Absolute encoders
AFS/AFM60 EtherCAT

AFM60A-S4EB Sales-Kit 03

SICK
Sensor Intelligence.

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Model Name	> AFM60A-S4EB Sales-Kit 03
Part No.	> 1060496

Illustration may differ

This kit includes the following items:

Model Name	Part No.
> AFS60A-S1NB262144	> 1059051
> DOS-1204-W	> 6007303
> STE-1204-WZ	> 6048262

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:	Solid shaft with flat
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 gcm²
Bearing lifetime:	3.0 x 10^9 revolutions
Max. angular acceleration:	500,000 rad/s²
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

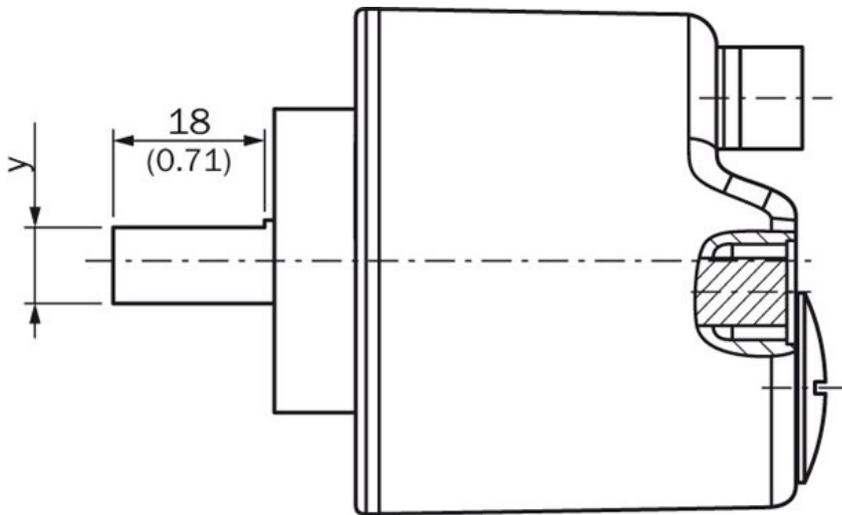|	
Electrical interface:	3 x connector M12, 4-pin, axial
Bus interface:	EtherCAT, CoE (CiA DS-301) [1]
Data transmission rate (baud rate):	10 Mbit/s ∕ 100 Mbit/s
Encoder profile:	V4.1 class3
Endless operating functionality:	0

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

Ambient data

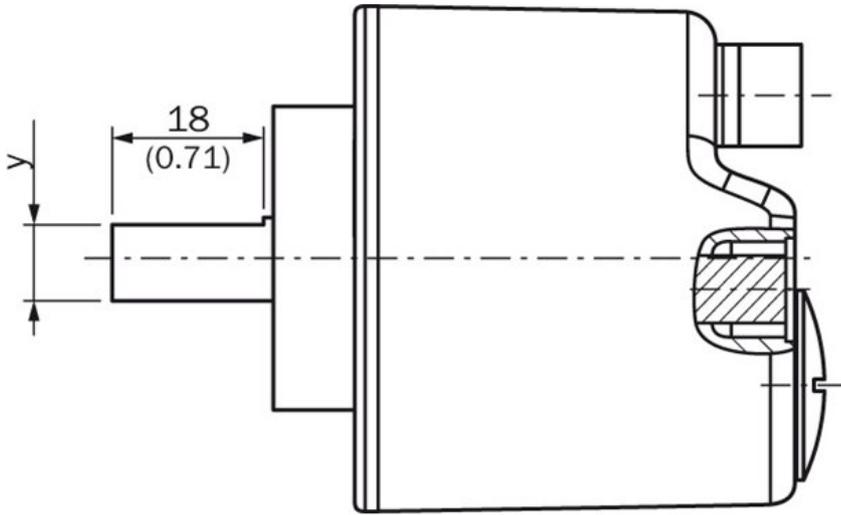|	
EMC:	(according to EN 61000-6-2 and EN 61000-6-3) [1]
Enclosure rating::	IP 65 (according to IEC 60529), shaft side, IP 67 (according to IEC 60529) [2] [3]
Permissible relative humidity:	90 % (condensation of the optical scanning not permitted)
Working temperature range:	-30 °C ... 85 °C
Storage temperature 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

Dimensional drawing

PIN assignment

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