ONLINE DATA SHEET
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Absolute encoders
AFS/AFM60 EtherNet/IP, Rotary

AFS60A-S4IB262144

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AFS/AFM60 EtherNet/IP, Rotary

Model Name > AFS60A-S4IB262144
Part No. > 1055364

Illustration may differ

At a glance

- High-resolution, 30-bit absolute encoder (18 bit singleturn and 12 bit multiturn)
- Device Level Ring (DLR functionality)
- Extensive diagnostics: Min/max values for temperature, position, speed. Operating hours counter, display of flags, alarms and warnings using e.g. a fault header (32 bit)
- Status display via 5 duo LEDs
- Rotary axis function
- IP address via DHCP / DEC switches
- Ethernet/IP interface (extended profile 0x22)
- Function block

Your benefits

- DLR functionality for reliability with simple maintenance and a simple adaptation to existing network topologies
- Lower installation costs due to fewer external switches
- High level of productivity thanks to superior diagnostics with 32-bit fault header, fast communication and high level of redundancy
- Optimal machine availability thanks to early warning and fault detection system
- Simple setting for various applications thanks to rotary axis function
- Simple installation due to user-friendly on-board configuration assembly
- Industrial-application design for use in particularly cramped space conditions

CE

Performance

Max. number of steps per revolution:	262,144
Max. number of revolutions:	1
Resolution power:	262,144 x 1
Error limits:	± 0.03 °
Repeatability (Ta not constant):	0.002 °
Measuring step deviation:	± 0.002 °
Initialization time:	Ca. 12 s

Mechanical data

Mechanical interface:	Solid shaft with flat, Face mount flange
Shaft diameter:	10 mm
Mass:	0.2 kg
Start up torque:	0.5 Ncm (+20 °C)
Operating torque:	0.3 Ncm (+20 °C)

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Permissible Load capacity of shaft:	40 N (axial), 80 N (radial)
Maximum operating speed:	9,000 /min [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
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
Housing material:	Aluminum
Shaft length:	19 mm

[1] The maximum singleturn resolution (= 18 bit) can be operated with the respective maximum operating speed

Electrical data

Operating voltage range:	10 V DC ... 30 V DC
MTTFd: mean time to dangerous failure:	80 a (EN ISO 13849-1) [1]
Connection type:	3 x connector M12, 4-pin, axial
Reverse polarity protection:	1
Power consumption max. without load:	3 W

[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:	EtherNet/IP
Bus interface:	EtherNet/IP IEC 61784-1
Data transmission rate (baud rate):	10 Mbit/s100 Mbit/s
Encoder profile:	0 x 22
RPI (requested packet interval):	5 ms ... 750 ms
DLR (Device Level Ring):	1
Endless operating functionality:	1

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), housing side [2]
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, 6 ms (according to EN 60068-2-27)
Resistance to vibration:	30 g, 10 Hz ... 2,000 Hz (according to EN 60068-2-6)

[1] [2] With mating connector fitted

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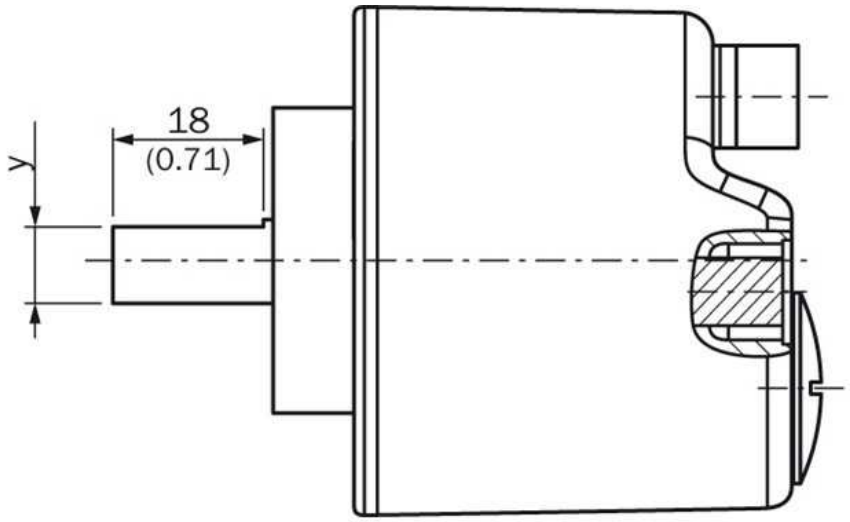
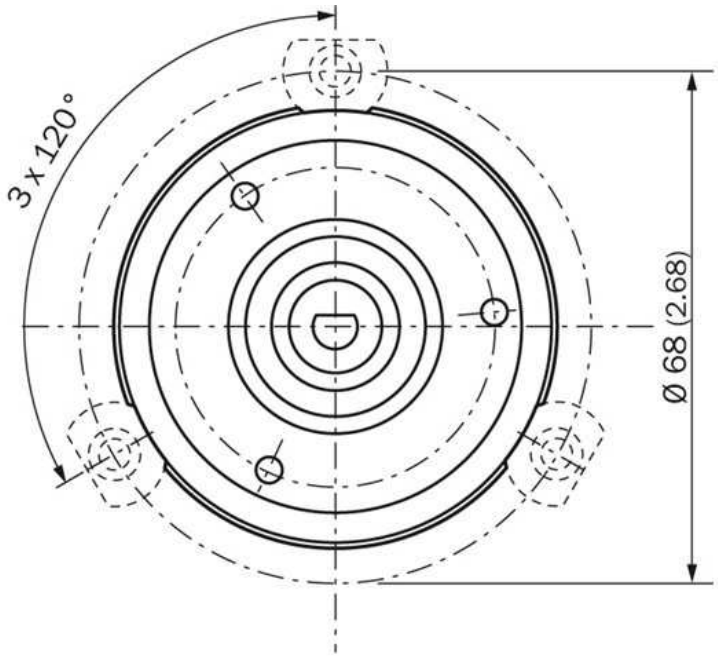
Dimensional drawing



Proposed fitting



All dimensions in mm (inch)

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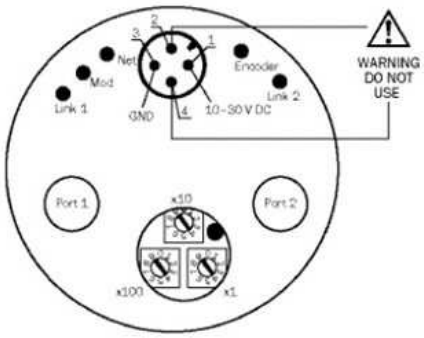
PIN assignment

M12 – 4 x D coding

Port 1				
Signal	T x D+	R x D+	T x D-	R x D-
Pin	1	2	3	4

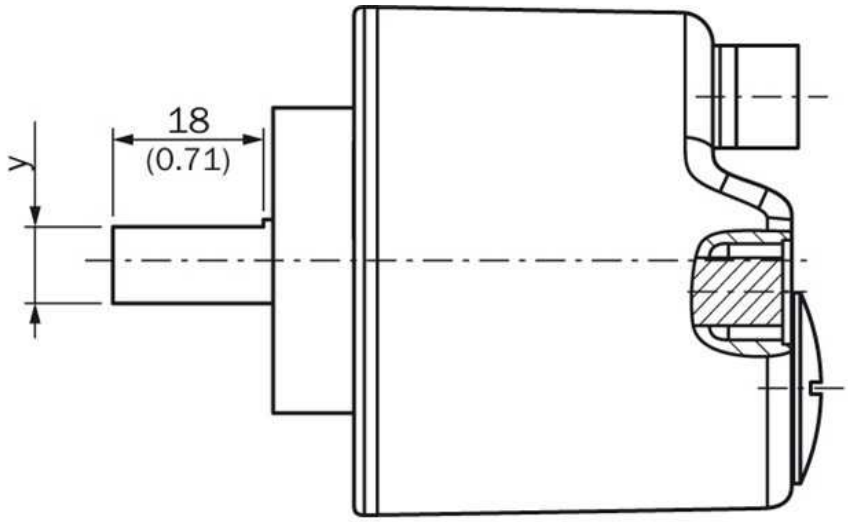
Port 2				
Signal	T x D+	R x D+	T x D-	R x D-
Pin	1	2	3	4



M12 – 4 x A coding

Power supply				
Signal	10 ... 30 V	Not connected	GND	Not connected
Pin	1	2	3	4

Bild



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