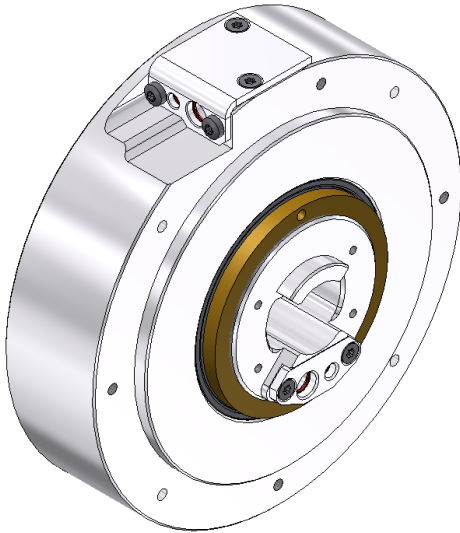


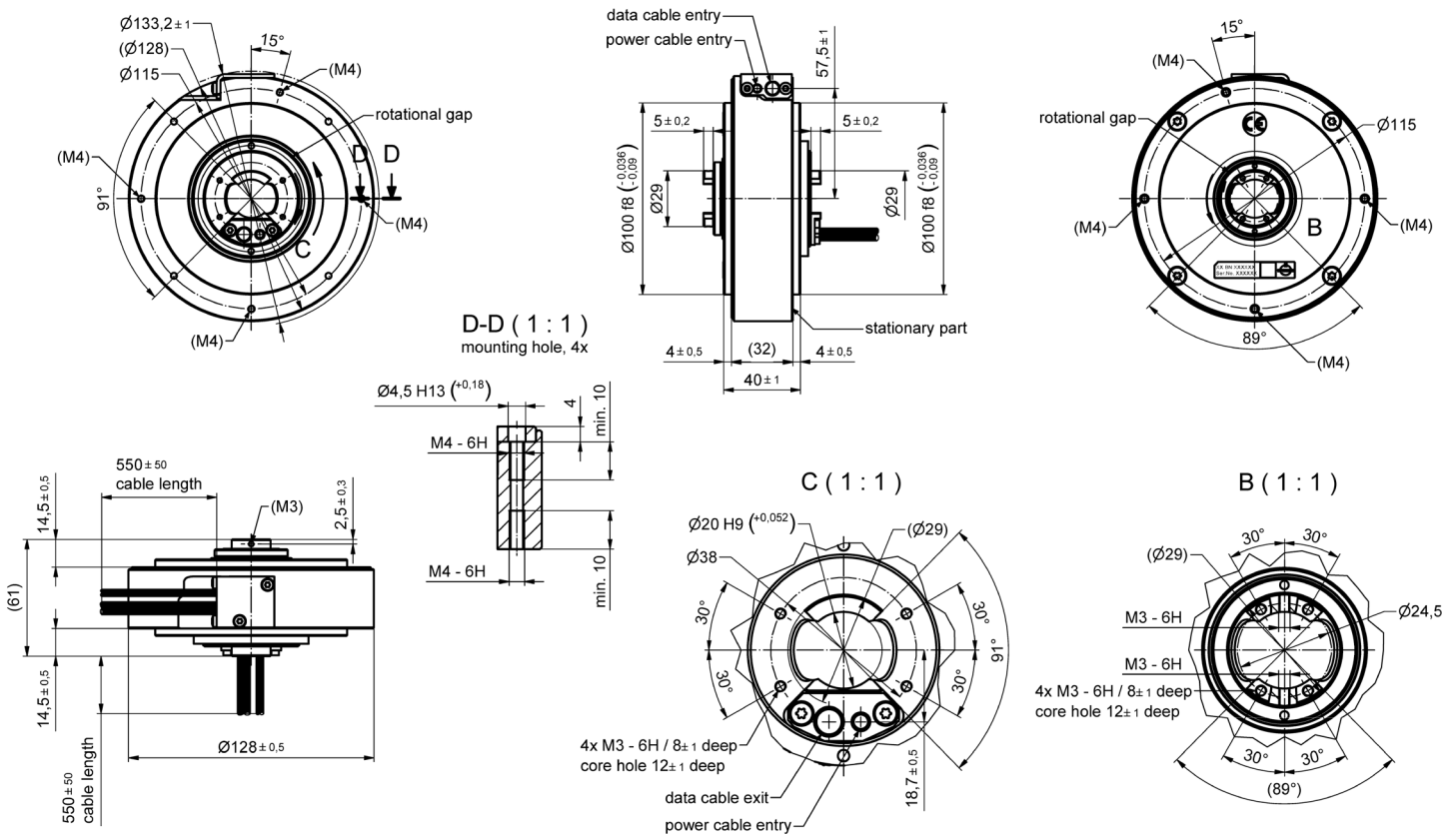
Capacilinc

Contactless Data Transmission Channel Capacitive



The contactless data transmission channel offers improved lifetime and reliability without the need for maintenance. The contactless design guarantees error free data transmission even at very high rotating speeds. The IRT version supports Profinet class C and other real time protocols. The data transmission channel is realised by a rotating capacitive coupler.

ETHERNET 
POWERLINK



All dimensions in millimeter

Page 1 of 4

Contactless Data Transmission Channel Capacitive

Continued...

Interface Type1, 1000BASE-T

1000BASE-T Ethernet Channel	One signal channel provided
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
Profinet Class	Class A, Class B
Ethernet Frame Loss Ratio According to RFC2544	$\leq 1 \times 10^{-9}$ ET1) ET3)
Data Interface Connection	S/FTP cable with RJ45 connector at rotor and stator side. 6.4mm cable outer diameter. Cable length: see drawing

Interface Type3, CAN Bus

CAN Bus Channel	One signal channel provided
Supported CAN Standards	ISO 11898-1:2003
CAN-functionality	Repeater (fast mode)
Data Rate, max.	500 Kbit/s
Alarm Signal	Open Collector output
	$V_{CE} < 40V, I_C < 10mA$
	Active if no failure detected
	Current has to be limited externally
Data Interface Connection Alarm Signal Connection	TBD

Interface Type4, 100BASE-TX, IRT

100BASE-TX Ethernet Channel	One signal channel provided
Supported Ethernet Standards	100BASE-TX (IEEE802.3 Clause 25), Full Duplex
Profinet Class	Class A, Class B, Class C (IRT)
Ethernet Frame Loss Ratio According to RFC2544	$\leq 1 \times 10^{-9}$ ET2) ET3)
Data Interface Connection	S/FTP cable with RJ45 connector at rotor and stator side. Cable length: see drawing

Contactless Data Transmission Channel Capacitive

Continued...

Interface Type7, 100BASE-TX, IRT, 2 Signal Channels

100BASE-TX Ethernet Channel	Two signal channels over one contactless transmission channel, signals are multiplexed not switched
Supported Ethernet Standards	100BASE-TX (IEEE802.3 Clause 25) Full Duplex
Profinet Class	Class A, Class B, Class C (IRT) on both signal channels
Multiplexer	Time Domain Multiplexing. Signals are sampled independent from each other. No routing according to IP address. The transmission channel is not redundant.
Ethernet Frame Loss Ratio According to RFC2544	$\leq 1 \times 10^{-9}$ ^{ET2) ET3)}
Data Interface Connection	S/FTP cable with RJ45 connector at rotor and stator side. Cable length: see drawing

^{ET1)} Measured @ 1 Gbit/s with 64 byte frames at 99% channel utilization and 800 s measurement time (for 1000BASE-T)

^{ET2)} Measured @ 100 Mbit/s with 64 byte frames at 99% channel utilization and 8000 s measurement time (for 100BASE-TX)

^{ET3)} Corresponds to BER $\leq 1 \times 10^{-12}$

Power Requirements

External Power Supply	Power Supply has to be a SELV type acc. to IEC60950-1 The current must be externally limited to 4 A per
Input Voltage Range	21.6 V to 28.8 V DC; 0 V is connected to Case Ground internally
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, flying leads at rotor and stator side. Outer diameter ~3.9mm. Cable length: see drawing

Contactless Data Transmission Channel Capacitive

Continued...

Standards & Directives

Applicable EU Directive	EMC Directive 2014/30/EU	
Applied standards	DIN EN 55022 Class B	Radio disturbance characteristics
	DIN EN 61000-4-2	ESD immunity
	DIN EN 61000-4-3	RF immunity, radiated
	DIN EN 61000-4-4	Transient / burst immunity
	DIN EN 61000-4-6	RF immunity, conducted

Mechanical Data

Rotating speed, max.	1000 rpm
Acceleration, max.	1500 rad/s ² (239 rounds/s ²)
Life, min.	200 x 10 ⁶ revolutions
MTBF	300 000 h
Torque (room / min. temperature), max.	0.2 Nm / 0.5 Nm @ start-up
	0.2 Nm / 0.5 Nm @ rotation
Interface loads, max.	no loads allowed
Case material	aluminum alloy
Case surface finish	chromate conversion coat
Weight, approx.	1.5 kg
Marking	adhesive label

Environmental Conditions

Operation

Ambient temperature range	-30 °C to +71 °C
Relative humidity, max.	95% (non-condensing)
Shock	30 g / 11 ms half sine, 3 shocks in each direction of 3 orthogonal axes
Vibration	20-50 Hz, PSD of 0,02 g ² /Hz falling to 0,001 g ² /Hz at 500 Hz in each of 3 orthogonal axes. Duration: 15 min/axis.
IP protection level	IP60 per EN 60529 (all interfaces connected with appropriate gaskets)
Maintenance	Not required

Storage

Ambient temperature range	-40 °C to +85 °C
Relative humidity, max.	95% (non-condensing)