

TECHNICAL DATASHEET

Absolute Motorfeedback Series AD 36



- 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
- Optical encoder with a true geared multiturn
- Interfaces: SSI, BiSS-B, BiSS-C
- Sinewave 1 Vpp
- Bandwidth 500 kHz



GENERAL INFORMATION

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 (Through hollow shaft) 8 mm (Hubshaft) |
| Flange (Mounting of housing) | Tether |
| Protection class shaft input (EN 60529) | IP40 |
| Protection class housing (EN 60529) | IP40 |
| Axial endplay of mounting shaft (hubshaft) | ± 0.5 mm |
| Radial runout of mating shaft (hubshaft) | ± 0.05 mm |
| Max. speed | max. 10 000 rpm (continuous), max. 12 000 rpm (short term) |
| Starting torque typ. | ≤ 1 Ncm |
| Moment of inertia | ca. 2.5 x 10 ⁻⁶ kgm ² |
| Vibration resistance (DIN EN 60068-2-6) | 100 m/s ² (10 ... 2000 Hz) |

TECHNICAL DATASHEET

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TECHNICAL DATA mechanical (continued)

| | |
|--------------------------------------|---|
| Shock resistance (DIN EN 60068-2-27) | 1000 m/s ² (6 ms) |
| Operating temperature | -40 °C ... +120 °C |
| Storage temperature ¹ | -15 °C ... +85 °C |
| Weight | approx. 80 g (ST) / 130 g (MT) |
| Connection | Cable, radial PCB connector, 12 pole |

¹ due to packing

TECHNICAL DATA electrical

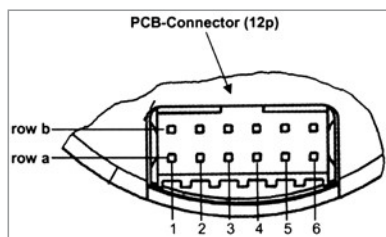
| | |
|------------------------|--|
| Supply voltage | DC 5 V -5 %/+10 % or DC 7 - 30 V |
| Current w/o load typ. | 100 mA (ST), 150 mA (MT) |
| Resolution singleturn | 12 - 19 Bit (BiSS) 12 - 17 Bit (SSI) |
| Resolution multiturn | 12 Bit |
| Output code | Gray |
| Drives | Clock and Data / RS422 |
| Incremental signals | Sinus-Cosinus 1 Vpp |
| Number of pulses | 2048 |
| 3dB limiting frequency | 500 kHz |
| Absolute accuracy | ±35" |
| Alarm output | Alarm bit (SSI Option), warning and alarm bit (BiSS) |

ELECTRICAL CONNECTIONS PCB connector, 12 pole

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

¹ Analog signals (1 Vpp) only available with interface SC (SSI Gray + 1 Vpp) and BC (BiSS + 1 Vpp).

CONNECTION ENCODER SIDE



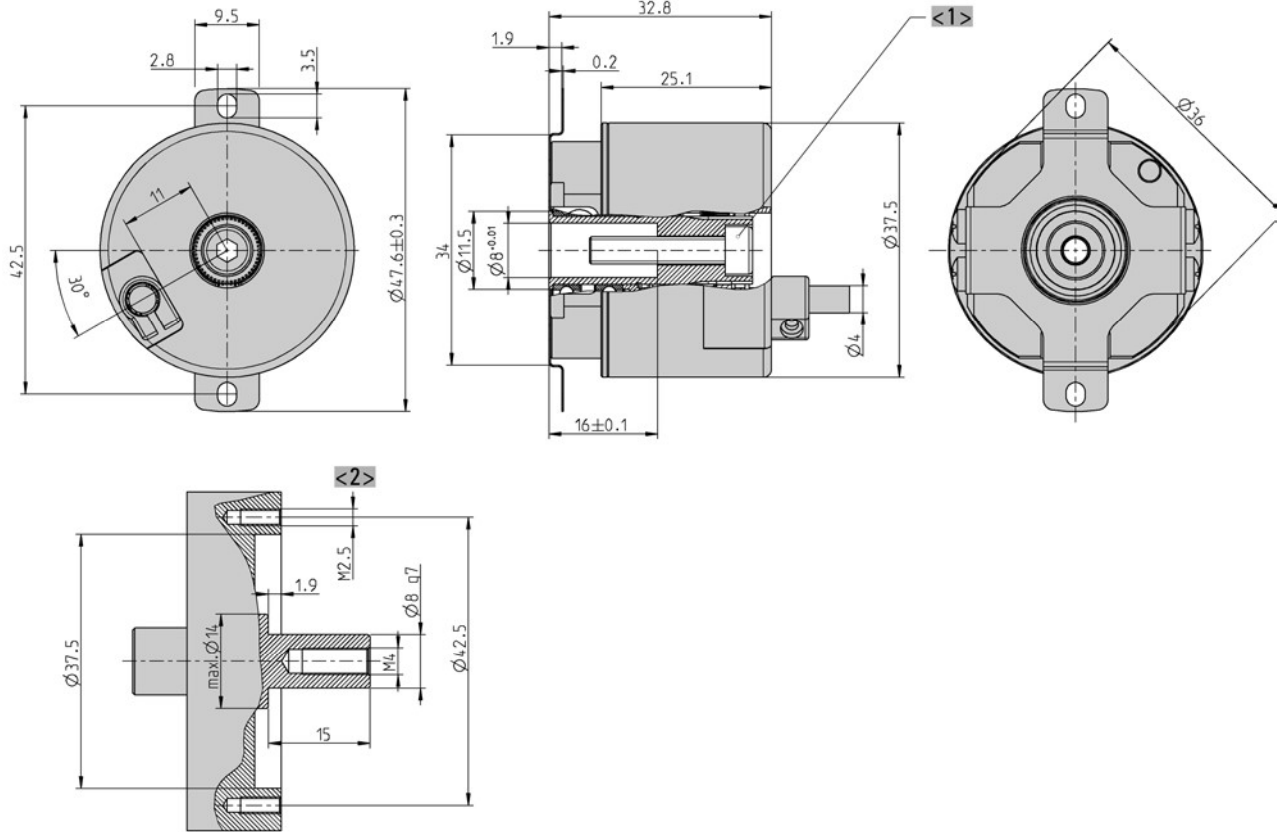
12 pin PCB connector
manufacture Berg, type Minitek

TECHNICAL DATASHEET

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DIMENSIONED DRAWINGS

Hubshaft

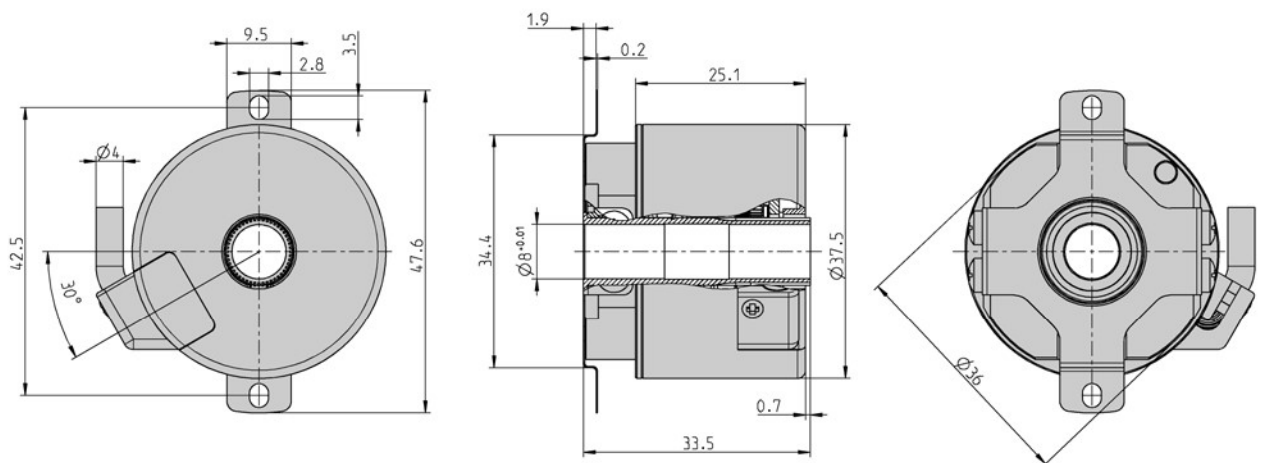


<1> ISO 4762 M4x20

<2> Mounting hollow shaft

Dimensions in mm

Through hollow shaft



Dimensions in mm

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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"/> |
| AD36 | 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 | F.0C Spring tether, IP40, 8 mm trough hollow shaft F.0R Spring tether, IP40, 8 mm hub shaft | BI BiSS-B BC BiSS-B (+SinCos 1Vpp) SG SSI Gray SC SSI Gray (+SinCos 1Vpp) BE BiSS-C BV BiSS-C (+SinCos 1Vpp) | 0 PCB connector, axial, 12 pole 2 PCB connector, radial, 12 pole A PCB connector, axial, 12 pole with mating connector and 0.5 m cable B PCB connector, radial, 12 pole, with mating connector and 0.5 m cable |

| Manufacturer Part No | Manufacturer Match code |
|----------------------|-------------------------|
| 0541002 | AD36/0013EF.ORSCB |

TECHNICAL DATASHEET

**Absolute Motorfeedback Series AD 36
Accessories**