SPINNER
Contactless Data Transmission in Real Time

Rotary Joint Family - BN 637426 / 637427

PROFINET, EtherCAT, SERCOS III, EtherNet/IP, VARAN, IEEE-1588 v2 (PTP), etc.

ETHERNET POWERLINK

HIGH FREQUENCY PERFORMANCE WORLDWIDE

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Contactless Data Transmission in Real Time

The contactless data channels, which are implemented with rotating capacitive couplers, have an even longer service life without requiring any maintenance. The supported real-time contactless Ethernet data types are protocol-independent (using only OSI layer 1) and compatible with nearly all 100BASE-X-based industrial Fast Ethernet standards including 1000BASE-TX. The usable clear inside diameter is 100 mm.

Available Configurations for BN 637426 and BN 637427

Type	
1	1000BASE-T Ethernet
4	1 Channel ethernet for real-time applications 100BASE-TX, full duplex
5	1 Channel ethernet for real-time applications 100BASE-TX, half duplex
7	2 Channel ethernet (multiplexed) for real-time applications 100BASE-TX, full duplex
8	2 Channel ethernet (multiplexed) for real-time applications 100BASE-TX, half duplex

Available Configurations for BN 637427

Type I	Slip ring 6-ways

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 according to RFC2544	$\leq 1 \times 10^{-9}$ Measured for 800s with 64 byte frames at 99% channel utilization, corr. to BER $\leq 1 \times 10^{-12}$
Data interface connection	Cat.6A S/FTP 4x2xAWG26/7 (PiMF) at body and hollow shaft side

Transmission Type 4 + Type 5:

1000BASE-T Ethernet-Channel	One signal channel provided
OSI layer operation	Layer 1 - 2
Supported protocols	Not for real-time Ethernet applications
Ethernet frame loss ratio according to RFC2544	$\leq 1 \times 10^{-9}$ Measured for 800s with 64 byte frames at 99% channel utilization, corr. to BER $\leq 1 \times 10^{-12}$
Data interface connection	Cat.6A S/FTP 4x2xAWG26/7 (PiMF) at body and hollow shaft side

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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 according to RFC2544	$\leq 1 \times 10^{-9}$ Measured for 8000s with 64 byte frames at 99% channel utilization, corr. to BER $\leq 1 \times 10^{-12}$	
Data interface connection	Cat.6A S/FTP 4x2xAWG26/7 (PiMF) at body and hollow shaft side	

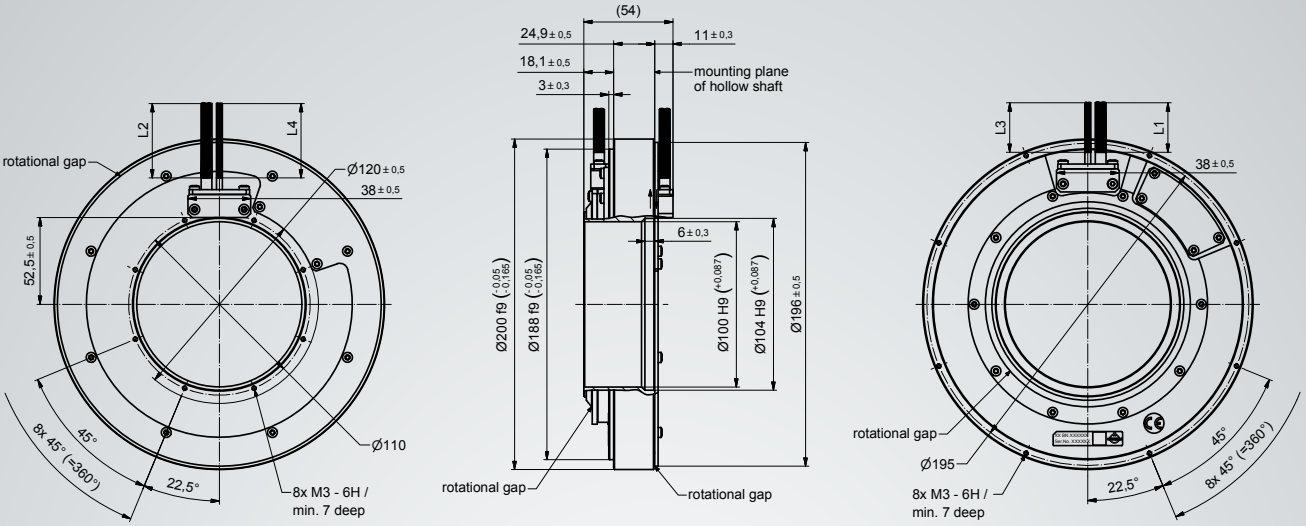
Type I Slip Ring

Group designation	A	B	Case ground
Number of channels	1	4	1
Number of paths per channel	2	1	1
Remark	Necessary for internal contactless data power supply on body and hollow shaft (see “Operating condition”; 0 V DC is isolated to case ground (potential-free))	For arbitrary use	-
Type of circuit	SELV	SELV	SELV
Signal type	Only permanent DC-Power, not for signals	---	---
Current nom. (DC)	6 A + internal current consumption	6 A	9 A
Voltage min.	21.6 VDC	-	-
Voltage max.	28.8 VDC	50 VDC	-
End-to-end resistance, max.	100 mΩ +30 mΩ per 1000 mm cable length	100 mΩ +30 mΩ per 1000 mm cable length	150 mΩ
Cable type body	2 x 0.75 mm2 LiYCY cable, shielded, outer diameter ~6.7 mm	4 x 0.75 mm2 LiYCY cable, shielded, outer diameter ~7.6 mm	-
Cable type hollow shaft	2 x 0.75 mm2 LiYCY cable, shielded, outer diameter ~6.7 mm	4 x 0.75 mm2 LiYCY cable, shielded, outer diameter ~7.6 mm	-

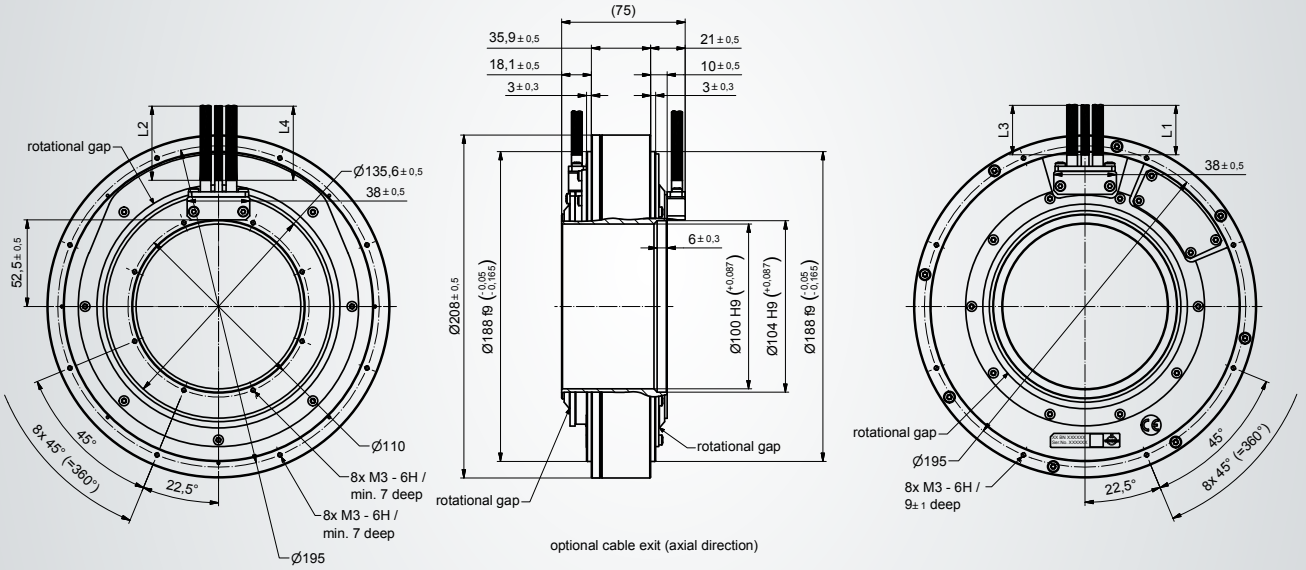
Operating Condition / Standards

External power supply	21.6 V to 28.8 V DC / typically 0.33 A / has to be SELV type acc. to IEC60950-1
Applied standards	EMC Directive 2014/30/EU / DIN EN 55032 (Class B) / DIN EN 55024
Rotating speed, max.	120 rpm
Life, min.	10×10^6 revolutions
Ambient temp. range	-30 °C to +71 °C
IP protection level	IP60 per EN 60529

Standard Outline BN 637426 (all dimensions in millimeter)



Standard Outline BN 637427 (all dimensions in millimeter)



HIGH FREQUENCY PERFORMANCE WORLDWIDE

SPINNER designs and builds cutting-edge radio frequency systems, setting performance and longevity standards for others to follow. The company's track record of innovation dates back to 1946, and many of today's mainstream products are rooted in SPINNER inventions.

Industry leaders continue to count on SPINNER's engineering excellence to drive down their costs of service and ownership with premium-quality, off-the-shelf products and custom solutions. Headquartered in Munich, Germany, the global frontrunner in RF components remains the first choice in simple-yet-smart RF solutions.

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