



Photoelectric sensors  
W4-3, Photoelectric proximity sensor,  
Background suppression

WTV4-3N2221P04



**Model Name** > [WTV4-3N2221P04](#)  
**Part No.** > [1051481](#)



*Illustration may differ*

#### At a glance

- Sensing range from 4 - 50 mm
- Reliable detection of planar, highly transparent and shiny objects at distances of 20 to 25 mm
- 5-turn potentiometer for precise adjustment
- Large, consistent light spot
- Rugged plastic housing with M3 threaded metal inserts
- IR versions available for detection of jet-black objects with a remission < 1%
- Versions available with linear light spot

#### Your benefits

- Low-cost machine design since shiny and transparent objects are directly detected, making a separate reflector or through-beam system unnecessary
- Less mounting and setup time since no alignment is required
- Rugged mounting system with M3 threaded metal inserts reduces maintenance costs due to a long service life
- Reliable object detection due to best-in-class background suppression and high immunity to ambient light



#### Features

|                                  |                                                        |
|----------------------------------|--------------------------------------------------------|
| Sensor/detection principle:      | Photoelectric proximity sensor, Background suppression |
| Dimensions (W x H x D):          | 16 mm x 39.5 mm x 12 mm                                |
| Housing design (light emission): | Rectangular                                            |
| Sensing range max.:              | 2 mm ... 50 mm <sup>1)</sup>                           |
| Sensing range:                   | 2 mm ... 50 mm <sup>2)</sup>                           |
| Type of light:                   | Infrared light                                         |
| Light source:                    | PinPoint LED <sup>3)</sup>                             |
| Wave length:                     | 880 nm                                                 |
| Adjustment:                      | Potentiometer, 5-turn                                  |
| Light spot size (distance):      | Ø 7 mm (40 mm)                                         |

<sup>1) 2)</sup> Object with 90 % reflectance (referred to standard white DIN 5033) <sup>3)</sup> Average service life of 100,000 h at T<sub>A</sub> = +25 °C

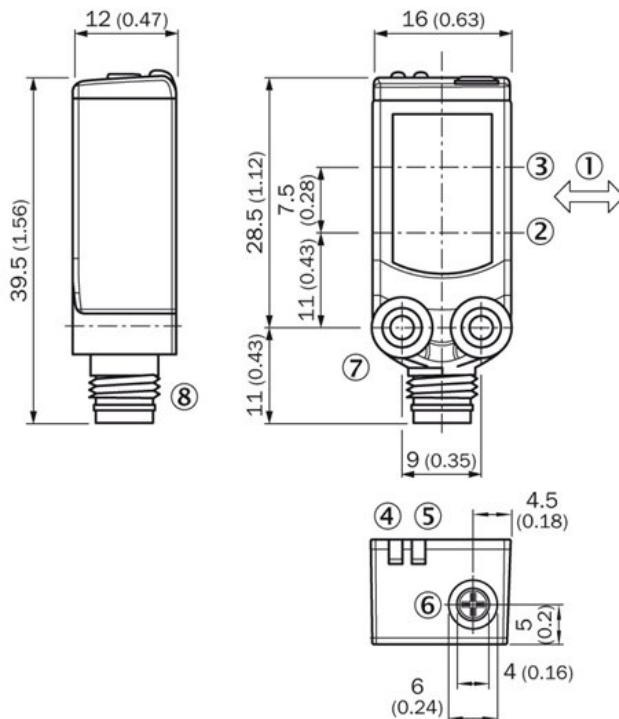
#### Mechanics/electronics

|                    |                                   |
|--------------------|-----------------------------------|
| Supply voltage:    | 10 V DC ... 30 V DC <sup>1)</sup> |
| Ripple:            | < 5 V <sub>pp</sub> <sup>2)</sup> |
| Power consumption: | ≤ 20 mA <sup>3)</sup>             |
| Output type:       | NPN                               |

|                                    |                                                               |
|------------------------------------|---------------------------------------------------------------|
| Output function:                   | Complementary                                                 |
| Switching mode:                    | Light/dark-switching                                          |
| Output current I <sub>max</sub> :: | ≤ 100 mA                                                      |
| Response time:                     | < 2 ms <sup>4)</sup>                                          |
| Switching frequency:               | 1,000 Hz <sup>5)</sup>                                        |
| Connection type:                   | Connector M8, 4-pin                                           |
| Circuit protection:::              | A, C, D <sup>6)</sup> <sup>7)</sup> <sup>8)</sup>             |
| Protection class:                  | III                                                           |
| Special device:                    | ✓                                                             |
| Housing material:                  | ABS, Plastic                                                  |
| Optics material:                   | PMMA                                                          |
| Enclosure rating:                  | IP 66<br>IP 67                                                |
| Special feature:                   | V-optics                                                      |
| Special features:                  | Detection of deep blue solar cells, With mounting bracket DEK |
| Ambient operating temperature:     | -40 °C ... 60 °C                                              |
| Ambient storage temperature:       | -40 °C ... 75 °C                                              |
| UL File No.:                       | NRKH.E181493 & NRKH7.E181493                                  |

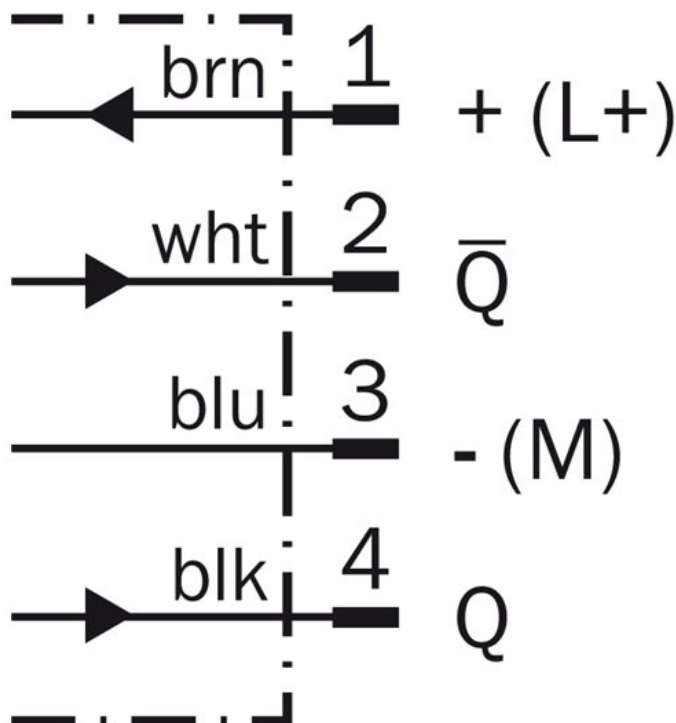
<sup>1)</sup> Limit values    <sup>2)</sup> May not exceed or fall short of V<sub>S</sub> tolerances    <sup>3)</sup> Without load    <sup>4)</sup> Signal transit time with resistive load    <sup>5)</sup> With light/dark ratio 1:1    <sup>6)</sup> A = V<sub>S</sub>  
 connections reverse-polarity protected    <sup>7)</sup> C = interference suppression    <sup>8)</sup> D = outputs overcurrent and short-circuit protected

## Dimensional drawing

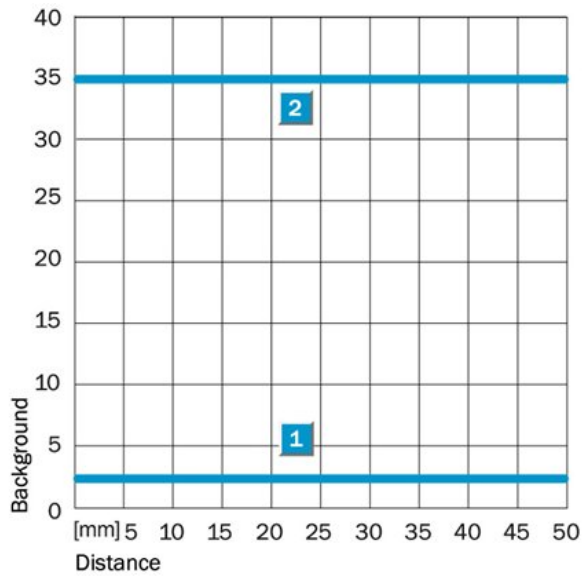


- |1| Standard direction of the material being scanned
- |2| Optical axis, sender
- |3| Optical axis, receiver
- |4| Status indicator LED,  
yellow: Status of received light beam
- |5| Status indicator LED green: power on
- |6| Potentiometer
- |7| Threaded mounting hole M3
- |8| Connection

Connection diagram



Characteristic curve

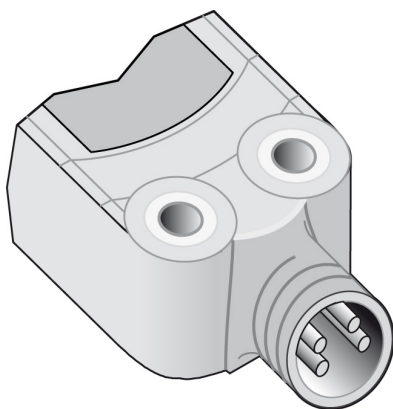


- |1| Black-white shift 90% / 6%
- |2| Distance to the background with transparent objects

|   |                                                      |
|---|------------------------------------------------------|
| 1 | Black-white shift 90 %/6 %                           |
| 2 | Distance to background detecting transparent objects |

## Connection type

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