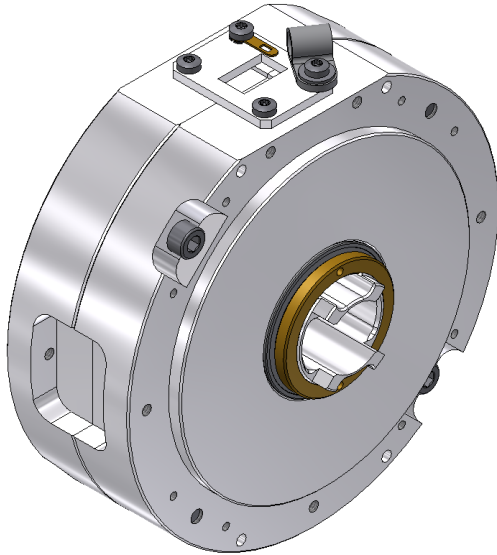
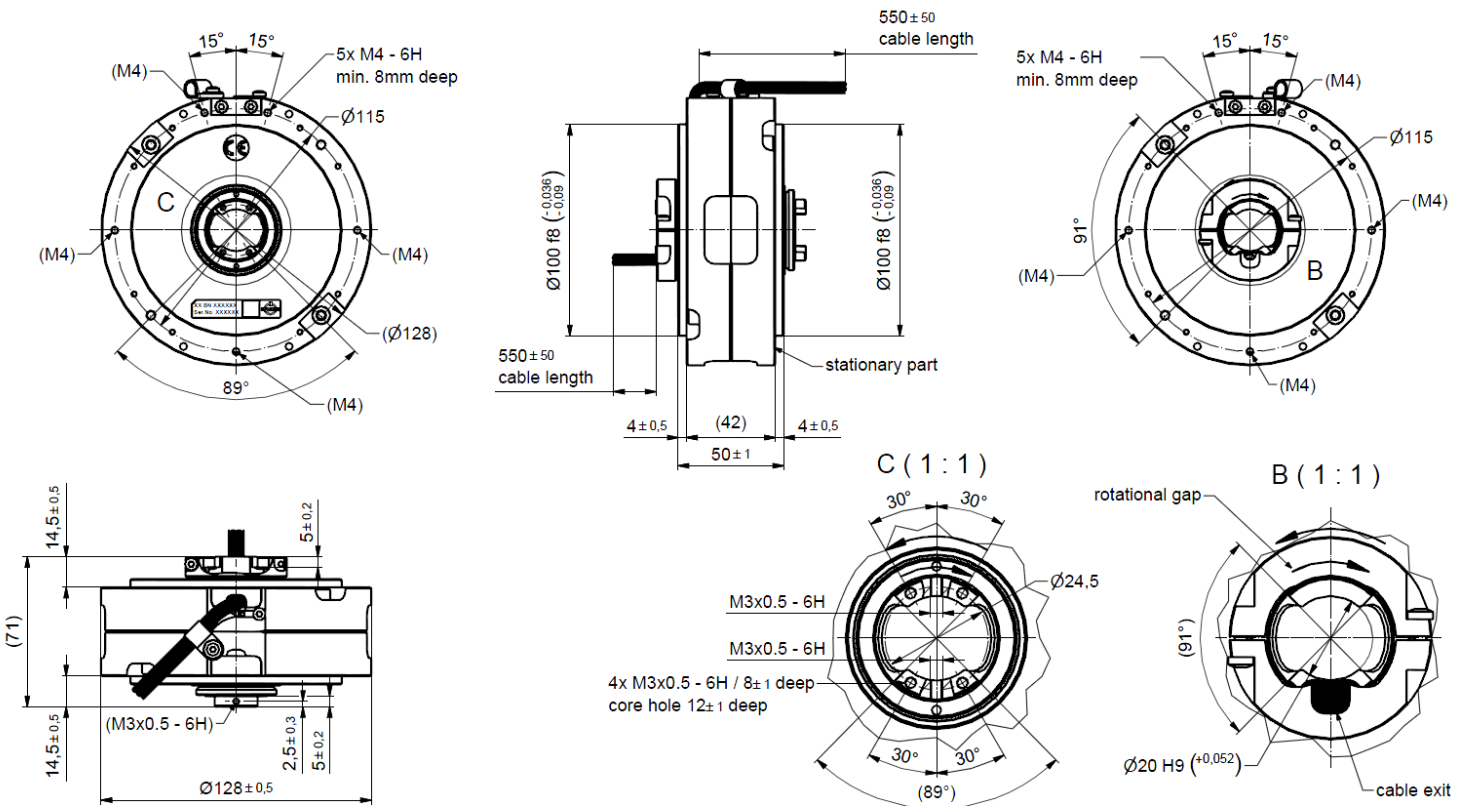


## Capacilinc - Contactless Data Transmission Channel Capacitive



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

Continued...

## 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)<br>100BASE-TX (IEEE802.3 Clause 25)<br>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 (CAT7) 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<br>$V_{CE} < 40V, I_C < 10mA$<br>Active if no failure detected<br>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)  |
| 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 (CAT7) cable with RJ45 connector at rotor and stator side. 6.4mm cable outer diameter 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)  |
| 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 | $\leq 1 \times 10^{-9}$ <sup>ET2) ET3)</sup>  |
| Data Interface Connection                      | S/FTP (CAT7) cable with RJ45 connector at rotor and stator side. 6.4mm cable outer diameter. Cable length: see drawing                                    |

<sup>ET1)</sup> Measured @ 1 Gbit/s with 64 byte frames at 99% channel utilization and 800 s measurement time (for 100BASE-T)

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

<sup>ET3)</sup> 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<br>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 single wires at stator side, AWG22. 2 single wires at rotor side, AWG22.<br>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 <sup>2</sup> (239 rounds/s <sup>2</sup> ) |
| Life, min.                             | 200 x 10 <sup>6</sup> 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 <sup>2</sup> /Hz falling to 0,001 g <sup>2</sup> /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) |