

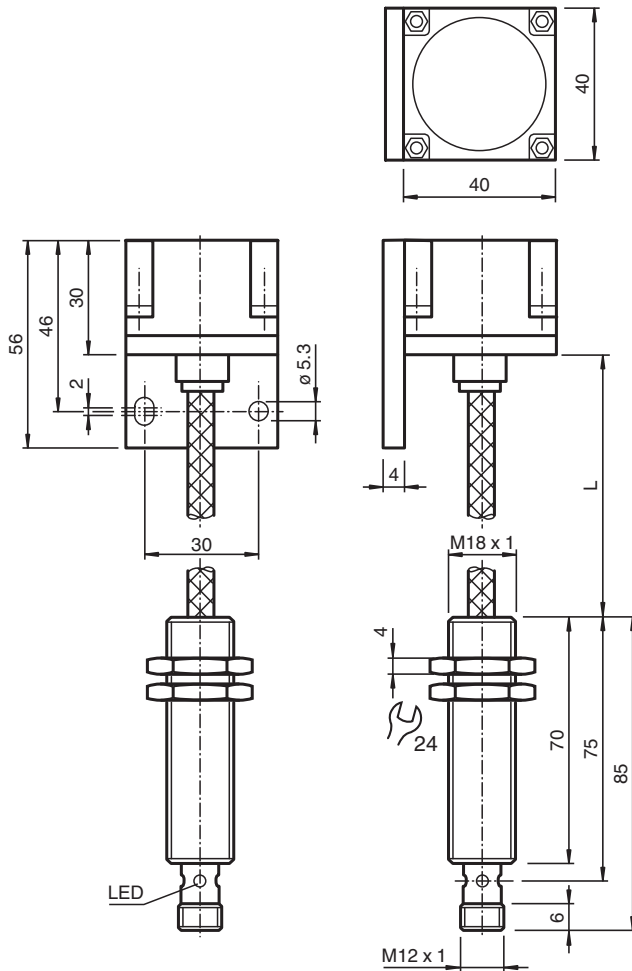
## Inductive sensor

NCN20-F35-A2-250-10M-V1

- Comfort series
- Extended temperature range of sensor component  
0 ... 250 °C (0 ... 482 °F)
- 10 m cable between sensor and amplifier with metal case
- Suitable for drag chains and abrasion resistant
- Minimum bending radius of 30 cm for movable laying



### Dimensions



### Technical Data

#### General specifications

|                    |               |
|--------------------|---------------|
| Switching function | complementary |
| Output type        | PNP           |

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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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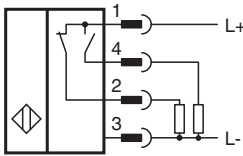
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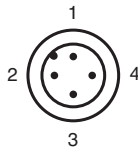
## Technical Data

|                                                 |       |                                                                                                                                                                                                                                                                           |
|-------------------------------------------------|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rated operating distance                        | $s_n$ | 20 mm                                                                                                                                                                                                                                                                     |
| Installation                                    |       | flush mountable                                                                                                                                                                                                                                                           |
| Output polarity                                 |       | DC                                                                                                                                                                                                                                                                        |
| Assured operating distance                      | $s_a$ | 0 ... 16.2 mm                                                                                                                                                                                                                                                             |
| Reduction factor $r_{Al}$                       |       | 0.5                                                                                                                                                                                                                                                                       |
| Reduction factor $r_{Cu}$                       |       | 0.5                                                                                                                                                                                                                                                                       |
| Reduction factor $r_{304}$                      |       | 0.6 ... 1                                                                                                                                                                                                                                                                 |
| Output type                                     |       | 4-wire                                                                                                                                                                                                                                                                    |
| Mounting angle                                  |       | Al                                                                                                                                                                                                                                                                        |
| Amplifier housing                               |       | Stainless steel                                                                                                                                                                                                                                                           |
| <b>Nominal ratings</b>                          |       |                                                                                                                                                                                                                                                                           |
| Operating voltage                               | $U_B$ | 10 ... 30 V                                                                                                                                                                                                                                                               |
| Switching frequency                             | $f$   | 0 ... 20 Hz                                                                                                                                                                                                                                                               |
| Hysteresis                                      | $H$   | 0.3 ... 5 typ. 2 %                                                                                                                                                                                                                                                        |
| Reverse polarity protection                     |       | reverse polarity protected                                                                                                                                                                                                                                                |
| Short-circuit protection                        |       | pulsing                                                                                                                                                                                                                                                                   |
| Voltage drop                                    | $U_d$ | $\leq 3$ V                                                                                                                                                                                                                                                                |
| Operating current                               | $I_L$ | 0 ... 200 mA                                                                                                                                                                                                                                                              |
| No-load supply current                          | $I_0$ | $\leq 25$ mA                                                                                                                                                                                                                                                              |
| Time delay before availability                  | $t_v$ | $\leq 20$ ms                                                                                                                                                                                                                                                              |
| Switching state indicator                       |       | Multihole-LED, yellow                                                                                                                                                                                                                                                     |
| <b>Functional safety related parameters</b>     |       |                                                                                                                                                                                                                                                                           |
| MTTF <sub>d</sub>                               |       | 7515 a                                                                                                                                                                                                                                                                    |
| Mission Time ( $T_M$ )                          |       | 20 a                                                                                                                                                                                                                                                                      |
| Diagnostic Coverage (DC)                        |       | 0 %                                                                                                                                                                                                                                                                       |
| <b>Compliance with standards and directives</b> |       |                                                                                                                                                                                                                                                                           |
| Standard conformity                             |       |                                                                                                                                                                                                                                                                           |
| Standards                                       |       | EN IEC 60947-5-2                                                                                                                                                                                                                                                          |
| <b>Approvals and certificates</b>               |       |                                                                                                                                                                                                                                                                           |
| UL approval                                     |       | cULus Listed, General Purpose, Class 2 Power Source                                                                                                                                                                                                                       |
| CCC approval                                    |       | CCC approval / marking not required for products rated $\leq 36$ V                                                                                                                                                                                                        |
| <b>Ambient conditions</b>                       |       |                                                                                                                                                                                                                                                                           |
| Ambient temperature                             |       | 0 ... 250 °C (32 ... 482 °F)                                                                                                                                                                                                                                              |
| <b>Mechanical specifications</b>                |       |                                                                                                                                                                                                                                                                           |
| Connection type                                 |       | Connector plug M12 x 1, 4-pin                                                                                                                                                                                                                                             |
| Cable version                                   |       | PFA cable, with armour of stainless steel                                                                                                                                                                                                                                 |
| Core cross section                              |       | 3 x 0.34, screened                                                                                                                                                                                                                                                        |
| Housing material                                |       | PTFE / Al / 1.4305 / AISI 303                                                                                                                                                                                                                                             |
| Sensing face                                    |       | PTFE                                                                                                                                                                                                                                                                      |
| Degree of protection                            |       | amplifier IP67<br>sensor IP40                                                                                                                                                                                                                                             |
| <b>Dimensions</b>                               |       |                                                                                                                                                                                                                                                                           |
| Height                                          |       | 40 mm                                                                                                                                                                                                                                                                     |
| Width                                           |       | 44 mm                                                                                                                                                                                                                                                                     |
| Length                                          |       | 56 mm                                                                                                                                                                                                                                                                     |
| Cable length                                    |       | L = 10 m                                                                                                                                                                                                                                                                  |
| Note                                            |       | - amplifier 0 °C ... 70 °C<br>- $r_{1.4305}$ dep. on thickness of measurement plate d:<br>$r_{1.4305} = 1$ for $d < 1$ mm<br>Additional accessory: Protective cover SH-F35 is available for use in areas where there is moisture and as a means of mechanical protection. |

Connection



Connection Assignment



Wire colors in accordance with EN 60947-5-2

|   |    |         |
|---|----|---------|
| 1 | BN | (brown) |
| 2 | WH | (white) |
| 3 | BU | (blue)  |
| 4 | BK | (black) |

Mounting

Installation Conditions

- The sensor consists of a cylindrical amplifier part and the cubic sensor head. Both main components are inseparably connected with a high temperature cable.
- The following installation conditions shall be observed:
- Install the amplifier in the low temperature area of the plant. Only the sensor head may be exposed to high temperatures.
  - Unwind the high-temperature cable for operation, observing the permissible minimum bending radius.
  - Avoid kinking or pinching the high temperature cable.
  - If the minimum bending radius is not exceeded, the high-temperature cable can be assumed to be suitable for conveyor chains with a maximum of 1 million movement cycles.
  - Mount the sensor so that the front edge of a metallic mounting base does not overhang the front edge of the sensor head. Flush mount of the sensor head on one side is possible. A back-flush installation of the sensors in metallic environment must be avoided at all costs.
  - Observe the maximum tightening torque of 30 Nm for the fastening nuts on the cylindrical amplifier part.

Note

The screws on the sensor head are secured against loosening. The sensor head cannot be opened in a damage-free manner.

Caution!

Function failure in case of mechanical knocks!  
Avoid mechanical knocks to the sensor head. The ferrite core of the sensor coil is hidden directly under the housing cover. Knocks on the sensor head can lead to fracture of the ferrite core and thus to failure of the sensor.

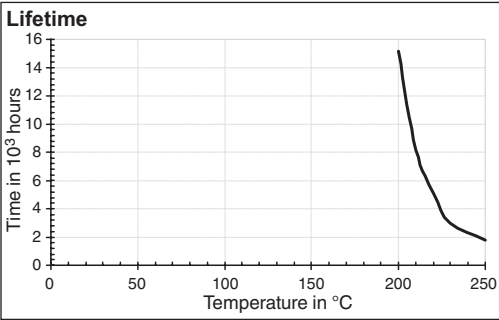
Caution!

Functional failure if there is buckling/crushing stress on the high-temperature cable!  
If the high-temperature cable experiences kinking or crushing stress, the internal structure of the cable is immediately altered to such an extent that this can lead to a loss of function of the sensor.

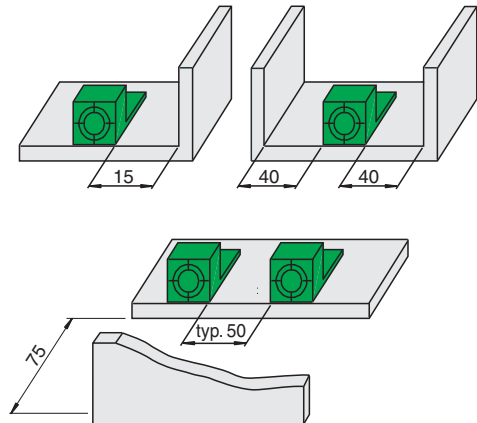
Protecting the sensor from dripping water

In the form of the SH-F35 accessory, Pepperl+Fuchs offers a protective cover for the sensor head of the F35 series. The protective cover is simply plugged onto the sensor head and provides limited protection against dripping water. The SH-F35 protective cover additionally increases the protection of the sensor head against external mechanical impacts.

Installation



Installation:



Accessories:

Protective Cover SH-F35

