

## Absolute Rotary Encoder EXAG – Explosion Proof

SSI



### Main Features

- Approval: II 2 G/D EEx d II C T6
- Heavy-duty industrial model
- Interface: Synchronous-serial (RS 422)
- Max. 65536 steps per revolution (16 Bit)
- Max. 16384 revolutions (14 Bit)
- Code: Gray or Binary

### Applications

- Sensing of
- Angles
- Distances
- Tracks
- Inclinations
- Differences between two or more axes

### Mechanical Structure

- Ex-proof, flameproof enclosure
- Flange and housing of Aluminum
- Shaft of stainless steel
- Precision ball bearings with sealing or cover rings
- Code disc made of unbreakable and durable plastic

### Electrical Features

- Temperature insensitive IR-opto-receiver-ASIC with integrated signal conditioning
- Only one IR-transmitter-diode per opto-ASIC
- Highly integrated circuit in SMD -technology
- Polarity inversion protection
- Over-voltage-peak protection

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#### Technical data

##### Electrical data

Clock input	via opto-coupler
Data output	Line-driver according to RS 422
Clock frequency	100 kHz - 2 MHz
Step frequency LSB	max. 800 kHz (valid code)
Accuracy of division	$\pm 1/2$ LSB (12 bit), $\pm 2$ LSB (16 bit)
Supply voltage	10-30 V DC (absolute limits) *
Turn on time	< 1 s
Power consumption	max. 1 W
Electrical lifetime	> 10 <sup>5</sup> h
EMC	emitted interference: EN 61000-6-4
	noise immunity: EN 61000-6-2
Connection	connection cap – screw terminals

\* Supply voltage according to EN 50 178 (safety extra-low voltage)

##### Mechanical Data

Housing	Aluminum	
Max. shaft loading	Axial 50 N, radial 50 N	
Inertia of rotor	$\leq 35 \text{ gcm}^2$	
Friction torque	IP65	$\leq 0.05 \text{ Nm at } 25^\circ\text{C}$
	IP67	$\leq 0.2 \text{ Nm at } 25^\circ\text{C}$
RPM max.	IP65	3,000 RPM
	IP54	6,000 RPM
	IP67	1,200 RPM
Shock (EN 60068-2-27)	$\leq 100 \text{ g (halfsine, 11 ms)}$	
Vibration (EN 60068-2-6)	$\leq 10 \text{ g (10 Hz ... 2,000 Hz)}$	
Weight (standard version)	Approx. 1200 g	
<b>Flange</b>		
<b>Clamp (C)</b>		
Shaft diameter	10 mm	
Shaft length	20 mm	

##### Environmental Conditions

Operating temperature	- 40 .. + 70°C
Storage temperature	- 40 .. + 85 °C
Humidity	98 % (without liquid state)
Protection class (EN 60529)	IP 65 (others on request)

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**Note:**

For ambient temperatures below  $-10^{\circ}\text{C}$  and above  $+60^{\circ}\text{C}$  use field wiring suitable for both minimum and maximum ambient temperature.

**Ex-Protection**

SCANCON encoders type series EXAG are classified according to  $\text{Ex II 2 G/D EEx d II C T6}$ :

	II	2	G/D	EEx	d	II	C	T6
Temperature Class T6: Maximum surface temperature: $+ 85^{\circ}\text{C}$								
Explosion Sub-Group C: Hydrogen ( $\text{H}_2$ ) , Acetylene ( $\text{C}_2\text{H}_2$ ), carbon disulfide ( $\text{CS}_2$ )								
Explosion Group: for all areas except for mining								
Method of protection: flameproof enclosure								
Device in compliance with EN50014 and EN50018								
Application Area: permitted for gas und dust								
Equipment-Category 2: permitted for zone 1 / zone 21								
Equipment-Group II: for all applications except for mining								
<b>Ex-Proof Device</b>								

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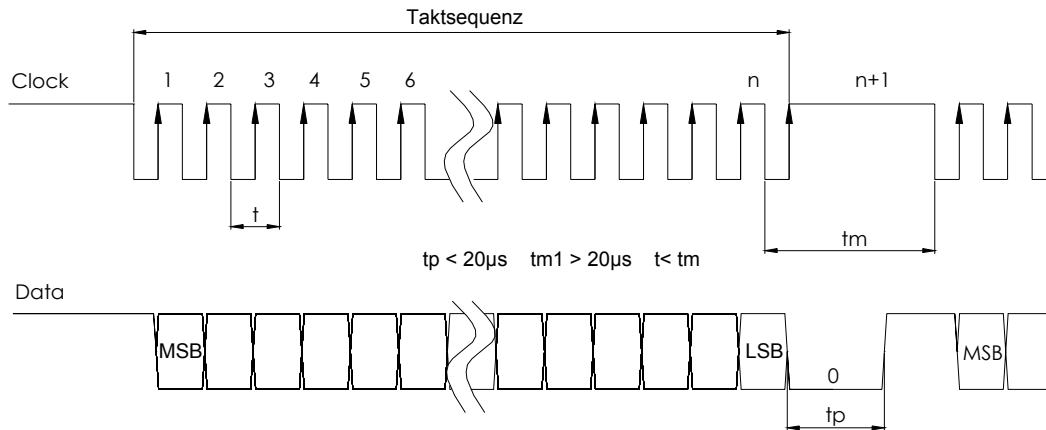
### SSI

#### Interface

##### Synchronous Serial Interface (SSI)

Driver	Driver meets EIA standard RS 422; transmission rates up to 10 MBit/s
Transfer	Transfer distance up to 1,200 m
Transmission	Balanced transmission provides high noise immunity
Pair lines	Shielded and twisted pair lines are essential to attain extremely high noise immunity
Interface	For a detailed description of the synchronous-serial interface (SSI) refer to introduction section.
Optional	Built-in RS 422 interface for bus mode (strobe-function). Up to 32 encoders (AWC) can be used on the same data line !

#### Single Shift



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#### Installation

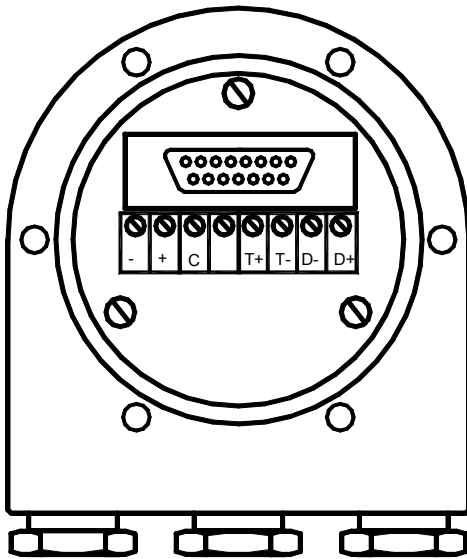
Signal lines and power supply are connected via screw terminals in the connection cap. The connection cap can be opened for installation by removing the six cap screws.

The cable gland is suitable for cable diameters from 6.5 up to 8 mm.

**Follow the instructions in the installation manual carefully, otherwise the ATEX-certification will be repealed!**

Assignment of the 8pin screw terminal:

Terminal	Description
1 (left)	0 V
2	10 – 30 V
3	Complement
4	N.C.
5	Clock +
6	Clock -
7	Data -
8 (right)	Data +





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#### Models/Ordering Description

Description	Type key									
Ex-Proof Optocode	<b>EXAG-</b>	--	--	-	--	--	--	--	--	--
Interface	SSI	<b>SL</b>								
Version			<b>00</b>							
Code	Gray			<b>G</b>						
	Binary			B						
Revolutions (Bits)	Singleturn			<b>00</b>						
	Multiturn (4096 revolutions)			<b>12</b>						
	Multiturn (16384 revolutions)			14						
Steps per Revolution	4096					12				
(Bits)	8192					<b>13</b>				
Shaft or	Solid Shaft						<b>A</b>			
Hollow Shaft	Hollow Shaft						H			
Material	Aluminum							<b>AL</b>		
	Stainless Steel							VA		
Shaft diameter	10 mm								<b>10</b>	
Shaft length	20 mm								<b>20</b>	
Hollow shaft diameter	14 mm									14
Deep	35 mm									35
P Rating	IP65 (further on request)									<b>65</b>
Flange	Clamping Flange									<b>C</b>
Connection	Connection Cap Field Bus – radial cable outlets									<b>SS</b>
	1 x Ø 6.5 - 8 mm									
	Hydraulic Hose									HS

**Standard = bold**, further models on request

#### Accessories and Documentation

Description	Type
Shaft coupling	Drilling: 10 mm GS 10

We do not assume responsibility for technical inaccuracies or omissions. Specifications are subject to change without notice.