optical sensors



through-beam, retro-reflective, dif. reflection sensors 2100

dimensions

12.4 x 35 x 35mm

through-beam sensors retro-reflective sensors dif. reflection sensors

operating range operating range sensing range

7.5m 5m 15 to 300mm

- ✓ dif. reflection sensors with background suppression
- ✓ retro-reflective sensors with polarizing filter
- ✓ simple adjustment
- high sensing ranges
- light-on and dark-on mode
- ✓ fast response time
- LED-display of the switch signal
- ✓ degree of protection IP67
- ✓ connection with M8-connector or cable

visible red light robust metal housing



Optoelectronic sensors are indispensable components in all automated production processes. They are used in all applications where parts are to be detected, counted, measured or positioned in a way which does not involve contact and which is reliable and fast.

The devices feature a zinc diecast housing and are often used in connection with a PLC for automatic production processes and machines. For example, they detect objects made from metal, glass, plastic, wood and paper.

Functional monitoring of the sensor is possible for throughbeam sensors using the test input in the transmitter. For this, the operating voltage potential is applied to the corresponding contact.

Although the distance of the diffuse reflection sensor devices can be set using a mechanical setting unit, the high degree of protection (IP67) is maintained. Objects are reliably recognized, regardless of their color. The functional

principle behind these sensing devices is based on triangulation principle, in which the position of the object is determined by the light reflected from it.

The sensors all work with visible red light and consequently, enable reliable and simple adjustment.

The yellow LED display lights up if the output is securely switched.

If, in the case of retro-reflective sensors, the yellow LED flashes when the output is switched, the respective device is working without sufficient functional reserve, e.g. through soiling or maladjustment.

application examples

presence check of different objects

- collision avoidance in feeding motions
- control of object and stack heights
- Imit switches, position switches and pulse generators

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2100 through-beam, retro-reflective, dif. reflection sensors

| connectionM8-connectionoperating rangeM8-connectionoperating rangeImage: Connectionoperating rangeImage: Connectionoperating rangeImage: Connectionoperating rangeImage: Connectionoutput signalImage: Connectionoperating voltageImage: Connectionoutput signalImage: Connectionoutput signalImage: Connectionoutput signalImage: Connectionoutput current (max.load)Image: Connectionoutput current (max.load)Image: Connectionvoltage drop (max.load)Image: Connectionvoltage drop (max.load)Image: Connectionisplay (signal/functional reserve)Image: Connectionsampling frequencyImage: Connectionsing frequencyImage: Connectionshort-circuit protectionImage: Connectionisplay (signal/functional reserve)Image: Connectionispl | 13mm | ector M8-connector 5m |
|---|--|--|
| operating rangeofoperating rangeImage: Second Se | n 35 13mm - - - - - - - - - - - - - | 5m 5m 5m 5m 5m 5m 5m 5m |
| TECHNICAL DATA operating range output signal sampling frequency sampling frequency sampling frequency sampling frequency short-circuit protection short-circuit protection test input | 35 ↓ED ↓ 32 25 ↓ 24 ↓ 124 ↓ 29 ↓ 4 ↓ 4 ↓ 4 ↓ 4 ↓ 4 ↓ 4 ↓ 4 ↓ 4 ↓ 4 ↓ 4 | 35 032 25 25 17mm * transmitter axis: 20.5mm |
| operating range6moutput signalpnp, light-on/doperating voltage1030current consumption (w/o load)≤ 17routput current (max. load)100mvoltage drop (max. load)1.8V ftransmitting element (pulsed)-wavelength (transmitter)-sampling frequency500fdisplay (signal/functional reserve)yellow LED / yellsensitivity adjustment-test input-short-circuit protection+dimensions12.4x35xhousing materialzinc diefront screen materialplastic P | | 5m |
| operating rangecontentoutput signalpnp, light-on/doperating voltage1030current consumption (w/o load)≤ 17routput current (max.load)100nvoltage drop (max.load)1.8V ftransmitting element (pulsed)-wavelength (transmitter)-sampling frequency500fdisplay (signal/functional reserve)yellow LED / yellsensitivity adjustment-test input-short-circuit protection+reverse polarity protection12.4x35xhousing materialzinc diefront screen materialplastic P | | 5m |
| Output signalphp, ngnt-on/aoperating voltage10 30current consumption (w/o load)≤ 17routput current (max. load)100mvoltage drop (max. load)1.8Vtransmitting element (pulsed)-wavelength (transmitter)-sampling frequency500Hdisplay (signal/functional reserve)yellow LED / yellowsensitivity adjustment-test input-short-circuit protection+reverse polarity protection12.4x35xhousing materialzinc diefront screen materialplastic P | n - | nnn light on /dark on modo |
| operating voltage10 30current consumption (w/o load)≤ 17 routput current (max.load)100 nvoltage drop (max.load)1.8 Vtransmitting element (pulsed)-wavelength (transmitter)-sampling frequency500 ldisplay (signal/functional reserve)yellow LED / yelsensitivity adjustment-test input-short-circuit protection+dimensions12.4x35xhousing materialzinc diefront screen materialplastic P | | prip, light-on/dark-on mode |
| current consumption (w/o load)≤ 1/routput current (max. load)100mvoltage drop (max. load)1.8Vtransmitting element (pulsed)-wavelength (transmitter)-sampling frequency500Hdisplay (signal/functional reserve)yellow LED / yellow LED / yellow Sensitivity adjustmenttest input-short-circuit protection+dimensions12.4x35xhousing materialzinc diefront screen materialplastic P | 0V DC 10 30V | 7 DC 10 30V DC |
| Output current (max. load)100mvoltage drop (max. load)1.8Vtransmitting element (pulsed)-wavelength (transmitter)-sampling frequency500Hdisplay (signal/functional reserve)yellow LED / yellow sensitivity adjustmenttest input-short-circuit protection+reverse polarity protection12.4x35xhousing materialzinc diefront screen materialplastic P | mA ≤ 30m | IA ≤ 35mA |
| voltage drop (max. load)1.8Vtransmitting element (pulsed)-wavelength (transmitter)-sampling frequency500Hdisplay (signal/functional reserve)yellow LED / yelsensitivity adjustment-test input-short-circuit protection+reverse polarity protection12.4x35xhousing materialzinc diefront screen materialplastic P | mA - | IUUMA |
| transmitting element (pulsed)Image: Complex c | DC - | 1.8V DC |
| wavelength (transmitter)-sampling frequency5001display (signal/functional reserve)yellow LED / yelsensitivity adjustment-test input-short-circuit protection+reverse polarity protection+dimensions12.4x35xhousing materialzinc diefront screen materialplastic P | LED, red | light LED, red light |
| sampling frequency5001display (signal/functional reserve)yellow LED / yellowsensitivity adjustment-test input-short-circuit protection+reverse polarity protection+dimensions12.4x35xhousing materialzinc diefront screen materialplastic P | 660ni | m 660nm |
| display (signal/functional reserve)yellow LED / yellowsensitivity adjustment-test input-short-circuit protection+reverse polarity protection+dimensions12.4x35xhousing materialzinc diefront screen materialplastic P |)Hz - | 500Hz |
| sensitivity adjustment-test input-short-circuit protection+reverse polarity protection+dimensions12.4x35xhousing materialzinc diefront screen materialplastic P | ellow flashing - | yellow LED / yellow flashing |
| test input-short-circuit protection+reverse polarity protection+dimensions12.4x35xhousing materialzinc diefront screen materialplastic P | - | - |
| short-circuit protection+reverse polarity protection+dimensions12.4x35xhousing materialzinc diefront screen materialplastic P | operating volt. appl | ied to contact 4 - |
| reverse polarity protection + dimensions 12.4x35x housing material zinc die front screen material plastic P | - | + |
| dimensions12.4x35xhousing materialzinc diefront screen materialplastic P | · + | + |
| housing material zinc die front screen material plastic P | x35mm 12.4x35x3 | 35mm 12.4x35x35mm |
| front screen material plastic P | ecast zinc die | cast zinc diecast |
| | PMMA plastic PI | MMA plastic PMMA |
| operating temperature -25 + | +65°C -25 +6 | -25 +65°C |
| degree of protection (EN 60529) | 57 IP67 | IP67 |
| connection M8-connect | ctor, 4-pin M8-connect | or, 4-pin M8-connector, 4-pin |
| connection accessories e.g. VK20 | e.g. VK20 | 0371 e.g. VK200371 |
| mounting accessories e.g. AOO (mounting bracket) | 000067 e.g. AO00 | e.g. AO000067 |
| mounting accessories AY000 | 0118 AY0001 | L18 AY000118 |
| ipf electronic gmbh Kalver Straße 25 – 27 | | |

58515 Lüdenscheid – Germany



info@ipf-electronic.com



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optical sensors through-beam, retro-reflective, dif. reflection sensors 2100

| | | 071/0170 |
|---------------------------------|--|---|
| article-no. | OI160400 | 01160470 |
| version | with background suppression | with background suppression |
| connection | cable | M8-connector |
| sensing range | 15 300mm | 15 300mm |
| | * transmitter axis: 24.3mm | 1 1 |
| TECHNICAL DATA | | |
| sensing range | 15 300mm | 15 300mm |
| output signal | pnp, light-on/dark-on mode | pnp, light-on/dark-on mode |
| operating voltage | 10 30V DC | 10 30V DC |
| current consumption (w/o load) | ≤ 35mA | ≤ 35mA |
| output current (max. load) | 100mA | 100mA |
| voltage drop (max. load) | 1.8V DC | 1.8V DC |
| transmitting element (pulsed) | LED, red light | LED, red light |
| wavelength (transmitter) | 660nm | 660nm |
| sampling frequency | 500Hz | 500Hz |
| display (signal/reserve) | vellow LED / | vellow LED / - |
| consitivity adjustment | mechanical 5 revolutions | mechanical 5 revolutions |
| interference cuppression | incentanical, 5 revolutions | inectionical, 5 revolutions |
| short singuit protostion | + | + |
| reverse pelarity protection | + | + |
| | T | т |
| aimensions | 12.5x35x35mm | 12.5x35x35mm |
| nousing material | zinc diecast | zinc diecast |
| front screen material | plastic PMMA | plastic PMMA |
| operating temperature | -25 +65°C | -25 +65°C |
| degree of protection (EN 60529) | IP67 | IP67 |
| connection | 2m PVC cable, 4-wire | M8-connector, 4-pin |
| connection accessories | - | e.g. VK200371 |
| mounting accessories | e.g. AO000067 | e.g. AO000067 |
| (mounting bracket) | | |
| (universal holder) | AYUUUII8 | AY000118 |
| ipf electronic gmbh Kalve | r Straße 25 – 27 Fon +49 2351 9365-0 v | www.ipf-electronic.com Subject to alteration! |

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optical sensors

2100 through-beam, retro-reflective, dif. reflection sensors



light-on and dark-on mode

| PNP | bn | |
|-----|------|--|
| | wh | |
| | bu Z | |
| | bk Z | |

| transmitter | throug | h-beam | senso |
|-------------|--------|--------|-------|
| | | | |

| (1) | <u>, bn</u> | |
|-----|-------------|-------------|
| (2) | wh | n. c. |
| (3) | bu | ov |
| (4) | bk | H O Test |

wire colors: bn = brown (1), wh = white (2), bu = blue (3), bk = black (4)

mounting bracket AO000067



mounting accessories (universal holder) AY000118 consisting of base module







This data sheet contains the standard versions only. Kindly request the availability of other output- and connection functions.

We will be pleased to supply the matching cable socket for your devices with connector. Please refer to the list in catalog chapter "accessories" under "cable sockets **ipf** -SENSORFLEX®" or search our website for "VK".

Warning: Never use these devices in applications where the safety of a person depends on their functionality.

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| This data sheet as well as your personal contact can be found at www.ipf-electronic.com | | | | | | |
|---|---------------------|--|---|---|---|---------|
| CE | ipf electronic gmbh | Kalver Straße 25 – 27 58515 Lüdenscheid – Germany | Fon +49 2351 9365-0 Fax +49 2351 9365-19 | www.ipf-electronic.com info@ipf-electronic.com | Subject to alteration! Version: September 2011 | TV ACCO |