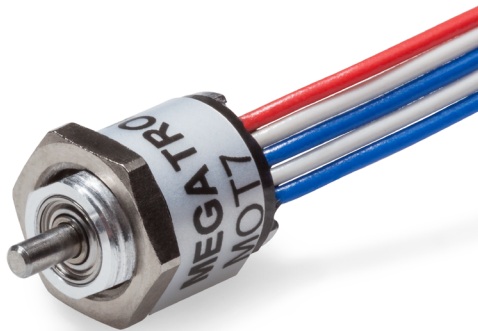


# Data Sheet for Angle Sensors

## Optical Encoders

## Series MOT7



- Miniature rotary encoder
- Only 7 mm housing diameter and 8mm housing depth
- 1.5 mm shaft diameter
- Ball bearing
- 2 channels and index
- 5V supply voltage
- Open collector output

The MOT7 is the favourable entry into the world of optical miniature encoders. The robust construction based on a metal housing with ball bearing are characteristics for a long product life.

### Elektrische Daten

|                             |                               |
|-----------------------------|-------------------------------|
| Output signal               | A, B, Z                       |
| Number of pulses            | 100, 200, 400 pulses per rev. |
| Output voltage low          | ≤ 0,4 V                       |
| Limit frequency             | 100 kHz                       |
| Supply voltage              | 5 VDC ±10%                    |
| Power consumption (no load) | ≤ 30 mA                       |
| Output capacity             | < 20 mA                       |
| Max. pull-up-voltage        | 13.2 V                        |
| Insulation voltage 1.)      | 100 VAC, 1 min                |
| Insulation resistance 1.)   | 20 MOhm @ 100 VDC             |
| Output electronics          | Open Collector                |
| Switch-on delay             | max. 1 µs                     |

### Mechanical and Environmental Data, Miscellaneous

|  |  |
|--|--|
| Mechanical angle of rotation /stroke 1.)         | 360° without stop  |
| Bearing  | Ball bearing   |
| Max. operational speed                           | 6000 rpm   |
| Shaft acceleration                               | 1x10 <sup>5</sup> rad/s <sup>2</sup>                     |
| Moment of inertia                                | 1x10 <sup>-9</sup> kg • m <sup>2</sup>                   |
| Operational torque @ ambient temperature 1.) 2.) | ≤ 0.03 Ncm   |
| Operating temperature range                      | -10..+80 °C  |
| Storage temperature range                        | -20..+80 °C  |
| Protection grade standard (IEC 60529)            | IP50   |
| Vibration (IEC 68-2-6, Test Fc)                  | 55 Hz; 1.5 mm; each 2 h in X, Y, Z direction             |
| Shock (IEC 68-2-27, Test Ea)                     | 490 m/s <sup>2</sup> , each 3 times in X, Y, Z direction |

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Optical Encoders

Series MOT7

## Mechanical and Environmental Data, Miscellaneous

|  |   |
|--|---|
| Housing diameter   | 7.2 mm                                    |
| Housing depth  | max. 8 mm                                 |
| Shaft diameter   | 1.5 mm                                    |
| Shaft type   | Solid shaft                               |
| Max. radial load   | < 1.90 N                                  |
| Max. axial load  | < 0.98 N                                  |
| Connection type  | Flatband cable with single strands 500 mm |
| Connection position  | Radial                                    |
| Sensor mounting  | Bushing                                   |
| Mass   | app. 5 g                                  |
| Fastening parts included in delivery                           | Hex nut M6 x 0.5                          |
| Fastening torque mounting nut                                  | < 2.53 Nm                                 |
| Material shaft   | Stainless steel                           |
| Material housing   | Aluminium                                 |
| Material disc  | Metal                                     |
| Immunity ESD, human body model<br>(MIL-STD-883, Method 3015.8) | ±4 kV (contact)<br>±8 kV (air)            |

1.) According IEC 60393

2.) Determined by climatic conditions according to IEC 68-1, para. 5.3.1 without load collectives

# Data Sheet for Angle Sensors

Optical Encoders

Series MOT7

## Order Code

| Description  | Selection: standard=black/bold, possible options=grey/cursive |                   |                   |   |    |   |                  |
|--|---|-------------------|-------------------|---|----|---|------------------|
| <b>Series</b>  | <b>MOT7</b>   |                   |                   |   |    |   |                  |
| <b>Shaft diameter, shaft length:</b><br>Standard: Ø1.5 x 3 mm shaft length<br><i>Option other shaft length in mm</i> |   | -<br><i>Ax,xx</i> |                   |   |    |   |                  |
| <b>Resolution in pulses per revolution:</b><br>Standard: 100 Imp./U<br>Standard: 200 Imp./U<br>Standard: 400 Imp./U  |   |                   | 100<br>200<br>400 |   |    |   |                  |
| <b>Supply voltage:</b><br>Standard: 5 V  |   |                   |                   | 5 |    |   |                  |
| <b>Output signal:</b><br>Standard: A+B+Z (index)   |   |                   |                   |   | BZ |   |                  |
| <b>Output electronics:</b><br>Standard: Open Collector   |   |                   |                   |   |    | K |                  |
| <b>Electrical connection:</b><br>Standard: Flatband cable 500 mm<br><i>Option user defined cable length in m</i>     |   |                   |                   |   |    |   | -<br><i>X,XX</i> |

## Order example MOT7

### Requirement:

Shaft diameter 1,5 mm, shaft length 3 mm, resolution 100 pulses per revolution, supply voltage 5 V, 2 channels + index, output electronic open collector, flatband cable 500 mm

**Order example:** MOT 7 100 5 BZ K

## For higher quantities or on-going demand, additional options are available as described below

For example:

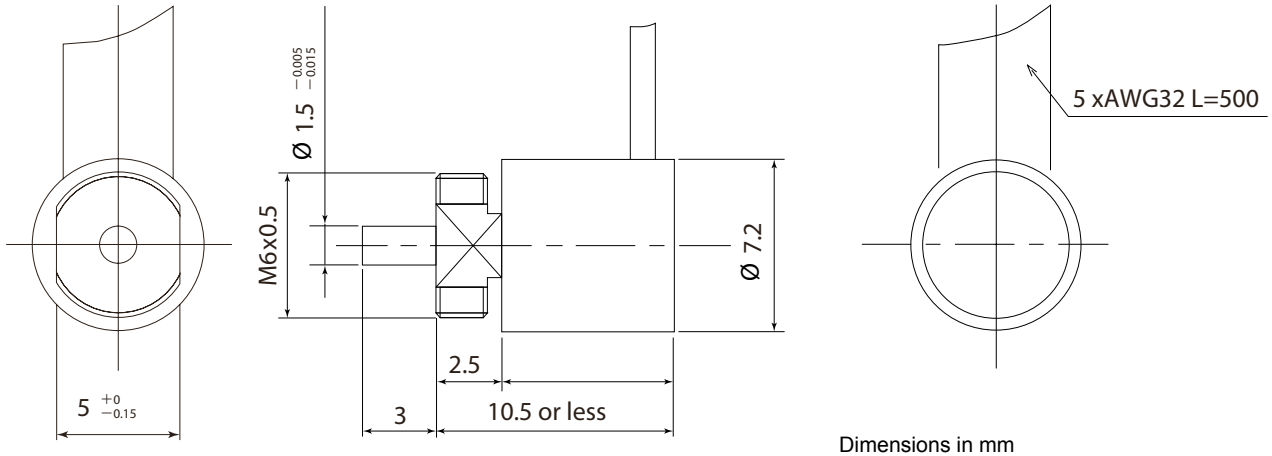
- Other resolutions
- Specials shaft design
- Special connector and cable design
- Other operational torque

# Data Sheet for Angle Sensors

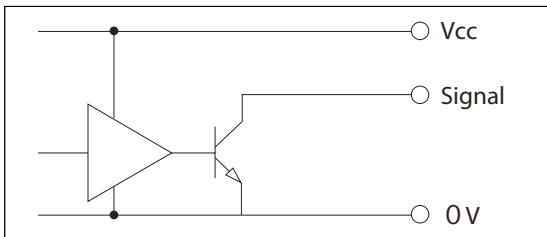
Optical Encoders

Series MOT7

## Technical Drawing



## Output Circuit



| Cable and assignment |                   |       |
|----------------------|-------------------|-------|
| 1                    | Supply voltage    | red   |
| 2                    | Ground            | white |
| 3                    | Channel B         | blue  |
| 4                    | Channel A         | white |
| 5                    | Channel Z (Index) | blue  |

## Wave Form

