

**Multiturn ENF 58**

- Very compact (only 87.8 mm installation depth); Ideal for dynamic applications thanks to its non-contact multiturn stage
- Solid shaft or blind hollow shaft
- Long service life thanks to high shock and vibration resistance
- CANopen according to Profile DSP 406 with additional functions or DeviceNet Profile for Encoders Release V 2.0

**Compact and Rugged:**

- minimal installation depth
- high shock and vibration values


**Versatile and Easy:**

- Many options (no need for adapter sleeves)
- Fully programmable
- Integrated Fieldbus node with T-Coupler



**Fast and Safe:**

- Certificated connection technology
  - Plug & Play cable assemblies
  - Diagnostics and alarm functions

-  also available as explosion proof Zones 2 and 22

**Mechanical characteristics:**

Speed <sup>1)</sup> :	max. 6000 min <sup>-1</sup>
Rotor moment of inertia:	approx. 1.8 x 10 <sup>-6</sup> kgm <sup>2</sup>
Starting torque shaft version:	< 0.01 Nm
Load capacity of shaft at shaft extension <sup>3)</sup> :	radial: 80 N, axial: 40 N
Weight:	approx. 0.7 kg
Protection acc. to EN 60 529:	IP 65
Working temperature:	-20° C ... +80 °C <sup>2)</sup>
Operating temperature:	-20° C ... +85 °C <sup>2)</sup>
Shock resistance acc. to DIN-IEC 68-2-27:	2500 m/s <sup>2</sup> , 6 ms
Vibration resistance acc. to DIN-IEC 68-2-6:	100 m/s <sup>2</sup> , 10 ... 2000 Hz

<sup>1)</sup> For continuous operation 3000 min<sup>-1</sup> at the max. temperature  
<sup>2)</sup> Non condensing  
<sup>3)</sup> Solid shaft version

**CANopen**  
**DeviceNet.**

**Electrical characteristics:**

Supply voltage (U <sub>B</sub> ):	10 ... 30 V DC
Current consumption:	max. 0.29 A
Recommended fuse:	T 0,315 A
Divisions:	up to 8192 (13 bits) per revolution, 4096 (12 bits) revolutions
Linearity:	± 1/2 LSB (±1 LSB at resolution 13, 14, 25 Bit)
Code:	Binary
Interface:	CAN HIGH-Speed to ISO/DIS 11898, Basic and Full-CAN; CAN specification 2.0 B (11 and 29 Bit Identifier)
Protocols:	<b>CANopen Profile DSP 406</b> <b>with additional function</b> <b>DeviceNet Profile for Encoder Release V 2.0</b>
Baud rate:	programmable via DIP switches 10 ... 1000 Kbits/s CAN DNET 125/250/500 kBit/s
Basic identifier/node number:	programmable via DIP switches
Conforms to CE requirements acc. to EN 61000-6-1, EN 61000-6-4 and EN 61000-6-3	
Performance against magnetic influence acc. to EN61000-4, 8, severity of inspection 5	

### Multiturn ENF 58

#### CANopen - Device Profile:

##### General description

The CANopen Device Profiles describe the functionality of the communication and of that part of the CANopen fieldbus system specific to the manufacturer. Device Profile DSP 406 applies to encoders and defines the individual objects independently of the manufacturer. In addition the profile makes provision for additional extended functions specific to the manufacturer; using devices that interface with CANopen offers the advantage of acquiring systems today that are prepared for the needs of the future.

##### The following functionality is integrated:

- Class C2 functionality
- NMT Slave
- Diagnostics (internal)
- CAN-LED for Bus status
- CAN-LED for operating mode
- Additional Event Mode

##### The following parameters can be programmed:

- Polling mode or auto mode with adjustable time
- Direction
- Scaling factor
  - Number of pulses/rotation 1 ... 8192
  - Total resolution
- Number of revolutions 1 ... 4096
- Preset value
- Diagnostics mode
- Reset Mode action
- Event Mode action

#### DeviceNet Encoder Profile:

##### General description:

The DeviceNet Device Profile describes the functionality of the communication and of that part of the DeviceNet fieldbus system specific to the manufacturer. The Encoder Profile applies to encoders and defines the individual objects independently of the manufacturer. In addition the profile makes provision for additional extended functions specific to the manufacturer.

##### The following parameters can be programmed:

- Direction of rotation
- Scaling factor
  - Number of pulses/rotation 1 ... 8192
  - Total resolution
- Number of revolutions 1 ... 4096
- Preset value
- Diagnostics mode

##### The following functionality is integrated:

- Galvanic isolation of the Fieldbus-stage with DC/DC converter
- Addressing via DIP switches or software
- Diagnostics LED network and mode
- Baud rate 125, 250 and 500 kbit/s programmable via DIP switches
- Node address 0 ... 63 and baud rate programmable via DIP switches
- Polled mode
- Cyclic mode
- Change of state mode (COS)
- Combination of Polled mode and Cyclic mode
- Combination of Polled mode and COS mode
- Offline connection set
- Device heartbeat

##### "Out of box" Configuration

- MAC-ID and Baud rate preset value  
MAC-ID = 63
- Baud rate = 125 kBit/s
- 2 I/O Assembly  
Position value  
Position value and status

#### Fieldbus encoders can be used in the following applications:

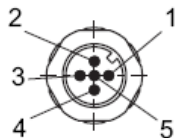
Elevators, construction machines, cranes, agricultural vehicles, special-purposes vehicles, industrial automatisaton

**Multiturn ENF 58**

**Terminal assignment M12:**

Direction:	OUT					IN				
Signal:	CAN Ground/Drain	CAN_Low (-)	CAN_High (+)	0 Volt supply	+UB supply	0 V supply	+UB supply	CAN_Low (-)	CAN_High (+)	CAN Ground
Short symbol:	CG	CL	CH	0 V	+V	0 V	+V	CL	CH	CG
M12 PIN:	1	5	4	3	2	3	2	5	4	1

Bus in:



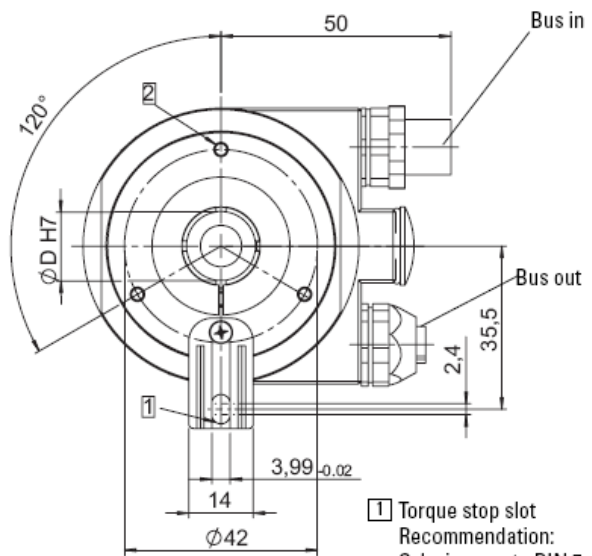
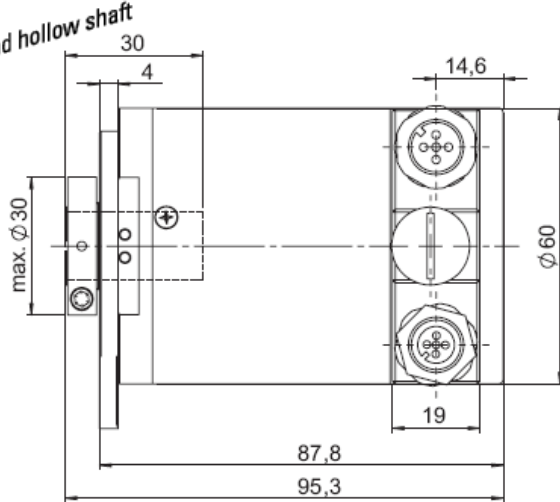
Bus out:



**Dimension**

Blind hollow shaft version  
 flat bracket with spring element

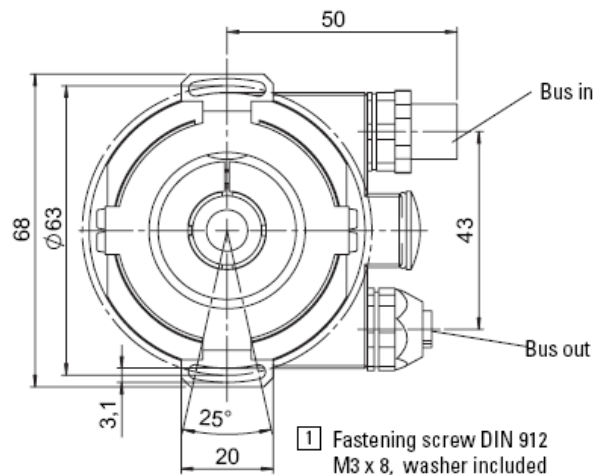
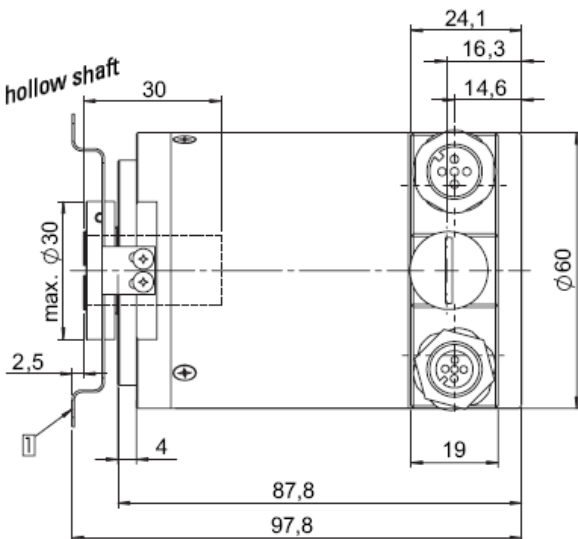
*New:  
 with blind hollow shaft*



- 1 Torque stop slot  
 Recommendation:  
 Cyl. pin. acc. to DIN 7 ø4
- 2 M3, 6 deep

Blind hollow shaft version  
 Flat bracket with double-winged stator coupling

*New:  
 with blind hollow shaft*



- 1 Fastening screw DIN 912  
 M3 x 8, washer included

**Multiturn ENF 58**

**Patented Integrative Technology®:**

Technology is a package of measures that ensures compact construction, high signal quality, high shock resistance - up to 2500 m/s<sup>2</sup>, high reliability and a high level of immunity to EMC.

This is achieved using an Opto ASIC, a multilayer board and an especially shock resistant and space-saving method of mounting the sensor unit. In addition the use of a highly optimized interface ASIC ensures the integration of several hundred individual components. Components that had previously been needed to balance the system, such as balancing potentiometers, can be dispensed with.

**Patented Intelligent-Sensing-Technology (IST)®**

An innovative principle of operation based on a non-contact electronic multiturn stage overcomes system disadvantages previously associated with encoders that had mechanical gears or with traditional electronic gear technology.

**Advantages:**

- High operational reliability
- Logic filter and innovative principle of operation compensate for high EMC interference
- Free from wear

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Absolute field bus encoder in hollow shaft achievement:  
 Dimension: Ø 58 mm

Flange:

- 1 = Clampflange
- 2 = Synchroflange

Shaft:

- 1 = shaft ø 6 x 10 mm
- 2 = shaft ø 10 x 20 mm

Interface and supply voltage:

- 1 = DeviceNet 10 ... 30V DC
- 2 = CANopen 10 ... 30V DC
- 3 = Profibus-DP, Class 2 10 ... 30 V DC

Connection:

- 1 = terminal box cable connection M16
- 2 = plug connection M12

Field bus profil:

- 1001 = DeviceNet 2.0
- 2001 = CANopen Encoder Profil DSP 406
- 3001 = Profibus-DP Class 2

Options:            Ex version zone 2/22  
                       by meter PVC Cable