

TECHNICAL DATASHEET

Modular hollow shaft absolute encoder



- Modular kit bearingless absolute encoder
- Best company for low voltage DC motor
- Holistic sensing technology, robust mounting
- Communication interface : BISS-C , SSI , SPI
- Single-turn up to 18bit, battery Multi-turn system available
- Operating temperature -40°C ... +85°C
- AGV, Medical, Collaborative robot



Mechanical Specification

| | |
|---------------------------------|--|
| Out-diameter | 64 mm |
| Bore size | 12 mm / 15 mm / 17 mm / 20 mm / 25 mm Other size on request |
| Mounting | PCB : 4 x 2.2 |
| IP Rating (EN 60529) | IP00 |
| Allowable axial runout | ±0,1 mm |
| Allowable radial runout | ±0,1 mm |
| Nominal airgap | 0.6 mm |
| Max speed | 3.500 RPM. Higher speed on request |
| Inertia | ca. <i>tbd</i> x 10 ⁻⁶ kgm ² |
| Vibration (DIN EN 60068-2-6) | 200 m/s ² (10 ... 2000 Hz) |
| Shock (DIN EN 60068-2-27) | 2000 m/s ² (6 ms) |
| Operating temperature | -40 °C ... +85 °C (w/o battery) |
| Storage temperature | -40 °C ... +100 °C |
| Humidity | 98% non-condensing |
| Weight | approx. <i>tbd</i> g |
| Cable exit | 10 pole JST PCB connector: SM10B-SHLS-TF |

TECHNICAL DATASHEET

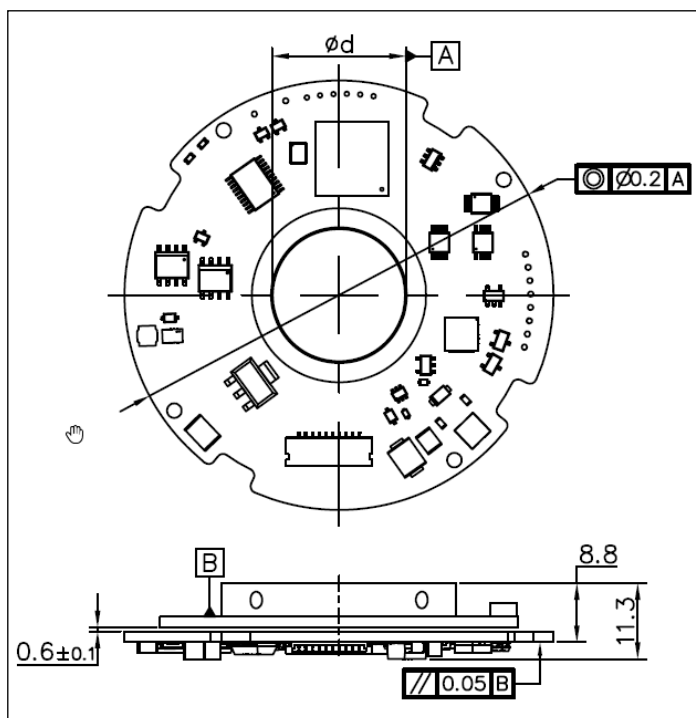
Modular hollow shaft absolute encoder

Electrical Specification

| | |
|---|-------------------------------------|
| Supply voltage | DC 4.75 ... 5.5 V |
| Battery voltage | DC 2.2 ... 3.6 V |
| Multi-Turn | TMR sensor + Battery |
| Standby battery current consumption (power-off) | 6 μ A |
| Operating current consumption (w/o load) | 150 mA |
| Single-turn resolution | Max 18 Bit |
| Multi-turn resolution | Max 16 Bit |
| Coding | BISS-C : Binary , SSI/SPI : GRAY |
| Communication protocol | BiSS-C (sensor mode only), SPI, SSI |
| Output voltage | RS422 compatible |
| Max communication frequency | 10 MHz |
| Accuracy ¹ | $\pm 55''$ |
| Repeatability ¹ | $\pm 15''$ |

¹ Test condition : 24 \pm 2 °C, RH 30 \pm 10%,airgap= 0.6 mm \pm 0.01 mm , rotor and stator misalignment < 0.01 mm.

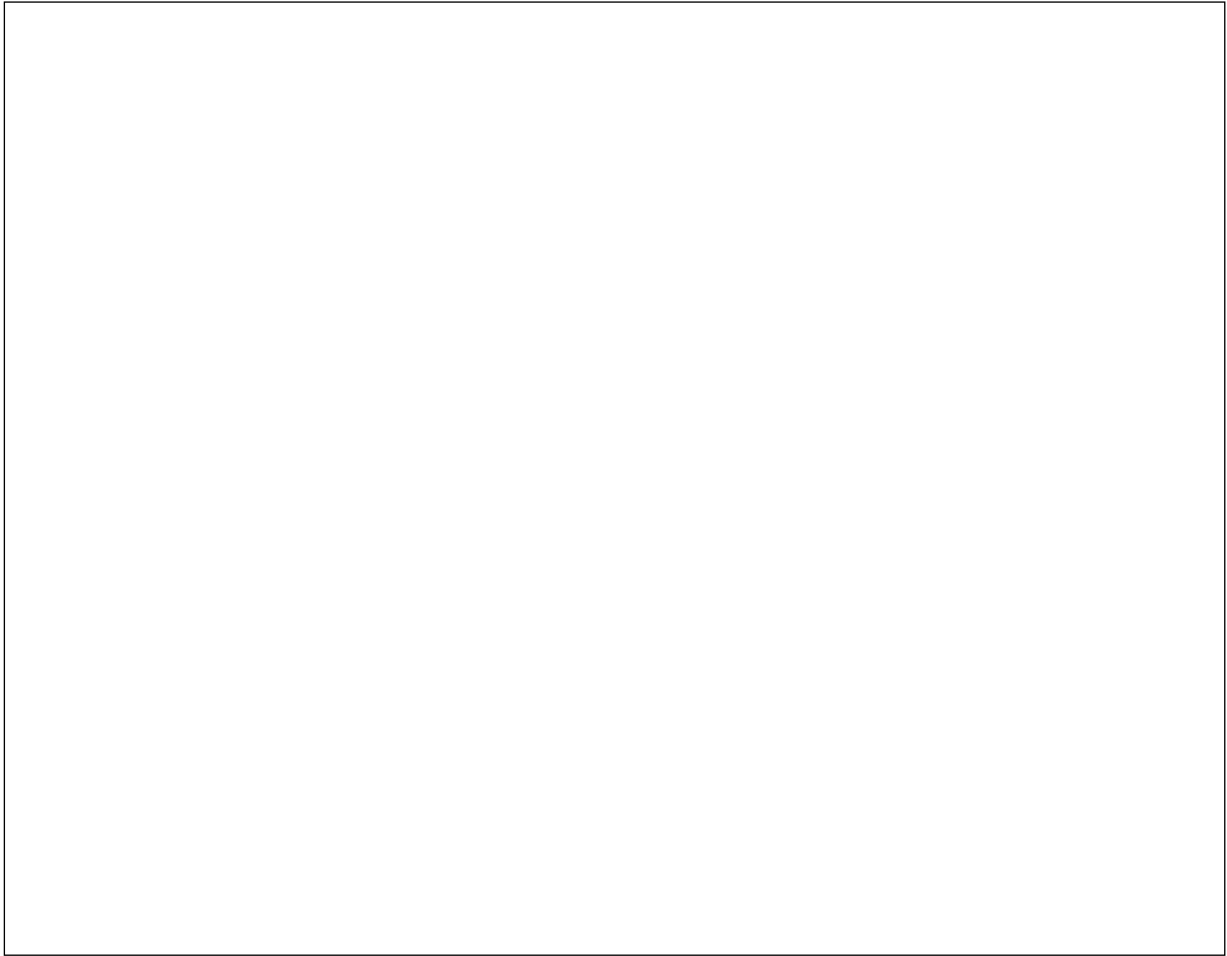
Overall Dimension



TECHNICAL DATASHEET

Modular hollow shaft absolute encoder

Recommend Flange Design



Stator

Rotor

| Ød | H7 |
|-----|-----------|
| Ø15 | -0 +0.018 |
| Ø17 | -0 +0.018 |
| Ø20 | -0 +0.021 |
| Ø25 | -0 +0.021 |

TECHNICAL DATASHEET

Modular hollow shaft absolute encoder

Wiring

| Pin | Color | BiSS | SSI | SPI |
|-----|--------------|------------------------|------------------------|------------------------|
| 1 | Red | UIN | UIN | UIN |
| 2 | Black | GND ¹ | GND ¹ | GND ¹ |
| 3 | Blue | CLK+ | CLK+ | CLK |
| 4 | Blue/Black | CLK- | CLK- | N.C. |
| 5 | Green | DAT+ | DAT+ | MISO |
| 6 | Green/Black | DAT- | DAT- | N.C. |
| 7 | Violet | Preset ² | Preset ² | /CS |
| 8 | Violet/Black | Direction ³ | Direction ³ | Direction ³ |
| 9 | Red/White | Battery+ ⁴ | Battery+ ⁴ | Battery+ ⁴ |
| 10 | Black/White | Battery- ⁴ | Battery- ⁴ | Battery- ⁴ |

¹ GND and PE connects together via thru mounting hole

² Preset pin connect to UIN for 1 seconds for preset, only valid at booting

³ Direction pin connects to UIN to reverse counting direction, only valid at booting

⁴ Battery only available in MT

Option

| Type | Resolution* | Voltage | Mechanical* | Interface | Connector* |
|--------------------------|---|--------------------------|---|------------------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| AM64 | 0017 ST 17BIT 1617 ST 17bit+ MT 16bit 0018 ST 18BIT 1618 ST 18bit+ MT16bit *other resolution on request | A DC5V | M.0G15 15mm rear, set-screw M.0G17 17mm rear, set-screw M.0G20 20mm rear, set-screw M.0G25 25mm rear, set-screw M.0I20 20mm Axial screw *Other size on request | BE BISS-C SG SSI GRAY BP SPI | 0 PCB connector |

Cable ordering code:

117296-030: 0.3m twisted in pair , for multi-turn use, including battery

117297-030: 0.3m twisted in pair , for single-turn use