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# HENGSTLER

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**HENGSTLER**

## TECHNICAL DATASHEET

### Absolute Encoders AC 36 - BiSS / SSI



- Overall length: 36 mm
- For equipment engineering and industry
- Up to 17 Bit Resolution Singleturn + 12 Bit Multiturn
- Solid shaft 6 mm (Hollow shaft version: AD 36)
- +100°C operating temperature
- 10,000 rpm (continuous)
- Optical encoder with a true geared multiturn
- BiSS or SSI interface
- Option Sinewave 1 Vpp
- Bandwidth 500 kHz



#### APPLICATIONS

The AC 36 is an absolute optical encoder with a true geared multiturn, optical sensing technology and 36 mm diameter. Equipped with a solid-shaft the AC 36 is mechanical compatible with all common inkremental encoders. The compact design allows to replace the adequate incremental encoders directly. As a result the technical facilities of absolute encoders can be used for the first time in equipment engineering and also in medical engineering. The mechanical design consists of two ball bearings supported mechanical shaft assembly. The AC 36 complements the **ACURO® -industry** series with small frame sizes and the same performance as 58 mm versions.

#### BiSS-Interface

Unique within his class the AC 36 provides fully digital position data up to 17 Bit (singleturn) and 12 Bit (multi-turn) over the bidirectional synchronous interface with a variable clock rate up to 10 MHz. This corresponds a singleturn resolution of more than 130 000 mesured steps. Backward compatibility is realized through the SSI interface together with 2048 sine-cosine periods per revolution.

#### Integrated diagnostic system

The AC 36 is based on latest OptoAsic technology with an advanced diagnostic concept. A continous plausibility check controls the internal signal processing for each increment. A code check guarantees that the encoder signal represents bit by bit the mesured rotation. Also the operating temperature of the encoder can be measured, read out and monitored over warn and alarm bits with 8 bit resolution (1°C). Monitoring and controlling of the operating temperature ensures a maximum lifetime of the LED. Eventual failures are indicated early over warn bits.

#### TECHNICAL DATA mechanical

Housing diameter	37.5 mm
Shaft diameter	6 mm (Solid shaft)
Flange (Mounting of housing)	Pilot flange
Protection class shaft input (EN 60529)	IP64
Protection class housing (EN 60529)	IP64
Max. speed	max. 10 000 rpm (continuous), max. 12 000 rpm (short term)
Torque	0.01 Nm
Moment of inertia	ca. $2.5 \times 10^{-6}$ kgm <sup>2</sup>

## TECHNICAL DATASHEET

### Absolute Encoders AC 36 - BiSS / SSI

#### TECHNICAL DATA mechanical (continued)

Vibration resistance (DIN EN 60068-2-6)	100 m/s <sup>2</sup> (10 ... 2000 Hz)
Shock resistance (DIN EN 60068-2-27)	1000 m/s <sup>2</sup> (6 ms)
Operating temperature	-40 °C ... +100 °C
Storage temperature	-15 °C ... +85 °C
Weight	approx. 80 g (ST) / 130 g (MT)
Connection	Cable, axial or radial

#### TECHNICAL DATA electrical

Supply voltage	-5%/ 10% DC 5 V DC 7-30 V
Max. current w/o load	50 mA (ST), 100 mA (MT)
Resolution singleturn	12 -17 Bit
Resolution multiturn	12 Bit
Output code	Gray, Binary
Drives	Clock and Data / RS422
Incremental signals optional	Sinus-Cosinus 1 Vpp
Number of pulses	2048
3dB limiting frequency	500 kHz
Alarm output	Alarm bit (SSI Option), warning and alarm bit (BiSS)

#### ELECTRICAL CONNECTIONS Cable

Signal	Colour cable
5 / 7-30 V (U <sub>B</sub> )	white
0 V (U <sub>N</sub> )	brown
Clock	yellow
$\overline{\text{Clock}}$	green
Data	pink
$\overline{\text{Data}}$	grey
A	white/green <sup>1</sup>
$\overline{A}$	brown/green <sup>1</sup>
B	red/blue <sup>1</sup>
$\overline{B}$	grey/pink <sup>1</sup>
5 V Sensor	violet <sup>1</sup>
0 V Sensor	black <sup>1</sup>

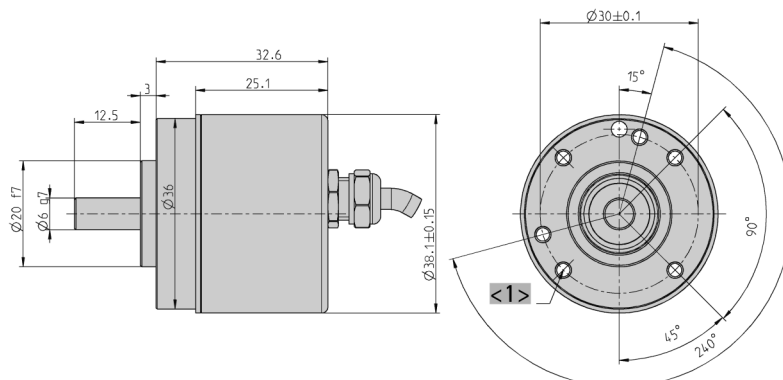
<sup>1</sup> only with "SC"

## TECHNICAL DATASHEET

### Absolute Encoders AC 36 - BiSS / SSI

#### DIMENSIONED DRAWINGS

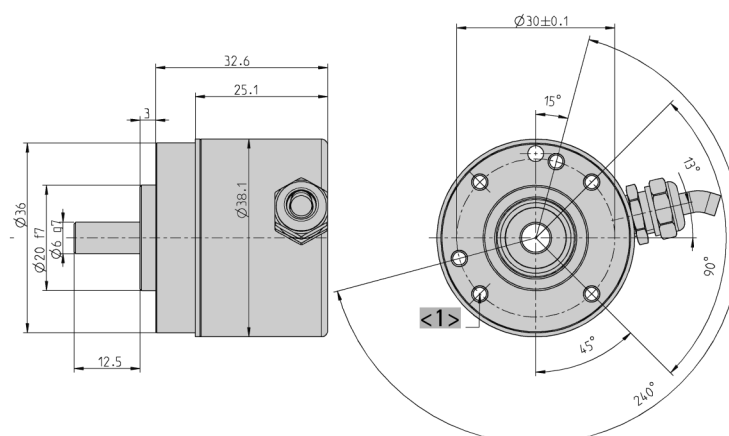
##### Connection axial



<1> M3 (depth 6)

Dimensions in mm

##### Connection radial



<1> M3 (depth 6)

Dimensions in mm

#### ORDERING INFORMATION

Type	Resolution	Supply voltage	Flange, Protection, Shaft	Interface	Connection
<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>AC36</b>	<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>1213</b> 12 Bit MT + 13 Bit ST <b>1217</b> 12 Bit MT + 17 Bit ST (BiSS)	<b>A</b> DC 5 V <b>E</b> DC 7 - 30 V	<b>R.41</b> Pilot, IP64, 6 mm	<b>BI</b> BiSS <b>SB</b> SSI binary <b>SG</b> SSI Gray <b>SC</b> SSI Gray (+SinCos 1Vpp)	<b>A</b> Cable, axial <b>B</b> Cable, radial

## TECHNICAL DATASHEET

### Absolute Encoders AC 36 - BiSS / SSI

#### ORDERING INFORMATION Selection of cable length

Versions with cable outlet (connection A, B, E or F) are available with various lengths of cable. To order your desired cable length, please add the respective code to the end of your ordering code. Further cable lengths on request.

Code	Cable length
without code	1.5 m
-D0	3 m
-F0	5 m
-K0	10 m
-P0	15 m
-U0	20 m
-V0	25 m

## TECHNICAL DATASHEET

### Absolute Encoders AC 36 - BiSS / SSI Accessories

#### FLEXIBLE COUPLINGS



Bellows coupling



Disk coupling



Helical coupling

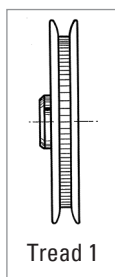


Isolated disk coupling

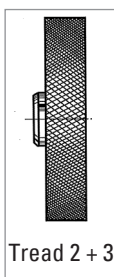


Plastic coupling

#### MEASURING WHEELS



Tread 1



Tread 2 + 3

		Ordering code
Bellows coupling	6 mm / 6 mm	3 520 068
Disk coupling	6 mm / 6 mm	0 070 663
Helical coupling 19/28	5 mm / 6 mm	3 520 035
Helical coupling 19/28	6 mm / 6 mm	0 070 653
Helical coupling 19/28	6 mm / 6.35 mm	3 520 051
Helical coupling 25/32	6 mm / 9.53 mm	3 520 052
Helical coupling 25/32	6 mm / 10 mm	3 520 066
Isolated disk coupling	6 mm / 6 mm	3 520 081
Isolated disk coupling	6 mm / 10 mm	3 520 082
Plastic coupling	5 mm / 6 mm	3 520 033
Plastic coupling	6 mm / 6 mm	1 761 026

#### Tread 1

with rim and fine crosshatched knurl  
Applications such as threads and yarns

#### Tread 2 B

with glued-on rubber profile B = low-wear rubber surface with good grip (white)  
Applications such as paper and cardboard, measuring cables, nongreasy metals, fleece, undressed or surface-treated wood, soft and hard plastics

Material	Bore diameter (mm) fitting to encoder shaft	Circumference	Tread	Width of bearing surface	Ordering code
Aluminum	6 mm	0.2 m	1	4 mm	0 601 015
Aluminum	6 mm	0.2 m	2 B	12 mm	0 601 048

#### DISPLAYS

	Ordering code
Position indicator Signo-SSI	0 727 111