

The **STD-25** 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-25** support SSi & BiSS-C interfaces.

The wide assembly tolerance of the **STD-25** 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

| Dimensions |    |    |  |
|------------|----|----|--|
| OD stator  | mm | 25 |  |
| ID rotor   | mm | 6  |  |
| Height     | mm | 7  |  |

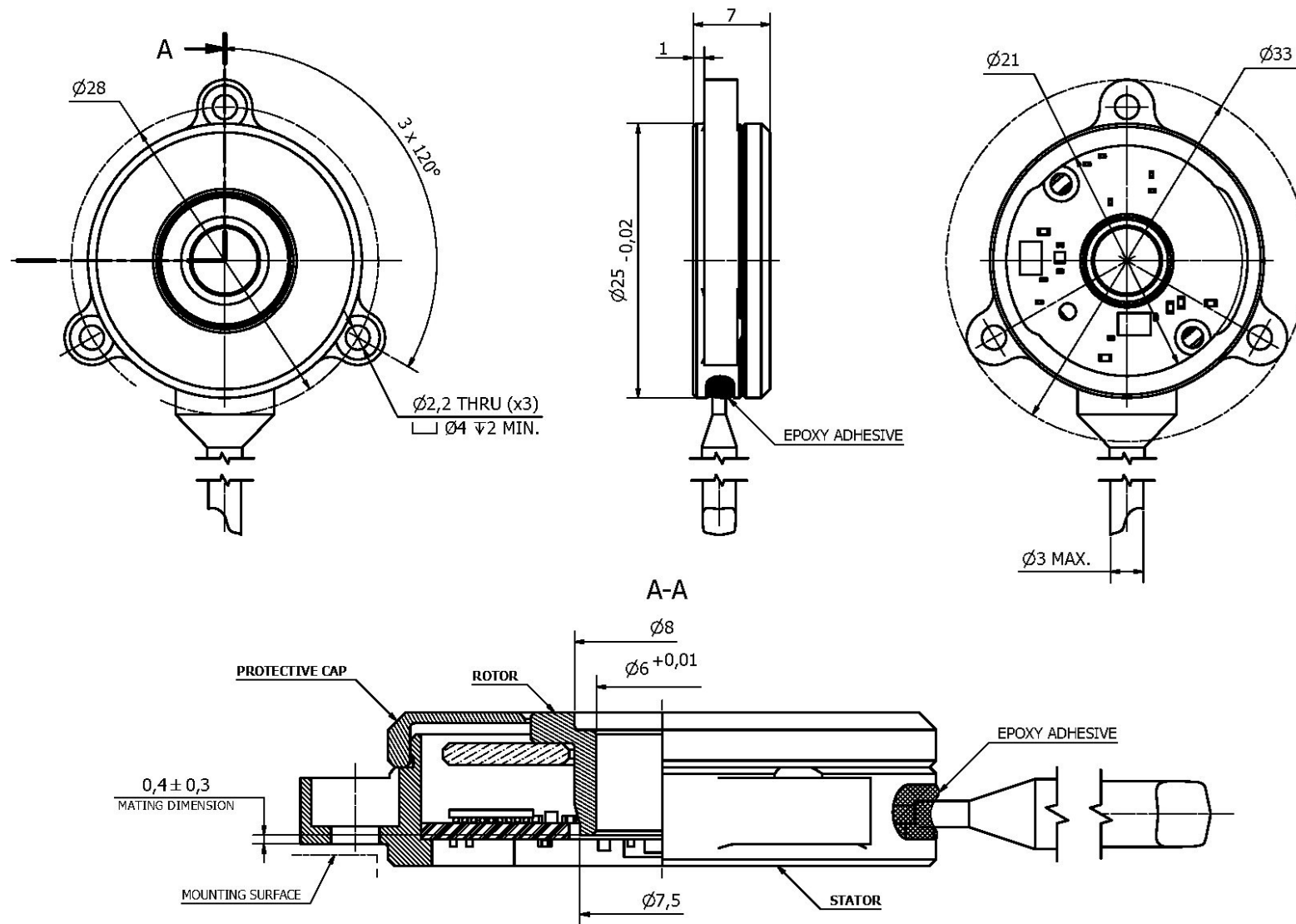
| Environment Condition's  |                                                       |
|--------------------------|-------------------------------------------------------|
| Temperature, operational | -40 to 100 C°                                         |
| Humidity                 | 95% relative humidity, Non condensing, IEC 60068-2-78 |
| IP rating                | IP 40 , (enclosed)                                    |
| Shock                    | 1000 m/s <sup>2</sup> , 6 ms, ½ sine, 3 axes          |
| Vibration                | 100 m/s <sup>2</sup> max @ 55 Hz to 2000 Hz, 3 axes   |
| EMC compliance           | IEC 61326-1                                           |

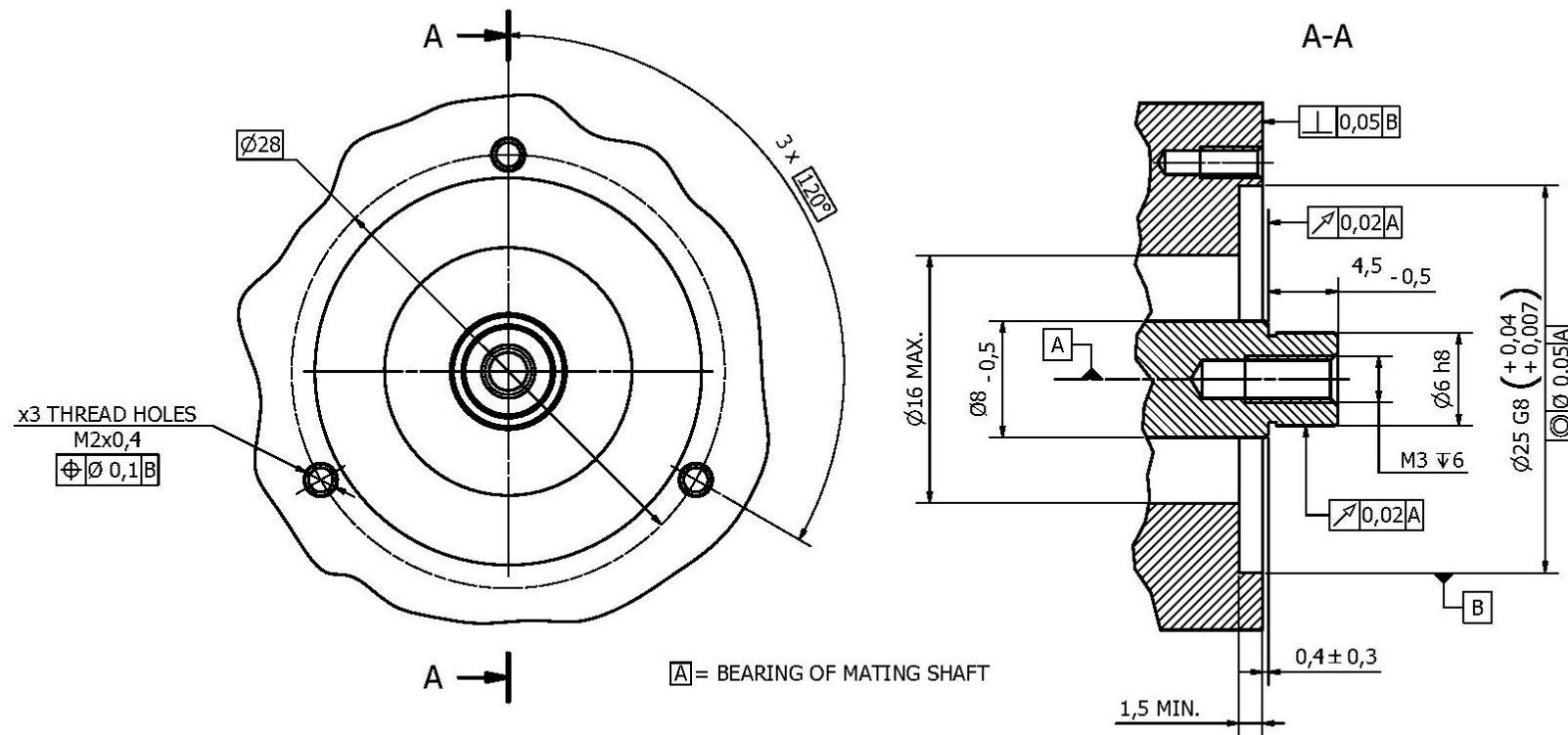
# STD-25

## Absolute Position Sensor



| Characteristic's           |                  |            |
|----------------------------|------------------|------------|
| Resolution <sup>1</sup>    | bit              | 18 - 22    |
| Accuracy [INL]             | mdeg             | ± 4        |
| Repeatability              | count            | ± 1        |
| Data latency               | µsec             | 20         |
| Startup time               | msec             | 20         |
| Current consumption        | mA               | 150        |
| Power supply               | VDC              | 5 ± 5%     |
| Rotation speed, max        | RPM              | 5,000      |
| Rotor moment of inertia    | gmm <sup>2</sup> | 60         |
| Permissible radial run-out | mm               | ± 0.4      |
| Rotor / Stator air gap     | mm               | 1.75 ± 0.5 |
| Weight                     | gr               | 6          |





Mounting requirements

## Mounting

### (1) Stator

Place the encoder's Stator in the application's  $\varnothing 25$  mm centering hole. Align the three mounting holes on the Stator house (spaced  $120^\circ$  apart) with the threaded holes (M2 x 0.4) on the application support. Align and fasten them with three screws (DIN 912 - M2 x 5). Apply a recommended tightening torque of  $M_d = 0.3$  Nm.

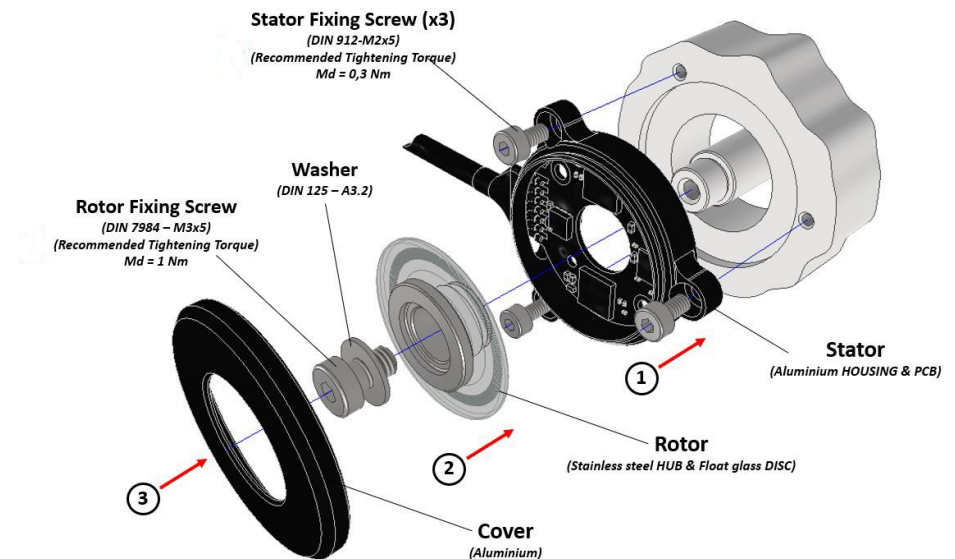
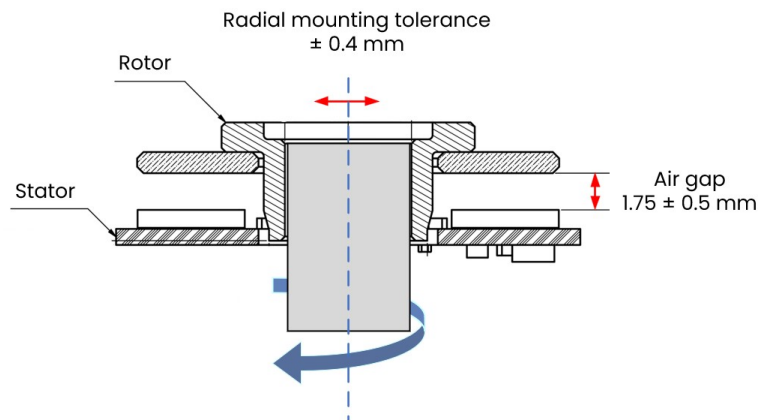
### (2) Rotor

Ensure the disc of the Rotor (Disc/Hub assembly) is clean and free of damage.

Press the Rotor onto the application shaft axially, the  $\varnothing 6$  mm inner diameter of the Hub for centering. Avoid touching the disc while pressing.

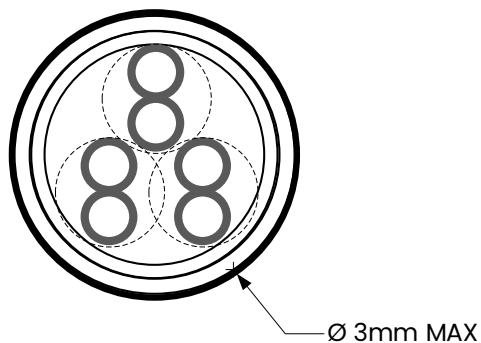
Secure the Rotor with a screw (DIN 7984 - M3 x 5) and a washer (DIN 125 - A3.2). Apply a recommended tightening torque of  $M_d = 1$  Nm.

NOTE: in dynamic applications where high accelerations and mechanical vibrations are present, the use of thread locking adhesive is recommended. (e.g. Loctite 242)



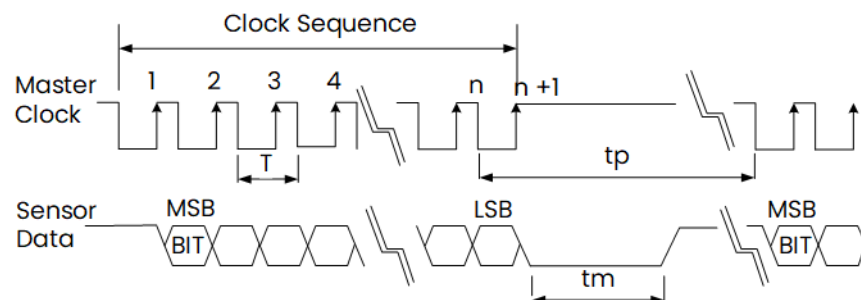
STATUM MOTION sensors on-axis calibration is used for high-precision fine-tuning, but it is not necessary in most cases.

Off-axis calibration is performed on all sensors during production as part of final quality assurance and testing to determine their general performance and characteristics. On-site setup is available for many parameters, such as rotation direction, "zero setup" and more with statum studio SW tool.

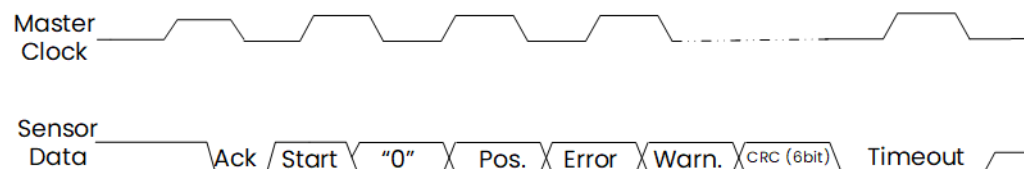


|           |                                                                          |
|-----------|--------------------------------------------------------------------------|
| Cable     | Twisted pair , Ø2.45 ±0.15 mm                                            |
| Wire      | AWG 30 25/44 tinned copper<br>Insulation - PFE Ø0.15<br>OD Ø0.6 ±0.05 mm |
| Shield    | Thinned copper braided 95%                                               |
| Filler    | PTFE                                                                     |
| Binder    | EPTFE                                                                    |
| Jacket    | FPE Black                                                                |
| T. Rating | -55 ° C : + 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   |        |



|     | Description                    | Recommended |
|-----|--------------------------------|-------------|
| f   | clock frequency (max)          | 1.8 MHz     |
| tp  | pause time                     | > 21 µsec   |
| tm  | transfer time (monoflop time)  | = 20 µsec   |
| BIT | Build In Test (MSB , Optional) |             |



|       | Description              |         |
|-------|--------------------------|---------|
| Pos.  | Number of data bits      | 18 - 22 |
| 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.

Ordering

**STD25**

a

b

c

d

e

f

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

<sup>1</sup> - higher resolution – optional up to 26 bit.

| 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 |



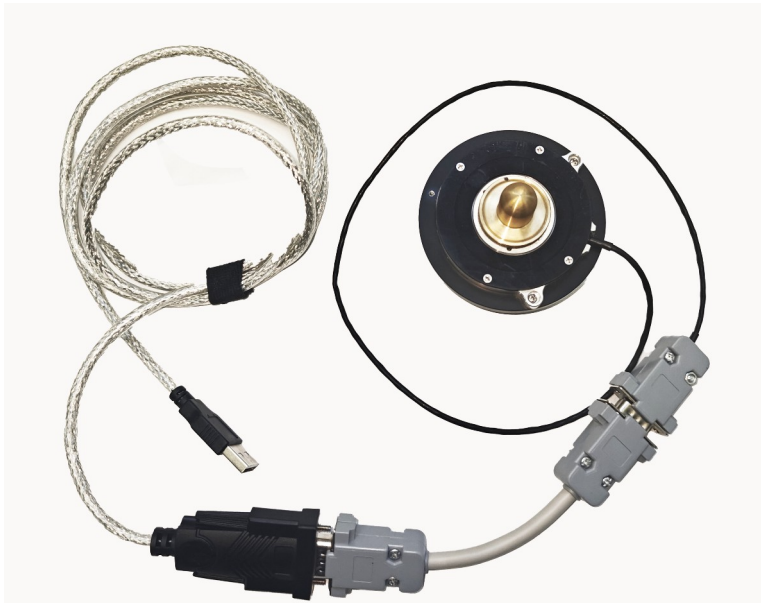
*Product specifications are subject to change without prior notice.*

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

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statum motion **Studio** provides an intuitive interface for configuring of the position sensors. It operates with the statum compact protocol over RS422, offering features such as functionality verification, zero setup, jitter testing and more.



statum motion **Demo Kit** includes a position sensor mounted on a rotating jig and an RS422 to USB converter.