

Photoelectrics Retro-reflective, Polarized Type PD30CNP06....DU

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- Miniature sensor range
- Range: 6 m, with reflector
- Sensitivity adjustment by Teach-In programming
- Modulated, red light 660 nm, polarized
- 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
- Dust alarm output



Product Description

The PD30CNP06 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 one programmable (NO or NC) and one dust output NO or NC.

Ordering Key

PD30CNP06PPM5DU

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

Type Selection

| Housing W x H x D | Range S _n | Connection | Ordering no. NPN Make or break switching | Ordering no. PNP Make or break switching |
|----------------------|-------------------------|------------|--|--|
| 10 x 30 x 20 mm | 6 m | Cable | PD 30 CNP 06 NPDU | PD 30 CNP 06 PPDU |
| 10 x 30 x 20 mm | 6 m | Plug | PD 30 CNP 06 NPM5DU | PD 30 CNP 06 PPM5DU |

Note: Reflectors to be ordered separately

Specifications

| | | | |
|--|---|---|--|
| Rated operating distance (S_n) | Up to 6 m, with reflector Ø 80 mm (ER4) 4 m on ER4060 reflector | Protection | Short-circuit, reverse polarity and transients |
| Blind zone | 100 mm | Light source | GaAlAs, LED, 660 nm |
| Sensitivity | Adjustable by Teach-In | Light type | Red, modulated |
| Temperature drift | ≤ 0.1%/°C | Sensing angle | ± 2° |
| Hysteresis (H) (differential travel) | ≤ 10% | Ambient light | 10,000 lux |
| Rated operational volt. (U_B) | 10 to 30 VDC (ripple included) | Light spot | 110 mm @ 1.5 m |
| Ripple (U_{rip}) | ≤ 10% | Operating frequency | 1000 Hz |
| Output current Continuous (I _a) Short-time (I) | ≤ 100 mA ≤ 100 mA (max. load capacity 100 nF) | Response time OFF-ON (t _{ON}) ON-OFF (t _{OFF}) | ≤ 0.5 ms ≤ 0.5 ms |
| Dust output current Continuous (I _a) Short-time (I) | ≤ 20 mA ≤ 20 mA (max. load capacity 100 nF) | Power ON delay (t_v) | ≤ 300 ms |
| No load supply current (I_o) | ≤ 30 mA @ 24 VDC | Output function NPN and PNP NO/NC switching function Output configuration Programming options Output pin 4 black Output Dust alarm output Delay on operate | Preset Set up by button NO or NC NO or NC (dust) 20 ms |
| Minimum operational current (I_m) | 0.5 mA | Indication Output ON Signal stability ON and power ON | LED, yellow LED, green |
| OFF-state current (I_r) | ≤ 100 µA | | |
| Voltage drop (U_d) | ≤ 2.4 VDC @ 100 mA | | |

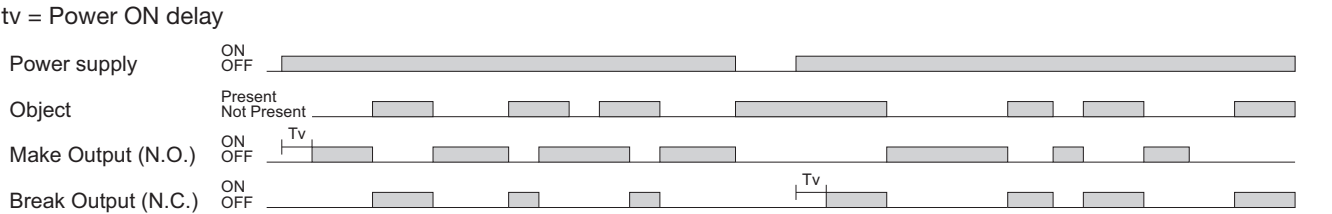
Specifications are subject to change without notice (09.12.2008)



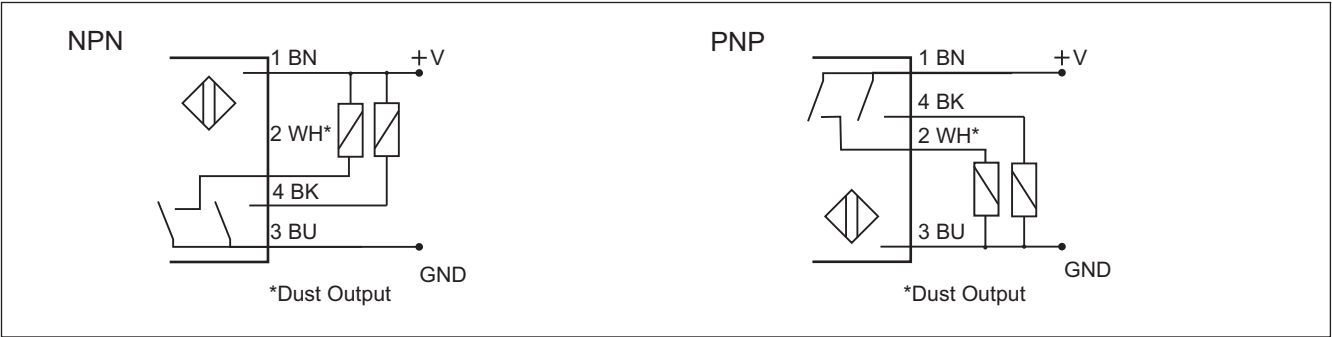
Specifications (cont.)

| | | | |
|----------------------------|--|---------------------------------|---|
| Environment | | Rated insulation voltage | |
| Installation category | III (IEC 60664/60664A; 60947-1) | 500 VAC (rms) | |
| Pollution degree | 3 (IEC 60664/60664A; 60947-1) | Housing material | |
| Degree of protection | IP 67 (IEC 60529; 60947-1) | Body | ABS |
| Ambient temperature | | Front material | PMMA, red |
| Operating | -25° to +55°C (-13° to +131°F) | Connection | |
| Storage | -40° to +70°C (-40° to +158°F) | Cable | PVC, black, 2 m 4 x 0.14 mm², Ø = 3.3 mm M8, 4-pin (CON, 54-series) |
| Vibration | | Plug | |
| | 10 to 55 Hz, 0.5 mm/7.5 g (IEC 60068-2-6) | Weight | With cable: 40 g With plug: 10 g |
| Shock | | CE-marking | Yes |
| | 30 g / 11ms, 3 pos, 3 neg per axis (IEC 60068-2-6, 60068-2-32) | Approvals | cULus (UL508) |

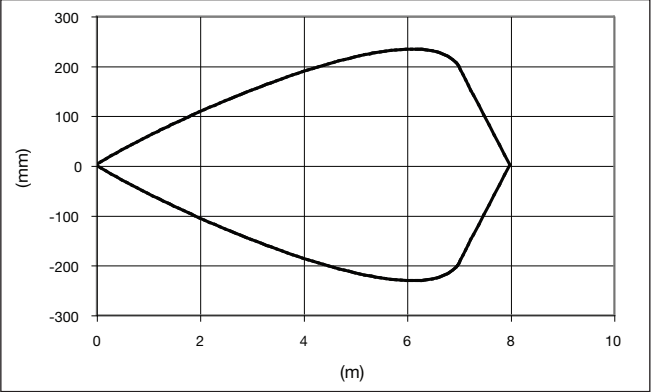
Operation Diagram



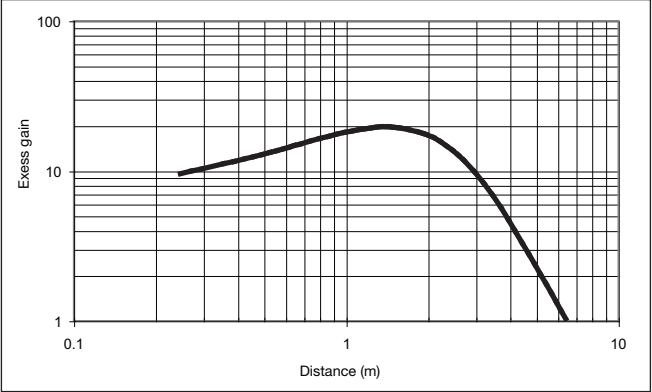
Wiring Diagrams



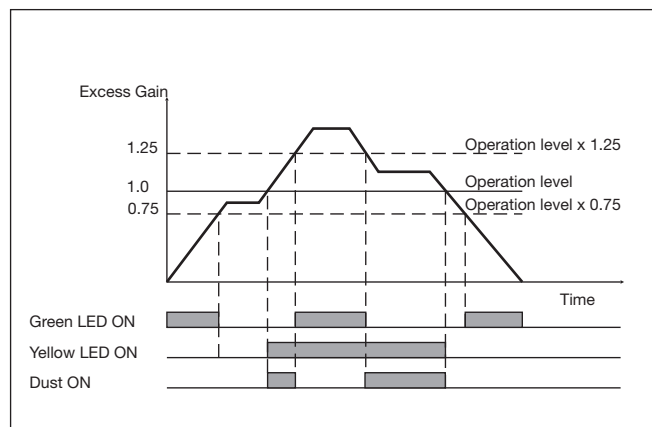
Detection Diagram



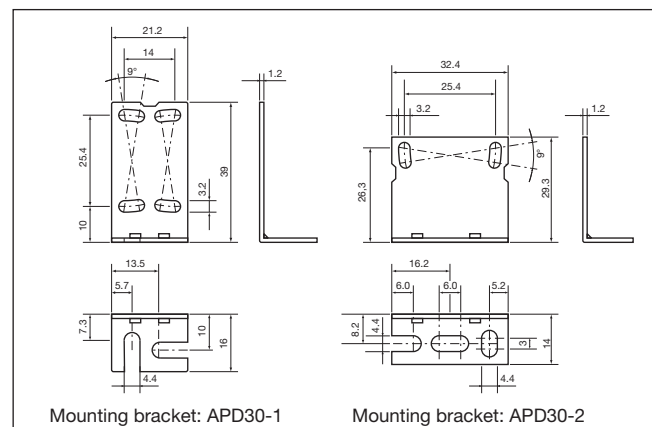
Excess Gain



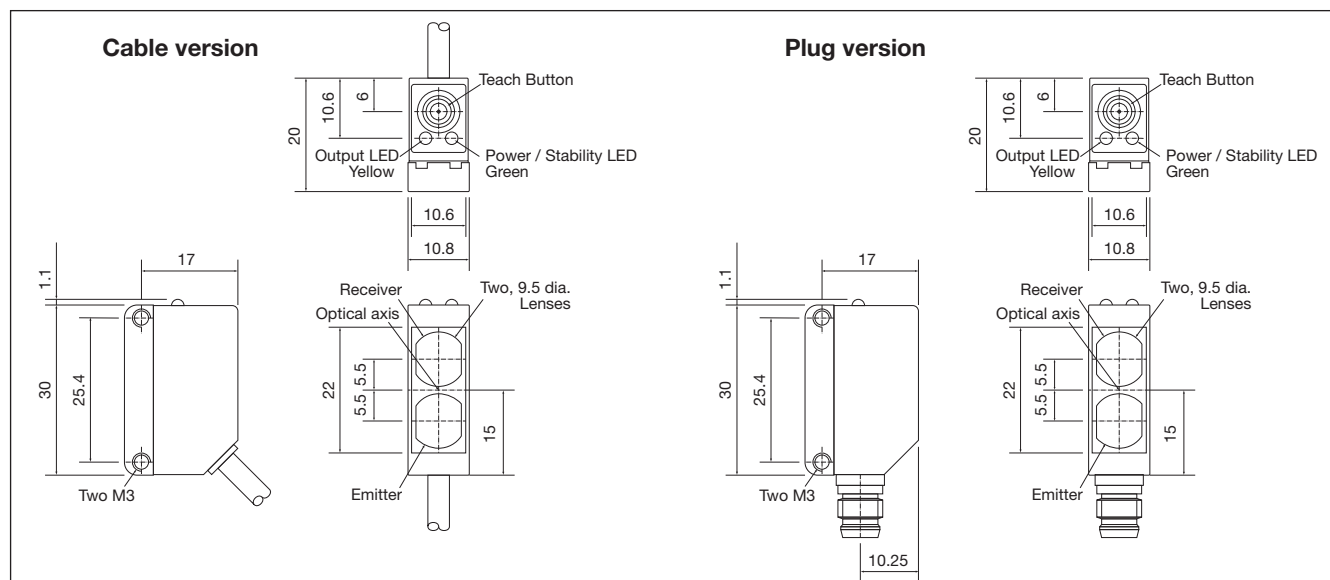
Signal Stability Indication



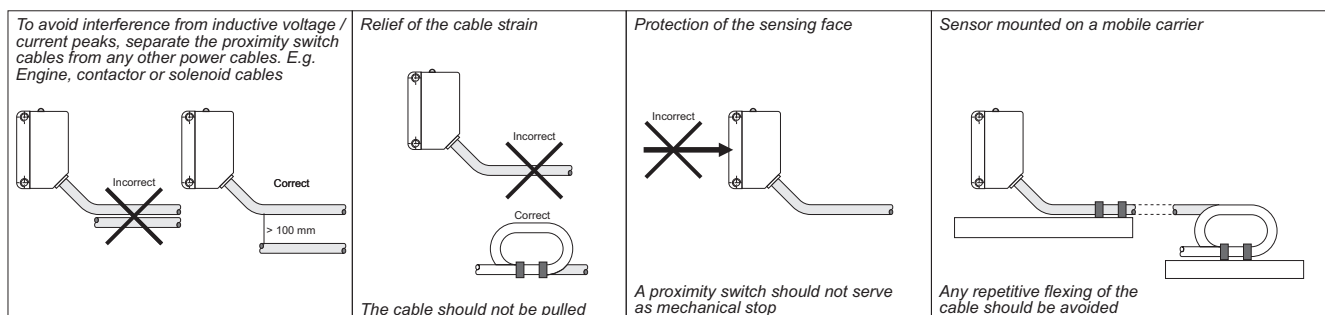
Accessories



Dimensions



Installation Hints



Delivery Contents

- Photoelectric switch: PD 30 CNP 06 ...
- Installation instruction
- Mounting bracket APD30-MB1
- **Packaging:** Cardboard box

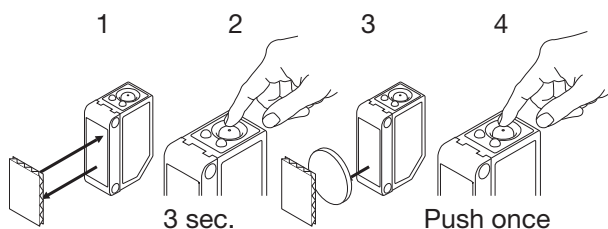
Accessories

- Reflector is to be purchased separately
- Mounting bracket APD30-MB2 to be purchased separately

Teach functions

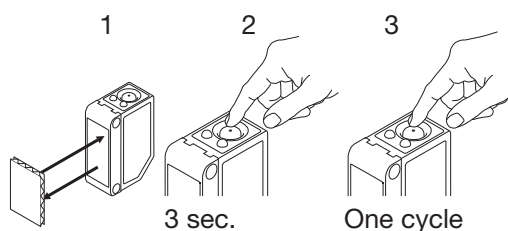
Normal operation, optimized switching point.

1. Line up the sensor with the reflector. 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 sensor and reflector 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)



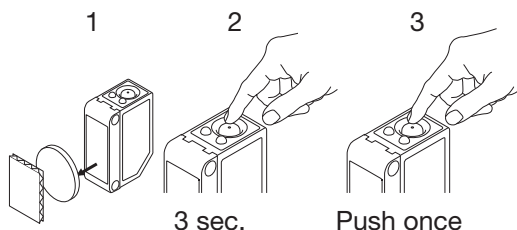
For dynamic set-up (running process)

1. Line up the sensor with the reflector. Green LED is ON, status on the yellow LED is not important.
2. Press the button for 3 second until both LEDs flashes simultaneously.
3. Press the button a second time for at least one second, both LED's flashes fast siultainiously 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)



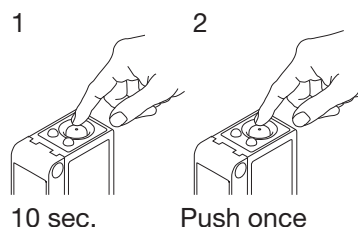
For maximum sensing distance (default setting)

1. Line up the sensor with the reflector, place the object between the sensor and reflector 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)



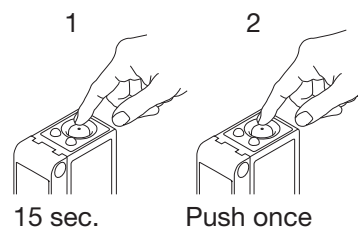
For make or break set-up (N.O. or N.C.)

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.



For minimum detection overhead.

1. Line up the sensor with the reflector. 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)

