

# MQ2003



## Magnetic sensor

MQ23005BFRKG/B/AM/IO/WFI/ZH



- 1 LED green
- 2 LED yellow



### Product characteristics

|                         |  |
|-------------------------|--|
| Electrical design       | PNP/NPN; (parameterisable)                         |
| Output function         | normally open / normally closed; (parameterisable) |
| Sensing range [mm]      | 5  |
| Communication interface | IO-Link  |
| Housing                 | rectangular  |
| Dimensions [mm]         | 20 x 8 x 32  |

### Application

|                 |              |
|-----------------|--------------|
| Special feature | anti-spatter |
| Media           | ferrous only |

### Electrical data

|                              |            |
|------------------------------|------------|
| Operating voltage [V]        | 10...30 DC |
| Rated insulation voltage [V] | 60         |
| Current consumption [mA]     | < 30       |
| Protection class             | III        |
| Reverse polarity protection  | yes        |
| Power-on delay time [s]      | < 0.3      |

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| Outputs  |   |                   |
|--|---|-------------------|
| Electrical design                                    | PNP/NPN; (parameterisable)  |                   |
| Output function                                      | normally open / normally closed; (parameterisable)  |                   |
| Max. voltage drop switching output DC [V]            | 2.5   |                   |
| Max. leakage current [mA]                            | 0.1   |                   |
| Permanent current rating of switching output DC [mA] | 100   |                   |
| Short-time current rating of switching output [mA]   | 100   |                   |
| Switching frequency DC [Hz]                          | 300   |                   |
| Notes on switching frequency                         | suppression of extraneous fields: 10  |                   |
| Short-circuit protection                             | yes   |                   |
| Type of short-circuit protection                     | pulsed  |                   |
| Overload protection                                  | yes   |                   |
| Detection zone                                       |   |                   |
| Sensing range [mm]                                   | 5   |                   |
| Real sensing range Sr [mm]                           | 5 ± 10 %  |                   |
| Operating distance [mm]                              | 0...4.05  |                   |
| Accuracy / deviations                                |   |                   |
| Correction factor                                    | steel: 1  |                   |
| Hysteresis [% of Sr]                                 | < 10  |                   |
| Switch point drift [% of Sr]                         | 10  |                   |
| Repeatability [% of Sr]                              | 10  |                   |
| Software / programming                               |   |                   |
| Parameter setting options                            | hysteresis / window; switch-off delay; Switch-on and switch-off delay; switch-on operations; Teach function                             |                   |
| Interfaces   |   |                   |
| Communication interface                              | IO-Link   |                   |
| Transmission type                                    | COM2 (38,4 kBaud)   |                   |
| IO-Link revision                                     | 1.1   |                   |
| SDCI standard  | IEC 61131-9 CDV   |                   |
| Profiles   | Smart Sensor: Identification and diagnosis; Multi-channel, two setpoint switching sensor, type 0 Generic Profiled Sensor; Teach Channel |                   |
| SIO mode   | yes   |                   |
| Required master port type                            | A   |                   |
| Min. process cycle time [ms]                         | 9.6   |                   |
| IO-Link functions (cyclical)                         | function  | bit length        |
|  | process value   | 16                |
|  | device status   | 4                 |
|  | binary switching information  | 4                 |
| IO-Link functions (acyclical)                        | application specific tag; operating hours counter; switching cycles counter   |                   |
| Supported DeviceIDs                                  | Type of operation   | IO-Link device ID |
|  | Default   | 829d / 00033Dh    |
| Note   | For further information please see the IODD PDF file at "Downloads"   |                   |

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| Operating conditions          |                           |  |
|-------------------------------|---------------------------|--|
| Ambient temperature           | [°C]                      | -25...80   |
| Storage temperature           | [°C]                      | -30...85   |
| Protection                    |                           | IP 65; IP 67   |
| Tests / approvals             |                           |  |
| EMC                           | EN 61000-4-2 ESD          | 4 kV CD / 8 kV AD  |
|                               | EN 61000-4-3 HF radiated  | 10 V/m   |
|                               | EN 61000-4-4 Burst        | 2 kV   |
|                               | EN 61000-4-6 HF conducted | 10 V   |
|                               | EN 55011                  | class B  |
| Vibration resistance          | EN 60068-2-6 Fc           | 20 g (10...3000 Hz) / 50 sweep cycles per frequency; 1 octave per minute in 3 axes |
| Shock resistance              | EN 60068-2-27 Ea          | 100 g 11 ms half-sine; 3 shocks each in every direction of the 3 coordinate axes   |
| Continuous shock resistance   | EN 60068-2-27             | 40 g 6 ms; 4000 shocks each in every direction of the 3 coordinate axes            |
| MTTF                          | [years]                   | 1976   |
| UL approval                   | Ta                        | -25...60 °C  |
|                               | Enclosure type            | Type 1   |
|                               | voltage supply            | Limited Voltage/Current  |
|                               | UL Approval no.           | C011   |
|                               | File number UL            | E174191  |
| Mechanical data               |                           |  |
| Weight                        | [g]                       | 81.7   |
| Housing                       |                           | rectangular  |
| Mounting                      |                           | flush mountable  |
| Dimensions                    | [mm]                      | 20 x 8 x 32  |
| Materials                     |                           | diecast zinc anti-spatter; LED window: TPU; potting: PUR                           |
| Displays / operating elements |                           |  |
| Display                       | Display operation         | 1 x LED, green   |
|                               | switching status          | 1 x LED, yellow  |
| Remarks                       |                           |  |
| Pack quantity                 |                           | 1 pcs.   |

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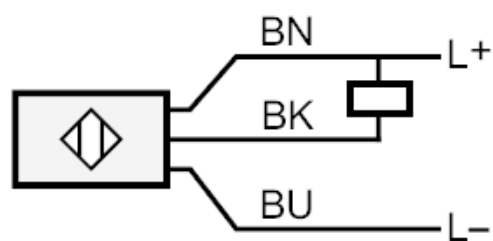
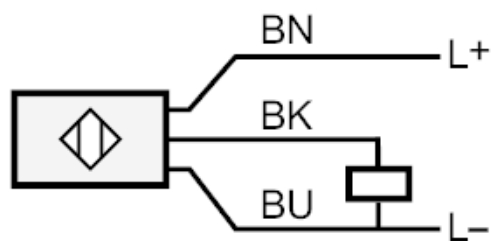
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### Electrical connection

Cable: 2 m, PUR, Ø 4.9 mm; flame-retardant (IEC 60332-2, UL: FT2); 3 x 0.34 mm<sup>2</sup>

### Connection



#### Core colours

|    |                     |
|----|---------------------|
| BK | black OUT / IO-Link |
| BN | brown               |
| BU | blue                |