Absolute Shaft Encoders — Type AC 36

ACURO industry — BiSS / SSI

- Overall length 36 mm
- For equipment engineering and industry
- Up to 17 Bit singleturn and 12 Bit multiturn
- Hollow shaft 6 mm
- +100°C operating temperature
- 10 000 rpm continous operation
- Optical encoder with a true geared multiturn
- SSI or BiSS interface
- Option Sine 1 Vpp
- 500kHz bandwidth

APPLICATIONS

The AC 36 is an absolute optical encoder with a true geared multiturn, optical sensing technology and 36 mm diameter. Equiped 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
Protection class shaft input	IP64
Protection class housing	IP64
Flange	pilot flange
Shaft diameter	6 mm
Max. speed	Continuous 10 000 min^{-1}, short term 12 000 min^{-1}
Starting torque	0.01 Nm
Moment of inertia	2.5 x 10^{-6} kgm^2
Shock resistance DIN EN 60068-2-27	1 000 m/s^2 (6 ms)
Vibration resistance DIN EN 60068-2-6	100 m/s^2 (10 ... 2 000 Hz)
Operating temperature	-25...+100 °C
Storage temperature	-15...+85 °C (because of packing)
Weight approx. ST/MT	80 g / 130 g

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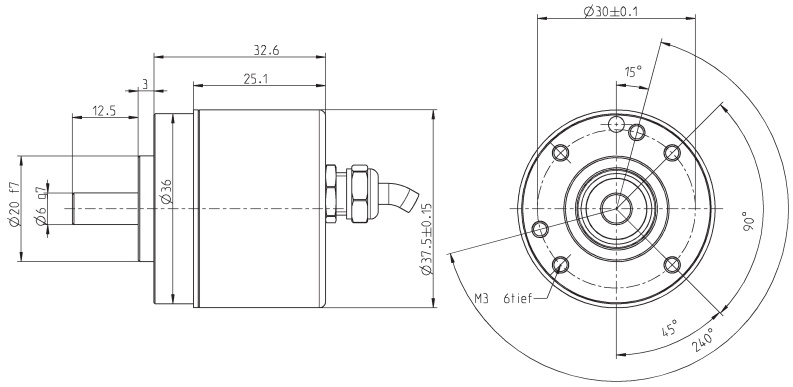
TECHNICAL DATA
electrical

Supply voltage	DC 5 V, -5 % /+10% or DC 7 - 30 V
Max. current w/o load ST/MT	50 mA / 100mA
Interface	Standard SSI or BiSS
Lines / drives	Clock and Data / RS422
Output code	Gray or binary
Resolution singleturn	13 Bit - 17 Bit
Resolution multiturn	12 Bit
Incremental signals optional	Sine - Cosine 1 Vpp
Number of pulses	2048
3dB limiting frequency	500 kHz
Alarm output	Alarm bit (SSI Option) Warning bit and alarm bit (BiSS)
Connection	Cable axial or radial

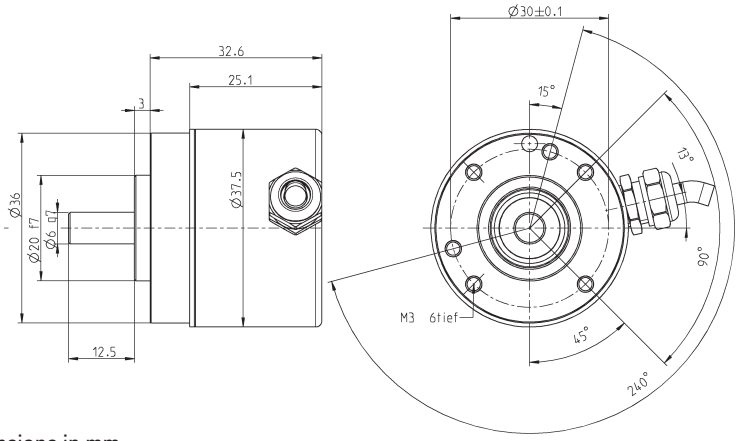
DIMENSIONAL DRAWINGS

Connection axial



Dimensions in mm

Connection radial



Dimensions in mm

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PIN ASSIGNMENT

Signal	Colour cable old with BI, SG, SB	Colour cable old with SC	Colour cable new
DC 5 / 7-30 V (U_B)	yellow/black	yellow/black	white
0 V (U_N)	white/green	white/green	brown
Clock	white	white	yellow
$\overline{\text{Clock}}$	brown	brown	green
Data	black	black	pink
$\overline{\text{Data}}$	violet	violet	grey
A	nc.	green	white/green [1]
$\overline{\text{A}}$	nc.	yellow	brown/green [1]
B	nc.	blue	red/blue [1]
$\overline{\text{B}}$	nc.	red	grey/pink [1]
DC 5 V Sensor	nc.	red/black	violet [1]
0 V Sensor	nc.	brown/green	black [1]

[1] only with "SC"

ORDERING INFORMATION

Type	Resolution	Supply voltage	Flange, Protection, Shaft	Interface	Connection
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AC 36	**0012** 12 Bit ST **0013** 13 Bit ST **0014** 14 Bit ST **0017** 17 Bit ST **1213** 12 Bit MT+13 Bit ST **1217** 12 Bit MT+17 Bit ST (BiSS)	**A** DC 5 V **E** DC 7 - 30 V	**R.41** Clamping ring, IP64, solid shaft 6 mm	**SC** SSI Gray + SinCos 1 Vpp **BI** BiSS **SG** SSI gray **SB** SSI binary	**A** Cable axial 1.5 m **B** Cable radial 1.5 m