

ONLINE DATA SHEET
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Absolute encoders
AFS/AFM60 PROFINET, Rotary

AFM60A-BBNB018X12



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AFS/AFM60 PROFINET, Rotary

Model Name > AFM60A-BBNB018X12
Part No. > 1059038





Illustration may differ

At a glance

- High-resolution 30-bit absolute encoder (18-bit singleturn and 12-bit multiturn)
- Face mount flange, servo flange and blind hollow shaft
- Connection type: 3 x M12 axial plug
- PROFINET-IO-RT interface
- Less than 5 ms data update time
- Round axis functionality
- Alarms, warnings and diagnostics functions for speed, position, temperature, operating time, etc.
- Status display via 5 LEDs

Your benefits

- Increased productivity as a result of intelligent diagnostics functions and rapid data transfer
- Increase in network reliability due to early error detection
- Simple installation with various configuration options
- Flexible, easy setup and high resolutions for various applications with binary, integer and "decimal point" values based on round axis functionality
- Maximum system availability through embedded switch technology
- Compact and cost-efficient design

Performance

Max. number of steps per revolution:	262,144
Max. number of revolutions:	4,096
Resolution power:	262,144 x 4,096
Resolution:	18 bit x 12 bit
Error limits:	≤ 0.03 °
Repeatability (Ta not constant):	≤ 0.002 °
Measuring step deviation:	± 0.002 °
Initialization time:	6 s

Mechanical data

Mechanical interface:	Blind hollow shaft
Shaft diameter:	8 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)]

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Moment of inertia of the rotor:	40 gcm²
Bearing lifetime:	3.0 x 10^9 revolutions
Max. angular acceleration:	500,000 rad/s²
Permissible movement axial static/dynamic:	≤ 0.5 mm, ≤ 0.1 mm
Permissible movement radial static/dynamic:	≤ 0.3 mm, ≤ 0.05 mm
Shaft material:	Stainless steel
Flange material:	Aluminum
Type of mounting shaft:	Blind hollow shaft

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

Electrical data

Operating voltage range:	10 V DC ... 30 V DC
Power consumption max.:	3 W
MTTFd: mean time to dangerous failure:	80 a (EN ISO 13849-1) [1]
Connection type:	3 x connector M12, 4-pin, axial
Reverse polarity protection:	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:	PROFINET
Bus interface:	PROFINET IO/ RT Class B
Data transmission rate (baud rate):	10 Mbit/s ⁄ 100 Mbit/s
Encoder profile:	V4.1 class3
RPI (requested packet interval):	2 ms ... 750 ms
DLR (Device Level Ring):	0
Endless operating functionality:	1

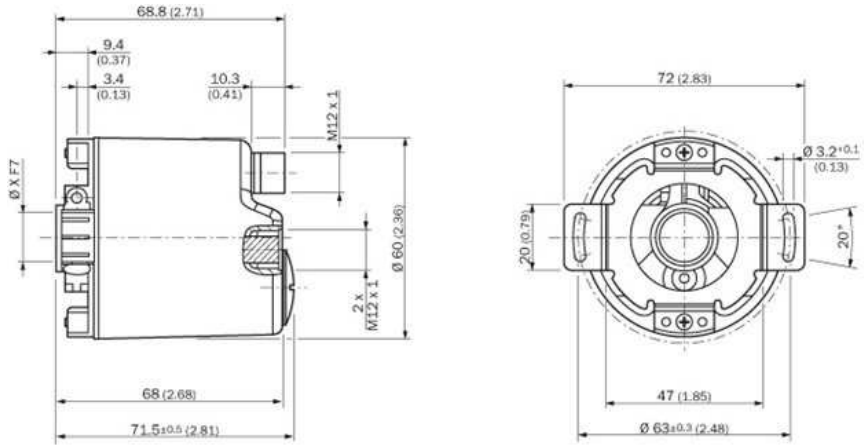
Ambient data

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 ... +85 °C
Storage temperature range:	-40 °C ... +100 °C, without package
Resistance to shocks:	100 g, 6 ms (according to EN 60068-2-27)
Resistance to vibration:	30 g, 10 Hz ... 2,000 Hz (according to EN 60068-2-6)

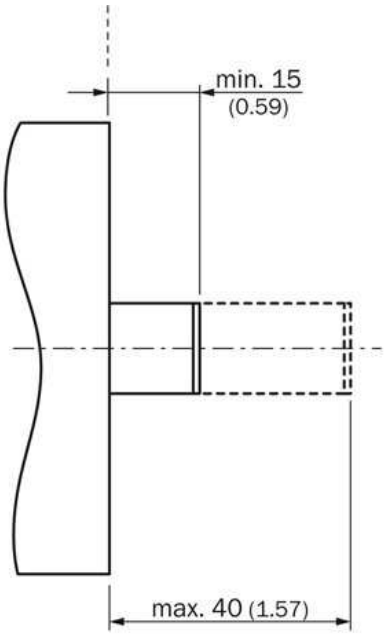
[1] The EMC according to the standards quoted is achieved if screened cables are used. [2] With mating connector fitted

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Dimensional drawing



Proposed fitting



All dimensions in mm (inch)

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PIN assignment



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