

## TECHNICAL DATASHEET

### Ex - Absolute Encoder AX 73 BiSS / SSI



- ATEX and IECEx certification for Gas and Dust explosion proof
- High precision standard as ACURO Industry
- Resolution up to 22 Bit singleturn + 12 Bit multiturn
- Optical encoder with a true geared multiturn
- BiSS/SSI Interface
- Easy and fast field installation
  - Free choice of cable in the field (terminal box with cage clamp technology)
  - In case of emergency service, encoder and cable can be removed separately
- Robust design
- Extreme corrosion resistance: high grade stainless steel housing (1.4404 / AISI 316L)
- Protection class IP66/IP67
- Applications: Drilling equipment, Winches, Cranes, DrawWorks, Topdrive, Pipe Handling, Enamelling Production Line, Petro Chemistry, Bottling Machines, Mixers, Silo Works, Mills, Oil and Gas Application

ACURO®  
Xproof



ATEX



BiSS  
INTERFACE

SSI



#### EX-CLASSIFICATION

The absolute shaft encoder line ACURO is available in explosion proof design with explosion proof enclosure under AX73.

It has been assured with the **EC-TYPE-Examination Certificate ITS14ATEX17991X** that the AX73 meets the requirements of safety and health according to EN 60079-0:2012; EN 60079-1:2007 and EN60079-31:2009.

Additionally the encoder is certified according the IECEx standards IEC 60079-0:2011; IEC 60079-1:2007-04 and IEC 60079-31:2008. Assured according **IECEx ITS 14.0062X** certification.

It is approved in explosive areas:

**Gas:** II 2 G Ex d IIC T4 Gb

**Dust:** II 2 D Ex tb IIIC T130 Db

The AX73 comes with a stainless steel housing (1.4404). Its suitable for offshore applications, applications under tough environmental conditions and food industry.

#### TECHNICAL DATA mechanical

Housing diameter	73,5 mm / 76 mm
Shaft diameter	10 mm
Flange (Mounting of housing)	Clamping flange, bores 3xM6
Protection class (EN 60529/ A1:2000-02)	housing IP66/IP67, bearing IP67 <sup>1)</sup>
Shaft load radial / axial	max. 100 N / 40 N
Max. speed	3000 rpm
Nominal speed	1500 rpm
Starting torque typ.	≤ 4 Ncm
Moment of inertia	approx. 30 gcm <sup>2</sup>

<sup>1)</sup> no standing water allowed at the shaft inlet or cable routing or at the bearing.

Specifications subject to change without notice.

Art.No.: 2 539 214	© Hengstler GmbH Umlandstr. 49 D-78554 Aldingen/ Germany	Page
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#### TECHNICAL DATA mechanical (continued)

Vibration resistance (DIN EN 60068-2-6:2008)	100m/s <sup>2</sup> (60 ... 2000Hz <sup>2)</sup> )
Shock resistance (DIN EN 60068-2-27:2010)	1000m/s <sup>2</sup> (6ms)
Ambient temperature	-40°C ... +70°C
Storage temperature	-20°C ... +80°C
Material shaft	Stainless Steel 1.4104 / AISI 430F
Material housing	Stainless Steel 1.4404 / AISI 316L
Weight	approx. 2200g
Connection <sup>2)</sup>	Terminal box with 2 x M20x1,5 screw thread, radial

<sup>2)</sup> without cable gland

#### TECHNICAL DATA electrical

General design	as per EN 61010 - 1, protection class III contamination level 2, overvoltage class II
Supply voltage	DC 10 - 30V with pole protection
Current w/o load max.	200 mA
Recommended external fuse	T 0,25 A
Power consumption	approx.. 1,5W to 2W
Resolution singleturn	10 - 22 Bit
Resolution multiturn	12 Bit
EMC <sup>3)</sup>	Noise emission as per EN 61326-1 Group 1, Class B; Noise immunity as per EN 61326 - 1 Class A
Output code	Gray or Binary
Lines/ Drivers	Clock and Data / RS422
Control input	$\overline{\text{Direction}}$

<sup>3)</sup> with compliance with screening indications

#### RECOMMENDED CLOCK FREQUENCY WITH SSI

Cable length	Clock frequency
< 25 m	< 1000 kHz
< 50 m	< 400 kHz
< 100 m	< 300 kHz
< 200 m	< 200 kHz
< 400 m	< 100 kHz

The maximum clock frequency depends on cable length and cable quality. Please use a screened cable with twisted cable pairs for clock and clock $\bar{}$ ; data and data $\bar{}$  as well as U<sub>b</sub> and GND.

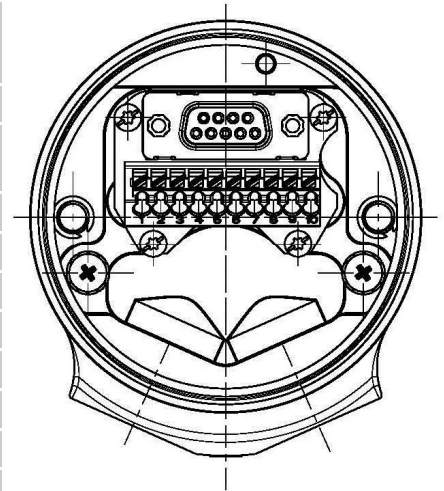
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## TECHNICAL DATASHEET

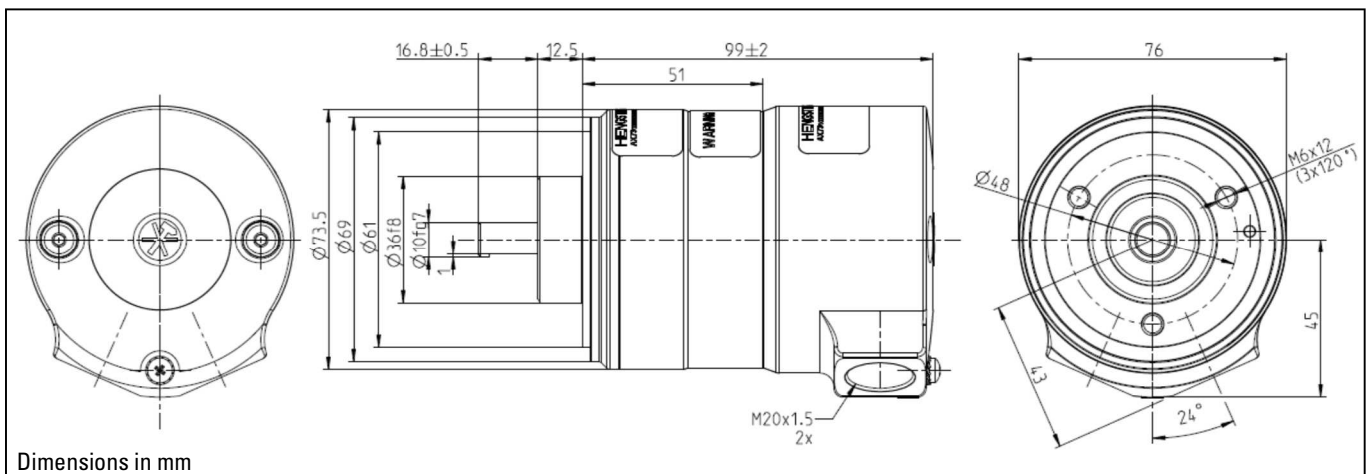
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#### ELECTRICAL CONNECTIONS

Terminal block	Signal
1	U <sub>b</sub> 10 ... 30V DC
2	0V (GND supply voltage)
3	$\overline{\text{Clock}}$
4	Clock
5	$\overline{\text{Data}}$
6	Data
7	$\overline{\text{Direction}}$
8	0V (signals)
9	Not connected
10	Functional earth
<b>Grounding-screw</b> (2x inside, 1x outside)	Functional earth



#### DIMENSIONED DRAWINGS



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#### ORDERING INFORMATION

Type	Resolution	Supply voltage	Flange, Protection, Shaft	Interface	Connection
<input type="checkbox"/> / <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>AX73</b>	<b>0010</b> 10 Bit ST <b>0012</b> 12 Bit ST <b>0013</b> 13 Bit ST <b>0014</b> 14 Bit ST <b>0017</b> 17 Bit ST <b>0019</b> 19 Bit ST <b>0022</b> 22 Bit ST <b>0360</b> 360 Increments ST <sup>1)</sup> <b>0720</b> 720 Increments ST <sup>2)</sup> <b>1212</b> 12 Bit MT+12 Bit ST <b>1213</b> 12 Bit MT+13 Bit ST <b>1214</b> 12 Bit MT+14 Bit ST <b>1217</b> 12 Bit MT+17 Bit ST <b>1219</b> 12 Bit MT+19 Bit ST <b>1222</b> 12 Bit MT+22 Bit ST	<b>E</b> DC 10 - 30 V	<b>K.72</b> Clamping flange, IP67, 10 mm	<b>SB</b> SSI Binary <b>SG</b> SSI Gray  <b>BI</b> BiSS-B <b>BE</b> BiSS-C	<b>2</b> 2 x M20x1,5 screw thread, radial

<sup>1)</sup> with Offset 76 (value range 76...435)

<sup>2)</sup> with Offset 152 (value range 152...871)

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