

## THROUGH-BEAM, RETRO-REFLECTIVE, DIF. REFLECTION SENSORS 3000

dimensions 12 x 64 x 12mm 12 x 69 x 12mm

12 x 74 x 12mm

through-beam sensor operating range up to 6.0m retro-reflective sensor operating range up to 4.0m dif. reflection sensor sensing range up to 1.2m

- ✓ metal housing made of nickel-plated brass
- √ status display by LED
- √ integrated amplifier
- √ high sampling frequency and sensing ranges
- √ sensitivity adjustable by potentiometer
- √ connection with M8-connector



transmitter with test input robust metal housing











## description

Optoelectronic sensors are indispensable components in all automated production processes.

They are used in all applications where parts are to be detected, counted or positioned in a way which does not involve contact and which is reliable and fast.

The devices feature a brass housing and are often used in connection with a PLC for automatic production processes and machines. Through-beam sensors detect objects of any shape, regardless of their color.

Functional monitoring of the devices is possible via a test input

in the transmitter of the through-beam sensor. For this, the operating voltage potential is applied to the corresponding contact. Through this, the basic alignment of the transmitter to the receiver can be checked.

## application examples

- presence check of different objects
- ▶ collision avoidance in feed movements
- control of object and stack heights
- limit switches, position switches and pulse generators

# **OPTICAL SENSORS**



# 3000 THROUGH-BEAM, RETRO-REFLECTIVE, DIF. REFLECTION SENSORS

	OE130170	OE130171	OS130070
version	receiver	receiver	transmitter
	through-beam sensor	through-beam sensor	through-beam sensor
sensitivity adjustment		potentiometer	•
operating range	1.0m	1.0m	-
	2x M4 2 3 3 4 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	2x M4	12 3 3 2x M4 2 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
TECHNICAL DATA  pperating range	1.0m	1.0m	
output signal	pnp, dark-on mode	pnp, dark-on mode	-
operating voltage	10 35V DC	10 35V DC	10 35V DC
current consumption (w/o load)	≤ 10mA	≤ 10mA	≤ 30mA
output current (max. load)	200mA	200mA	-
oltage drop (max. load)	1.8V DC	1.8V DC	
ransmitting element (pulsed)	-	-	LED, infrared
wavelength (transmitter)	-	-	880nm
ampling frequency	100Hz	500Hz	•
repeat accuracy	< 10%	< 10%	
eadiness delay	< 15ms	< 15ms	< 15ms
	yellow LED	yellow LED	
		·	
display (operation)			green LED
display (operation) sensitivity adjustment		·	green LED -
display (operation) sensitivity adjustment sest input		- potentiometer -	green LED - +
display (operation) ensitivity adjustment est input hort-circuit protection		- potentiometer - +	green LED -
display (operation) sensitivity adjustment sest input short-circuit protection reverse polarity protection	- - + +	- potentiometer - + +	green LED - + -
display (operation) sensitivity adjustment sest input short-circuit protection reverse polarity protection dimensions	- - + + 12x64x12mm	- potentiometer - + + 12x69x12mm	green LED - + - - 12x64x12mm
display (operation) sensitivity adjustment sest input short-circuit protection reverse polarity protection dimensions nousing material	- - - + + 12x64x12mm nickel-plated brass	- potentiometer - + + 12x69x12mm nickel-plated brass	green LED  - + 12x64x12mm nickel-plated brass
display (operation) display (operation) display (adjustment display (adjustment display (adjustment display (adjustment display (adjustment) display (adjust	- - - + + 12x64x12mm nickel-plated brass plastic	- potentiometer - + + 12x69x12mm nickel-plated brass plastic	green LED  - + 12x64x12mm nickel-plated brass plastic
display (operation) sensitivity adjustment sest input short-circuit protection severse polarity protection dimensions nousing material sens material operating temperature	+ + 12x64x12mm nickel-plated brass plastic -5 +70°C	- potentiometer - + + + 12x69x12mm nickel-plated brass plastic -5 +70°C	green LED - + 12x64x12mm nickel-plated brass plastic -5 +70°C
display (operation) sensitivity adjustment sest input short-circuit protection everse polarity protection dimensions nousing material ens material operating temperature degree of protection (EN 60529)	+ + 12x64x12mm nickel-plated brass plastic -5 +70°C IP65	- potentiometer - + + 12x69x12mm nickel-plated brass plastic -5 +70°C IP65	green LED  - + 12x64x12mm nickel-plated brass plastic -5 +70°C IP65
display (operation) sensitivity adjustment sest input short-circuit protection severse polarity protection dimensions nousing material sens material operating temperature degree of protection (EN 60529) connection	+ + 12x64x12mm nickel-plated brass plastic -5 +70°C IP65 M8-connector, 3-pin	- potentiometer - + + +	green LED  - + 12x64x12mm nickel-plated brass plastic -5 +70°C IP65 M8-connector, 3-pin
display (operation) sensitivity adjustment test input short-circuit protection reverse polarity protection dimensions nousing material ens material operating temperature degree of protection (EN 60529) connection connection accessories	+ + 12x64x12mm nickel-plated brass plastic -5 +70°C IP65 M8-connector, 3-pin e.g. VK200075	- potentiometer - + + 12x69x12mm nickel-plated brass plastic -5 +70°C IP65 M8-connector, 3-pin e.g. VK200075	green LED  - + 12x64x12mm nickel-plated brass plastic -5 +70°C IP65 M8-connector, 3-pin e.g. VK200075
display (signal) display (operation) sensitivity adjustment test input short-circuit protection reverse polarity protection dimensions housing material lens material operating temperature degree of protection (EN 60529) connection connection connection accessories mounting accessories	+ + 12x64x12mm nickel-plated brass plastic -5 +70°C IP65 M8-connector, 3-pin	- potentiometer - + + +	green LED  - + 12x64x12mm nickel-plated brass plastic -5 +70°C IP65 M8-connector, 3-pin



# THROUGH-BEAM, RETRO-REFLECTIVE, DIF. REFLECTION SENSORS 3000

article-no. version sensitivity adjustment operating range	OE130175 receiver through-beam sensor - 6.0m	OS130075 transmitter through-beam sensor
sensitivity adjustment	through-beam sensor - 6.0m	through-beam sensor -
		-
operating range		
	40	
	2x M4 75 99 M8x1	2x M4
FECHNICAL DATA  pperating range putput signal	6.0m pnp, dark-on mode	- -
operating voltage	10 35V DC	10 35V DC
current consumption (w/o load)	≤ 10mA	≤ 30mA
output current (max. load)	200mA	
oltage drop (max. load)	1.8V DC	
ransmitting element (pulsed)	-	LED, infrared
wavelength	-	880nm
sampling frequency	100Hz	
repeat accuracy	< 10%	
readiness delay	< 15ms	< 15ms
display (signal)	yellow LED	
display (operation)	, -	green LED
sensitivity adjustment	-	-
est input	-	+
short-circuit protection	+	
reverse polarity protection	+	+
dimensions		
	12x64x12mm	12x64x12mm
nousing material	nickel-plated brass	nickel-plated brass
ens material	plastic	plastic
operating temperature	-5 +70°C	-5 +70°C
degree of protection (EN 60529)	IP65	IP65
connection	M8-connector, 3-pin	M8-connector, 3-pin
connection accessories	e.g. <b>VK200075</b>	e.g. <b>VK200075</b>
mounting accessories	AY000058	AY000058
mounting accessories universal holder)	AY000119	AY000119

# **OPTICAL SENSORS**



# 3000 THROUGH-BEAM, RETRO-REFLECTIVE, DIF. REFLECTION SENSORS

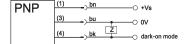
article-no. version	OR130170 retro-reflective sensor	OT130170 dif. reflection sensor	OT130175 dif. reflection sensor
sensitivity adjustment	-	potentiometer	potentiometer
perating/sensing range	4.0m	0.2m	1.2m
	2x M4	2x M4  2x M4  2x M4  M8x1	12 2x M4 Poti Poti M8x1
TECHNICAL DATA			
operating range	4.0m	0.2m	1.2m
output signal	pnp, dark-on mode	pnp, light-on mode	pnp, light-on mode
operating voltage	10 35V DC	10 35V DC	10 35V DC
current consumption (w/o load)	≤ 10mA	≤ 10mA	≤ 10mA
output current (max. load)	200mA	200mA	200mA
voltage drop (max. load)	1.8V DC	1.8V DC	1.8V DC
transmitting element (pulsed)	LED, infrared	LED, infrared	LED, infrared
wavelength	880nm	880nm	880nm
sampling frequency	100Hz	100Hz	100Hz
nysteresis	-	< 20%	< 20%
repeat accuracy	< 10%	< 10%	< 10%
readiness delay	< 15ms	< 15ms	< 15ms
display (signal)	yellow LED	yellow LED	yellow LED
sensitivity adjustment		potentiometer	potentiometer
est input	-	-	-
short-circuit protection	+	+	+
reverse polarity protection	+	+	+
dimensions	12x74x12mm	12x69x12mm	12x74x12mm
	nickel-plated brass	nickel-plated brass	nickel-plated brass
nousing material	plactic	plastic	plastic
ens material	plastic		
ens material operating temperature	-5 +70°C	-5 +70°C	-5 +70°C
ens material operating temperature		-5 +70°C IP64	-5 +70°C IP65
ens material operating temperature degree of protection (EN 60529)	-5 +70°C		
ens material operating temperature degree of protection (EN 60529) connection	-5 +70°C IP65	IP64	IP65
ens material ens material eperating temperature degree of protection (EN 60529) connection connection accessories mounting accessories mounting accessories	-5 +70°C IP65 M8-connector, 3-pin	IP64 M8-connector, 3-pin	IP65 M8-connector, 3-pin



## THROUGH-BEAM, RETRO-REFLECTIVE, DIF. REFLECTION SENSORS 3000

#### connection

receiver through-beam sensor, retro-reflective sensor

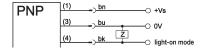


transmitter through-beam sensor



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

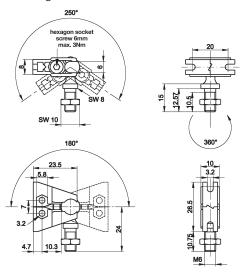
### dif. reflection sensor



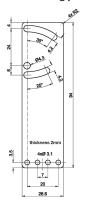
 ${\bf system\ test:}\ To\ disable\ the\ transmitter\ in\ a\ through-beam\ sensor\ the\ blue\ (3)\ and\ black\ (4)\ line\ must\ be\ connected\ together.$ 

**important note:** If a cable socket with LED display has to be used for connection of the sensor, the black wire (4) must be permanently connected to +24V DC to prevent the transmitter being disabled via the LEDI

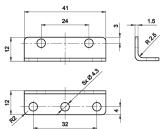
# mounting accessories (universal holder) AY000119 consisting of base module ...



#### ... and fitting panel



## mounting bracket AY000058



## **ACCESSORIES**

article-no.	description	note
AY000088	base module *	jaw: stainless steel, ball pin: galvanized steel
AY000119	mounting kit for sensors Ox13	stainless steel
AY000058	mounting bracket	aluminium

<sup>\*</sup> The AY000088 base module is contained in every mounting kit. Material of bolts and nuts: galvanized steel.

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-sensorflexe" or search our website for "VK".

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

## This data sheet as well as your personal contact can be found at www.ipf-electronic.com

# **OPTICAL SENSORS**



3000 THROUGH-BEAM, RETRO-REFLECTIVE, DIF. REFLECTION SENSORS

# **NOTES**

