



## Absolute encoders AFS/AFM60 PROFINET

AFM60A-S1NB Sales-Kit 02



**Model Name** > **AFM60A-S1NB Sales-Kit 02**  
**Part No.** > **1059372**



*Illustration may differ*

**This kit includes the following items:**

| Model Name          | Part No.  |
|---------------------|-----------|
| > AFM60A-S1NB018X12 | > 1059040 |
| > DOL-1204-W05MC    | > 6025904 |
| > STL-1204-W05MZ90  | > 6048257 |

**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

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|                                     |                                   |
|-------------------------------------|-----------------------------------|
| Mechanical interface:               | Solid shaft, Servo flange         |
| Shaft diameter:                     | 6 mm                              |
| Mass:                               | 0.2 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 Hz <sup>1)</sup>            |
| Moment of inertia of the rotor:     | 6.2 gcm <sup>2</sup>              |
| Bearing lifetime:                   | 3.0 x 10 <sup>9</sup> revolutions |
| Max. angular acceleration:          | 500,000 rad/s <sup>2</sup>        |
| 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:    | 0                               |

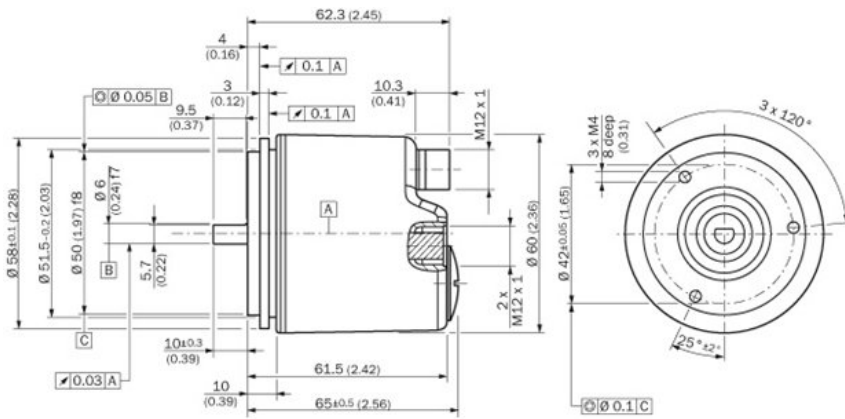
## Ambient data

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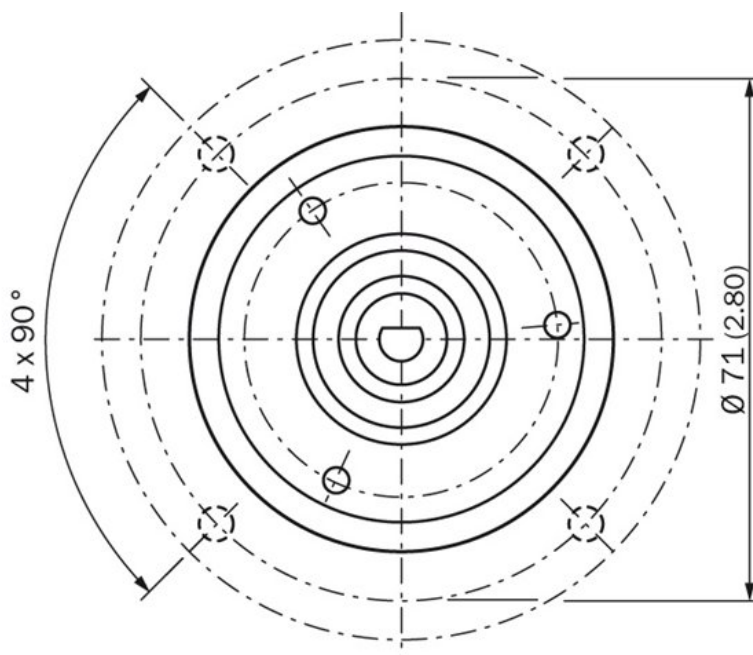
|                                |                                                                            |
|--------------------------------|----------------------------------------------------------------------------|
| EMC:                           | (according to EN 61000-6-2 and EN 61000-6-3) <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)

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