



**Absolute encoders  
AFS/AFM60 PROFINET, Rotary**

AFM60A-BDNB018X12



**Model Name** > **AFM60A-BDNB018X12**  
**Part No.** > **1059035**



*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:	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 <sup>1)</sup>

Moment of inertia of the rotor:	40 gcm <sup>2</sup>
Bearing lifetime:	3.0 x 10 <sup>9</sup> revolutions
Max. angular acceleration:	500,000 rad/s <sup>2</sup>
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

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

## Electrical data

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Operating voltage range:	10 V DC ... 30 V DC
MTTFd: mean time to dangerous failure:	80 a (EN ISO 13849-1) <sup>1)</sup>

<sup>1)</sup> 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

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Electrical interface:	3 x connector M12, 4-pin, axial
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

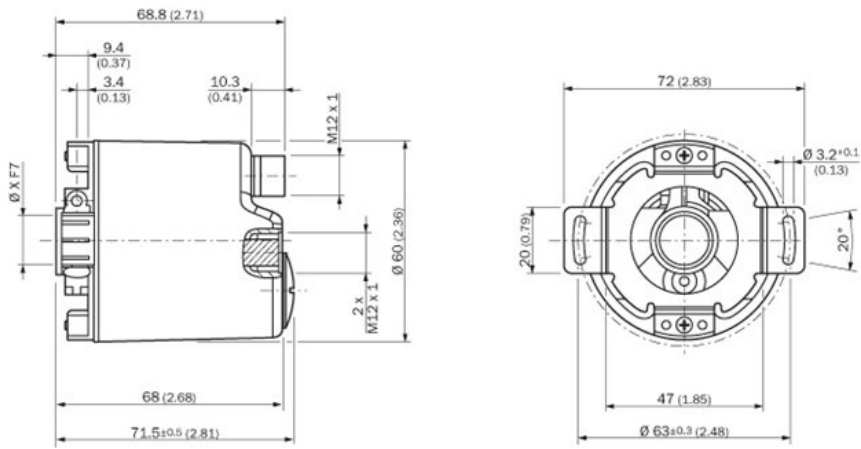
## Ambient data

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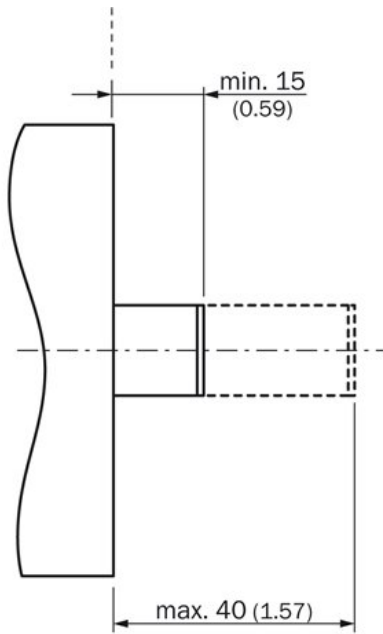
EMC:	(according to EN 61000-6-2 and EN 61000-6-3) <sup>1)</sup>
Enclosure rating:	IP 65 (according to IEC 60529), shaft side, IP 67 (according to IEC 60529)
Permissible relative humidity:	90 % (condensation of the optical scanning not permitted)
Working temperature range:	-30 °C ... 85 °C
Storage temperature range:	-40 °C ... 100 °C, without package
Resistance to shocks:	100 g (according to EN 60068-2-27)
Resistance to vibration:	30 g, 10 Hz ... 2,000 Hz (according to EN 60068-2-6)

<sup>1)</sup> The EMC according to the standards quoted is achieved if screened cables are used. <sup>2)</sup> With mating connector fitted

## Dimensional drawing



## Proposed fitting



All dimensions in mm (inch)

## PIN assignment

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