



**Absolute encoders
AFS/AFM60 SSI**

AFM60B-S4PA032768

Model Name > [AFM60B-S4PA032768](#)
Part No. > [1037503](#)



At a glance

- High-resolution absolute encoders with up to 30 bits (AFM60) or up to 18 bits (AFS60)
- Face mount flange, servo flange, blind or through hollow shaft
- SSI, SSI + Incremental or SSI + Sin/Cos interface
- Programmable resolution and offset (dependent on type)
- Connection system: M12, M23 connector or cable outlet
- Enclosure rating: IP 67 (housing), IP 65 (shaft)
- Operating temperature: -30 °C to +100 °C (depends on type)

Your benefits

- Programmability of the encoders means less storage, greater machine availability and easy installation
- Precise positioning due to high resolutions
- Large selection of mechanical interfaces and electrical contacting possibilities: Suitable for all applications
- Suitable for applications with limited space requirements (extremely short installation depth of 30 mm)
- Very good rotation accuracy due to increased bearing distance
- One programming tool and software with automatic encoder detection for AFS60/AFM60/DFS60



Performance

| | |
|--------------------------------------|---------------------|
| Max. number of steps per revolution: | 32,768 |
| Max. number of revolutions: | 4,096 |
| Resolution power: | 32,768 x 4,096 |
| Resolution: | 15 bit x 12 bit |
| Error limits: | ± 0.05 ° |
| Repeatability (Ta not constant): | 0.002 ° |
| Measuring step deviation: | ± 0.01 ° |
| Measuring step: | 0.01 ° |
| Initialization time: | 50 ms ¹⁾ |

¹⁾ Valid positional data can be read once this time has elapsed

Mechanical data

| | |
|-----------------------|--|
| Mechanical interface: | Solid shaft with flat, Face mount flange |
| Shaft diameter: | 10 mm |

| | |
|-------------------------------------|-----------------------------------|
| Mass: | 0.26 kg |
| Start up torque: | 0.5 Ncm (20 °C) |
| Operating torque: | 0.3 Ncm (20 °C) |
| Permissible Load capacity of shaft: | 40 N (axial), 80 N (radial) |
| Maximum operating speed: | 9,000 /min ¹⁾ |
| Moment of inertia of the rotor: | 6.2 gcm ² |
| Bearing lifetime: | 3.0 x 10 ⁹ revolutions |
| Max. angular acceleration: | 500,000 rad/s ² |

1) Self warming of 3.3 K per 1000 revolutions/min when applying note working temperature range

Electrical data

| | |
|--|--------------------------------------|
| Power consumption: | 0.5 W (without load) |
| Operating voltage range: | 4.5 V DC ... 32 V DC |
| MTTFd: mean time to dangerous failure: | 250 a (EN ISO 13849-1) ¹⁾ |

1) This product is a standard product and does not constitute a safety component as defined in the Machinery Directive.

Calculation based on nominal load of components, average ambient temperature 40°C, frequency of use 8760 h/a. All

electronic failures are considered hazardous. For more information, see document no. 8015532.

Interfaces

| | |
|--|--|
| Electrical interface: | Connector M23, 12-pin, radial |
| Interface signals: | Clock +, Clock -, Data +, Data- |
| Clock frequency: | 2 MHz ¹⁾ |
| SET (electronic adjustment): | H-active (L ≡ 0 - 1,5 V, H ≡ 2,0 - Us V) |
| CW/CCW (counting sequence when turning): | L-active (L ≡ 0 - 1,5 V, H ≡ 2,0 - Us V) |

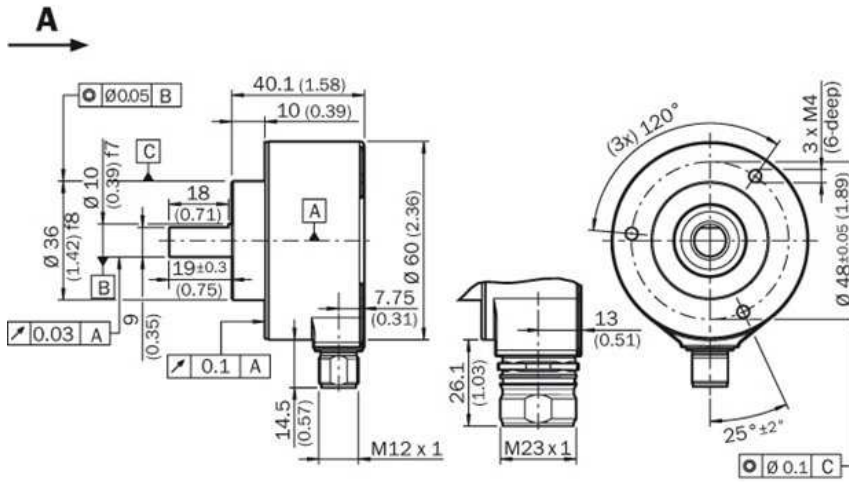
1)

Ambient data

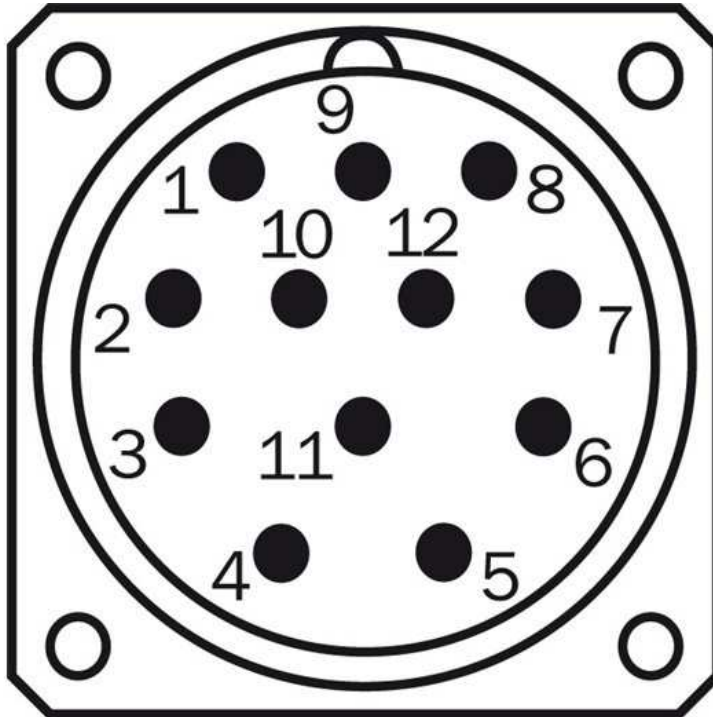
| | |
|--------------------------------|--|
| EMC: | (according to EN 61000-6-2 and EN 61000-6-3) ¹⁾ |
| Enclosure rating: | IP 65 (according to IEC 60529), shaft side, IP 67 (according to IEC 60529), housing side ²⁾ |
| Permissible relative humidity: | 90 % (condensation of the optical scanning not permitted) |
| Working temperature range: | -30 °C ... 100 °C |
| Storage temperature range: | -40 °C ... 100 °C, without package |
| Resistance to shocks: | 70 g (according to EN 60068-2-27) |
| Resistance to vibration: | 30 g, 10 Hz ... 2,000 Hz (according to EN 60068-2-6) |

1) 2) With mating connector fitted

Dimensional drawing



PIN assignment



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