

Rotary Joint | BN 637418



The contactless data channels, realized by rotating capacitive couplers, offer improved lifetime without the need for maintenance.

The real-time ethernet contactless data types are protocol independent (only using OSI-Layer 1) and suitable for nearly all 100BASE-TX based industrial ethernet standards.

- POWERLINK
- PROFINET
- EtherCAT
- SERCOS III
- EtherNet/IP
- VARAN
- IEEE-1588 v2 (PTP)

Available Configurations

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

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, 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)

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Transmission Type 4:

100BASE-TX Ethernet Channel	One signal channel provided
	Type 4
Supported Ethernet Standards	100BASE-TX (IEEE802.3 Clause 25), autonegotiation (full duplex only)
Supported Protocols	Real-time ethernet protocols
OSI Layer operation	Layer 1 (physical)
Ethernet Frame Loss Ratio According to RFC2544	$\leq 1 \times 10^{-9}$ Measured for 8000s 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:

100BASE-TX Ethernet Channel	Two signal channels over one contactless transmission channel, signals are multiplexed, no redundancy
	Type 7
Supported Ethernet Standards	100BASE-TX (IEEE802.3 Clause 25), autonegotiation (full 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, 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

IP protection level	IP60
Rotating speed, max.	100 rpm
Acceleration, max.	750 rad/s ² (119 rounds/s ²)
Life, min.	20 x 10 ⁶ revolutions
Torque (room / min. temperature), max.	3 Nm
Interface loads, max.	No loads allowed
Case material	Aluminum alloy
Case surface finish	Chromate conversion coat
Weight, approx.	6.5 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
Relative humidity, max.	95% (non-condensing)
Maintenance	Not required
Storage	
Ambient temperature range	-40 °C to +85 °C
Relative humidity, max.	95% (non-condensing)

Applicable documents

Standard outline drawing	Document-No.: 10042178
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