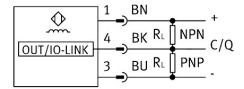
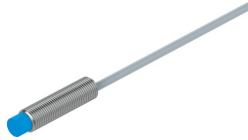


# Distance sensor SOIA-M8PNB-PNLK-LE

Part number: 8161196

**FESTO**



[PDF General operating condition](#)

## Data sheet

| Feature                                      | Value                                                   |
|----------------------------------------------|---------------------------------------------------------|
| Design                                       | Round                                                   |
| Conforms to standard                         | EN 60947-5-2                                            |
| Symbol                                       | 00997507                                                |
| Certification                                | c UL us - Listed (OL)                                   |
| CE marking (see declaration of conformity)   | As per EU EMC directive<br>As per 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>Displacement                                |
| Measuring principle                          | Inductive                                               |
| Method of measurement                        | Distance sensor                                         |
| Rated operating distance                     | 0 mm ... 4 mm                                           |
| Note on rated operating distance             | SSC1.SP1: 3.4 mm<br>SSC2.SP1: 2.0 mm<br>Factory setting |
| Position measuring range                     | 0 mm ... 4 mm                                           |
| Ambient temperature                          | -25 °C ... 70 °C                                        |
| Displacement resolution                      | 0.01 mm                                                 |
| Repetition accuracy                          | ±0.04 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 FS                           | 3 %                                                     |
| On time                                      | <100 ms                                                 |
| Measurement range speed                      | 1 mm/s ... 1100 mm/s                                    |
| Accuracy speed                               | +/- 20 %FS                                              |
| Repetition accuracy speed                    | +/- 5 %FS                                               |
| Acceleration value range                     | -3270 m/s <sup>2</sup> ... 3270 m/s <sup>2</sup>        |
| Max. switching frequency                     | 1400 Hz                                                 |
| Max. output current                          | 100 mA                                                  |
| Voltage drop                                 | ≤1 V                                                    |
| Inductive protective circuit                 | Installed                                               |

| Feature                                       | Value                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Minimum load current                          | 0 mA                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Residual current                              | 0.03 mA                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Short-circuit protection                      | 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 diagnosis<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 contents 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>Velocity 1 averages 32 bit<br>Velocity 1 value 16 bit<br>Velocity 1 value range 32 bit<br>Velocity 2 averages 32 bit<br>Velocity 2 value 16 bit<br>Velocity 2 value range 32 bit |
| IO-Link®, minimum cycle time                  | 3.2 ms                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| IO-Link®, data memory required                | 308 byte                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| DC operating voltage range                    | 10 V ... 30 V                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Note on operating voltage range DC            | 18 - 30 V in IO-Link® mode                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Residual ripple                               | 20 %                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Idle current                                  | 17 mA                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Reverse polarity protection                   | yes                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Electrical connection 1, connection type      | Cable                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Electrical connection 1, number of pins/wires | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Cable length                                  | 2.5 m                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Color cable sheath                            | Gray                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Material of cable sheath                      | PUR                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Cable diameter                                | 2.9 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Nominal conductor cross section               | 0.14 mm <sup>2</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Size                                          | M8                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Tightening torque                             | 0 Nm ... 3 Nm                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Mounting type                                 | Not flush                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Product weight                                | 38 g                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Housing colour                                | Blue<br>Gray                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Housing material                              | PBT                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Lock nut material                             | Brass                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Reference material                            | 12 mm x 12 mm x 1 mm<br>Structural steel, 1.0037, S235JR                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Switching status indication                   | LED yellow                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Storage temperature                           | -40 °C ... 85 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

| Feature                                         | Value                     |
|-------------------------------------------------|---------------------------|
| Degree of protection                            | IP65<br>IP67              |
| Resistance to sensor fitting pressure           | 1 bar                     |
| Resistance to interference from magnetic fields | < 50 µT                   |
| Insulation voltage                              | 30 V                      |
| Surge resistance                                | 0.5 kV                    |
| Corrosion resistance class (CRC)                | 3 - High corrosion stress |
| LABS (PWIS) conformity                          | VDMA24364-B2-L            |