. to DIN EN 62368-1 The current must be externally limited to 4 A
Input Voltage Range	21.6 V to 28.8 V DC; 0 V DC is isolated to case ground (potential-free)
Current Consumption, typ. / max.	0.33 A / 0.5 A @ 24 V Supply Voltage
Inrush Current	3 A (duration 2 ms)
Power Consumption, typ. / max.	8 W / 12 W
Supply Voltage Connection	2 x 0.25 mm ² LiYCY cable, shielded, outer diameter ~3.9 mm, at Body and Hollow shaft side (or special cable type according to specific circuit diagram)

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Standards and directives

Applicable EU Directive	EMC Directive 2014/30/EU	
Applied standards	DIN EN 55032 (Class B)	Radio disturbance characteristics
	DIN EN 55024	Immunity characteristics

Mechanical data

	Sealed version	Unsealed version (optional)
IP protection level	IP60	IP40
Rotating speed, max.	300 rpm	1000 rpm
Acceleration, max.	750 rad/s ² (119 rounds/s ²)	750 rad/s ² (119 rounds/s ²)
Torque (room temperature), max.	3 Nm	1,5 Nm
Life, min.	20 x 10 ⁶ revolutions	200 x 10 ⁶ revolutions
MTBF	300 000 h ground fixed, ambient temperature = 40 °C	
Maintenance	not required	
Interface loads, max.	no loads allowed	
Case material	aluminum alloy	
Case surface finish	chromate conversion coat	
Weight, approx.	2.3 kg	
Marking	Adhesive label	
Standard cable length	1400 mm ± 5 % (or special cable length according to specific data sheet)	

Environmental conditions

Operation	
Ambient temperature range	-30 °C to +71 °C
Case temperature, max. / Cooling	71°C customer shall assure that the temperature of the case does not exceed this value (e.g. by suitable installation with metallic contact)
Relative humidity, max.	95% (non-condensing)
Storage	
Ambient temperature range	-40 °C to +85 °C
Relative humidity, max.	95% (non-condensing)

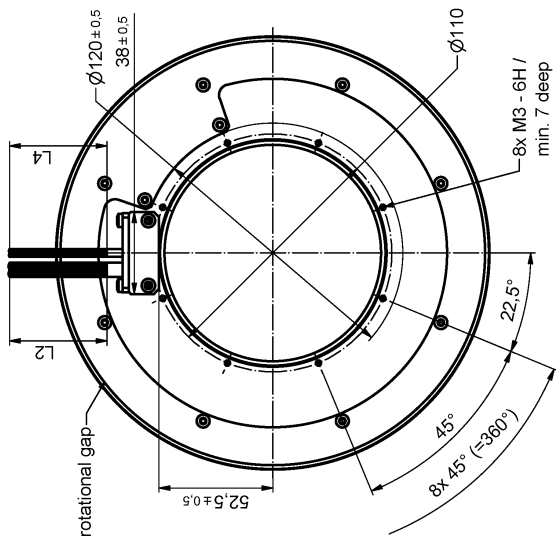
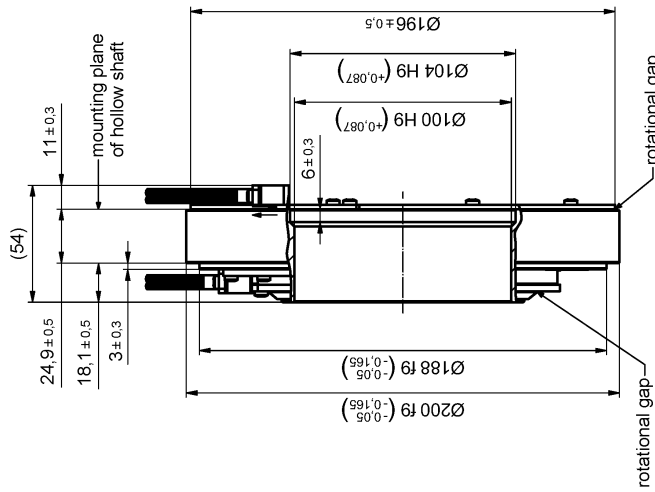
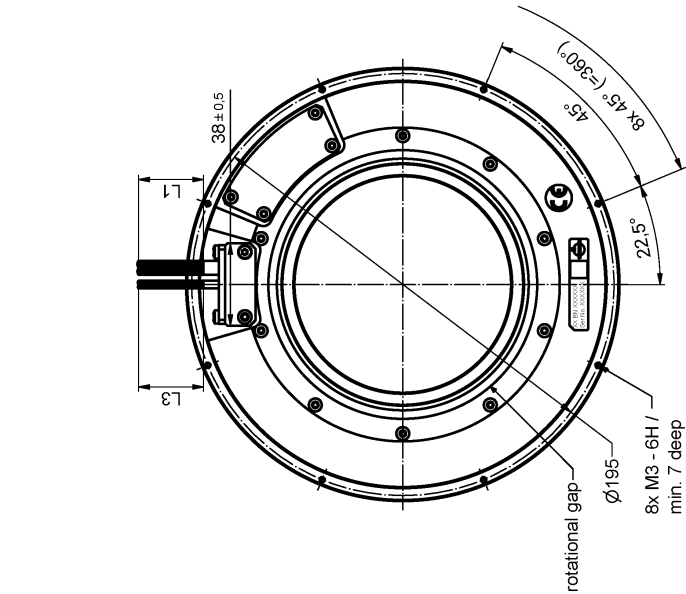
Applicable documents

Specific Circuit Diagram	637426CXXXX circuit diagram (XXXX according to ordering number)
Specific Data Sheet	637426CXXXX data sheet (XXXX according to ordering number)

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Standard outline (all dimensions in millimeter)

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optional cable exit (axial direction)

