

Multiturn Type 5882 SSI, programmable



- Most compact multiturn encoder with hollow shaft on the market
- Only 40.5 mm clearance needed, thus lower profile than incremental encoders.
- Programming parameters include*: code type, resolution per revolution, total resolution, direction of rotation (cw or ccw), zero point.
- Very easy mounting of the hollow shaft version. The encoder is mounted directly on the drive shaft without coupling.

* with optional programming kit (Ezturn®) see accessories

Mechanical characteristics:

Speed: ¹⁾	max. 6 000 min ⁻¹
Rotor moment of inertia:	appr. 6×10^{-6} kgm ²
Starting torque hollow shaft version:	< 0,05 Nm
Weight:	appr. 0,5 kg
Protection acc. to EN 60 529:	IP 65
Working temperature: ²⁾	-20° C ... +70 °C
Operating temperature:	-20° C ... +80 °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 continuous operation 3000 min⁻¹

²⁾ non-condensing

Electrical characteristics:

Interface type:	Synchronous-Serial (SSI)	SSI with incremental track (A, B)
Supply voltage (U _B):	5,0 ... 30 V DC ³⁾⁴⁾	
Output driver:	RS 485	RS 422
Current consumption type.:	89 mA	20 mA
(no load) max.:	138 mA	-
Permissible load/channel:	max. +/- 20 mA	20 mA
Aktualisierungsrate	max. 1600/s	-
SSI pulse rate min./max.:	100 kHz/500 kHz	200 kHz
Signal level high:	type. 3,8 V	4,5 V
Signal level low (I _{Load} = 20 mA):	type. 1,3 V	0,5 V
Rise time t _r (without cable):	max. 100 ns	max. 200 ns
Fall time t _f (without cable):	max. 100 ns	max. 200 ns
Short circuit proof outputs: ¹⁾	yes ²⁾	Yes
Reverse connection protection at U _B :	yes	Yes
Conforms to CE requirements acc. to EN 50082-2, EN 50081-2, EN 55011 Class B and EN 61000-4-8		
Performance against magnetic influence acc. to EN61000-4, 5		

¹⁾ When U_B supply voltage correctly applied U_B

²⁾ Only one channel at a time: When U_B = 5 V DC, short-circuit to output, 0 V and + U_B is permitted. When U_B = 10 ... 30 V DC short-circuit to output and 0 V is permitted.

⁴⁾ Please note: the minimum voltage supply must be 5.0 V DC.

- Divisions: up to 8192 (13 bits) per revolution, 4096 (12 bits) revolutions
- SSI interface, additional interfaces include RS 485 and OEM specific protocols
- Multiturn gear with patented intelligent sensing technology (I-S-T)
- Hollow shaft up to Ø 12 mm
- Housing Ø 58 mm, Protection: IP 65
- Shock resistant up to 250 g
- optional with incremental track 2048 ppr

Divisions and code types available at short notice:

24 Bit Binary / Gray
25 Bit Binary / Gray

Other divisions and code types on request

Patented "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

Patented "Intelligent Sensing Technology®"

- Multiturn design that protects encoder from EMI and increases battery life to 10 years.
- 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.

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Control inputs:

Up/down input to switch counting direction
 As a standard, absolute encoders deliver increasing code values when the shaft rotates clockwise (cw), when looking from the shaft side. When the shaft rotates counter-clockwise (ccw), the output delivers decreasing code values. If a corresponding signal (high) is applied to this input when switching on the power supply, this feature is reversed. Clockwise rotation will deliver decreasing code values while

counter-clockwise rotation will deliver increasing code values. Response time: at 5-30 V DC supply voltage, 10 ms.

SET input
 This input is used to reset (to zero) the encoder. A control pulse (high) sent to this input allows storing the current position value as new zero position in the encoder.

Note :
 before activating the SET input after supplying the encoder with the supply voltage, a counting direction (cw or ccw) must be defined univocally on the Up/down input! Response time: at 5-30 V DC supply voltage, 10 ms.

Switching level of the control inputs:

low	max. 25% U _B
high	min. 60% U _B , max. U _B
Max. current input	≤0,5 mA

HW-Setting	SW-Setting	Function
cw	cw	cw
ccw	cw	ccw
cw	ccw	ccw
ccw	ccw	ccw

Encoder outputs

Output	Default-function:
A1:	battery control*
A2:	not activated*
A3:	not activated*
A4:	not activated*

*programmable with the optiona programming software Ezturn®

Permissible load/channel:	±9,0 mA
Signal level	high: min. U _B – 3,0 V low: max. 1,5 V
Rise time:	max. 240 µs
Fall time:	max. 300 µs

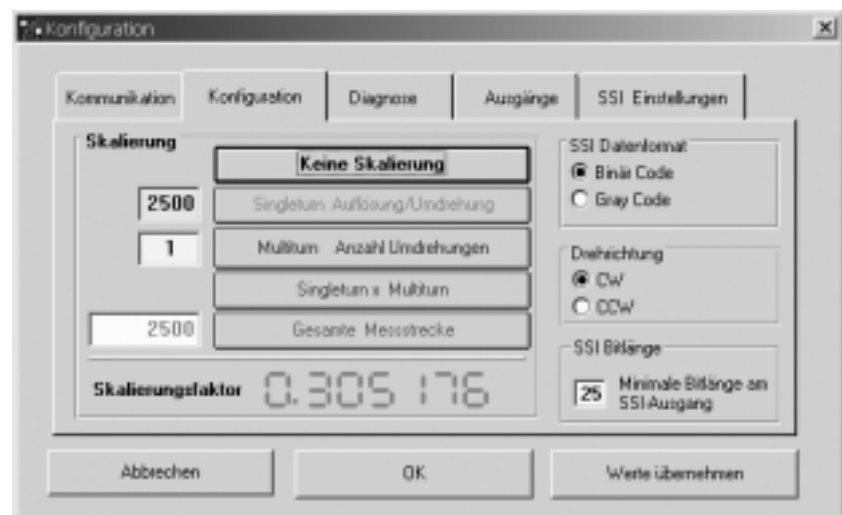
The outputs are not activated in the factory setting (default). They can be activated and defined with the optional Ezturn® programming software e.g. limit switch, overspeed and temperature control etc.

Programmable function with optional Ezturn® software

Programmable features with optional a programming tool Ezturn®:

- Type of code
- Resolutions per revolution
- Number of revolution
- Total resolution
- Direction of rotation
- Offset for mechanical zero point compensation etc....

Programming tool Ezturn



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Terminal assignment SSI Synchronous Serial interface with 12pin plug

Signal:	0 V	+U _B	+T	-T	+D	-D	ST	VR	A1	A2	A3	A4	⏏	
Pin:	1	2	3	4	5	6	7	8	9	10	11	12	PH	
Col.:	WH	BN	GN	YE	GY	PK	BU	RD	BK	VT	GY PK	RD BL		

T: Clock signal
 D: Data signal
 ST: SET input. The current position value is stored as new zero position (or the actual value is set to the preset value when using the programmable version).
 VR: Up/down input. As long as this input is active, decreasing code values are transmitted when shaft turning clockwise.
 PH: Plug housing
Insulate unused outputs before initial start-up
 A1, A2, A3, A4: outputs, with Ezturn programmable

Terminal assignment RS 485 and 12pin plug

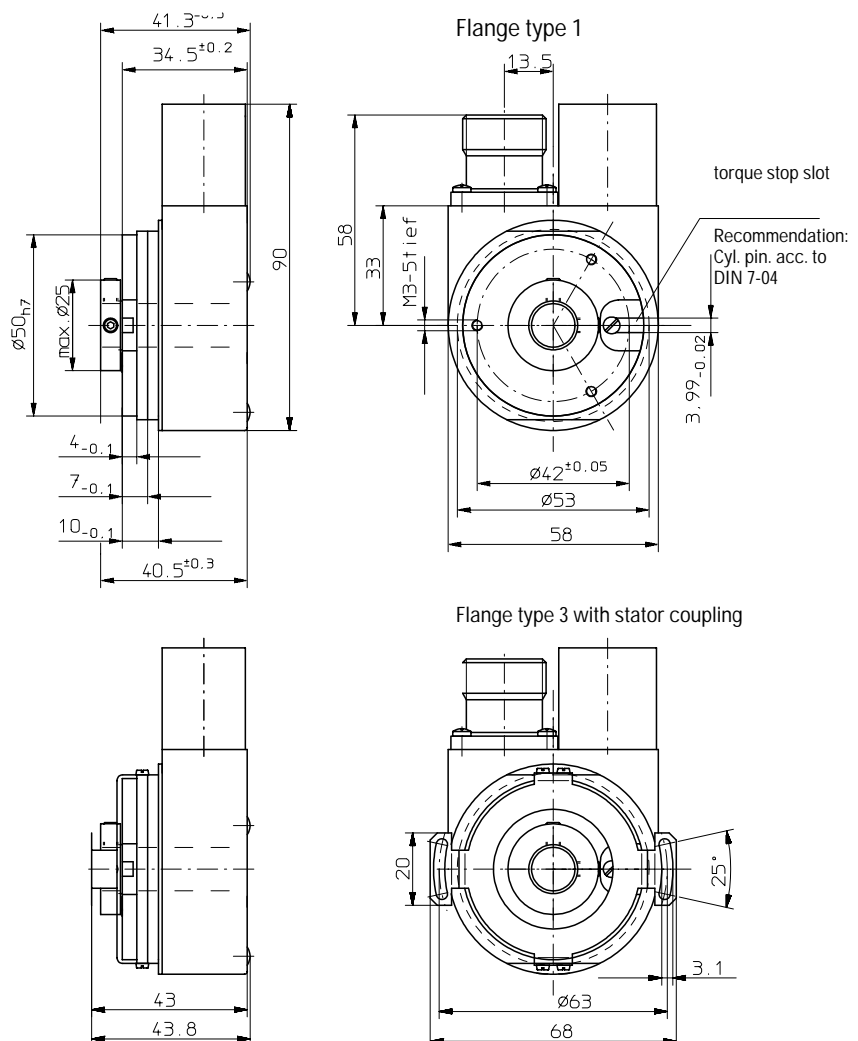
Signal:	0 V	+U _B	-R/T	+R/T				VR					⏏	
Pin:	1	2	3	4	5	6	7*	8	9	10	11	12	PH	
Col.:	WH	BN	YE	GN				RD						

R = Receive-channel
 T = Transmit-channel
 VR: Up/down input. As long as this input (High-Level = +U_B) is active, decreasing code values are transmitted when shaft turning clockwise.
 PH = Plug housing
 * There is no set input for P3001 version, but it can be realised also with command "<ESC> G" (write preset).

SSI interface with incremental track (A, B):

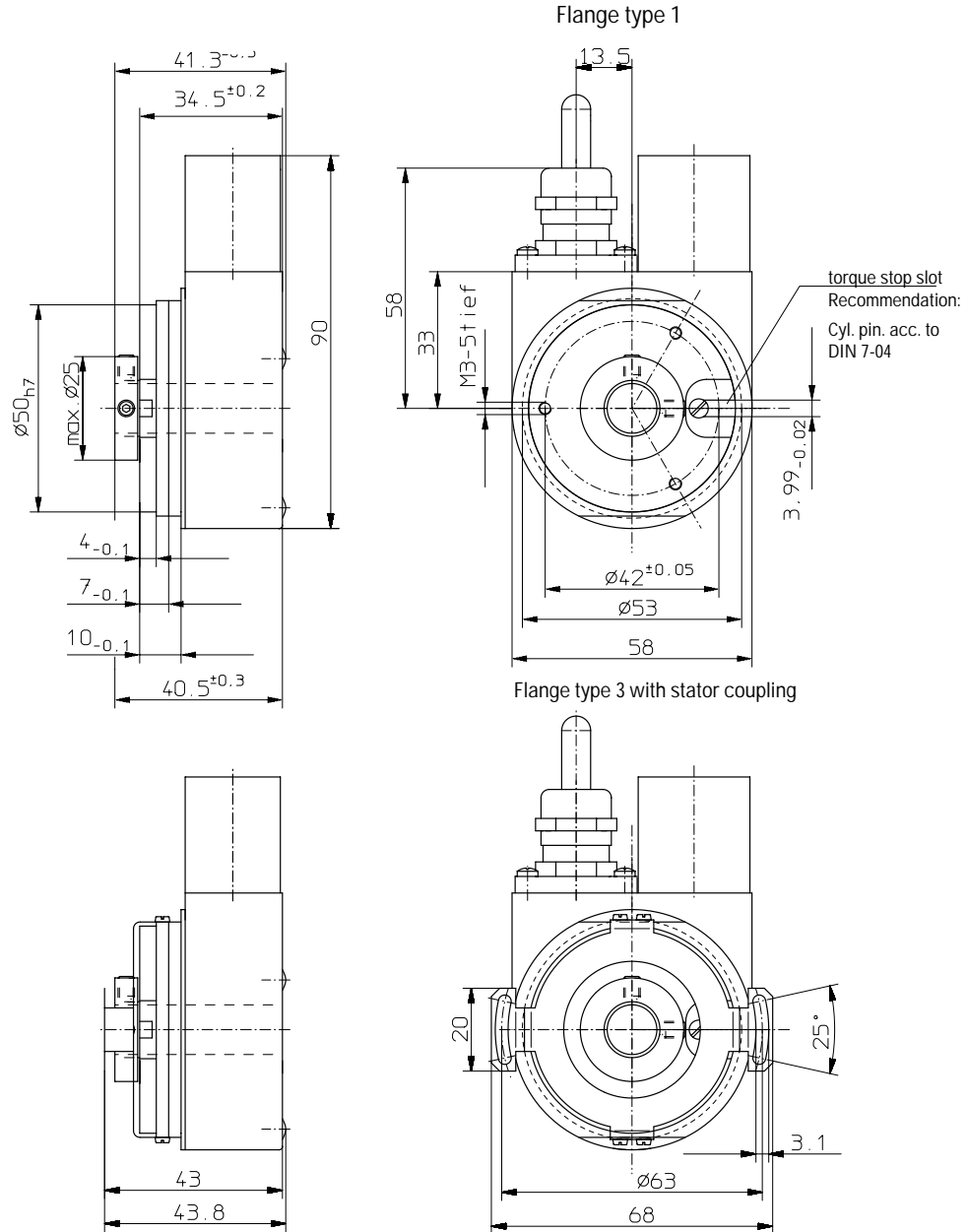
Signal :	0V	+UB	Takt+	Takt-	Daten+	Daten-	Set 0	VR	\bar{B}	B	\bar{A}	A	⏏	
Pin	1	2	3	4	5	6	7*	8	9	10	11	12	PH	

Dimensions: Plug version



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Dimensions:
Cable version



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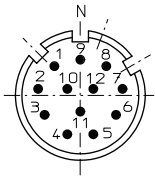
Max. permissible drive shaft impact:

(measuring error $\leq \pm 0,5$ bit)

Pulses:	Mounting with stator coupling		Mounting with torque support
	Permissible axial impact	Permissible radial impact	Permissible radial impact
up to 1024 (10 Bit)	$\pm 0,64$ mm	$\pm 0,14$ mm	$\pm 0,112$ mm
up to 4096 (12 Bit)	$\pm 0,16$ mm	$\pm 0,02$ mm	$\pm 0,028$ mm
up to 8192 (13 Bit)	$\pm 0,08$ mm	$\pm 0,01$ mm	$\pm 0,014$ mm

Top view of mating side, male contact base:

12 pin plug



Order code:

8.5882.XXXX.XXXX

<p>Range</p>		<p>SSI-Interface *</p> <p>2001 = 4096 x 4096 (24-Bit), Binary</p> <p>2002 = 8192 x 4096 (25-Bit), Binary</p> <p>2003 = 4096 x 4096 (24-Bit), Gray</p> <p>2004 = 8192 x 4096 (25-Bit), Gray</p>
<p>Flange</p> <p>1 = Flange type 1 with through shaft and torque support slot</p> <p>3 = Flange type 3 with through shaft and stator coupling*</p> <p>*Shaft clamping on other side on request</p>		<p>RS 485-Interface halfduplex</p> <p>3001 = ESC protocol, max. 38400 Baud</p>
<p>Hollow shaft</p> <p>6 = Hollow shaft \varnothing 10 mm</p> <p>8 = Hollow shaft \varnothing 12 mm</p>		<p>*This factory set (default) resolution can be re-programmed by using the Ezturn® software.</p>
<p>Interface</p> <p>2 = SSI 5 ... 30 V DC</p> <p>3 = RS 485, halfduplex 5 ... 30 V DC</p> <p>5 = SSI, 5 ... 30 V DC with incremental track 2048 ppr (A, B)</p>		<p>Accessories:</p> <p>Corresponding mating connector to connection type 3 +4</p> <p>Order code 8.0000.5012.0000</p>
<p>Type of connection</p> <p>1 = Radial cable (1 m PVC-cable)</p> <p>2 = 12 pin plug radial</p> <p>3 = Radial cable (2 m PVC-Cable)</p> <p>4 = Radial cable (3 m PVC-Cable)</p> <p>5 = Radial cable (5 m PVC-Cable)</p> <p>6 = Radial cable (8 m PVC-Cable)</p> <p>7 = Radial cable (10 m PVC-Cable)</p> <p>8 = Radial cable (15 m PVC-Cable)</p>		<p>Programming kit Ezturn® includes</p> <ul style="list-style-type: none"> - Interface converter - Connection cable with the interface converter encoder – PC - 90-250 V AC power supply - CD-ROM with Ezturn® software <p>Order code 8.0010.9000.0004</p>

Further accessories see encoder catalogue, accessories chapter