

PRELIMINARY



GENERAL INFORMATION

Absolute Motor Feedback Systems Type AD 36 for AC Synchronous & BLDC Motors

- For brushless servo motors
- Resolver size 15 compatible
- Through hollow shaft 8 mm
- 19 Bit Singleturn + 12 Bit Multiturn
- + 120°C operating temperature
- 10.000 rpm continuous operation
- Geared optical multiturn
- SSI or BiSS interface
- Sinewave 1 Vpp
- Bandwidth 500kHz

The AD36 is an absolute encoder with a true geared Multiturn, optical sensing technology and 36 mm diameter. Unique is the through hollow shaft which enables an assembly that is compatible with resolver size 15. The mechanical design consists of two ball bearings and a flexible torque support. The AD36 complements the *ACURO-DRIVE* series and is appropriate for use within BLDC servo motors with small frame sizes.

Fully digital control loop

The new and completely digital OptoAsic technology enables the transition to a truly digital drive system. The conventional absolute encoders still have analog sine wave signals for the feedback of speed and position data. The AD36, however, provides fully digital position data up to 19 Bit (Singleturn) and 12 Bit (Multiturn) over the **BiSS** interface with a variable clock rate up to 10 MHz. **BiSS** is the only open high speed bidirectional sensor interface available on the market.

Backward compatibility to most of the existing drives is realized through the variant with SSI interface together with 2048 sine –cosine periods per revolution.

Integrated diagnostic system

The AD36 has an integrated diagnostic system that controls and regulates the internal signals. Maximum motor uptime is achieved through the pre warning in case of any system error or aging effects well before they affect the function of the encoder. A code plausibility check guarantees that the output data represents always the true position. Also the operating temperature can be measured and read out with 8 Bit resolution. If programmable limits are exceeded or under run this is indicated over warn and alarm bits.

TECHNICAL DATA mechanical

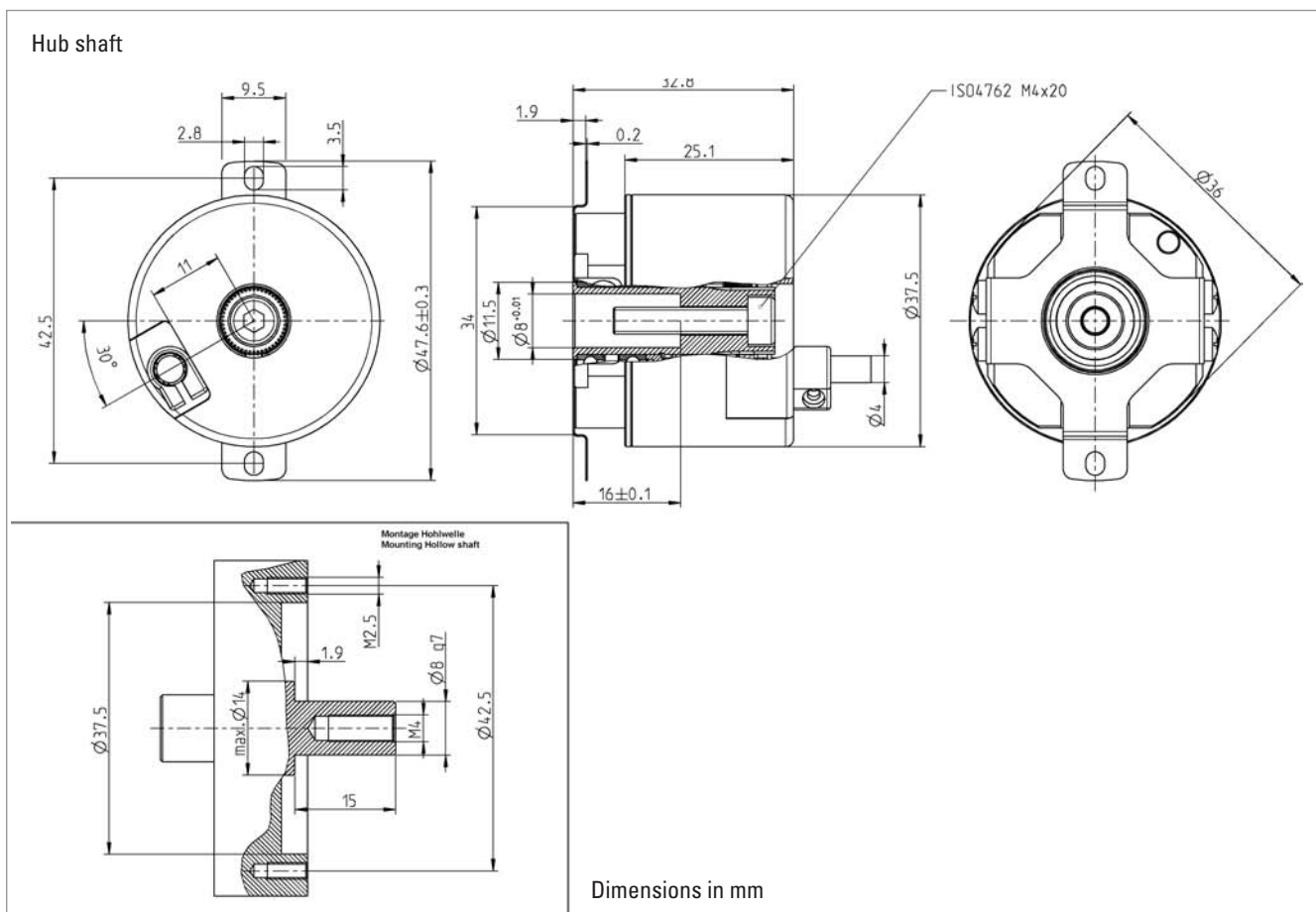
Housing diameter	37,5 mm
Shaft diameter	8 mm
Protection class housing	IP40
Protection class shaft	IP40
Max. speed	Continuous operation 10 000 min ⁻¹ Short term operation 12 000 min ⁻¹
Torque	0,01 Nm
Moment of inertia	25 gcm ²
Spring tether (hollow shaft)	
Tolerance axial	± 0,5 mm
Tolerance radial	± 0,05 mm
Vibration resistance (IEC 68-2-6)	100 m/ s ² (10 - 500 Hz)
Shock resistance (IEC 68-2-27)	1000 m/ s ² (6 ms)
Operating temperature	-15 ...+120°C
Storage temperature	-15 ...+85°C
Material shaft/ housing	Aluminum
Weight ST/ MT	80 g/ 130 g

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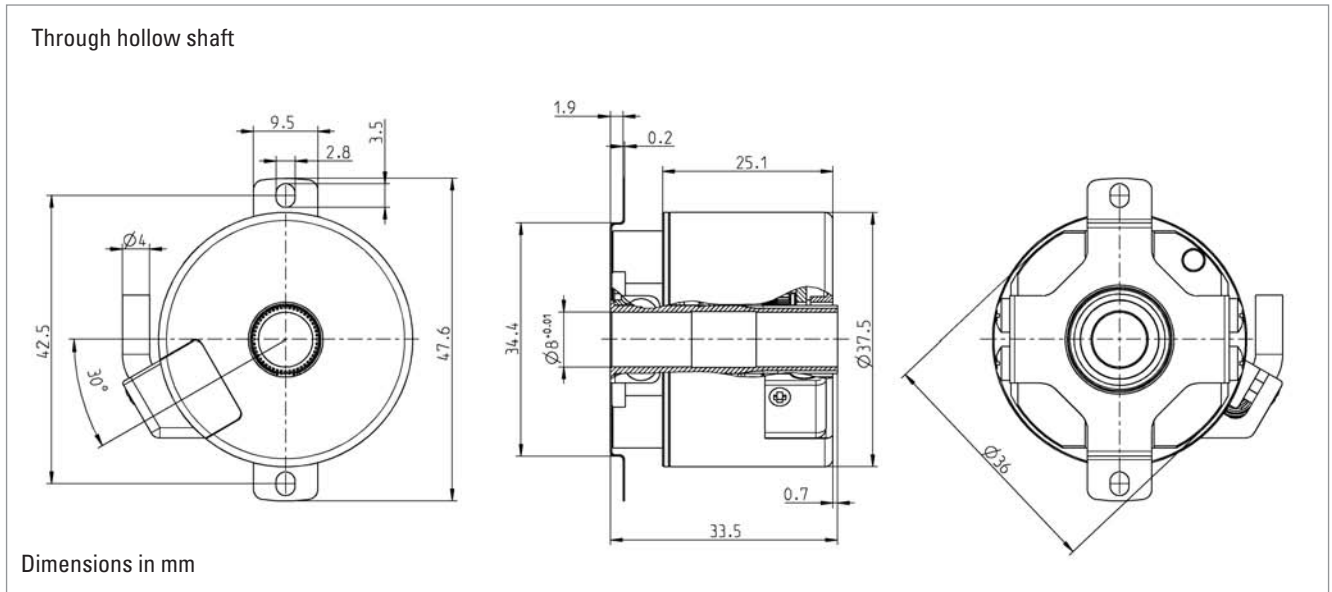
TECHNICAL DATA electrical

Supply voltage	DC 5 V (-5 %/ +10 %) or DC 7-30 V
Current consumption ST/ MT	50 mA/ 100 mA
Lines/ Drives	Clock and Data/ RS422
Output code	Gray
Resolution Singleturn	SSI: 12 - 17 Bit BiSS: 12 - 19 Bit
Resolution Multiturn	SSI: 12 Bit BiSS: 12 Bit
Incremental signals	Sine - Cosine 1 Vpp
No. of increments	2048
3 dB limiting frequency	500 kHz
Absolute accuracy	±35"
Repeatability	±7"
Alarm output	alarm bit (SSI), warning bit and alarm bit (BiSS)
Connection	Cable PCB-Connector, 12 pole

DIMENSIONAL DRAWINGS

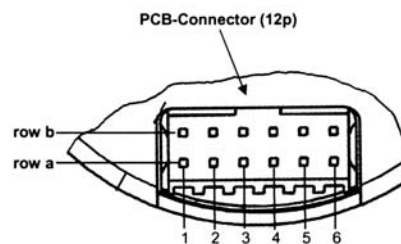


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PIN ASSIGNMENT

Colour new	Colour old	PIN	Signals
grey	violet	1a	Data
white/green	green	2a	A +
black	brown/ green	3a	0 V Sensor
red/blue	blue	4a	B +
green	brown	5a	Clock
violet	red/ black	6a	5 V Sensor
white	yellow/ black	1b	DC 5 V/ 7 - 30 V
yellow	white	2b	Clock
grey/pink	red	3b	B -
brown	white/ green	4b	0 V (U _N)
brown/green	yellow	5b	A -
pink	black	6b	Data



Connector:
12 pin PCB connector
Manufacture Berg
Type: Minitec

ORDERING INFORMATION

Type	Resolution	Supply voltage	Flange, Protection, Shaft	Interface	Connection
AD 36	0012 12 Bit ST 0013 13 Bit ST 0014 14 Bit ST 0017 17 Bit ST 0019 19 Bit ST (BiSS) 1213 12 Bit MT+13 Bit ST 1217 12 Bit MT+17 Bit ST 1219 12 Bit MT +19 Bit ST (BiSS)	A DC 5 V E DC 7 - 30 V	F0C Spring tether, IP40, 8 mm trough hollow shaft F0R Spring tether, IP40, 8 mm hub shaft	SC SSI Gray +1 Vpp BI BiSS	0 PCB-connector, 12 pole B Cable radial 0.5m