

# Proximity switch SOIA-M30PNB-PNLK-M12

Part number: 8161209

**FESTO**



## Data sheet

| Feature                                      | Value                                                       |
|----------------------------------------------|-------------------------------------------------------------|
| Design                                       | Round                                                       |
| Conforms to standard                         | EN 60947-5-2                                                |
| Approval                                     | c UL us listed (OL)                                         |
| CE mark (see declaration of conformity)      | To EU EMC Directive<br>In accordance with EU RoHS Directive |
| UKCA marking (see declaration of conformity) | To UK instructions for EMC<br>To UK RoHS instructions       |
| Note on materials                            | RoHS-compliant                                              |
| Measured variable                            | Position<br>Path/displacement                               |
| Measuring principle                          | Inductive                                                   |
| Measurement method                           | Distance sensor                                             |
| Rated operating distance                     | 0 mm...20 mm                                                |
| Note on rated operating distance             | SSC1.SP1: 17.0 mm<br>SSC2.SP1: 10.0 mm<br>Factory setting   |
| Displacement measuring range                 | 0 mm...20 mm                                                |
| Ambient temperature                          | -25 °C...70 °C                                              |
| Displacement resolution                      | 0.01 mm                                                     |
| Repetition accuracy                          | ±0.2 mm                                                     |
| Temperature drift                            | ±10%                                                        |
| Switching output                             | PNP/NPN, switchable<br>Push-pull                            |
| Switching element function                   | Switchable                                                  |
| Note on hysteresis                           | Factory setting: 5% FS                                      |
| Hysteresis                                   | 1 %FS...20 %FS                                              |
| Linearity error in ± %FS                     | 3 %                                                         |
| Switch-on time                               | 100 ms                                                      |
| Measurement range speed                      | 1 mm/s...3000 mm/s                                          |
| Accuracy speed                               | +/- 20% FS                                                  |
| Repetition accuracy speed                    | +/- 5% FS                                                   |
| Acceleration value range                     | -3270 m/s²...3270 m/s²                                      |
| Max. switching frequency                     | 400 Hz                                                      |

| Feature                                              | Value                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Max. output current                                  | 100 mA                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Voltage drop                                         | 1 V                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Inductive protective circuit                         | Integrated                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Min. load current                                    | 0 mA                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Off-state current                                    | 0.03 mA                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Short circuit current rating                         | Pulsed                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Overload protection                                  | Available                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Protocol                                             | IO-Link®                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| IO-Link, revision ID                                 | V1.1                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| IO-Link, device profile                              | Function Object detection<br>Function Product URI<br>Function Teach two values<br>Identification and diagnostics<br>Smart sensor - SSP 4.1.1                                                                                                                                                                                                                                                                                                                      |
| IO-Link, transmission rate                           | COM2                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| IO-Link, SIO-Mode support                            | Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| IO-Link, port type                                   | Class A                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| IO-Link, process data length input                   | 32 bit                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| IO-Link, Process data content IN                     | Distance measurement 16 bit MDC<br>Distance monitoring 2 bit SSC<br>Maintenance warning 1 bit DSC<br>Motion diagnostic 2 bit DSC                                                                                                                                                                                                                                                                                                                                  |
| IO-Link, Service data IN                             | Acceleration averages 32 bit<br>Acceleration range 32 bit<br>Acceleration value 16 bit<br>Maintenance monitor operating time 32 bit<br>Maintenance monitor measurement 96 bit<br>Maintenance monitor temperature 64 bit<br>Maintenance diagnostic 7 bit<br>Maintenance monitor SSC 64 bit<br>Speed 1 averages 32 bit<br>Speed 1 value 16 bit<br>Velocity 1 value range 32 bit<br>Speed 2 averages 32 bit<br>Speed 2 value 16 bit<br>Velocity 2 value range 32 bit |
| IO-Link, minimum cycle time                          | 3.2 ms                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| IO-Link, Data storage required                       | 308 Byte                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Operational voltage range DC                         | 10 V...30 V                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Residual ripple                                      | 20%                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| No-load supply current                               | 17 mA                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Reverse polarity protection                          | yes                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Electrical connection 1, connection type             | Plugs                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Electrical connection 1, connector system            | M12x1, A-coded to EN 61076-2-101                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Electrical connection 1, number of connections/cores | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Electrical connection 1, type of mounting            | Screw-type lock<br>Not rotatable                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Size                                                 | M30                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Tightening torque                                    | 0 Nm...30 Nm                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Mounting type                                        | Not flush                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Product weight                                       | 104 g                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Housing colour                                       | Blue<br>grey                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Material housing                                     | Brass<br>PBT                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Material locknut                                     | Brass                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Reference material                                   | 60 mm x 60 mm x 1 mm<br>Structural steel, 1.0037, S235JR                                                                                                                                                                                                                                                                                                                                                                                                          |
| Switching status indication                          | Yellow LED                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Storage temperature                                  | -40 °C...85 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

| Feature                        | Value                     |
|--------------------------------|---------------------------|
| Degree of protection           | IP65<br>IP67              |
| Housing pressure resistance    | 1 bar                     |
| Immunity to magnetic fields    | < 50 µT                   |
| Corrosion resistance class CRC | 3 - high corrosion stress |
| LABS (PWIS) conformity         | VDMA24364-B2-L            |