



## Absolute encoders AFS/AFM60 PROFINET

AFS60A-BDNB Sales-Kit 03



**Model Name** > [AFS60A-BDNB Sales-Kit 03](#)  
**Part No.** > [1059381](#)



*Illustration may differ*

**This kit includes the following items:**

| Model Name                          | Part No.                  |
|-------------------------------------|---------------------------|
| > <a href="#">AFS60A-BDNB262144</a> | > <a href="#">1059047</a> |
| > <a href="#">DOS-1204-W</a>        | > <a href="#">6007303</a> |
| > <a href="#">STE-1204-WZ</a>       | > <a href="#">6048262</a> |

**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:                    | 0.5 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

---

|  |                                     |
|--|-------------------------------------|
| 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

---

|                                     |                                 |
|-------------------------------------|---------------------------------|
| 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                               |

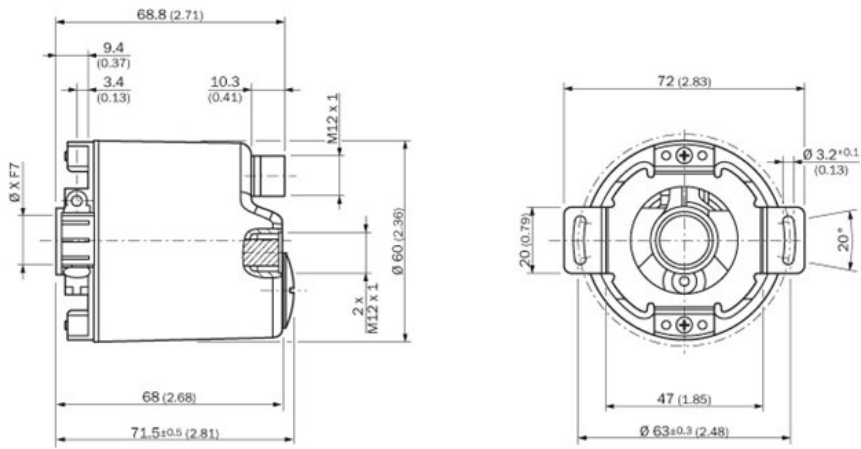
## Ambient data

---

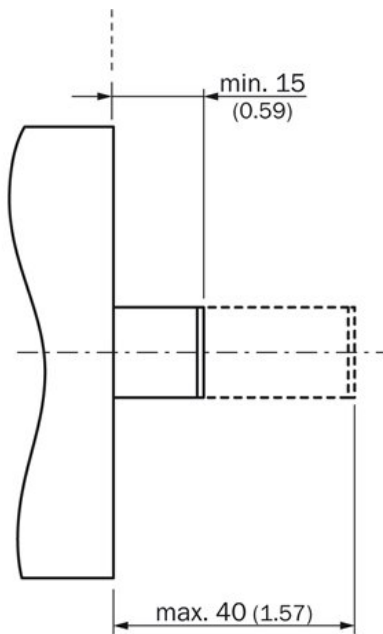
|                                |  |
|--------------------------------|--|
| EMC:                           | (according to EN 61000-6-2 and EN 61000-6-3) <sup>1)</sup>                 |
| Enclosure rating:              | IP 65 (according to IEC 60529), shaft side, IP 67 (according to IEC 60529) |
| 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

---

Image Unavailable  
f:\Saqqara\im0050501.jpg

**Australia**

Phone +61 3 9457 0600  
1800 334 802 – tollfree  
E-Mail sales@sick.com.au

**Belgium/Luxembourg**

Phone +32 (0)2 466 55 66  
E-Mail info@sick.be

**Brasil**

Phone +55 11 3215-4900  
E-Mail sac@sick.com.br

**Canada**

Phone +1 905 771 14 44  
E-Mail information@sick.com

**Ceská Republika**

Phone +420 2 57 91 18 50  
E-Mail sick@sick.cz

**China**

Phone +86 4000 121 000  
E-Mail info.china@sick.net.cn  
Phone +852-2153 6300  
E-Mail ghk@sick.com.hk

**Danmark**

Phone +45 45 82 64 00  
E-Mail sick@sick.dk

**Deutschland**

Phone +49 211 5301-301  
E-Mail kundenservice@sick.de

**España**

Phone +34 93 480 31 00  
E-Mail info@sick.es

**France**

Phone +33 1 64 62 35 00  
E-Mail info@sick.fr

**Great Britain**

Phone +44 (0)1727 831121  
E-Mail info@sick.co.uk

**India**

Phone +91-22-4033 8333  
E-Mail info@sick-india.com

**Israel**

Phone +972-4-6801000  
E-Mail info@sick-sensors.com

**Italia**

Phone +39 02 27 43 41  
E-Mail info@sick.it

**Japan**

Phone +81 (0)3 3358 1341  
E-Mail support@sick.jp

**Magyarország**

Phone +36 1 371 2680  
E-Mail office@sick.hu

**Nederlands**

Phone +31 (0)30 229 25 44  
E-Mail info@sick.nl

**Norge**

Phone +47 67 81 50 00  
E-Mail austefjord@sick.no

**Österreich**

Phone +43 (0)22 36 62 28 8-0  
E-Mail office@sick.at

**Polska**

Phone +48 22 837 40 50  
E-Mail info@sick.pl

**România**

Phone +40 356 171 120  
E-Mail office@sick.ro

**Russia**

Phone +7-495-775-05-30  
E-Mail info@sick.ru

**Schweiz**

Phone +41 41 619 29 39  
E-Mail contact@sick.ch

**Singapore**

Phone +65 6744 3732  
E-Mail admin@sicksgp.com.sg

**Slovenija**

Phone +386 (0)1-47 69 990  
E-Mail office@sick.si

**South Africa**

Phone +27 11 472 3733  
E-Mail info@sickautomation.co.za

**South Korea**

Phone +82 2 786 6321/4  
E-Mail info@sickkorea.net

**Suomi**

Phone +358-9-25 15 800  
E-Mail sick@sick.fi

**Sverige**

Phone +46 10 110 10 00  
E-Mail info@sick.se

**Taiwan**

Phone +886-2-2375-6288  
E-Mail sales@sick.com.tw

**Türkiye**

Phone +90 (216) 528 50 00  
E-Mail info@sick.com.tr

**United Arab Emirates**

Phone +971 (0) 4 8865 878  
E-Mail info@sick.ae

**USA/México**

Phone +1(952) 941-6780  
1 800-325-7425 – tollfree  
E-Mail info@sickusa.com

More representatives and agencies  
at [www.sick.com](http://www.sick.com)