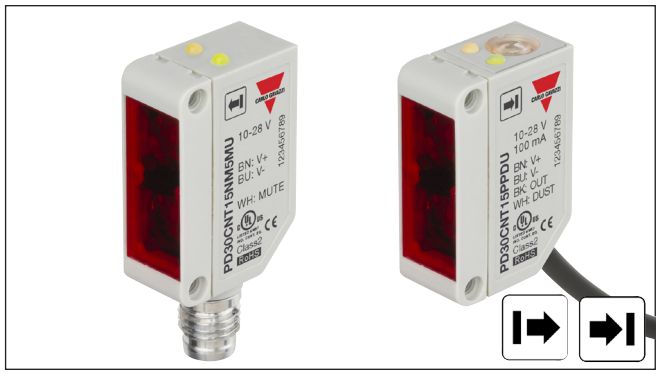
# Photoelectrics
# Through-beam
# Type PD30CNT15....MU/DU



- Miniature sensor range
- Range: 15 m
- Sensitivity adjustment by Teach-In programming
- Modulated, Infraredred light 880 nm
- Supply voltage: 10 to 30 VDC
- Output: 100 mA, NPN or PNP preset
- Make and break switching function programmable
- LED indication for output, stability and power ON
- Protection: reverse polarity, short circuit and transients
- Cable and plug versions
- Excellent EMC performance
- Mute function (Sensor blanking) Emitter
- Dust alarm output - Receiver

## Product Description

The PD30CNT15 sensor family comes in a compact 10 x 30 x 20 mm reinforced PMMA/ABS housing.
The sensors are useful in applications where high-accuracy detection as well as small size is required.
Compact housing and high power LED for excellent performance-size ratio.
The Teach-In function for adjustment of the sensitivity makes the sensors highly flexible. The output type is preset (NPN or PNP), and the output switching function is programmable (NO or NC), and one dust output NO or NC.
The mute function can be used for testing the sensor for: Malfunctioning, disconnection, optical axis adjustment, dusty and dirty lenses.

## Ordering Key

**PD30CNT15NPM5DU**

- **Type**
- **Housing style**
- **Housing size**
- **Housing material**
- **Housing length**
- **Detection principle**
- **Sensing distance**
- **Output type**
- **Output configuration**
- **Connection type**
- **Dust**

## Type Selection

| Housing W x H x D | Range $S_n$ | Connection | Ordering no. NPN Emitter | Ordering no. NPN Make or break switching | Ordering no. PNP Emitter | Ordering no. PNP Make or break switching |
|---|---|---|---|---|---|---|
| 10 x 30 x 20 mm | 15 m | Cable | **PD 30 CNT 15 NMU** | **PD 30 CNT 15 NPDU** | **PD 30 CNT 15 PMU** | **PD 30 CNT 15 PPDU** |
| 10 x 30 x 20 mm | 15 m | Plug | **PD 30 CNT 15 NM5MU** | **PD 30 CNT 15 NPM5DU** | **PD 30 CNT 15 PM5MU** | **PD 30 CNT 15 PPM5DU** |

**Note:** Emitter, Receiver and Connector to be ordered separately.

## Specifications Emitter EN 60947-5-2

| | |
|---|---|
| **Rated operational volt.** ($U_B$) | 10 to 30 VDC |
| **Ripple** ($U_{rpp}$) | ≤ 10% |
| **Supply current** | ≤ 25 mA |
| **Light Source** | GaAlAs, LED, 880 nm |
| **Optical angle** | ± 2° at ½ range |
| **Light type** | Infrared, modulated |
| **Light spot** | 110 mm @ 1.5 m |

| | | |
|---|---|---|
| **Protection** | | Reverse polarity, transients |
| **Indication function** | | |
| Power supply ON | | LED, green |
| **Mute function** | | |
| Emitter off | 0 to 3 sec | 0 to 2.5 VDC (NPN)<br>5 to 30 VDC (PNP) |
| Emitter half power | > 3 sec | 0 to 2.5 VDC (NPN)<br>5 to 30 VDC (PNP) |



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## Specifications Receiver EN 60947-5-2

| | |
|---|---|
| **Rated operating distance** ($S_n$) | 15 m, with PD30CNT15 Emitter |
| **Blind zone** | None |
| **Sensitivity** | Adjustable by Teach-In |
| **Temperature drift** | ≤ 0.3%/°C |
| **Hysteresis** (H) (differential travel) | ≤ 10% |
| **Rated operational volt.** ($U_B$) | 10 to 30 VDC |
| **Ripple** ($U_{rpp}$) | ≤ 10% |
| **Adjustable range** resolution | 1.5 m to 15 m 3% on distance |
| **Output current** | |
| Continuous ($I_e$) | ≤ 100 mA |
| Short-time (I) | ≤ 100 mA (max. load capacity 100 nF) |
| **Dust output current** | |
| Continuous ($I_e$) | ≤ 20 mA |
| Short-time (I) | ≤ 20 mA (max. load capacity 100 nF) |
| **No load supply current** ($I_o$) | ≤ 30 mA |
| **Minimum operational current** ($I_m$) | 0.5 mA |

| | |
|---|---|
| **OFF-state current** ($I_r$) | ≤ 100 µA |
| **Voltage drop** ($U_d$) | ≤ 2.5 VDC @ 100 mA |
| **Protection** | Short-circuit, reverse polarity and transients |
| **Sensing angle** | ± 4° |
| **Ambient light** | 10,000 lux |
| **Operating frequency** | 1000 Hz |
| **Response time** | |
| OFF-ON ($t_{ON}$) | ≤ 0.5 ms |
| ON-OFF ($t_{OFF}$) | ≤ 0.5 ms |
| **Power ON delay** ($t_v$) | ≤ 300 ms |
| **Output function** | |
| NPN and PNP | Preset |
| NO/NC switching function | Set up by button |
| Programming options | |
| Output pin 4 black | NO or NC |
| Output pin 2 white | NO or NC (dust) |
| **Dust alarm output** | |
| Delay on operate | 20 ms |
| **Indication** | |
| Output ON | LED, yellow |
| Signal stability ON and power ON | LED, green |

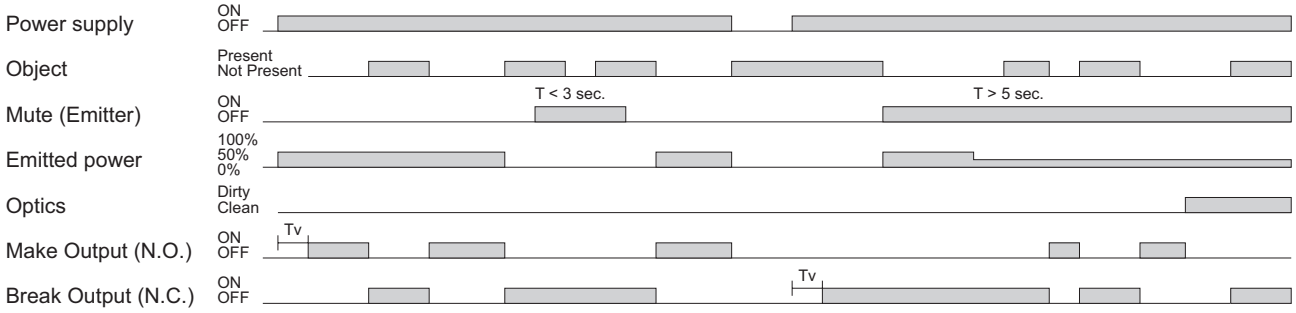
## General Specifications EN 60947-5-2

| | |
|---|---|
| **Environment** | |
| Installation category | III (IEC 60664/60664A; 60947-1) |
| Pollution degree | 3 (IEC 60664/60664A; 60947-1) |
| Degree of protection | IP 67 (IEC 60529; 60947-1) |
| **Ambient temperature** | |
| Operating | -25° to +55°C (-13° to +131°F) |
| Storage | -40° to +70°C (-40° to +158°F) |
| **Vibration** | 10 to 55 Hz, 0.5 mm/7.5 g (IEC 60068-2-6) |
| **Shock** | 30 g / 11ms, 3 pos, 3 neg per axis (IEC 60068-2-6, 60068-2-32) |
| **Rated insulation voltage** | 500 VAC (rms) |

| | |
|---|---|
| **Housing material** | |
| Body | ABS |
| Front material | PMMA, red |
| **Connection** | |
| Cable | PVC, black, 2 m, Ø = 3.3 mm 4 x 0.14 mm$^2$ |
| Plug | M8, 4-pin (CON.54NF.. series) |
| **Weight** (each sensor) | With cable: 40 g With plug: 10 g |
| **CE-marking** | Yes |
| **Approvals** | cULus (UL508) |

## Operation Diagram

tv = Power ON delay





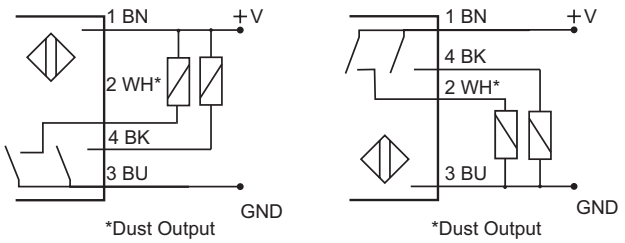

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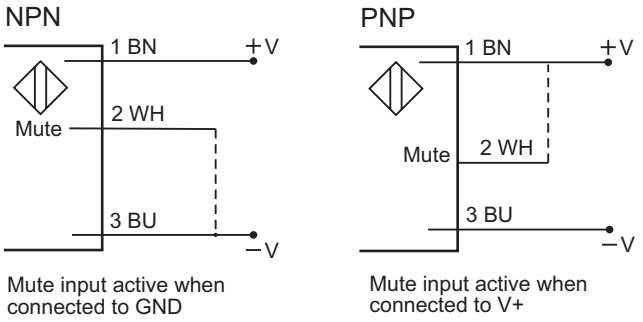
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## Wiring Diagrams

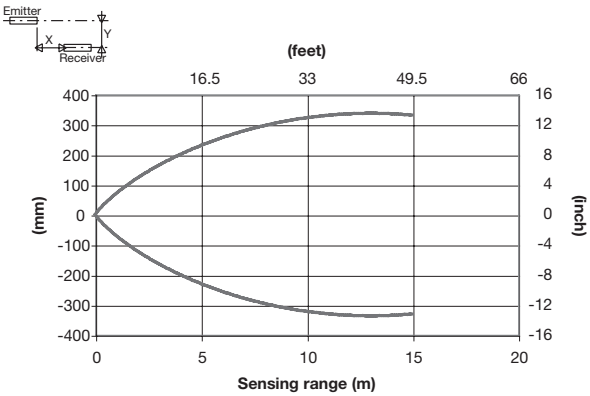
### Receiver



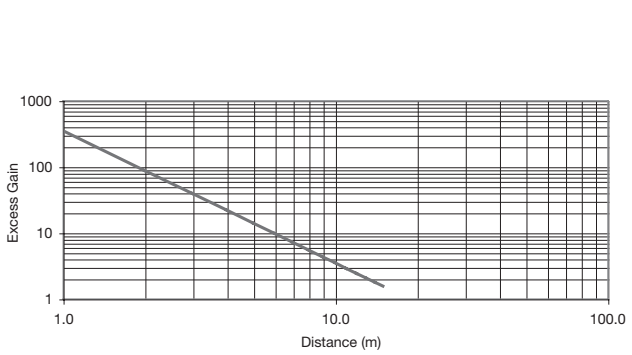

### Emitter



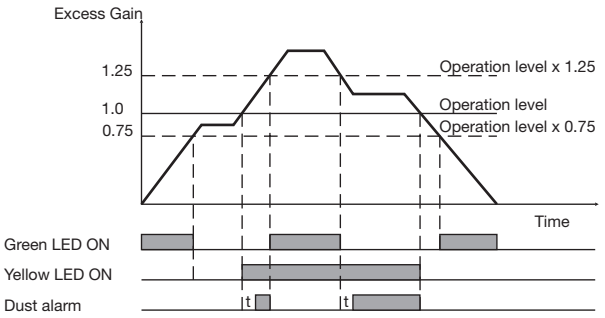

## Detection Diagram



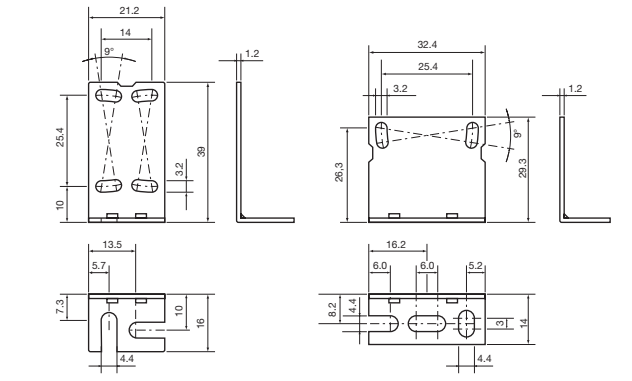

## Excess Gain




## Signal Stability Indication



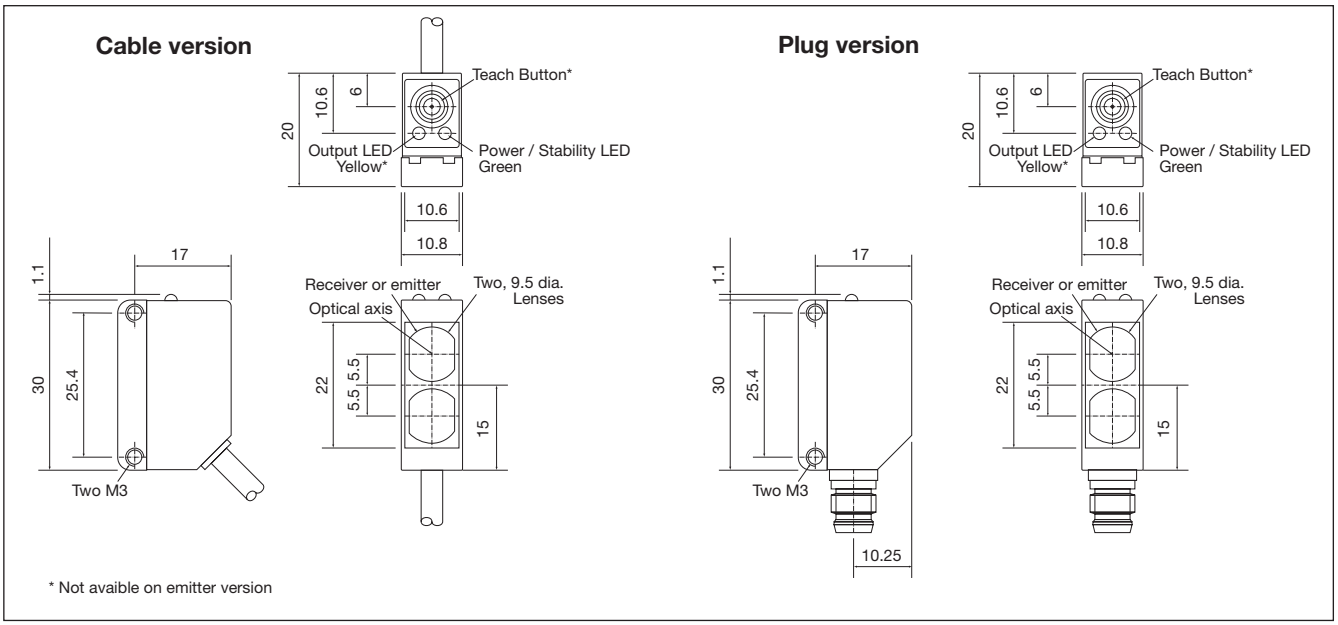

## Accessories



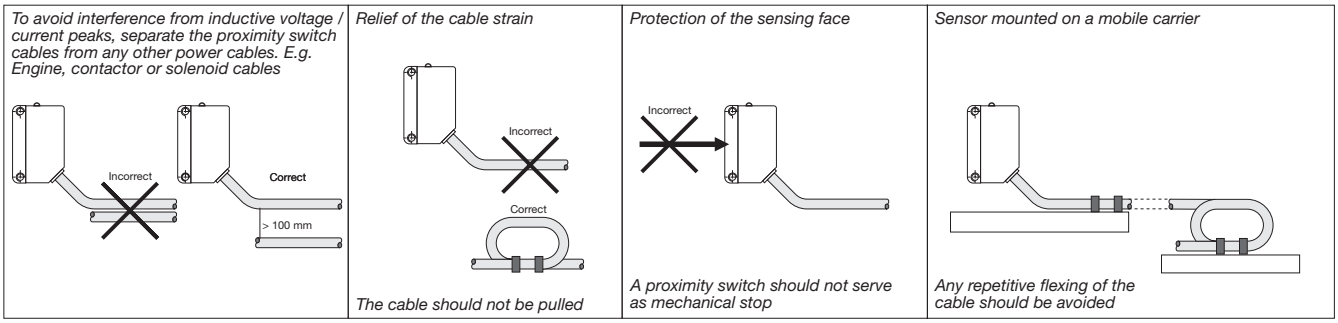



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## Dimensions




## Installation Hints




## Delivery Contents

- Photoelectric switch: PD 30 CNT 15 ...
- Installation instruction
- Mountingbracket APD30-1
- **Packaging:** Cardboard box

## Accessories

- Mounting bracket APD30-2 to be purchased separately
- Connector type CON.54NF.. series to be purchased separately



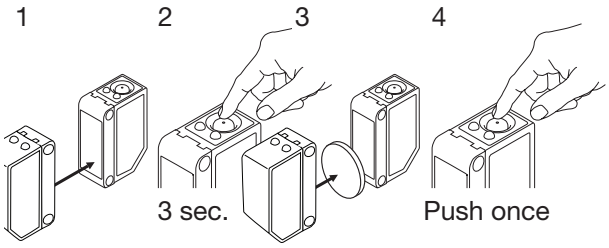
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## Teach functions

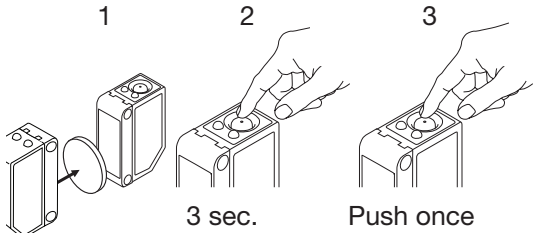
**Normal operation, optimized switching point**

1. Line up the emitter and receiver. Yellow LED and Green LED are ON.
2. Press the button for 3 seconds until both LEDs flashes simultaneously.
   (The first switch point is stored)
3. Place the object between the emitter and receiver in the detection zone.
4. Press the button once and the sensor is ready to operate (Green LED ON, Yellow LED ON)
   (The second switch point is stored)



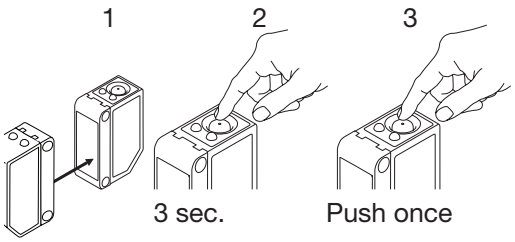

**For maximum sensing distance (default setting)**

1. Line up the emitter and receiver, place the object between the emitter and receiver in the detection zone. Yellow LED is OFF and Green LED is ON.
2. Press the button for 3 seconds until both LEDs flashes simultaneously.
   (The first switch point is stored)
3. Press the button a second time and the sensor is ready to operate (Green LED ON, Yellow LED ON)
   (The second switch point is stored)



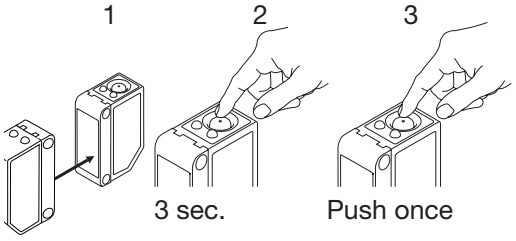

**For minimum sensing distance (Transparent or semi-transparent objects)**

1. Line up the emitter and receiver. Yellow LED and Green LED are ON.
2. Press the button for 3 seconds until both LEDs flashes simultaneously.
   (The first switch point is stored)
3. Press the button a second time and the sensor is ready to operate (Green LED ON, Yellow LED ON)
   (The second switch point is stored)



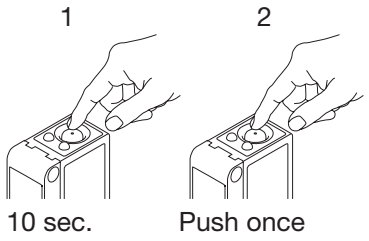

**For dynamic set-up (running process)**

1. Line up the emitter and receiver. Green LED is ON, status on the yellow LED is not important.
2. Press the button for 3 second until both LEDs flashes simultaneously.
   (The first switch point is stored)
3. Press the button a second time and keep the button pressed for at least one process cycle, release the button and the sensor is ready to operate (The second switch point is stored)



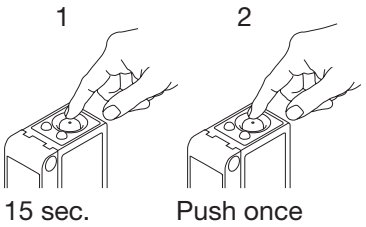

**For make or break set-up**

1. Press the button for 10 seconds, until the green LEDs flashes.
2. While the green LED flashes, the output is inverted each time the button is pressed. Yellow LED indicates N.O. function selected.
   If the button is not pressed within the next 10 seconds, the current output is stored.




**For dust output (N.O. or N.C.)**

1. Press the button for 15 seconds, until the yellow LEDs flashes.
2. While the yellow LED flashes, the dust output is inverted each time the button is pressed. Green LED indicates N.O. function selected.
   If the button is not pressed within the next 10 seconds, the current output is stored.






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