#### **IPF** ELECTRONIC **OPTICAL SENSORS** THROUGH-BEAM, RETRO-REFLECTIVE, DIF. REFLECTION SENSORS 1200

design

M12x1 M18x1 M30x1.5

M8x0.75

through-beam sensor retro-reflective sensor dif. reflection sensor operating distance operating distance sensing range

up to 10.0m up to 4.0m up to 1.5m

- ✓ robust metal housing
- integrated amplifier, adjustable diffuse reflection sensors
- high sampling frequency and sensing ranges
- ✓ connection with cable, M8- or M12-connector



up to 10m operating distance<br/>stainless steel or brass housingI→I→I→

#### description

These days, optoelectronic sensors are indispensable components in many automated manufacturing processes. They are used everywhere where parts have to be more reliably detected in a way which is fast and without contact, or have to be counted, measured or positioned.

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.

Among other things, diffuse reflection sensors with intensity differentiation are suited to differentiate white / black objects. If, in the case of the receivers of through-beam sensors or diffuse reflection sensors, the corresponding LED flashes when the output is switched, the respective device is working without sufficient functional reserve, e.g. due to soiling or maladjustment. The LED display lights up if the output is securely switched.

**PNP** 

The design M18 devices have a programmable output circuit (light-on or dark-on mode).

The transmitting power of the M12 design transmitters can be adjusted using an external potentiometer. Through this the operating distance in connection with the corresponding receiver can be reduced. Furthermore these devices have a test input that makes a selective cut off possible.

#### application examples

- presence check of various objects
- > avoiding collision, in the case of feeding movements
- monitoring of object heights and pile heights
- limit switches, position switches and pulse generators

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1200 THROUGH-BEAM, RETRO-REFLECTIVE, DIF. REFLECTION SENSORS

article-no.	OE080100	OE080170
version	through-beam receiver	through-beam receiver
operating range	2.5m	2.5m
connection	cable	connector
article-no.	OS080000	OS080070
version	through-beam transmitter	through-beam transmitter
operating range connection	2.5m cable	2.5m connector
	M8x0.75	MBx0.75 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
TECHNICAL DATA	2.5	25
operating distance	2.5m	2.5m
output signal	pnp dark-on mode *	pnp dark-on mode *
operating voltage	10 30V DC	10 30V DC
operating voltage current consumption (w/o load)	$\leq$ 24mA (receiver) / $\leq$ 17mA (transmitter)	$\leq$ 24mA (receiver) / $\leq$ 17mA (transmitter)
output current (max. load)	100mA *	100mA *
voltage drop (max. load)	2.0V DC *	2.0V DC *
transmitting element (pulsed)	LED, infrared light, 880nm	LED, Infrarotlicht ,880nm
response/decay time	< 2.5msec *	< 2.5msec *
display (signal)	red LED *	red LED *
display (stand-by)	red LED, flashing *	red LED red LED
sensitivity adjustment	-	-
short-circuit protection	+	+
reverse polarity protection	+	+
design	M8x0.75	M8x0.75
length (thread/complete)	48mm/59mm	55mm/75mm
housing material	nickel-plated brass	nickel-plated brass
front screen material	plastic	plastic
operating temperature	-25 +65°C	-25 +65°C
system of protection (EN 60529)	IP65	IP65
connection	cable, PVC, 3-wire	M8-connector, 3-pin
connection accessories	-	e.g. <b>VK200075</b> , 2m straight, PUR
* only receiver		

THROUGH-BEAM, RETRO-REFLECTIVE, DIF. REFLECTION SENSORS 1200

**IPF** ELECTRONIC

article-no. version	OT080100	OT080105	OT080170	OT080175
	dif. reflection sensor with intensity differentiation	dif. reflection sensor with intensity differentiation	dif. reflection sensor with intensity differentiation	dif. reflection sensor with intensity differentiation
operating range	40mm	80mm	40mm	80mm
connection	cable	cable	connector	connector
	M8.0x0.75	M8.0x0.75	M8x0.75 19 19 10 10 10 10 10 10 10 10 10 10	M8x0.75 19 19 10 11 11 11 11 11 11 11 11 11
TECHNICAL DATA	10	20	10	00
sensing range	40mm	80mm	40mm	80mm
output signal	pnp light-on mode	pnp light-on mode	pnp light-on mode	pnp light-on mode
operating voltage	10 30V DC	10 30V DC	10 30V DC	10 30V DC
current consumption (w/o load)	≤ 20mA	≤ 20mA	≤ 20mA	≤ 20mA
output current (max. load)	100mA	100mA	100mA	100mA
voltage drop (max. load)	2.0V DC	2.0V DC	2.0V DC	2.0V DC
transmitting element (pulsed) response/decay time	LED, infrared light, 880nm < 1msec			
	-			
	red LED red LED, flashing	red LED	red LED	red LED red LED, flashing
		red LED, flashing		
display (stand-by)	-	-	red LED, flashing	reu LED, hashing
display (signal) display (stand-by) sensitivity adjustment short-circuit protection	· ·	-		-
display (stand-by) sensitivity adjustment short-circuit protection	- +	- +	+	+
display (stand-by) sensitivity adjustment short-circuit protection reverse polarity protection	- + +	- + +	- + +	- + +
display (stand-by) sensitivity adjustment short-circuit protection reverse polarity protection design	- + + M8x0.75	- + + M8x0.75	- + + M8x0.75	- + + M8x0.75
display (stand-by) sensitivity adjustment short-circuit protection reverse polarity protection design length (thread/complete)	- + + M8x0.75 48mm/56mm	- + + M8x0.75 48mm/56mm	- + + M8x0.75 55mm/72mm	- + + M8x0.75 55mm/72mm
display (stand-by) sensitivity adjustment short-circuit protection reverse polarity protection design	- + + M8x0.75	- + + M8x0.75	- + + M8x0.75	- + + M8x0.75 55mm/72mm nickel-plated brass
display (stand-by) sensitivity adjustment short-circuit protection reverse polarity protection design length (thread/complete) housing material lens material	- + + M8x0.75 48mm/56mm nickel-plated brass	- + + M8x0.75 48mm/56mm nickel-plated brass	- + + M8x0.75 55mm/72mm nickel-plated brass	- + + M8x0.75 55mm/72mm
display (stand-by) sensitivity adjustment short-circuit protection reverse polarity protection design length (thread/complete) housing material lens material operating temperature	- + + M8x0.75 48mm/56mm nickel-plated brass plastic	- + + M8x0.75 48mm/56mm nickel-plated brass plastic	- + + M8x0.75 55mm/72mm nickel-plated brass plastic	- + + M8x0.75 55mm/72mm nickel-plated brass plastic
display (stand-by) sensitivity adjustment short-circuit protection reverse polarity protection design length (thread/complete) housing material	- + + M8x0.75 48mm/56mm nickel-plated brass plastic -25 +65°C	- + + M8x0.75 48mm/56mm nickel-plated brass plastic -25 +65°C	- + + M8x0.75 55mm/72mm nickel-plated brass plastic -25 +65°C	- + + M8x0.75 55mm/72mm nickel-plated brass plastic -25 +65°C



1200 THROUGH-BEAM, RETRO-REFLECTIVE, DIF. REFLECTION SENSORS

article-no.	OE120125	OS120020	OT120100	OT120120
version	through-beam receiver	through-beam transmitter	dif. reflection sensor with intensity differentiation	dif. reflection sensor wit intensity differentiation
operating range	6m	-	30 200mm	30 200mm
connection	connector	connector	cable	connector
	M12x1 y y y y y y y y y y y y y	N12x1 1 1 1 1 1 1 1 1 1 1 1 1 1	SW17 SW17 SW17 Poti U U U U U U U U U U U U U U U U U U U	M12x1 SW17 SW17 SW17 Poti 0 LED Ø 10.5 M12x1
TECHNICAL DATA				
operating distance/sensing range	6m	(external adjustable)	30 200mm	30 200mm
output signal	pnp light-on mode		pnp light-on mode	pnp light-on mode
operating voltage	10 30V DC	10 30V DC	10 30V DC	10 30V DC
current consumption (w/o load)	≤ 20mA	≤ 28mA	≤ 24mA	≤ 24mA
output current (max. load)	100mA	•	200mA	200mA
voltage drop (max. load)	2.1V DC		1.8V DC	1.8V DC
transmitting element (pulsed)	•	LED, infrared light, 880nm	LED, infrared light, 880nm	LED, infrared light, 880n
response/decay time	< 6msec	•	< 1msec	< 1msec
display (signal)	red LED		yellow LED	yellow LED
display (operation)	-	green LED	-	-
display (stand-by)	-	· ·	yellow LED, flashing	yellow LED, flashing
sensitivity adjustment	potentiometer		potentiometer	potentiometer
short-circuit protection	+	+	+	+
reverse polarity protection	+	+	+	+
design	M12x1	M12x1	M12x1	M12x1
length (thread/complete)	52.5mm/70mm	52.5mm/70mm	42mm/70.5mm	42mm/81mm
housing material	stainless steel	stainless steel	nickel-plated brass	nickel-plated brass
lens material	plastic	plastic	plastic	plastic
operating temperature	-25 +55°C	-25 +55°C	-25 +65°C	-25 +65°C
		IP67	IP65	IP65
system of protection (EN 60529)	IP67	IFU7	11 05	
system of protection (EN 60529) connection	IP67 M12-connector, 3-pin	M12-connector, 3-pin	cable, 2m, PVC, 3-wire	M12-connector, 3-pin

THROUGH-BEAM, RETRO-REFLECTIVE, DIF. REFLECTION SENSORS 1200

**IPF** ELECTRONIC

article-no.	OE180303	OE180323
version	through-beam receiver	through-beam receiver
operating range	10m	10m
connection	cable	connector
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article-no.	OS180003	OS180023
version	through-beam transmitter	through-beam transmitter
operating range	10m	10m
connection	cable	connector
	milest sw 24 by 24 composition for the second secon	Image: wide wide wide wide wide wide wide wide
TECHNICAL DATA		
operating distance	10m	10m
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)	≤ 25mA (receiver) / ≤ 25mA (transmitter)	≤ 25mA (receiver) / ≤ 25mA (transmitter)
output current (max. load)	100mA *	100mA *
voltage drop (max. load)	2.0V DC *	2.0V DC *
transmitting element (pulsed)	LED, infrared light, 880nm	LED, infrared light, 880nm
response/decay time	< 1.0msec*	< 1.0msec *
display (signal)	yellow LED *	yellow LED *
display (operation)	green LED	green LED
display (stand-by)	green LED, flashing *	green LED, flashing *
sensitivity adjustment	potentiometer *	potentiometer *
short-circuit protection	+	+
reverse polarity protection	+	+
design	M18x1	M18x1
length (thread/complete)	35mm/60mm	35mm/71mm
housing material	nickel-plated brass	nickel-plated brass
front screen material	plastic	plastic
operating temperature	-25 +55°C	-25 +55°C
system of protection (EN 60529)	IP67	IP67
connection	cable, PVC, 4-wire	M12-connector, 4-pin
connection accessories		e.g. <b>VK200325</b> , 2m
		straight, PUR



1200 THROUGH-BEAM, RETRO-REFLECTIVE, DIF. REFLECTION SENSORS

article-no. version operating range	OR180303 retro-refl. sensor 4m	OR180323 retro-refl. sensor 4m	OT180303 dif. reflection sensor 200mm	OT180323 dif. reflection sensor 200mm
connection	cable	connector	cable	connector
	B SW 24 B B B B B B B B B B B B B B B B B B B	W 24 SW 24 B B C C C C C C C C C C C C C C C C C	W18x1 SW 24 B Poti ED D D 5	W18x1 SW 24 B B B C SW 24 B C SW 24 B C SW 24 C SW 25 C SW 26 C SW 25 C SW 25 SW 25
TECHNICAL DATA				
operating distance/sensing range	4m	4m	0 200mm	0 200mm
	4m pnp light-on / dark-on mode	4m pnp light-on / dark-on mode	0 200mm pnp light-on / dark-on mode	0 200mm pnp light-on / dark-on mode
operating distance/sensing range	pnp	pnp	pnp	pnp
operating distance/sensing range output signal operating voltage current consumption (w/o load)	pnp light-on / dark-on mode	pnp light-on / dark-on mode	pnp light-on / dark-on mode	pnp light-on / dark-on mode
operating distance/sensing range output signal operating voltage	pnp light-on / dark-on mode 10 30V DC	pnp light-on / dark-on mode 10 30V DC	pnp light-on / dark-on mode 10 30V DC ≤ 25mA 100mA	pnp light-on / dark-on mode 10 30V DC
operating distance/sensing range output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load)	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC	pnp light-on / dark-on mode 10 30V DC ≤ 25mA 100mA 2.5V DC	pnp light-on / dark-on mode 10 30V DC ≤ 25mA 100mA 2.5V DC
operating distance/sensing range output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load) transmitting element (pulsed)	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC LED, infrared light, 880nm	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC LED, infrared light, 880nm	pnp light-on / dark-on mode 10 30V DC ≤ 25mA 100mA 2.5V DC LED, infrared light, 880nm	pnp light-on / dark-on mode 10 30V DC ≤ 25mA 100mA 2.5V DC LED, infrared light, 880nm
operating distance/sensing range output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load)	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC	pnp light-on / dark-on mode 10 30V DC ≤ 25mA 100mA 2.5V DC	pnp light-on / dark-on mode 10 30V DC ≤ 25mA 100mA 2.5V DC
operating distance/sensing range output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load) transmitting element (pulsed) response/decay time display (signal)	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC LED, infrared light, 880nm	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC LED, infrared light, 880nm	pnp light-on / dark-on mode 10 30V DC ≤ 25mA 100mA 2.5V DC LED, infrared light, 880nm	pnp light-on / dark-on mode 10 30V DC ≤ 25mA 100mA 2.5V DC LED, infrared light, 880nm
operating distance/sensing range output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load) transmitting element (pulsed) response/decay time	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC LED, infrared light, 880nm < 1msec	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC LED, infrared light, 880nm < 1msec	pnp light-on / dark-on mode 10 30V DC ≤ 25mA 100mA 2.5V DC LED, infrared light, 880nm < 1msec	pnp light-on / dark-on mode 10 30V DC ≤ 25mA 100mA 2.5V DC LED, infrared light, 880nm < 1msec
operating distance/sensing range output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load) transmitting element (pulsed) response/decay time display (signal)	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC LED, infrared light, 880nm < 1msec yellow LED	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC LED, infrared light, 880nm < 1msec yellow LED	pnp light-on / dark-on mode 10 30V DC ≤ 25mA 100mA 2.5V DC LED, infrared light, 880nm < 1msec yellow LED green LED green LED, flashing	pnp light-on / dark-on mode 10 30V DC ≤ 25mA 100mA 2.5V DC LED, infrared light, 880nm < 1msec yellow LED
operating distance/sensing range output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load) transmitting element (pulsed) response/decay time display (signal) display (operation)	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC LED, infrared light, 880nm < 1msec yellow LED green LED	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC LED, infrared light, 880nm < 1msec yellow LED green LED	pnp light-on / dark-on mode 10 30V DC ≤ 25mA 100mA 2.5V DC LED, infrared light, 880nm < 1msec yellow LED green LED	pnp light-on / dark-on mode 10 30V DC ≤ 25mA 100mA 2.5V DC LED, infrared light, 880nm < 1msec yellow LED green LED
operating distance/sensing range output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load) transmitting element (pulsed) response/decay time display (signal) display (operation) display (stand-by)	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC LED, infrared light, 880nm < 1msec yellow LED green LED green LED, flashing	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC LED, infrared light, 880nm < 1msec ↓ yellow LED green LED green LED, flashing	pnp light-on / dark-on mode 10 30V DC ≤ 25mA 100mA 2.5V DC LED, infrared light, 880nm < 1msec yellow LED green LED green LED, flashing	pnp light-on / dark-on mode 10 30V DC ≤ 25mA 100mA 2.5V DC LED, infrared light, 880nm < 1msec yellow LED green LED green LED, flashing
operating distance/sensing range output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load) transmitting element (pulsed) response/decay time display (signal) display (operation) display (stand-by) sensitivity adjustment	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC LED, infrared light, 880nm < 1msec yellow LED green LED green LED, flashing potentiometer	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC LED, infrared light, 880nm < 1msec 4 1msec yellow LED green LED, flashing potentiometer	pnp light-on / dark-on mode 10 30V DC ≤ 25mA 100mA 2.5V DC LED, infrared light, 880nm < 1msec yellow LED green LED, flashing potentiometer	pnp light-on / dark-on mode 10 30V DC ≤ 25mA 100mA 2.5V DC LED, infrared light, 880nm < 1msec yellow LED green LED green LED, flashing potentiometer
operating distance/sensing range output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load) transmitting element (pulsed) response/decay time display (signal) display (operation) display (stand-by) sensitivity adjustment short-circuit protection reverse polarity protection	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC LED, infrared light, 880nm < 1msec yellow LED green LED green LED green LED, flashing potentiometer +	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC LED, infrared light, 880nm < 1msec yellow LED green LED green LED, flashing potentiometer +	pnp light-on / dark-on mode 10 30V DC ≤ 25mA 100mA 2.5V DC LED, infrared light, 880nm < 1msec yellow LED green LED green LED green LED, flashing potentiometer +	pnp light-on / dark-on mode 10 30V DC ≤ 25mA 100mA 2.5V DC LED, infrared light, 880nm < 1msec yellow LED green LED green LED green LED, flashing potentiometer +
operating distance/sensing range output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load) transmitting element (pulsed) response/decay time display (signal) display (operation) display (stand-by) sensitivity adjustment short-circuit protection	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC LED, infrared light, 880nm < 1msec vellow LED green LED green LED green LED, flashing potentiometer + +	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC LED, infrared light, 880nm < 1msec 4 msec yellow LED green LED green LED, flashing potentiometer + +	pnp light-on / dark-on mode 10 30V DC ≤ 25mA 100mA 2.5V DC LED, infrared light, 880nm < 1msec yellow LED green LED green LED, flashing potentiometer + +	pnp light-on / dark-on mode 10 30V DC ≤ 25mA 100mA 2.5V DC LED, infrared light, 880nm < 1msec yellow LED green LED green LED, flashing potentiometer + +
operating distance/sensing range output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load) transmitting element (pulsed) response/decay time display (signal) display (operation) display (stand-by) sensitivity adjustment short-circuit protection reverse polarity protection design length (thread/complete)	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC LED, infrared light, 880nm < 1msec yellow LED green LED, flashing potentiometer + + + M18x1 35mm/60mm	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC LED, infrared light, 880nm < 1msec 4 yellow LED green LED, flashing potentiometer + + 1 M18x1 35mm/71mm	pnp light-on / dark-on mode 10 30V DC ≤ 25mA 100mA 2.5V DC LED, infrared light, 880nm < 1msec ↓ yellow LED green LED, flashing potentiometer + + + M18x1 35mm/60mm	pnp light-on / dark-on mode 10 30V DC ≤ 25mA 100mA 2.5V DC LED, infrared light, 880nm < 1msec yellow LED green LED green LED, flashing potentiometer + + + M18x1 35mm/71mm
operating distance/sensing range output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load) transmitting element (pulsed) response/decay time display (signal) display (operation) display (stand-by) sensitivity adjustment short-circuit protection reverse polarity protection design	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC LED, infrared light, 880nm < 1msec ↓ yellow LED green LED green LED, flashing potentiometer + + +	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC LED, infrared light, 880nm < 1msec 4 yellow LED green LED, flashing potentiometer + 4 M18x1 35mm/71mm nickel-plated brass	pnp light-on / dark-on mode 10 30V DC ≤ 25mA 100mA 2.5V DC LED, infrared light, 880nm < 1msec yellow LED green LED, flashing potentiometer + + + M18x1 35mm/60mm nickel-plated brass	pnp light-on / dark-on mode 10 30V DC ≤ 25mA 100mA 2.5V DC LED, infrared light, 880nm < 1msec yellow LED green LED, flashing potentiometer + + + M18x1 35mm/71mm nickel-plated brass
operating distance/sensing range output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load) transmitting element (pulsed) response/decay time display (signal) display (operation) display (operation) display (stand-by) sensitivity adjustment short-circuit protection reverse polarity protection design length (thread/complete) housing material front screen material	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC LED, infrared light, 880nm < 1msec yellow LED green LED, flashing potentiometer + + * M18x1 35mm/60mm nickel-plated brass plastic	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC LED, infrared light, 880nm < 1msec 4 yellow LED green LED, flashing potentiometer 4 + 1 M18x1 35mm/71mm nickel-plated brass plastic	pnp light-on / dark-on mode 10 30V DC ≤ 25mA 100mA 2.5V DC LED, infrared light, 880nm < 1msec yellow LED green LED, flashing potentiometer + + M18x1 35mm/60mm nickel-plated brass plastic	pnp light-on / dark-on mode 10 30V DC ≤ 25mA 100mA 2.5V DC LED, infrared light, 880nm < 1msec yellow LED green LED, flashing potentiometer + + + M18x1 35mm/71mm nickel-plated brass plastic
operating distance/sensing range output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load) voltage drop (max. load) transmitting element (pulsed) response/decay time display (signal) display (signal) display (operation) display (operation) display (stand-by) sensitivity adjustment short-circuit protection reverse polarity protection design length (thread/complete) housing material front screen material operating temperature	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC LED, infrared light, 880nm < 1msec yellow LED green LED, flashing potentiometer + + + M18x1 35mm/60mm nickel-plated brass	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC LED, infrared light, 880nm < 1msec 4 yellow LED green LED, flashing potentiometer + 4 M18x1 35mm/71mm nickel-plated brass	pnp light-on / dark-on mode 10 30V DC ≤ 25mA 100mA 2.5V DC LED, infrared light, 880nm < 1msec yellow LED green LED, flashing potentiometer + + + M18x1 35mm/60mm nickel-plated brass	pnp light-on / dark-on mode 10 30V DC ≤ 25mA 100mA 2.5V DC LED, infrared light, 880nm < 1msec yellow LED green LED, flashing potentiometer + + + M18x1 35mm/71mm nickel-plated brass
operating distance/sensing range output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load) transmitting element (pulsed) response/decay time display (signal) display (operation) display (operation) display (stand-by) sensitivity adjustment short-circuit protection reverse polarity protection design length (thread/complete) housing material front screen material operating temperature system of protection (EN 60529)	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC LED, infrared light, 880nm < 1msec yellow LED green LED green LED, flashing potentiometer + + M18x1 35mm/60mm nickel-plated brass plastic -25 +55°C IP67	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC LED, infrared light, 880nm < 1msec 4 USU yellow LED green LED, flashing potentiometer 4 + 4 M18x1 35mm/71mm nickel-plated brass plastic -25 +55°C IP67	pnp light-on / dark-on mode 10 30V DC ≤ 25mA 100mA 2.5V DC LED, infrared light, 880nm < 1msec yellow LED green LED, flashing green LED, flashing potentiometer + + M18x1 35mm/60mm nickel-plated brass plastic -25 +55°C IP67	$\begin{array}{c} & & & & & & \\ & & & & & & & & \\ & & & & & & & & & \\ & & & & & & & & & \\ & & & & & & & & & & \\ & & & & & & & & & \\ & & & & & & & & & \\ & & & & & & & & \\$
operating distance/sensing range output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load) voltage drop (max. load) transmitting element (pulsed) response/decay time display (signal) display (signal) display (operation) display (operation) display (stand-by) sensitivity adjustment short-circuit protection reverse polarity protection design length (thread/complete) housing material front screen material operating temperature	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC LED, infrared light, 880nm < 1msec yellow LED green LED, flashing potentiometer + + M18x1 35mm/60mm nickel-plated brass plastic -25 +55°C	pnp light-on / dark-on mode 10 30V DC ≤ 15mA 200mA 2.0V DC LED, infrared light, 880nm < 1msec 4 yellow LED green LED, flashing potentiometer 4 + 1 M18x1 35mm/71mm nickel-plated brass plastic -25 +55°C	$pnp$ $light-on / dark-on mode$ $10 \dots 30V DC$ $\leq 25mA$ $100mA$ $2.5V DC$ $LED, infrared light, 880nm$ $< 1msec$ $yellow LED$ $green LED, flashing$ $potentiometer$ $+$ $+$ $M18x1$ $35mm/60mm$ $nickel-plated brass$ $plastic$ $-25 \dots +55°C$	pnp light-on / dark-on mode $10 \dots 30V DC$ $\leq 25mA$ 100mA 2.5V DC LED, infrared light, 880nm < 1msec 2.5V DC LED, infrared light, 880nm q = 1msec q = 1

#### **IPF** ELECTRONIC **OPTICAL SENSORS** THROUGH-BEAM, RETRO-REFLECTIVE, DIF. REFLECTION SENSORS 1200

article-no.		
	OT300400	OT300420
ersion	dif. reflection sensor	dif. reflection sensor
perating range onnection	1.5m cable	1.5m M12-cable-connector
ensing range	1.5m	1.5m
ensing range	1.5m pnp light-on / dark-on mode	1.5m pnp light-on / dark-on mode
ensing range utput signal	pnp	pnp
ensing range utput signal perating voltage	pnp light-on / dark-on mode	pnp light-on / dark-on mode
ensing range utput signal perating voltage urrent consumption (w/o load)	pnp light-on / dark-on mode 10 30V DC	pnp light-on / dark-on mode 10 30V DC
ensing range utput signal perating voltage urrent consumption (w/o load) utput current (max. load)	pnp light-on / dark-on mode 10 30V DC ≤ 50mA 100mA	pnp light-on / dark-on mode 10 30V DC ≤ 50mA 100mA
ensing range utput signal perating voltage urrent consumption (w/o load) utput current (max. load) oltage drop (max. load)	pnp light-on / dark-on mode 10 30V DC ≤ 50mA	pnp light-on / dark-on mode 10 30V DC ≤ 50mA
ensing range utput signal perating voltage urrent consumption (w/o load) utput current (max. load) oltage drop (max. load) ransmitting element (pulsed)	pnp light-on / dark-on mode 10 30V DC ≤ 50mA 100mA 2.5V DC	pnp light-on / dark-on mode 10 30V DC ≤ 50mA 100mA 2.5V DC
ensing range putput signal operating voltage urrent consumption (w/o load) putput current (max. load) oltage drop (max. load) ransmitting element (pulsed) esponse/decay time	pnp light-on / dark-on mode 10 30V DC ≤ 50mA 100mA 2.5V DC LED, infrared light, 880nm < 2.5msec	pnp light-on / dark-on mode 10 30V DC ≤ 50mA 100mA 2.5V DC LED, infrared light, 880nm < 2.5msec
ensing range utput signal perating voltage urrent consumption (w/o load) utput current (max. load) oltage drop (max. load) ransmitting element (pulsed) esponse/decay time isplay (signal)	pnp light-on / dark-on mode 10 30V DC ≤ 50mA 100mA 2.5V DC LED, infrared light, 880nm	pnp light-on / dark-on mode 10 30V DC ≤ 50mA 100mA 2.5V DC LED, infrared light, 880nm
ensing range utput signal perating voltage urrent consumption (w/o load) utput current (max. load) oltage drop (max. load) ransmitting element (pulsed) esponse/decay time lisplay (signal) isplay (stand-by)	pnp light-on / dark-on mode 10 30V DC ≤ 50mA 100mA 2.5V DC LED, infrared light, 880nm < 2.5msec yellow LED	pnp light-on / dark-on mode 10 30V DC ≤ 50mA 100mA 2.5V DC LED, infrared light, 880nm < 2.5msec yellow LED
ensing range utput signal perating voltage urrent consumption (w/o load) utput current (max. load) oltage drop (max. load) ransmitting element (pulsed) esponse/decay time isplay (signal) isplay (stand-by) ensitivity adjustment	pnp light-on / dark-on mode 10 30V DC ≤ 50mA 100mA 2.5V DC LED, infrared light, 880nm < 2.5msec yellow LED yellow LED	pnp light-on / dark-on mode 10 30V DC ≤ 50mA 100mA 2.5V DC LED, infrared light, 880nm < 2.5msec yellow LED yellow LED
ensing range utput signal perating voltage urrent consumption (w/o load) utput current (max. load) oltage drop (max. load) ransmitting element (pulsed) esponse/decay time isplay (signal) isplay (stand-by) ensitivity adjustment hort-circuit protection	pnp light-on / dark-on mode 10 30V DC ≤ 50mA 100mA 2.5V DC LED, infrared light, 880nm < 2.5msec yellow LED yellow LED yellow LED, flashing potentiometer	pnp light-on / dark-on mode 10 30V DC ≤ 50mA 100mA 2.5V DC LED, infrared light, 880nm < 2.5msec yellow LED yellow LED yellow LED, flashing potentiometer
ensing range putput signal perating voltage urrent consumption (w/o load) putput current (max. load) oltage drop (max. load) ransmitting element (pulsed) esponse/decay time lisplay (signal) lisplay (stand-by) ensitivity adjustment hort-circuit protection everse polarity protection	pnp light-on / dark-on mode 10 30V DC ≤ 50mA 100mA 2.5V DC LED, infrared light, 880nm < 2.5msec yellow LED yellow LED yellow LED, flashing potentiometer +	pnp light-on / dark-on mode 10 30V DC ≤ 50mA 100mA 2.5V DC LED, infrared light, 880nm < 2.5msec yellow LED yellow LED yellow LED, flashing potentiometer +
ensing range putput signal perating voltage urrent consumption (w/o load) putput current (max. load) oltage drop (max. load) ransmitting element (pulsed) esponse/decay time lisplay (signal) lisplay (stand-by) ensitivity adjustment hort-circuit protection everse polarity protection lesign	pnp light-on / dark-on mode 10 30V DC ≤ 50mA 100mA 2.5V DC LED, infrared light, 880nm < 2.5msec yellow LED yellow LED yellow LED teD, flashing potentiometer + +	pnp light-on / dark-on mode 10 30V DC ≤ 50mA 100mA 2.5V DC LED, infrared light, 880nm < 2.5msec yellow LED yellow LED yellow LED yellow LED tentiometer + +
ensing range utput signal perating voltage urrent consumption (w/o load) utput current (max. load) oltage drop (max. load) ransmitting element (pulsed) esponse/decay time isplay (signal) isplay (stand-by) ensitivity adjustment hort-circuit protection everse polarity protection lesign ength (thread/complete)	pnp light-on / dark-on mode 10 30V DC ≤ 50mA 100mA 2.5V DC LED, infrared light, 880nm < 2.5msec yellow LED yellow LED yellow LED flashing potentiometer + + M30x1.5	pnp light-on / dark-on mode 10 30V DC ≤ 50mA 100mA 2.5V DC LED, infrared light, 880nm < 2.5msec yellow LED yellow LED yellow LED yellow LED teD, flashing potentiometer + + +
ensing range utput signal perating voltage urrent consumption (w/o load) utput current (max. load) oltage drop (max. load) ransmitting element (pulsed) esponse/decay time isplay (signal) isplay (stand-by) ensitivity adjustment hort-circuit protection everse polarity protection lesign ength (thread/complete) ousing material	pnp light-on / dark-on mode 10 30V DC ≤ 50mA 100mA 2.5V DC LED, infrared light, 880nm < 2.5msec yellow LED yellow LED yellow LED yellow LED, flashing potentiometer + + H30x1.5 52mm/66mm	pnp light-on / dark-on mode 10 30V DC ≤ 50mA 100mA 2.5V DC LED, infrared light, 880nm < 2.5msec yellow LED yellow LED yellow LED yellow LED yellow LED teD, flashing potentiometer + + + M30x1.5 52mm/66mm
ensing range utput signal perating voltage urrent consumption (w/o load) utput current (max. load) oltage drop (max. load) ransmitting element (pulsed) esponse/decay time isplay (signal) isplay (stand-by) ensitivity adjustment hort-circuit protection everse polarity protection esign ength (thread/complete) ousing material ens material	pnp light-on / dark-on mode 10 30V DC ≤ 50mA 100mA 2.5V DC LED, infrared light, 880nm < 2.5msec 2.5msec yellow LED yellow LED yellow LED, flashing potentiometer + + M30x1.5 52mm/66mm nickel-plated brass	pnp light-on / dark-on mode 10 30V DC ≤ 50mA 100mA 2.5V DC LED, infrared light, 880nm < 2.5msec yellow LED yellow LED yellow LED yellow LED tentiometer + + + M30x1.5 52mm/66mm nickel-plated brass
ensing range putput signal perating voltage urrent consumption (w/o load) putput current (max. load) oltage drop (max. load) ransmitting element (pulsed) esponse/decay time lisplay (signal) lisplay (signal) lisplay (stand-by) ensitivity adjustment hort-circuit protection everse polarity protection lesign ength (thread/complete) nousing material ens material uperating temperature	pnp light-on / dark-on mode 10 30V DC ≤ 50mA 100mA 2.5V DC LED, infrared light, 880nm < 2.5msec 2.5msec yellow LED yellow LED yellow LED, flashing potentiometer + + + M30x1.5 52mm/66mm nickel-plated brass plastic	pnp light-on / dark-on mode 10 30V DC ≤ 50mA 100mA 2.5V DC LED, infrared light, 880nm < 2.5msec yellow LED yellow LED yellow LED, flashing potentiometer + + + M30x1.5 52mm/66mm nickel-plated brass plastic
FECHNICAL DATA         sensing range         putput signal         operating voltage         current consumption (w/o load)         putput current (max. load)         voltage drop (max. load)         voltage drop (max. load)         varansmitting element (pulsed)         display (signal)         display (stand-by)         sensitivity adjustment         short-circuit protection         design         ength (thread/complete)         nousing material         ens material         operating temperature         system of protection (EN 60529)	$pnp$ $light-on / dark-on mode$ $10 \dots 30V DC$ $\leq 50mA$ $100mA$ $2.5V DC$ $LED, infrared light, 880nm$ $< 2.5msec$ $yellow LED$ $yellow LED$ $yellow LED, flashing$ $potentiometer$ $+$ $+$ $M30x1.5$ $52mm/66mm$ $nickel-plated brass$ $plastic$ $0 \dots +65°C$	$pnp$ $light-on / dark-on mode$ $10 \dots 30V DC$ $\leq 50mA$ $100mA$ $2.5V DC$ $LED, infrared light, 880nm$ $< 2.5msec$ $yellow LED$ $yellow LED$ $yellow LED, flashing$ $potentiometer$ $+$ $+$ $M30x1.5$ $52mm/66mm$ $nickel-plated brass$ $plastic$ $0 \dots +65^{\circ}C$

# **OPTICAL SENSORS IPF** ELECTRONIC 1200 THROUGH-BEAM, RETRO-REFLECTIVE, DIF. REFLECTION SENSORS



through-beam receiver, dif. reflection sensor

PNP	(1)	bn	0	+Vs
	(3)	bu		0V
	(4)			dark-on mode

through-beam transmitter



through-beam transmitter OS12

(1)	=) bn		⊖+Vs
(3)	=> bu	1.	⊃ <b>0</b> V
(4)	-> bk	÷	⊖ test

ween blue (3) and black (4).



**power adjustment OS12:** Controlling of the transmitting power via connection of a potentiometer between blue (3) and black (4).

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

ARTICLE-NO.	DESCRIPTION	MATERIAL
AY000088	base module *	flanges: stainless steel, ball pin: steel zinced
AY000089	fixture kit for M8x1 sensors	stainless steel
AY000090	fixture kit for M12x1 sensors	stainless steel
AY000091	fixture kit for M18x1 sensors	stainless steel

\* The base module **AY000088** is included in every fixture kit. Material of the screws and nuts: galvanized steel

ARTICLE-NO.	DESCRIPTION	FOR SENSOR DIAMETER	MATERIAL CLIP/SCREW
AY000047	quick clip	8mm	PA6 / galvanized steel
AY000048	quick clip with positive stop	8mm	PA6 / galvanized steel
AY000049	quick clip	12mm	PA6 / galvanized steel
AY000050	quick clip with positive stop	12mm	PA6 / galvanized steel
AY000051	quick clip	18mm	PA6 / galvanized steel
AY000052	quick clip with positive stop	18mm	PA6 / galvanized steel
AY000061	quick clip	30mm	PA6 / galvanized steel
AY000062	quick clip with positive stop	30mm	PA6 / galvanized steel
AY000053	straight base for quick clip	12mm, 18mm	PA6 / galvanized steel
AY000054	angular base for quick clip	12mm, 18mm	PA6 / galvanized steel
AY000055	quick clip identification labels	12 30mm	plastic / -
AY000057	box set with selection of quick clips	4 18mm	plastic / -

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.

retro-reflective sensor

PNP	(1)bn	O +Vs
	(3) bu	ov
	(4)bk	light-on mode

dif. reflection sensor OT30

DND	(1)bn	
1 1 1	(2)	
	(3) bu Z	
	(4)bk Z	⊖ 00 ───○ light-on mode

through-beam reciever OE18, retro-reflective senseor OR18, dif. reflection sensor OT18

PNP	(1)	bn		+Vs
	(2)	wh	<u> </u>	programming
	(3)	<u>bu</u>	⊢ ⊢	ov
/ no / nc	(4)	) <u>bk</u>	Z O	output

light-on mode:

connection between white (2) and brown (1)

dark-on mode:

connection between white (2) and blue (3)