

# Абсолютный энкодер угла поворота ACURO AX73

## Технические характеристики

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# 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<br>(Mounting of housing)            | Clamping flange, bores 3xM6                   |
| Protection class<br>(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.

# TECHNICAL DATASHEET

## Ex - Absolute Encoder AX 73 BiSS / SSI

### TECHNICAL DATA mechanical (continued)

|                                                 |                                                    |
|-------------------------------------------------|----------------------------------------------------|
| Vibration resistance<br>(DIN EN 60068-2-6:2008) | 100m/s <sup>2</sup> (60 ... 2000Hz <sup>2)</sup> ) |
| Shock resistance<br>(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<br>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;<br>Noise immunity as per EN 61326 - 1 Class A |
| Output code               | Gray or Binary                                                                                   |
| Lines/ Drivers            | Clock and Data / RS422                                                                           |
| Control input             | <u>Direction</u>                                                                                 |

<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       |

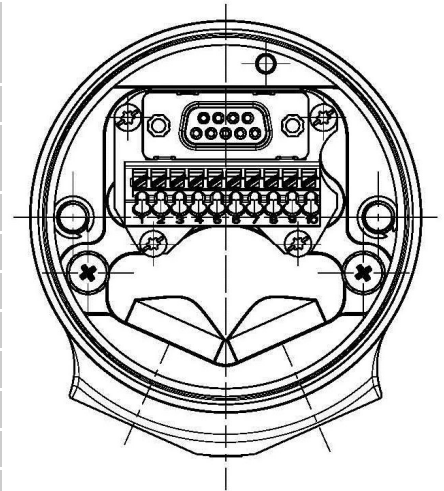
The maximum clock frequency depends on cable length and cable quality. Please use a screened cable with twisted cable pairs for clock and clock\; data and data\ as well as U<sub>b</sub> and GND.

# TECHNICAL DATASHEET

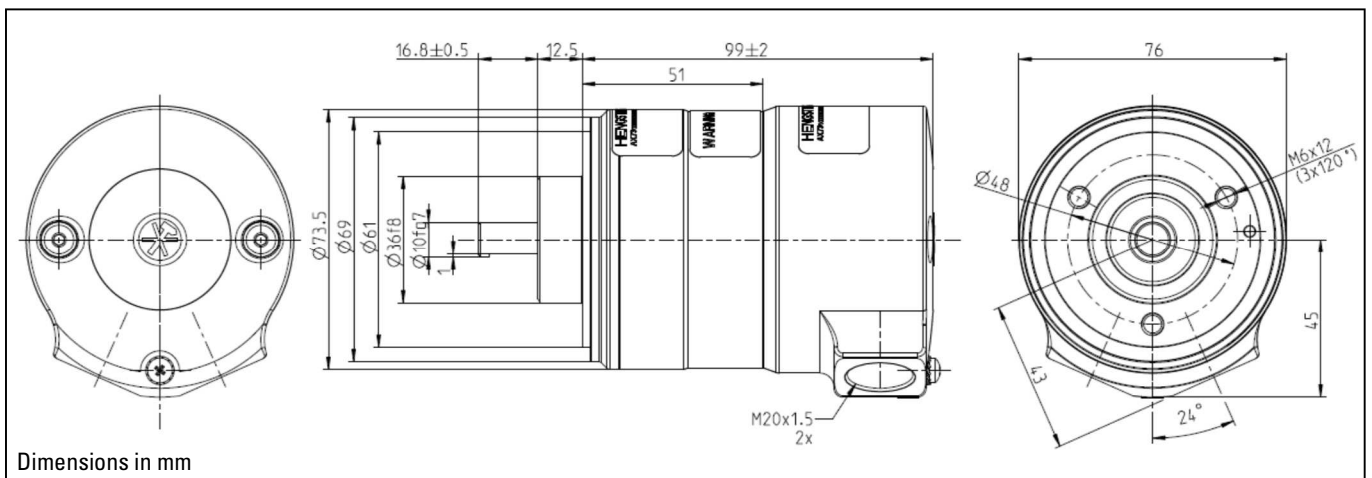
## Ex - Absolute Encoder AX 73 BiSS / SSI

### ELECTRICAL CONNECTIONS

| Terminal block                                       | Signal                        |
|------------------------------------------------------|-------------------------------|
| 1                                                    | $U_b$ 10 ... 30V DC           |
| 2                                                    | 0V<br>(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><br>(2x inside,<br>1x outside) | Functional earth              |



### DIMENSIONED DRAWINGS



# TECHNICAL DATASHEET

## Ex - Absolute Encoder AX 73 BiSS / SSI

### ORDERING INFORMATION

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