Technical Data

Optical data (typ.)
- Laser type: Laser red
- Pulse power P: \( \leq 100 \mu \text{W} \)
- Wavelength \( \lambda \): 650 nm
- Pulse width t: \( \leq 8 \mu \text{s} \)
- Pulse frequency: 25 kHz
- Laser class EN 60825-1: I
- Ambient light rejection: 5 kLux

Electrical data
- Supply voltage \( U_B \): 10...30 V DC
- Voltage drop \( U_d \) at \( I_e \): < 2 V (PNP), < 2.5 V (NPN)
- Rated operational current \( I_e \): 200 mA
- No load current \( I_o \): < 20 mA
- Switching frequency \( f \): 5 kHz
- Hysteresis PSUL 4F: \( \leq 20 \mu \text{m} \), PSUL 5F: \( \leq 25 \mu \text{m} \), PSUL 6F: \( \leq 30 \mu \text{m} \), PSUL 7F: \( \leq 50 \mu \text{m} \)
- Output depending on type: PNP or NPN
- Short circuit protected: yes
- Reverse polarity protected: yes
- Output function selective: NC/NO light-on/dark-on
- Output function indicator: yellow LED

Smallest detectable object
- PSUL 4F: 0.05 mm
- PSUL 5F: 0.08 mm
- PSUL 6F: 0.1 mm
- PSUL 7F: 0.15 mm

Repeatability
- PSUL 4F/5F/6F: 10 \( \mu \text{m} \)
- PSUL 7F: 15 \( \mu \text{m} \)

Sensitivity adjustment
- Pot: 0...270°
- Excess gain: 15

Mechanical data
- Connection type: M8-connector, 3-pole
- Housing material: GD Zn
- Active surface material: Glass

Weight
- PSUL 4F: 66 g
- PSUL 5F: 110 g
- PSUL 6F: 135 g
- PSUL 7F: 210 g

Operating temperature \( T_a \): \(-10...+60 °\text{C}\) (\(-14...140 °\text{F}\))

Enclosure rating per IEC 60529: IP 67

Safety Notes

These photoelectric sensors may not be used in applications where personal safety depends on proper function of the devices (not safety designed per EU machine guideline). Read these operating instructions carefully before putting the device into operation.

Danger of eye injury. Do not look into the laser beam! Laser protection regulations: The transmitter and the laser light barrier comply with laser class 1 in accordance with DIN EN 60825-1:2003-10. Therefore no additional protective measures are necessary for operation.


Caution! The use of controls or adjustments or performance of procedure other than those specified herein may result in hazardous radiation exposure.

The CE Marking confirms that our products conform to the EC Directives 2004/108/EEC (EMC) and the EMC Law.

In our EMC Laboratory, which is accredited by the DATech for Testing of Electromagnetic Compatibility, proof has been documented that these products meet the EMC requirements of the harmonized standard EN 60947-5-2.

FIG. 2: DISPLAY AND OPERATING ELEMENTS
- Selectable output function
  - NO = dark-on
  - NC = light-on

Sensitivity adjustment
- Minimum sensitivity for small part detection, but sensor is more sensitive to ambient light, contamination etc.: Pot is full CCW
- Maximum sensitivity, but limits small part detection: Pot is full CW

Select between light-on and dark-on
- Dark on: Pot is full CCW. When an object breaks the beam, the output switches on and the LED comes on.
- Light on: Pot is full CW. When an object breaks the beam, the output switches off and the LED goes off.
- The gray area is the switch-over range in which the switch is between normally open and normally closed. Avoid this area.

Wiring diagram
- PNP
  - 1: BN 10...30 V
  - 3: BU GND
  - 4: BK Light On/ Dark On selectable
- NPN
  - 1: BN 10...30 V
  - 3: BU GND
  - 4: BK Light On/ Dark On selectable

Installation

A Danger of eye injury. Do not look into the laser beam.

The slot sensor should be mounted in a way that no mechanical stress is exerted on the housing to avoid misalignment of emitter and receiver.

CAD files for sensors can be found at www.automationdirect.com