

TECHNICAL DATASHEET

Absolute Multiturn Motor Feedback Encoder – AM34 General Performance for Servo Motor and Drive

- Mechanical MT absolute encoder for general performance motion control
- Compact absolute multiturn encoder with mounting depth less than 21 mm and outer diameter 46 mm
- High resolution up to 23 bits Single turn + 12 bits Multiturn
- Digital BiSS-C or NRZ
- Wide operating temperature from -40°C to +110°C
- Speed up to 10,000 rpm - without self-heating due to bearing less design
- Reliable gearbox Multi-turn system, eliminate maintenance cost and out-of-battery risk
- Accuracy autocalibration to improve absolute accuracy
- Ideal economic solution for Robot, AGV where tight space is necessary



TECHNICAL DATA Mechanical

ACURO[®]
drive

BiSS
INTERFACE



| | |
|--|---|
| Housing diameter | 46 mm |
| Shaft diameter | 6mm/8mm hub shaft |
| Mounting depth | 21 mm |
| Mounting flange | Direct flange / shaft mount |
| Installation | 3 x M3x8 screws |
| Protection class shaft input | IP40 |
| Protection class housing | IP20 |
| Axial endplay of mating shaft | ± 0.2 mm |
| Radial runout of mating shaft | TIR 0.05 mm |
| Max. speed | 10,000 rpm |
| Moment of inertia | 3.4 x 10 ⁻⁷ kgm ² |
| Vibration resistance (DIN EN 60068-2-6) | 300 m/s ² (60 ... 2000 Hz) |
| Shock resistance (DIN EN 60068-2-27) | 2,000 m/s ² (6 ms) |
| Material Shaft | Stainless steel |
| Material housing/cover | Aluminum / plastic |
| Connection | 8PIN PCB connector with Ø5.8mm shielded twisted-pair cable (Interface AS/AE: 4 PIN; BE: 6 PIN) |
| Weight | approx. 33g (MT, without cable) |
| Operating temperature | -40°C ... +110°C |
| Storage temperature | -30°C ... +80°C (due to packaging) |

Specifications subject to change without notice.

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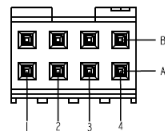
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TECHNICAL DATA Electrical

| | |
|-------------------------------|--|
| General design | as per EN IEC 61010-1, protection class III, contamination level 2, overvoltage class II |
| Supply voltage | 5V DC $\pm 10\%$ |
| Power consumption | Max. 120mA |
| ST resolution | 23 bit (Number of pulses 512) |
| MT resolution | 12 bits mechanical gearbox (lifetime maintenance free) |
| EMC | As per IEC 61326-1 industrial application environment |
| electrostatic (ESD) | Refer to IEC61000-4-2 for test levels and methods |
| Fast Transient Pulse (Burst) | Refer to IEC61000-4-4 for test levels and methods |
| Surge (Surge) | Refer to IEC61000-4-5 for test levels and methods |
| Output interface | BiSS-C: RS422 compatible NRZ: RS485 compatible |
| Data Protocol | BiSS-C / NRZ |
| Electronic Data Sheet (EDS) | 512 bytes of storage for encoder data |
| OEM Memory | 8K bytes |
| Absolute accuracy (typ.) | AM34H: $\pm 80''$ / AM34L: $\pm 120''$ (after autocalibration) |
| Repeatability (typ.) | Max $\pm 10''$ (after autocalibration) |
| Cycle time (Frame Repetition) | BiSS-C: 31.25 μ s NRZ: 62.5 μ s standard, 31.25 μ s on request |

ELECTRICAL CONNECTIONS 8 PIN PCB connector



Matching plug model:
TE 964976-4 or FCI 90311-008LF
Matching pin model:
TE 969047-3 or FCI 77138-101LF

NRZ (Interface option AS/AE)

| PIN | Color | Signal | PIN | Color | Signal |
|-----|-------------|--------|-----|------------|--------|
| 1A | Transparent | Shield | 1B | / | / |
| 2A | / | / | 2B | / | / |
| 3A | Blue | SD+ | 3B | Blue/Black | SD- |
| 4A | Red | VDD | 4B | Black | GND |

BiSS (Interface option BE)

| PIN | Color | Signal | PIN | Color | Signal |
|-----|-------------|--------|-----|-------------|--------|
| 1A | Transparent | Shield | 1B | / | / |
| 2A | Green | DATA+ | 2B | Green/Black | DATA- |
| 3A | Blue | CLOCK+ | 3B | Blue/Black | CLOCK- |
| 4A | Red | VDD | 4B | Black | GND |

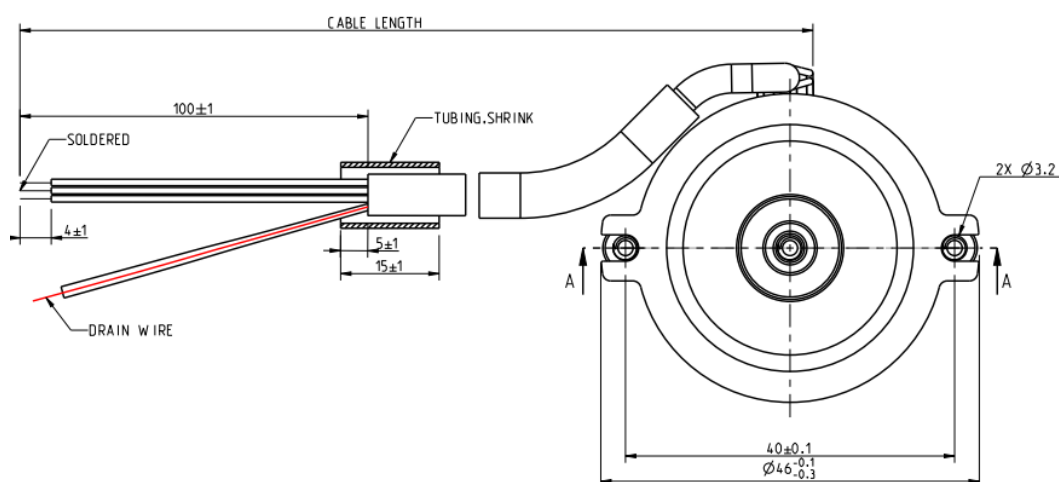
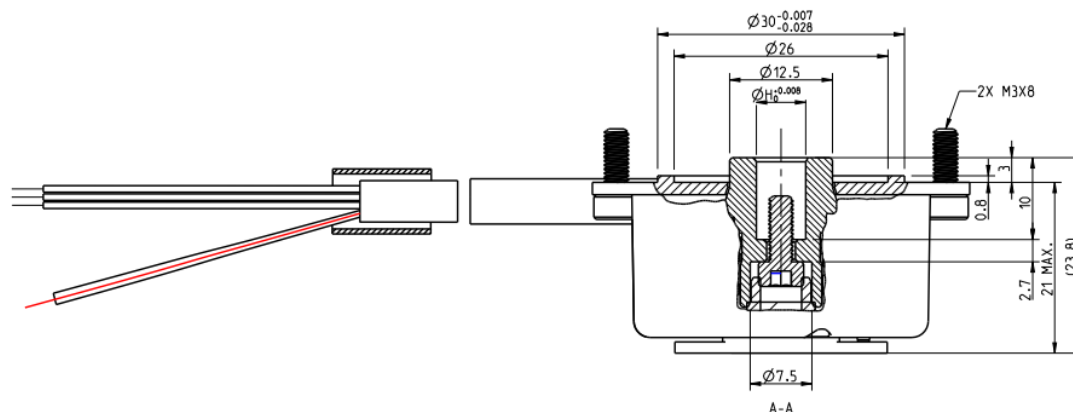
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TECHNICAL DATASHEET

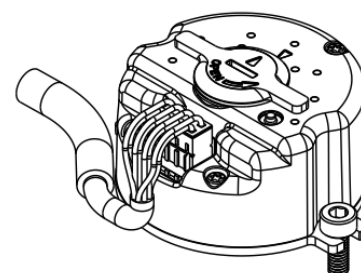
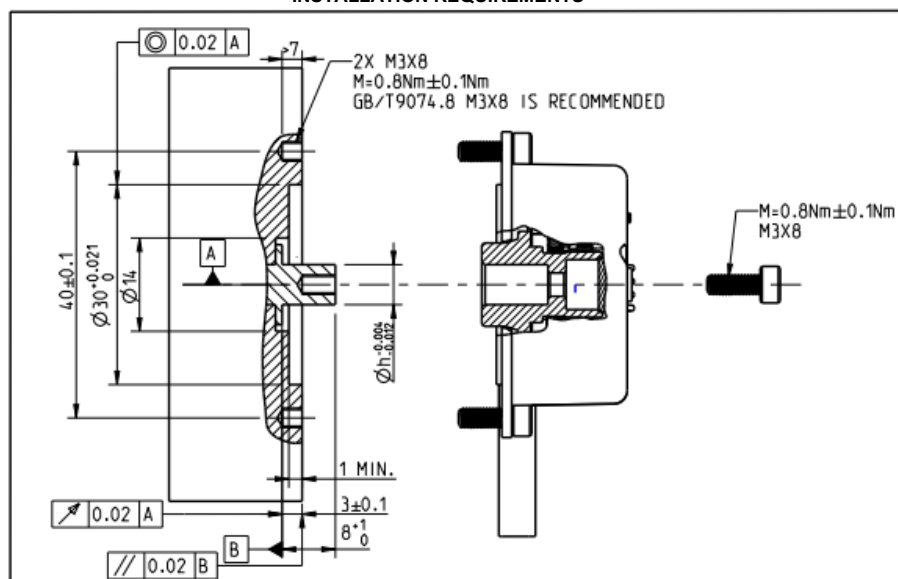
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DIMENSIONAL DRAWINGS

| H | h |
|---|---|
| 6 | 6 |
| 8 | 8 |



INSTALLATION REQUIREMENTS



Dimensions in mm

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ORDERING INFORMATION

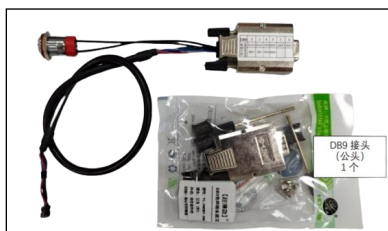
| Type ¹ | Resolution | Supply voltage | Flange, Protection, Shaft | Interface | Operating Temperature | Connection |
|--|---|----------------------|--|--|-------------------------------------|--|
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| AM34H AM34L | 1223 12 Bit MT+ 23 Bit ST 0823 8 Bit MT+ 23 Bit ST | A 5VDC | Z.0F 2-eared flange, IP20, 6mm hub Shaft Z.0T 2-eared flange, IP20, 8mm hub Shaft | BE BiSS-C AS NRZ (2.5Mbps) AE NRZ (5Mbps) SG SSI Gray | A -40°C...+85°C B -40°C...+110°C | 00 8 pole PCB connector, axial A5 8 pole PCB connector, axial + 0.5m cable |
| ¹ Type: AM34H : High performance, Absolute accuracy up to $\pm 80''$ (after autocalibration) AM34L : Standard performance, Absolute accuracy up to $\pm 120''$ (after autocalibration) | | | | | | |

ACCESSORIES

Debug cable
Part Nr. : 118138-0500



Debug cable with button
+ DB9 connector
Part Nr. : 118399-0001



| PIN | Color | Signal | PIN | Color | Signal |
|-----|-------------|-------------------------|-----|-------------|---------------------------|
| 1A | Transparent | Shield | 1B | Purple | $\overline{\text{SET}}^1$ |
| 2A | Green | DATA+ ² | 2B | Green/Black | DATA- ² |
| 3A | Blue | CLOCK+/SD+ ³ | 3B | Blue/Black | CLOCK-/SD- ³ |
| 4A | Red | VDD | 4B | Black | GND |

¹ SET setting (low level active):

- Single click (short connect GND more than 0.1 seconds) : do accuracy autocalibration
- Double click (interval less than 1 second): preset position to zero

² Debugging interface AS/AE: 2A/2B no wiring; Interface BE/SG: 2A connects to DATA+, 2B connects to DATA-.

³ Debugging interface AS/AE: 3A connects to SD+, 3B connects to SD-. Interface BE/SG: 3A connects to CLCOK+, 3B connects to CLOCK-.

| PIN | Color | Signal | PIN | Color | Signal |
|-----|------------|-------------------------|--------|-------------|---------------------------|
| 1 | | | 6 | Black | GND |
| 2 | Blue | CLOCK+/SD+ ³ | 7 | Green | DATA+ ² |
| 3 | Blue/Black | CLOCK-/SD- ³ | 8 | Green/Black | DATA- ² |
| 4 | Red | +5V | 9 | | |
| 5 | | | Button | Purple | $\overline{\text{SET}}^1$ |

¹ SET setting (low level active, connected to button):

- Single click (short connect GND more than 0.1 seconds) : do accuracy autocalibration
- Double click (interval less than 1 second): preset position to zero

Cable shield have been connected to metal housing of DB9 connector.

² Debugging interface AS/AE: PIN 7 and 8 no wiring; Interface BE/SG: PIN 7 connects to DATA+, PIN 8 connects to DATA-.

³ Debugging interface AS/AE: PIN 2 connects to SD+, PIN 3 connects to SD-. Interface BE/SG: PIN 2 connects to CLCOK+, PIN 3 connects to CLOCK-.

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