



Absolute encoders AFS/AFM60 EtherCAT

AFM60A-BDEB Sales-Kit 04



Model Name > **AFM60A-BDEB Sales-Kit 04**
Part No. > **1060507**



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 connector
- Up to 125 µs on-the-fly data transfer speed
- EtherCAT® interface CoE (CiA DS-301) Device profile (CiA DS-406)
- Round axis functionality
- Alarms, warnings and diagnostics functions for speed, position, temperature, operating time, etc.
- Status display via 5 LEDs
- Up to 16 adjustable electronic cam switches

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
Cycle time:	125 µs ... 100 ms

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 ¹⁾
Moment of inertia of the rotor:	6.2 gcm ²
Bearing lifetime:	3.0 x 10 ⁹ revolutions
Max. angular acceleration:	500,000 rad/s ²
Shaft material:	Stainless steel
Flange material:	Aluminum

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
MTTFd: mean time to dangerous failure:	80 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:	3 x connector M12, 4-pin, axial
Bus interface:	EtherCAT, CoE (CiA DS-301) ¹⁾
Data transmission rate (baud rate):	10 Mbit/s / 100 Mbit/s
Encoder profile:	V4.1 class3
Endless operating functionality:	0

¹⁾ EtherCAT® is registered trademark and patent technology, licensed by Beckhoff Automation GmbH, Germany.

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)
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)

¹⁾ The EMC according to the standards quoted is achieved if screened cables are used. ^{2) 3)} With mating connector fitted

[illegible]

Technical drawing of a mechanical part. The drawing shows a side view of a component with a curved profile on the left and a rectangular section on the right. A dimension line indicates a minimum distance of 15 (0.59) from the left edge to the start of the rectangular section. Another dimension line indicates a maximum distance of 40 (1.57) from the left edge to the right edge of the rectangular section. The drawing is labeled with 'min. 15 (0.59)' and 'max. 40 (1.57)'.

Absolute encoders

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