



Absolute encoders AFS/AFM60 SSI

AFM60B-BDAA008192

Model Name > [AFM60B-BDAA008192](#)
Part No. > [1054686](#)



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:	8,192
Max. number of revolutions:	4,096
Resolution power:	8,192 x 4,096
Resolution:	13 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:	Blind hollow shaft
Shaft diameter:	10 mm

Mass:	0.2 kg
Start up torque:	0.8 Ncm (20 °C)
Operating torque:	0.6 Ncm (20 °C)
Maximum operating speed:	6,000 /min ¹⁾
Moment of inertia of the rotor:	40 gcm ²
Bearing lifetime:	3.0 x 10 ⁹ revolutions
Max. angular acceleration:	500,000 rad/s ²
Permissible movement axial static/dynamic:	± 0.5 mm, ± 0.2 mm
Permissible movement radial static/dynamic:	± 0.3 mm, ± 0.1 mm

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- ¹⁾
Clock frequency:	2 MHz
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

Technical drawing of the 1000 Series 1/2" (25.4 mm) ball valve, showing three views: side view, end view, and top view.

Side View Dimensions:

- Overall length: 45.5 (1.79)
- Distance from end to first port: 9.4 (0.37)
- Distance between ports: 3.4 (0.13)
- Distance from second port to end: 2.5 (0.10)
- Port diameter: $\varnothing 32.6$ (1.28)
- Port length: 6 (0.24)
- Distance from end to mounting flange: 14.5 (0.57)
- Flange diameter: $\varnothing 60$ (2.36)
- Flange thickness: 7.75 (0.31)
- Mounting flange thread: M12 x 1

End View Dimensions:

- Overall length: 26.1 (1.03)
- Flange diameter: 13 (0.51)
- Flange thread: M23 x 1

Top View Dimensions:

- Overall width: 72 $\pm$ 0.3 (2.83)
- Port diameter: $\varnothing 3.2 \pm 0.1$ (0.13)
- Distance between ports: 47 (1.85)
- Overall diameter: $\varnothing 63 \pm 0.2$ (2.48)
- Port spacing: 16.7 (0.66)
- Port angle: 20°

Bottom View Dimensions:

- Minimum distance from end to mounting flange: min. 15 (0.59)
- Maximum distance from end to mounting flange: max. 42 (1.65)

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