

# STD-27

## Absolute Position Sensor



The **STD-27** is a contact-less optical reflective absolute position sensor. It has Integrated dual sensing heads and advanced processing, which gives it a very high precision over a low profile and redundant core.

The **STD-27** support SSI & BiSS-C interfaces.

The wide assembly tolerance of the **STD-27** makes it easy to install and align, its plug and-play approach makes it simple to design into any application.

High precision single turn, optical reflective absolute position sensor

- Contact less
- Dual core, redundant - Duplus core technology
- Low profile
- High resolution
- High accuracy

| Mechanical                 |                  |                        |
|----------------------------|------------------|------------------------|
| OD stator                  | mm               | 27                     |
| Shaft                      | mm               | 4.76                   |
| Height                     | mm               | 33                     |
| Rotor moment of inertia    | kgm <sup>2</sup> | < 8 x 10 <sup>-8</sup> |
| Weight                     | gr               | 80                     |
| Starting torque @ 20°C     | Nm               | 0.001                  |
| Shaft load (at shaft end): |                  |                        |
| Axial / Radial             | N                | 5                      |

| Characteristic's          |       |                        |
|---------------------------|-------|------------------------|
| Resolution                | bit   | 18 - 22                |
| Accuracy [INL]            | mdeg  | ± 4                    |
| Repeatability             | count | ± 1                    |
| Data latency              | µsec  | 20                     |
| Startup time              | msec  | 20                     |
| Current consumption       | mA    | 130                    |
| Power supply              | VDC   | 5 ± 5%                 |
| Rotation speed, max       | RPM   | 3,000                  |
| Sensor position bandwidth | KHz   | 40 (SSI) / 65 (BiSS-C) |
| Thermal drift             |       | None                   |

1. Higher accuracy models available

### Environment Condition's

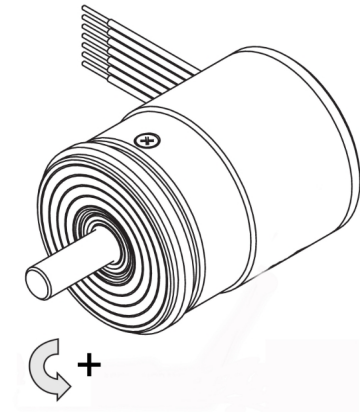
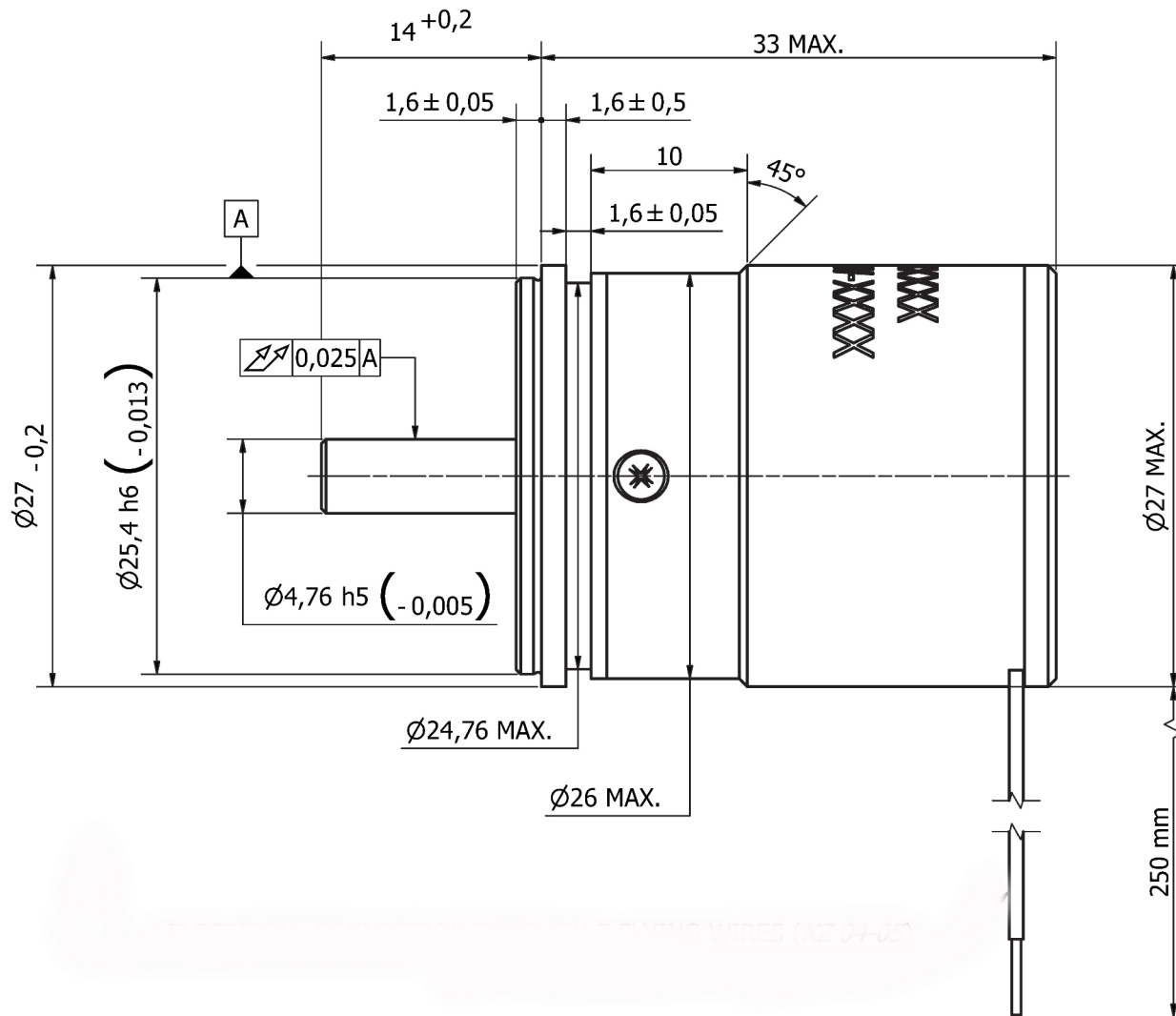
|                              |  |
|------------------------------|--|
| Temperature, operational     | -45 to 105 C° <sup>4</sup>                               |
| Humidity                     | 95% relative humidity, Non condensing,<br>IEC 60068-2-78 |
| IP rating                    | IP 67  |
| Shock <sup>2</sup> (max)     | 400 m/s <sup>2</sup> , 6 ms, ½ sine, 3 axes              |
| Vibration <sup>1</sup> (max) | 200 m/s <sup>2</sup> max @ 55 Hz to 2000 Hz, 3 axes      |
| Pressure                     | 600 bar max  |
| Vacuum                       | 1.0 × 10 <sup>-7</sup> Pa                                |
| Magnetic field               | Immune   |
| EMC compliance               | IEC 61326-1  |
| Environmental compliance     | RoHS, REACH  |

1. The encoder may withstand exposure to vibrations according to MIL-STD-810F Method 514.5 Category 20 (Ground Vehicles).
2. The encoder may be resistant to a mechanical shock of 40 g in magnitude for 6 ms (at least 3 times in both directions along each of the orthogonal axes).
3. The encoder may be tested according to MIL-STD-810F Method 516.5 Procedure I (Functional Test for Ground Equipment).
4. Extended temperature range: available on request.

### Storage Condition's

|                      |   |
|----------------------|---|
| Temperature, Storage | -55 to 125 C°                           |
| Humidity             | 70 % relative humidity, Non condensing, |

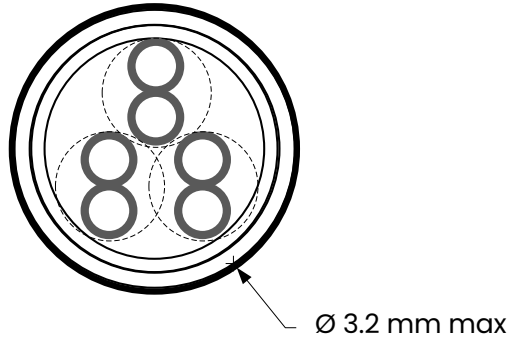







Default positive direction (configurable)



### Interconnection

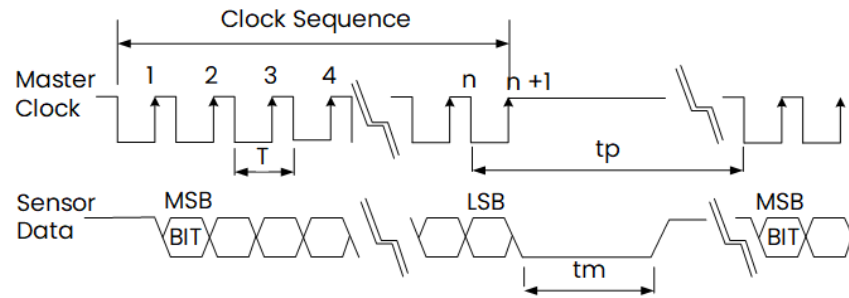


|           |   |
|-----------|---|
| Cable     | Twisted pair , Ø3.2 ± 0.15 mm                                       |
| Wire      | AWG 30 21/0.05 mm tinned copper<br>Insulation - PFE Ø 0.6 ± 0.07 mm |
| Shield    | Thinned copper braided 85%  |
| Binder    | FEB black   |
| T. Rating | -40 / +150 °C   |

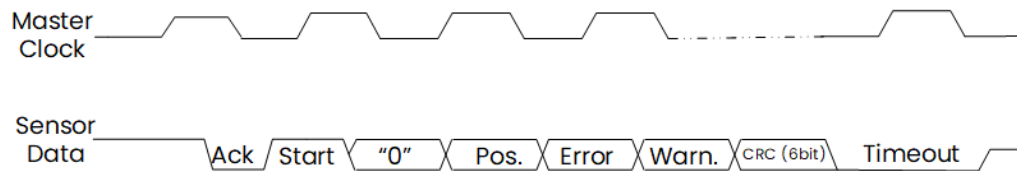
| DB9 | Function | Color  |   |
|-----|----------|--------|---|
| 6   | Return   | Black  |  |
| 4   | 5 VDC    | RED    |   |
| 7   | Data +   | Green  |  |
| 8   | Data -   | Yellow |   |
| 2   | Clock +  | Gray   |  |
| 3   | Clock -  | Blue   |   |
|     | Shield   |        |   |

| Absolute position protocols |                    |
|-----------------------------|--------------------|
| Output signals              | EIA standard RS422 |
| Data encoding               | Binary             |
| f : Clock frequency (max)   | 2.5 MHz            |

| Description | Recommended                             |
|-------------|---|
| tp          | Pause time > 21 µsec                    |
| tm          | transfer time (monoflop time) = 20 µsec |
| BIT         | Build In Test (MSB , Optional)          |



| Description | Recommended                |
|-------------|----------------------------|
| Error       | Error bit – active low 1   |
| Warn.       | Warning bit – active low 1 |
| CRC         | CRC polynomial inverted 6  |



Sensor manufactured by statum motion are warranted to be free from defects in materials and workmanship for a period of 12 months from the date of shipment.

### Warranty Coverage

This warranty covers the replacement or repair of faulty encoders at no charge, provided that the following conditions are met:

- The sensor was installed, operated, and stored in accordance with the manufacturer's instructions.
- The sensor was not subjected to improper installation, misuse, or abuse.
- The sensor was not disassembled or repaired by the customer.

*Product specifications are subject to change without prior notice.*

*The product images shown are for illustration purposes only and may not be an exact representation of the product*

|          |              |   |   |   |   |   |
|----------|--------------|---|---|---|---|---|
| Ordering | <b>STD27</b> | a | b | c | d | e |
|----------|--------------|---|---|---|---|---|

| a          | b                     | c                                     | d                        | e      |
|------------|-----------------------|---------------------------------------|--------------------------|--------|
| Resolution | Comm.                 | Cable                                 | Length                   | Custom |
| 18-22      | B – Biss C<br>S – SSi | 1 – Flying leads<br>2 – DB9 connector | 1 – 250 mm<br>2 – 500 mm |        |

| Stator board protection      |   |
|------------------------------|---|
| PCB assemble                 | IPC 610 Class 3                                   |
| PCB                          | IPC 620 Class 3                                   |
| Sensor harness assembly      | IPC-A 620 Class 3                                 |
| Conformal coating (optional) | UVCL ; UV cure conformal coating<br>IPC J-STD-001 |



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