

## Contactless Data Transmission



637426 – Standard outline

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.

ETHERNET   
**POWERLINK**

PROFINET

EtherCAT

SERCOS III

EtherNet/IP

VARAN

IEEE-1588 v2 (PTP)

### Available Configurations

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

### Transmission Type 1:

<b>1000BASE-T Ethernet-Channel</b>	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

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## Transmission Type 4 + Type 5:

<b>100BASE-TX Ethernet Channel</b>	One signal channel provided	
	<b>Type 4</b>	<b>Type 5</b>
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 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	

## Transmission Type 7 + Type 8:

<b>100BASE-TX Ethernet Channel</b>	Two signal channels over one contactless transmission channel, signals are multiplexed, no redundancy	
	<b>Type 7</b>	<b>Type 8</b>
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, corresponds to $BER \leq 1 \times 10^{-12}$	
Data Interface Connection	Cat.6A S/FTP 4x2xAWG26/7 (PiMF) at Body and Hollow shaft side	

## Operating condition

External Power Supply	Power Supply has to be a SELV type acc. to IEC60950-1 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 <sup>2</sup> LiYCY cable, shielded, outer diameter ~3.9 mm, at Body and Hollow shaft side

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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 <sup>2</sup> (119 rounds/s <sup>2</sup> )	750 rad/s <sup>2</sup> (119 rounds/s <sup>2</sup> )
Life, min.	20 x 10 <sup>6</sup> revolutions	200 x 10 <sup>6</sup> revolutions
Torque (room / min. temperature), max.	3 Nm	1,5 Nm
Interface loads, max.	No loads allowed	
Case material	Aluminum alloy	
Case surface finish	Chromate conversion coat	
Weight, approx.	2.3 kg	
Marking	Adhesive label	

## 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

Drawing	See table "Ordering information"
Circuit Diagram	637426CXXXX-CD (XXXX according to ordering number)

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## Ordering information

Order number	Drawing	Options	Type	Contactless data interface				Power supply interface			
				Body	L1* / mm	Hollow shaft	L2* / mm	Body	L3* / mm	Hollow shaft	L4* / mm
637426C0001	Standard outline	---	1	Connector RJ45	1400	Connector RJ45	1400	Flying leads	1400	Flying leads	1400
637426C0004	Standard outline	---	4	Connector RJ45	1400	Connector RJ45	1400	Flying leads	1400	Flying leads	1400
637426C0005	Standard outline	---	5	Connector RJ45	1400	Connector RJ45	1400	Flying leads	1400	Flying leads	1400
637426C0007	Standard outline	---	7	Connector RJ45	1400	Connector RJ45	1400	Flying leads	1400	Flying leads	1400
637426C0008	Standard outline	---	8	Connector RJ45	1400	Connector RJ45	1400	Flying leads	1400	Flying leads	1400
637426C0100	Standard outline	unsealed	7	Connector RJ45	1400	Connector RJ45	1400	Flying leads	1400	Flying leads	1400
637426C0101	Standard outline	unsealed	4	Connector RJ45	1400	Connector RJ45	1400	Flying leads	1400	Flying leads	1400
637426C0102	637426C0102-0E	---	7	Connector RJ45	1400	Flying leads	1400	Flying leads	1400	Flying leads	1400
637426C0103	637426C0103-0E	unsealed	4	Flying leads	12000	Flying leads	12000	Flying leads	12000	Flying leads	12000
637426C0104	637426C0104-0E	---	7	Connector RJ45	1400	Connector RJ45	1400	Flying leads	1400	Flying leads	1400
637426C0105	Standard outline	---	5	Flying leads	2000	Flying leads	15000	Flying leads	2000	Flying leads	15000

\*Cable length tolerance  $\pm 5\%$

Rotary Joint || BN 637426

**Standard outline** (all dimensions in millimeter)

