

More Precision



optoNCDT 1401 Compact CMOS-Sensors

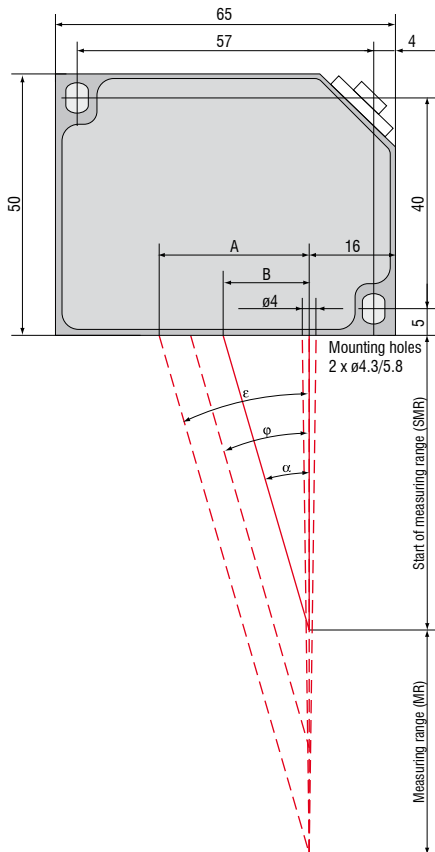
The miniature optoNCDT 1401 Series is well known as one of the leading sensors in this price/performance level. The very small construction enables integration into small spaces. Despite its compact design, the optoNCDT 1401 Series is ideally suited for integration into machines and automation applications.

| Model | | ILD | ILD | ILD | ILD | ILD | ILD | ILD |
|-------------------------------------|---------|--|--------------------|-------------------|-------------------|--------------------|--------------------|----------------------|
| | | 1401-5 | 1401-10 | 1401-20 | 1401-50 | 1401-100 | 1401-200 | 1401-250VT |
| Measuring range | | 5 mm | 10 mm | 20 mm | 50 mm | 100 mm | 200 mm | 250 mm |
| Start of measuring range | SMR | 20 mm | 20 mm | 30 mm | 45 mm | 50 mm | 60 mm | 100 mm |
| Midrange | MMR | 22.5 mm | 25 mm | 40 mm | 70 mm | 100 mm | 160 mm | 225 mm |
| End of measuring range | EMR | 25 mm | 30 mm | 50 mm | 95 mm | 150 mm | 260 mm | 350 mm |
| Linearity | | 9 μm | 18 μm | 36 μm | 90 μm | 180 μm | 360 μm | 1200 μm |
| | | $\leq \pm 0.18\%$ FSO | | | | | | $\leq \pm 0.5\%$ FSO |
| Resolution | static | 0.6 μm | 1 μm | 2 μm | 5 μm | 10 μm | 20 μm | 50 μm |
| | | 0.01 % FSO* | | | | | | 0.02 % FSO* |
| | dynamic | 3 μm | 5 μm | 10 μm | 25 μm | 50 μm | 100 μm | 300 μm |
| | | 0.05 % FSO | | | | | | 0.12 % FSO |
| Measuring rate | | 1 kHz | | | | | | |
| Light source | | semiconductor laser <1 mW, 670 nm (red) | | | | | | |
| Laser safety class | | class 2 IEC 60825-1 : 2001-11 | | | | | | |
| Spot diameter | SMR | 110 μm | 110 μm | 210 μm | 800 μm | 1000 μm | 2100 μm | 130 μm |
| | MMR | 450 μm | 830 μm | 335 μm | 110 μm | 130 μm | 2200 μm | 4000 μm |
| | EMR | 830 μm | 1600 μm | 830 μm | 730 μm | 760 μm | 2100 μm | 8000 μm |
| Protection class | | IP 67 | | | | | | |
| Shock | | 15 g / 6 ms (IEC 68-2-29) | | | | | | |
| Vibration | | 2 g / 20 Hz ... 500 Hz (IEC 68-2-6) | | | | | | 20 g |
| Weight (without cable) | | appr. 100 g | | | | | | appr. 140 g |
| Temperature stability | | 0.03 % FSO/°C | | | 0.08 % FSO/°C | | | |
| Operation temperature | | 0 ... +55 °C | | | | | | |
| Storage temperature | | -20 ... +70 °C | | | | | | |
| Output | analog | 4 ... 20 mA (1 ... 5 V with cable PC 1401-3/U) | | | | | | |
| | digital | RS232 | | | | | | |
| Supply | | 11 ... 30 VDC, typically 24 VDC / 50 mA | | | | | | |
| Electronics | | integrated signal processor | | | | | | |
| Electromagnetic compatibility (EMC) | | EN 50081-1; EN 61000-6-2 | | | | | | |

FSO = Full scale output All specifications apply for a diffusely reflecting matt white ceramic target
 *) with averaging factor 64
 SMR = Start of measuring range MMR = Midrange EMR = End of measuring range

optoNCDT 1401 Dimensions and Accessories

optoNCDT 1401



Accessories optoNCDT 1401

Supply and output cable (all cables available in 90° version)

- PC 1401-3/I (3 m)
- PC 1401-6/I (6 m)
- PC 1401-3/U (3 m, with integral resistance, output 1 ... 5 VDC)
- PC 1401-6/U (6 m, with integral resistance, output 1 ... 5 VDC)
- PC 1401-3/I/RS232 (3 m, for analog and digital output 9-pin connector, for RS232-interface)

Protective housing

SGH 1800

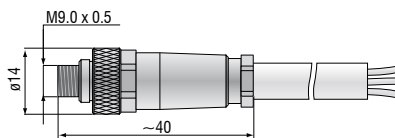
Power supply

PS 2010 (for top-hat rail mounting; L/W/H 120x120x40 mm
Input 115 / 230 VAC selectable; output 24 VDC / 2.5 A)

| MR | SMR | α | ϕ | ϵ | A | B |
|-------|-----|----------|--------|------------|------|------|
| 5 | 20 | 33.4° | 36.1° | 38° | 19.5 | 13.2 |
| 10 | 20 | 33.4° | 33.8° | 34.1° | 20.3 | 13.2 |
| 20 | 30 | 28.6° | 27.1° | 26.4° | 24.8 | 16.3 |
| 50 | 45 | 24.4° | 19.8° | 16.8° | 28.6 | 21.4 |
| 100 | 50 | 24.3° | 15.0° | 11.4° | 30.3 | 22.6 |
| 200 | 60 | 21.1° | 9.6° | 6.8° | 30.8 | 23 |
| 250VT | 100 | 13.8° | 7.1° | 5.2° | 32.1 | 24.6 |

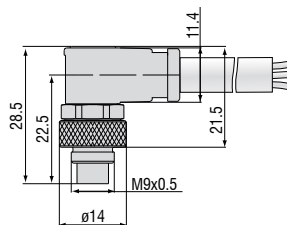
Connector axial

Article Number: 0323142



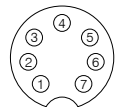
Connector radial

Article Number: 0323203



7-pin-connector

(view on solder termination side of male inserts)



Pin assignment voltage/RS 232 7x1x0.14

| Pin-Nr. | Function | Cable colors |
|---------|----------------------|--------------|
| 1 | Error | green |
| 2 | Laser on/off | yellow |
| 3 | RX232 | blue |
| 4 | TX232 | pink |
| 5 | 4 ... 20 mA | grey |
| 6 | GND | brown |
| 7 | Supply 11 ... 30 VDC | white |