Multiturn Type 5860 CANopen/DeviceNet

Your benefit

- ·Connection via M12 connector terminal so less time is spent on connection or service
- · Patented Integrative Technology means 3-times greater shock resistance than is standard in the market
- · Multiturn step with patented Intelligent-Sensing-Technology (I-S-T) leads to higher operating safety even under difficult operating conditions
- Ex available as explosion proof zone 2 and 22

Product features

- **CANopen according to profile DSP 406 with additional features**
- **DeviceNet 2.0 protocol**
- Division: up to 8192 bits per revolution, up to 4096 resolutions (31 x 12 bits)
- Programmable parameters
- IP 65
- Housing diameter ø 60 mm
- Shaft ø 6 or 10 mm
- Comprehensive M12 range of accessories

CANopen
DeviceNet.

Mechanical characteristics:

Speed[1]:	max. 6000 min^{-1}
Rotor moment of inertia:	approx. 1,8 x 10^{-6} kgm^2
Starting torque shaft version:	< 0,01 Nm
Load capacity of shaft am Wellenende:	radial: 80 N, axial: 40 N
Weight:	appr. 0,7 kg
Protection acc. to EN 60 529:	IP 65
Working temperature:	–20° C ... +80 °C
Operating temperature:	–20° C ... +85 °C
Shaft:	stainless steel
Shock resistance acc. to DIN-IEC 68-2-27:	2500 m/s^2, 6 ms
Vibration resistance acc. to DIN-IEC 68-2-6:	100 m/s^2, 10 ... 2000 Hz

[1] for continous operation 3000 min^{-1} at the max. temperature

Electrical characteristics:

Supply voltage (U_B):	10 ... 30 V DC
Current consumption:	max. 0,29 A
Recommended fuse:	T 0,315 A
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:	**CANopen Profil DSP 406 with additional function DeviceNet Profile for Encoder Release V 2.0**
Rate:	programmable via DIP switches 10 ... 1000 Kbits/s CAN DNET 125/250/500 kBit/s
Basic identifier:	programmable via DIP switches
Conforms to CE requirements acc. to EN 61000-6-1, EN 61000-6-4 and EN 61000-6-3 and EN 61000-4-8	
Performance against magnetic influence acc. to EN61000-4, 5	

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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 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) 2 Bit
- CAN-LED for Bus status
- CAN-LED for operating mode
- Aditional Event Mode

The following parameters can be programmed:
- Polling mode or auto mode with adjustable time
- Direction
- Number of pulses/rotation 1 ... 8192
- Number of revolutions 1 ... 4096
- Total resolution
- Preset
- Offset

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
  - Total resolution
- Number of revolutions
- Preset value
- Diagnostics mode
- Resolution

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” Config
- MAC-ID and Baud rate preset value MAC-ID = 63
- Baud rate = 125 kBits/s
- 2 I/O Assembly
  Position value
  Position value and atatus

Fieldbus encoders can be used in the following applications:

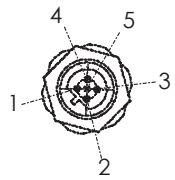
CANopen:
Elevators, construction and mobile plant, cranes, agricultural vehicles, pecial-purposes vehicles.

DeviceNet:
especially suitable for applications in the USA.

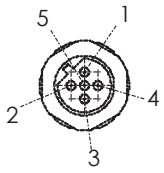
Multiturn Typ 5860 CANopen/DeviceNet

Terminal assignment M12:

Bus in:



Bus out:



Bus in:

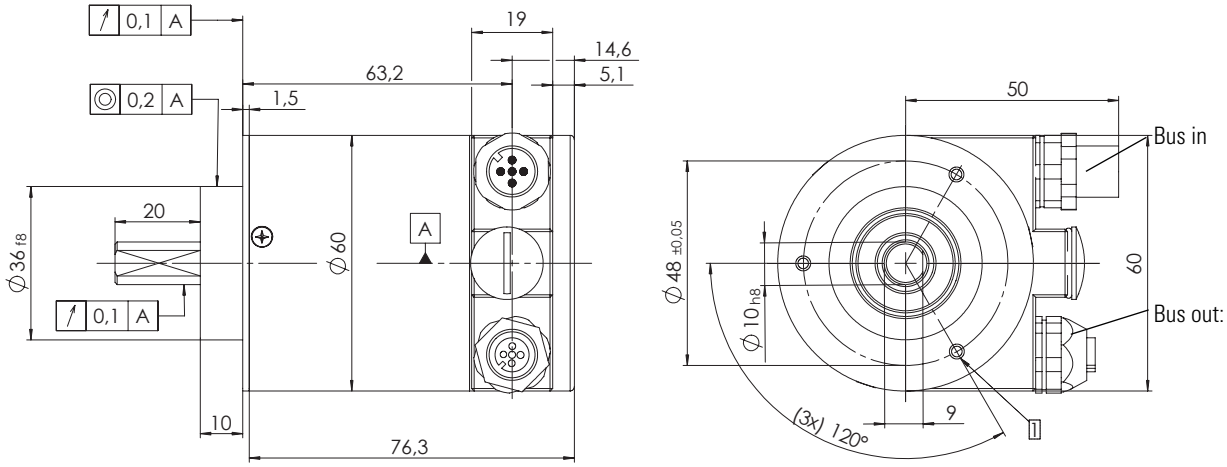
Signal :	DRAIN	+ V DC	– V DC	CAN_H	CAN_L
Pin:	1	2	3	4	5
	GY	RD	BK	WH	BU

Bus out:

Signal :	DRAIN	+ V DC	– V DC	CAN_H	CAN_L
Pin:	1	2	3	4	5
	GY	RD	BK	WH	BU

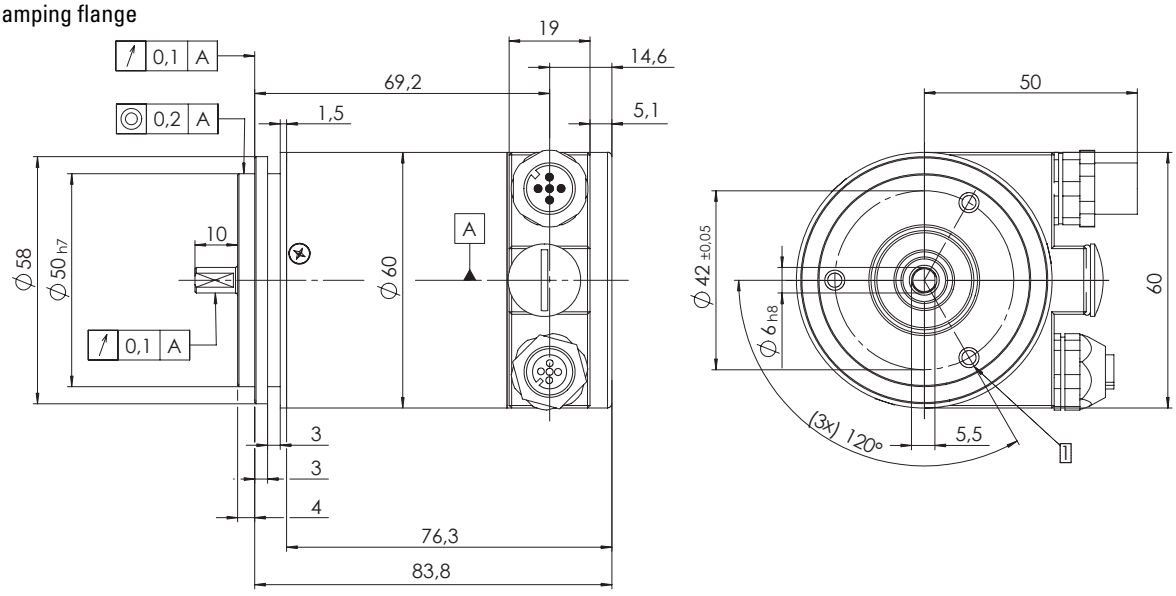
Dimension:

Synchronous flange



1 (3x) M4, 5 deep

Clamping flange



1 (3x) M3, 5 deep

Multiturn Type 5860 CANopen

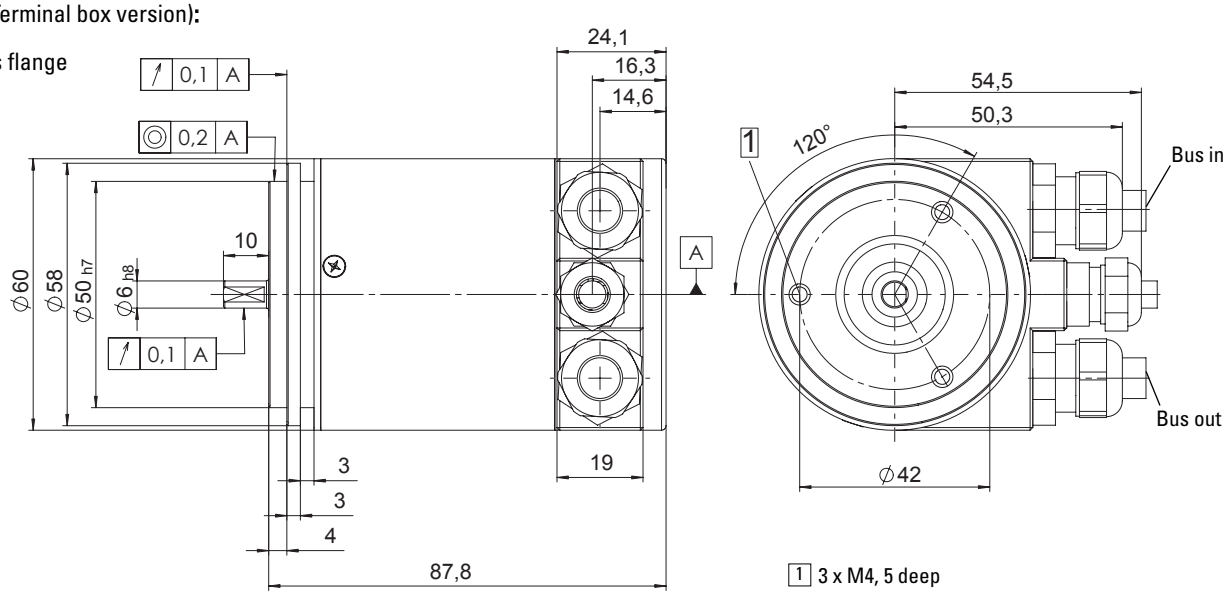
Terminal assignment with terminal box:

Signal :	ENC.		BUS IN			BUS OUT			ENC.	
	+V DC	GND	GND	CAN_H	CAN_L	CAN_L	CAN_H	GND	GND	+V DC
Klemme :	1	2	3	4	5	6	7	8	9	10

Shield must be connected to the PG gland

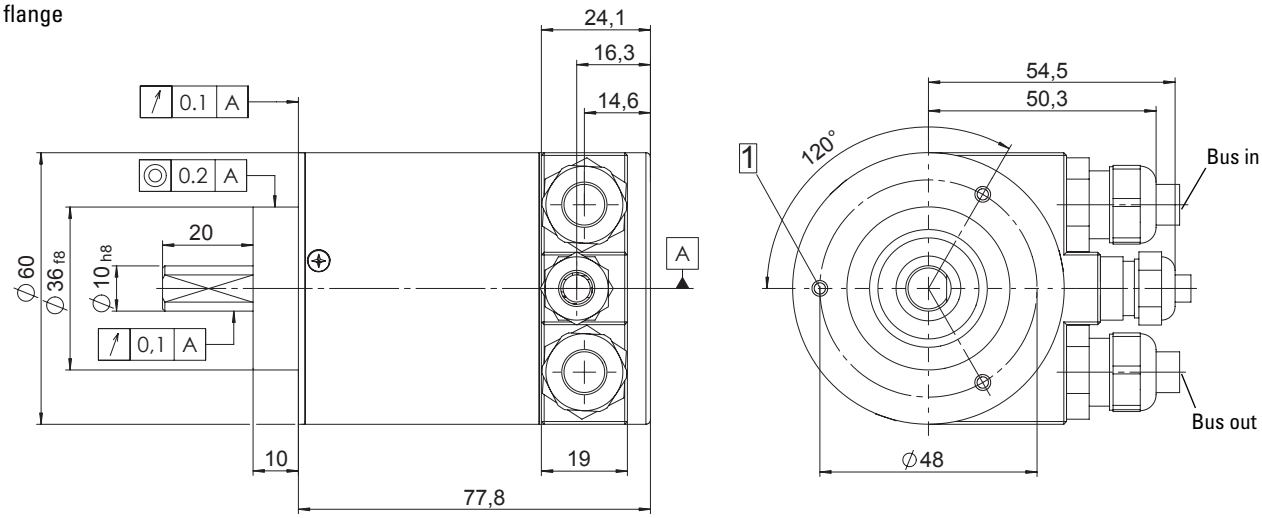
Dimension (Terminal box version)**:**

Synchronous flange



1 3 x M4, 5 deep

Clamping flange



1 3 x M4, 5 deep

Cable diameter	
Supply voltage, max. cable diameter	4,5 ... 6,5 mm
Data transmission line, max. Cable diameter	8 ... 10 mm

Multiturn Type 5860 CANopen/DeviceNet

Kübler is working consistently **at high integration of all units** and intelligent sensing systems. The basics of our encoders are two patented technologies:

Patended "Integrated Technology®" uses single board construction, deliberate assembly techniques, and two ASIC design:
- Shock up to 250gs
- Higher vibration specs and thermal shock performance
- Lower parts count, elimination of potentiometers
- Higher resistance to EMI

Electronic multiturn increases performance, eliminates gears
- Reliability - No backlash errors, resistant to EMI, lower parts count
- Higher life - No mechanical wear, lower internal temperature
- Higher performance - Higher operating speeds
- Lower profile - compact size, hollow shaft
- Economical - Lower cost

Patended "Intelligent Sensing Technology®"
- Multiturn design that protects encoder from EMI.
- The battery outlasts both application requirements and system components (LEDs & bearings)
- Redundant multiturn sensors and counters increase reliability & life
- Active system output monitoring using digital filters to compare data to logical & target bits.

Order code:

8.5860.XXXX.X001

Range

Flange
- 1 = Clamping flange
- 2 = Synchronous flange

Shaft
- 1 = Shaft Ø 6 x 10 mm
- 2 = Shaft Ø 10 x 20 mm

Interface and supply voltage
- 1 = DeviceNet 10 ... 30 V DC.
- 2 = CANopen 10 ... 30 V DC

Field bus profile
- 1001 = DeviceNet 2.0
- 2001 = CANopen Encoder Profile DSP 406

Type of connection
- 1 = Terminal box with cable connection M16[1)]
- 2 = M12-connector

1) only at CANopen version

Includes:
EDS-file and documentation on CD

Use Couplings for the connection BUS-IN and Connectors for the connection BUS-OUT.

Compatible self-assembly connectors:
Connector (BUS-OUT): 05.B8251-0/9
Coupling (BUS-IN): 05.B8151-0/9

See also Connection Technology section for cable assemblies.