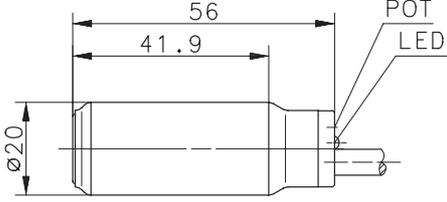
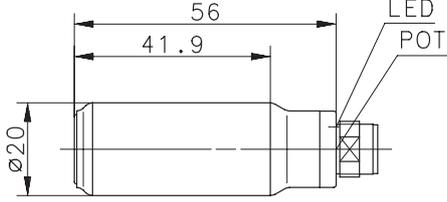
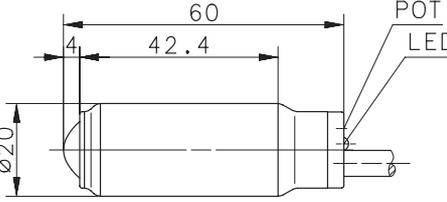
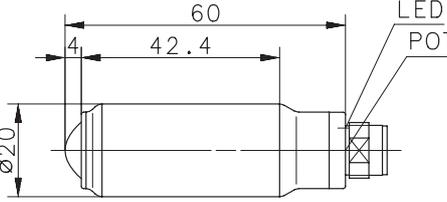
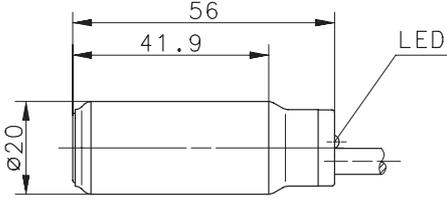
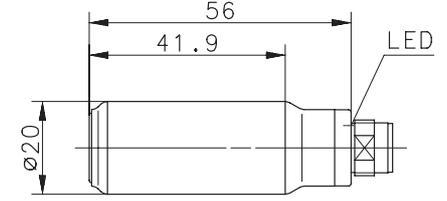


Overview of diffuse reflective, retroreflective and through-beam sensors

PA 12 – Front cap		
		
Sensing range	2m cable	M12 plug-in connection
RT 100mm fix.	655.7800.001	655.7800.002
RT 300mm var.	655.7800.003	655.7800.004
RT 500mm var.	655.7800.005	655.7800.006
FF 40mm fix.	655.8800.001	655.8800.002
RS 0,05 – 3m fix.	655.4800.001	655.4800.002

Glass lens		
		
Sensing range	2m cable	M12 plug-in connection
PS 0 – 2,5m var.	655.5800.001	655.5800.002
PS 0 – 0,8m var.	655.5800.003	655.5800.004

PA 12 – Front cap		
		
Sensing range	2m cable	M12 plug-in connection
SE	655.1000.001	655.1000.002
EE 8m	655.1800.001	655.1800.002

Abbreviations

- | | |
|--|--|
| RT = Diffuse reflective sensor | fix = sensing range is fixed |
| RS = Retroreflective sensor | var. = sensing range adjustable with potentiometer (spindle ~) |
| FF = Convergent beam sensor, fixed focus | SE = Through beam, transmitter |
| PS = Polarised retro sensor | EE = Through beam, receiver |

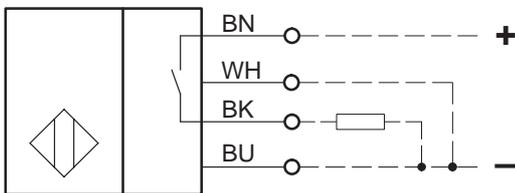
Switching function and wiring diagrams

The description refers to:

Sensors	Sensing types	Mounting conditions
Diffuse reflective sensor	RT, FF	without an object inside the sensing range
Retroreflective sensor	RS, PS	with mounted reflector but without an object inside the sensing range
Through-beam sensor	EE	with mounted emitter but without an object inside the sensing range

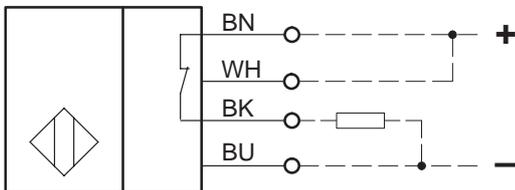
N.O.

PNP – sensors



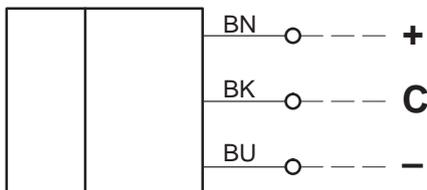
N.C.

PNP – sensors



With the CTRL. wire **WH** output function is programmable. A not connected **WH** wire (e.g. connector type) occurs in a N.O. function. Sensor types RT and FF usually are light active, other sensors like RS, PS and EE are dark active.

Wiring diagram of the emitter



C = Control-Input. The emitter will be turned off when „Control“ and „-“ get connected (system test).

M12 connector and corresponding colours

colour	code	pin number
blue	BU	3
white	WH	2
black	BK	4
brown	BN	1

Technical Data according to EN 60947-5-2

Electrical Data

Operational voltage range	U_B	10 – 36V DC
False polarity protection		yes
Output		permanent overload protection, programmable, Indication: LED yellow
Short-circuit protection		pulsed
Max. rated output current	I	200mA
Voltage drop	U_d	$\leq 2V$
Off-state current	I_r	$\leq 0,1mA$
Utilization category		DC-13 @ $I_e = 50mA$ and $U_e = 33V$ DC
Rated insulation voltage	U_i	75V DC
Rated impulse withstand voltage	U_{imp}	500V
Type of protection		IP 67 / NEMA 4
Pollution degree		3 (Pollution of the optic can cause impairments of the sensing range.)
Ambient air temperature		$-20^{\circ}C \dots +70^{\circ}C / -4^{\circ}F \dots +158^{\circ}F$
Ambient light proof		10kLux
Sensing range	s_d	see overview
Differential travel (hysteresis)	H	$\leq 15\%$
Repeat accuracy	R	$\leq 10\%$
Frequency of operating cycles	f	500Hz
Turn on time	t_{on}	1ms
Time delay before availability	t_v	50ms
No-load supply current	I_0	$\leq 15mA$, (Emitter $\leq 25mA$, Indication: LED green)
Minimum operating current	I_m	$\leq 1mA$

Elektromagnetic compatibility (EMC)

Electromagnetic field test	IEC 61000-4-3	$3^V/m$
Electrostatic discharge test	IEC 61000-4-2	4kV
Electrical fast transient immunity test	IEC 61000-4-4	2kV
Radiated disturbance field strength	EN55011	$\leq 40dB$ ($^{\mu}V/m$)

Materials

Housing	Stainless steel (Niro 1.4305)
End cap	PA 6.6
Front cap	PA 12 / Glass @ PS
Cable	PVC
Wire gauge	AWG 32 / 0,34mm ²
M12 connector	PA