

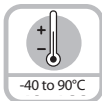
Sendix absolute, singleturn type F3658 (shaft) / F3678 (blind hollow shaft) CANopen



Safety-Lock™



High rotational speed



Temperature



High IP



High shaft load capacity



Shock/vibration resistant



Magnetic field proof



Short-circuit proof



Reverse polarity protection



SIN/COS

Rugged

- Sturdy bearing construction: Safety Lock™ design for resistance against vibration and installation errors.
- Ideal for use outdoors, thanks to IP67 protection.
- Wide temperature range: -40 to +185°F (-40 to +85°C).



Sendix[®] absolute
CANopen



pending



2/22

Compact

- **Overall size of 36 x 42 mm:**
Hollow shaft of up to 8 mm,
blind hollow shaft of up to 10 mm.

Versatile

- CANopen with current encoder profile.
- LSS services for configuration of the node address and baud rate.
- Variable PDO mapping in the memory.
- High-precision optical sensor technology can achieve a resolution of up to 17 bits.

Mechanical characteristics:

Max. speed:	12,000 RPM, continuous operation 10,000 RPM
Shaft or blind hollow shaft version without shaft sealing (IP65):	10,000 RPM, continuous operation 8,000 RPM
Shaft version (IP67) or blind hollow shaft (IP65) with shaft sealing:	
Starting torque without shaft sealing:	< 1 oz-in (< 0.007 Nm)
Starting torque with shaft sealing:	< 1.4 oz-in (< 0.01 Nm)
Radial load capacity of shaft:	9.0 lbs (40 N)
Axial load capacity of shaft:	4.5 lbs (20 N)
Weight:	approx. 0.44 lbs (0.2 kg)
Protection acc. to EN 60 529:	Housing: IP67 Shaft: IP65, opt. IP67
EX approval for hazardous areas:	optional zone 2 and 22
Working temperature:	-40 to +185°F (-40 to +85°C)
Materials:	Shaft/Hollow shaft: stainless steel, Flange: aluminum, Housing: die cast zinc, Cable: PUR
Shock resistance acc. to DIN-IEC 68-2-27:	> 250g (> 2,500 m/s ²), 6 ms
Vibration resistance acc. to DIN-IEC 68-2-6:	> 10 g (> 100 m/s ²), 55-2,000 Hz

Diagnostic LED (two-color, red/green):

LED ON or blinking	red: error display
	green: status display

General electrical characteristics:

Supply voltage:	10-30 VDC
Current consumption (no load):	80 mA
Reverse connection of the supply voltage (+V):	yes
RoHS compliant acc. to EG-guideline 2002/95/EG	
CE compliant acc. to EN 61000-6-2, EN 61000-6-4 and EN 61000-6-3	

Interface characteristics CANopen:

Resolution Singleturn:	1-65536 (16 bit), scaleable: 1-65536
Default value Singleturn:	8192 (13 bit)
Code:	Binary
Interface:	CAN High-Speed according to ISO 11898, Basic- and Full-CAN, CAN Specification 2.0 B
Protocol:	CANopen profile DS 406 V3.2 with manufacturer specific add-ons LSS-Service DS305 V2.0
Baud rate:	10-1000 kbit/s (software configurable)
Node address:	1-127 (software configurable)
Termination switchable:	software configurable
LSS Protocol	CIA LSS protocol DS305 Global command support for node address and baud rate. Selective commands via attributes of the identity object

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General information about CANopen

The CANopen encoder series support the latest CANopen communication profile according to DS 301 V4.02. In addition, device specific profiles, like the DS 406 V3.2, are available.

The following operating modes may be selected: Polled Mode, Cyclic Mode, Sync Mode. Moreover, scale factors, preset values, limit switch values and many other additional parameters can be programmed via the CANbus. When switching the device on, all parameters, which have been saved on a flash memory to protect them against power failure, are loaded again. Position, speed and status of the working area output values may be combined in a freely variable way as PDO mapping. The encoders are available with a connector or a cable connection. The device address and baud rate may be set/modified by means of the software. A two-color LED indicates the operating or fault status of the CANbus, as well as the status of the internal diagnostics.

CANopen Communication Profile DS301 V4.02

The following functionality is integrated. Class C2 functionality:

- NMT Slave

- Heartbeat Protocol
- Identity Object
- Error Behavior Object
- Variable PDO Mapping self-start programmable (Power on to operational), 3 sending PDO's
- Node address, baud rate and CANbus/programmable termination

LSS Layer Setting Services DS305 V2.0

- Global support of Node-ID and baud rate
- Selective protocol via identity object (1018h)

CANopen Encoder Profile DS406 V3.2

The following parameters may be programmed:

- Event mode
- One work area with upper and lower limit and the corresponding output states
- Variable PDO mapping for position, speed, work area status
- Extended failure management for position sensing
- User interface with visual display of bus and failure status: 1 LED, two-color
- Customer-specific memory - 16 Bytes
- Customer-specific protocol
- "Watchdog controlled" device

Pin configuration:

Signal:	+V	0 V	CAN GND	CAN High	CAN Low
Color:	BN	WH	GY	GN	YE

Part number key: F3658 shaft version

T8.F3658.XX2X.2112

Type	Fieldbus profile
	21 = CANopen encoder profile DS406 V3.2
Flange	Type of connection
1 = clamping flange, Ø 36 mm, IP67 2 = servo flange, Ø 36 mm, IP67	1 = tangential cable (1 m PUR cable) 3 = tangential cable (5 m PUR cable)
Shaft (Ø x L)	Voltage supply and output
1 = Ø 6 mm x 12.5 mm 2 = Ø 6.35 mm (1/4") x 12.5 mm 3 = Ø 8 mm x 15 mm	2 = 10-30 VDC, CANopen DS301 V4.02
3 = clamping flange, Ø 36 mm, IP65 4 = servo flange, Ø 36 mm, IP65	
4 = Ø 9.525 mm (3/8") x 15.875 mm (5/8") 5 = Ø 10 mm x 20 mm	

Part number key: F3678 blind hollow shaft version

T8.F3678.XX2X.2112

Type	Fieldbus profile
	21 = CANopen encoder profile DS406 V3.2
Flange	Type of connection
1 = Ø 36 mm, with torque stop, short, IP65 2 = Ø 36 mm, with slotted flex mount, IP65 3 = Ø 36 mm, with torque stop, long, IP65	1 = tangential cable (1 m PUR cable) 3 = tangential cable (5 m PUR cable)
Blind hollow shaft (14.5 mm depth)	Voltage supply and output
4 = Ø 10 mm 5 = Ø 6 mm	2 = 10-30 VDC, CANopen DS301 V4.02
6 = Ø 6.35 mm (1/4") 7 = Ø 8 mm	

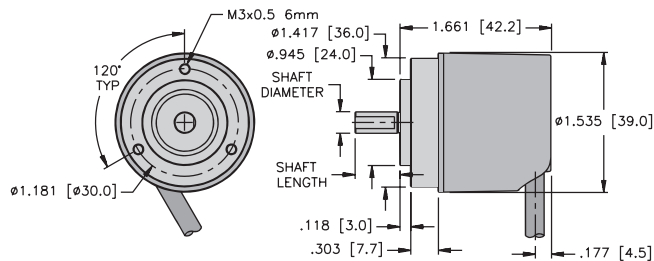
Accessories:

- See page J1, Connectivity, for cables and connectors
- See page G1, Accessories, for mounting attachments and couplings

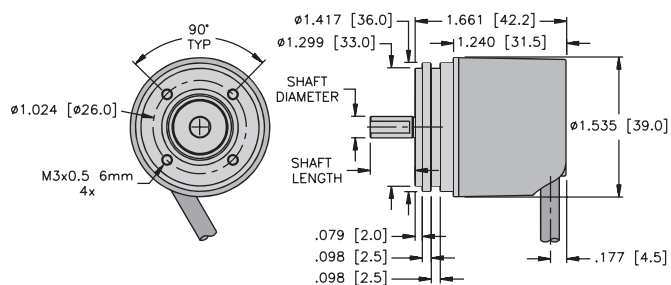
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Dimensions: F3658 shaft version

F3658 flanges 1 & 3
Cable connection 1 & 3



F3658 flanges 2 & 4
Cable connection 1 & 3

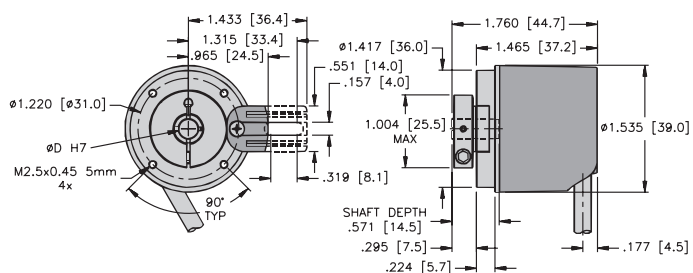


Mounting advice:

The flanges and shafts of the encoder and drive should not be rigidly coupled together at the same time. We recommend the use of suitable couplings (see page G1, Accessories).

Dimensions: F3678 blind hollow shaft version

F3678 flange 1 and 3 (dotted)
Cable connection 1 & 3



F3678 flanges 2
Cable connection 1 & 3

