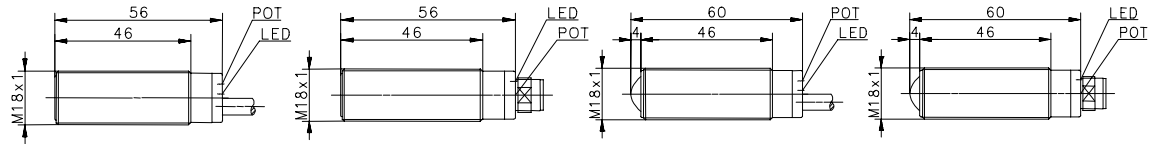


Series M18

Overview of diffuse reflective and retro reflective sensors



| Type OT, plastic housing | | | | | | | | |
|--------------------------|--------------------------|------------|------------------------|------------|-------------------|------------|------------------------|------------|
| Sensing range | Plain front type (PA 12) | | | | Lens type (glass) | | | |
| | 2m cable | | M12 plug-in connection | | 2m cable | | M12 plug-in connection | |
| | PNP | NPN | PNP | NPN | PNP | NPN | PNP | NPN |
| RT 100mm fix. | 6557819004 | 6557219004 | 6557818002 | 6557218001 | | | | |
| RT 300mm var. | 6557819005 | 6557219005 | 6557818003 | 6557218005 | | | | |
| RT 500mm var. | 6557819006 | 6557219006 | 6557818006 | 6557218006 | | | | |
| FF 40mm fix. | 6558819001 | 6558219001 | 6558818002 | 6558218001 | | | | |
| RS 0,05 - 3m fix. | 6554819003 | 6554219002 | 6554818001 | 6554218001 | | | | |
| PS 0 - 2,5m var. | | | | | 6555819003 | 6555219001 | 6555818001 | 6555218001 |
| PS 0 - 0,8m var. | | | | | 6555819004 | 6555219002 | 6555818002 | 6555218002 |

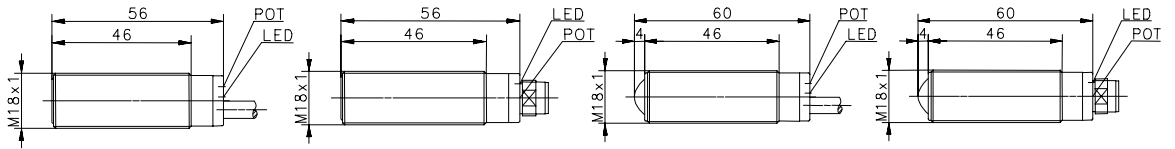
| Type OM, brass housing | | | | | | | | |
|------------------------|--------------------------|------------|------------------------|------------|-------------------|------------|------------------------|------------|
| Sensing range | Plain front type (PA 12) | | | | Lens type (glass) | | | |
| | 2m cable | | M12 plug-in connection | | 2m cable | | M12 plug-in connection | |
| | PNP | NPN | PNP | NPN | PNP | NPN | PNP | NPN |
| RT 100mm fix. | 6557817002 | 6557217001 | 6557816001 | 6557216001 | | | | |
| RT 300mm var. | 6557817003 | 6557217002 | 6557816002 | 6557216003 | | | | |
| RT 500mm var. | 6557817004 | 6557217003 | 6557816006 | 6557216004 | | | | |
| FF 40mm fix. | 6558817001 | 6558217001 | 6558816001 | 6558216001 | | | | |
| RS 0,05 - 3mfix. | 6554817001 | 6554217001 | 6554816001 | 6554216001 | | | | |
| PS 0 - 2,5m var. | | | | | 6555817001 | 6555217001 | 6555816001 | 6555216001 |
| PS 0 - 0,8m var. | | | | | 6555817002 | 6555217002 | 6555816002 | 6555216002 |

| Type ON, stainless steel housing | | | | | | | | |
|----------------------------------|--------------------------|------------|------------------------|------------|-------------------|------------|------------------------|------------|
| Sensing range | Plain front type (PA 12) | | | | Lens type (glass) | | | |
| | 2m cable | | M12 plug-in connection | | 2m cable | | M12 plug-in connection | |
| | PNP | NPN | PNP | NPN | PNP | NPN | PNP | NPN |
| RT 100mm fix. | 6557822001 | 6557222001 | 6557821001 | 6557221001 | | | | |
| RT 300mm var. | 6557822002 | 6557222002 | 6557821002 | 6557221002 | | | | |
| RT 500mm var. | 6557822003 | 6557222003 | 6557821003 | 6557221003 | | | | |
| FF 40mm fix. | 6558822001 | 6558222001 | 6558821001 | 6558221001 | | | | |
| RS 0,05 - 3m fix. | 6554822001 | 6554222001 | 6554821001 | 6554221001 | | | | |
| PS 0 - 2,5m var. | | | | | 6555822001 | 6555222001 | 6555821001 | 6555221001 |
| PS 0 - 0,8m var. | | | | | 6555822002 | 6555222002 | 6555821002 | 6555221002 |

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Overview of through-beam sensors



| Type OT, plastic housing | | | | | | | | |
|--------------------------|------------|------------|------------------------|------------|------------|------------|------------------------|------------|
| Sensing range | Receiver | | | | Set | | | |
| | 2m cable | | M12 plug-in connection | | 2m cable | | M12 plug-in connection | |
| | PNP | NPN | PNP | NPN | PNP | NPN | PNP | NPN |
| 8 m | 6551819001 | 6551219002 | 6551818001 | 6551218001 | 6551819101 | 6551219102 | 6551818101 | 6551218101 |
| | Emitter | | | | | | | |
| | 6551019001 | | 6551018001 | | | | | |

| Type OM, brass housing | | | | | | | | |
|------------------------|------------|------------|------------------------|------------|------------|------------|------------------------|------------|
| Sensing range | Receiver | | | | Set | | | |
| | 2m cable | | M12 plug-in connection | | 2m cable | | M12 plug-in connection | |
| | PNP | NPN | PNP | NPN | PNP | NPN | PNP | NPN |
| 8 m | 6551817001 | 6551217001 | 6551816001 | 6551216001 | 6551817101 | 6551217101 | 6551816101 | 6551216101 |
| | Emitter | | | | | | | |
| | 6551017001 | | 6551016001 | | | | | |

| Type ON, stainless steel housing | | | | | | | | |
|----------------------------------|------------|------------|------------------------|------------|------------|------------|------------------------|------------|
| Sensing range | Receiver | | | | Set | | | |
| | 2m cable | | M12 plug-in connection | | 2m cable | | M12 plug-in connection | |
| | PNP | NPN | PNP | NPN | PNP | NPN | PNP | NPN |
| 8 m | 6551822001 | 6551222001 | 6551821001 | 6551221001 | 6551822101 | 6551222101 | 6551821101 | 6551221101 |
| | Emitter | | | | | | | |
| | 6551022001 | | 6551021001 | | | | | |

Abbreviations:

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

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Switching function and wiring diagrams

The description refers to:

Sensors

Diffuse reflective sensor
Retroreflective sensor
Through-beam sensor

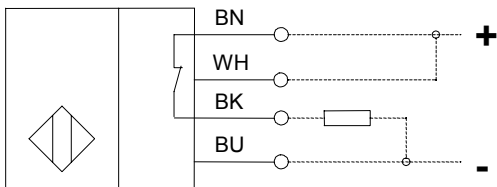
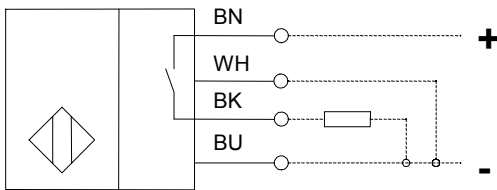
Sensing types

RT, FF
RS, PS
EE

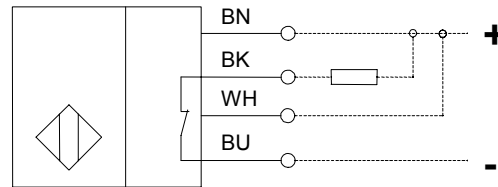
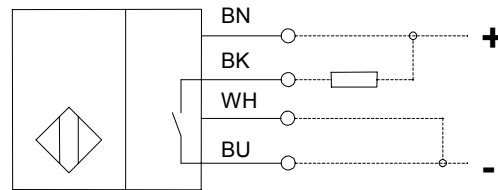
Mounting conditions

without an object inside the sensing range
with mounted reflector but without an object inside the sensing range
with mounted emitter but without an object inside the sensing range

PNP – Sensors



NPN - Sensors



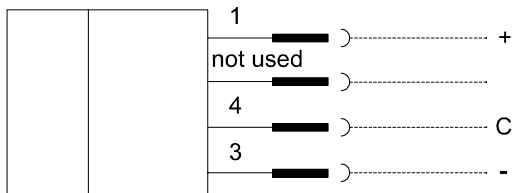
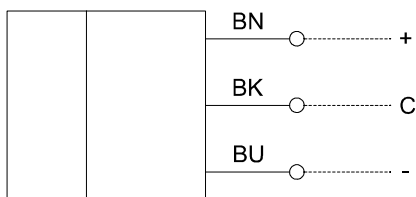
With the CTRL. wire **WH** output function is programmable. The change of the output function comes into effect after switching on the supply voltage.

A not connected **WH** wire (e.g. connector type) occurs in a N.O. function.

WH must be connected, if it is 4-wired cable, depending on the output function.

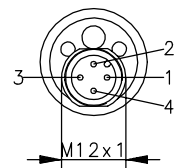
Sensor types RT and FF usually are light active, other sensors like RS, PS and EE are dark active.

through-beam sensors - transmitter



M12 connector and corresponding colours

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

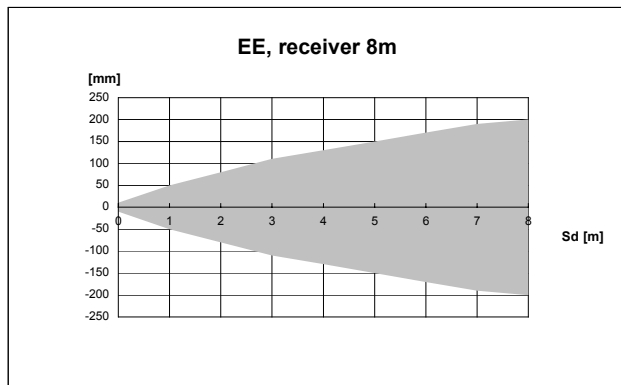
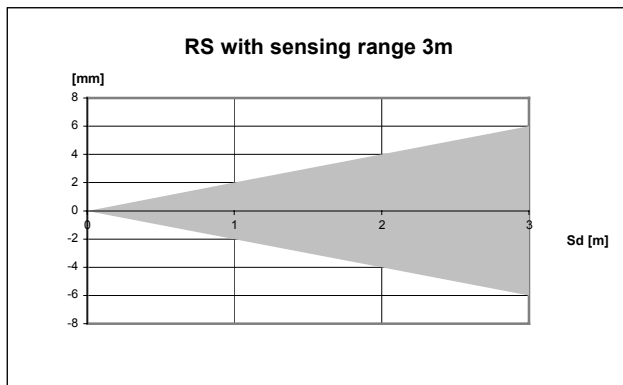
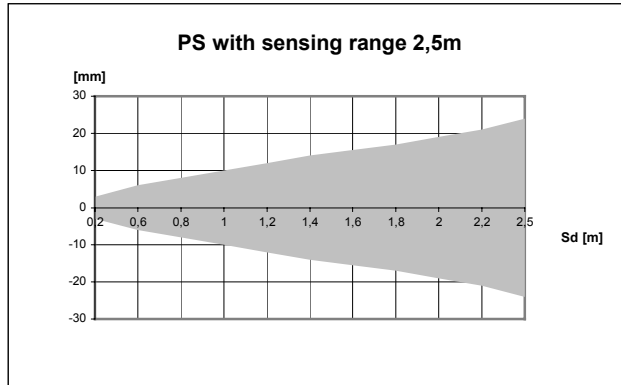
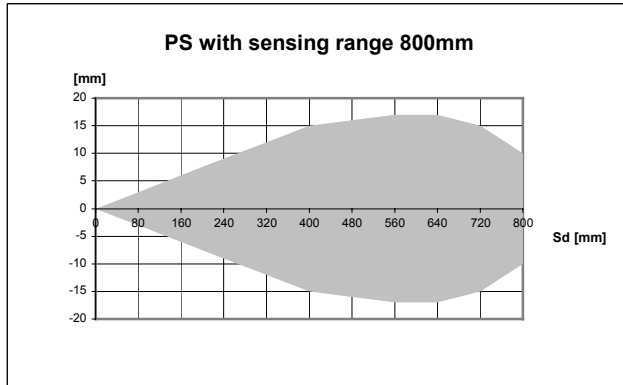
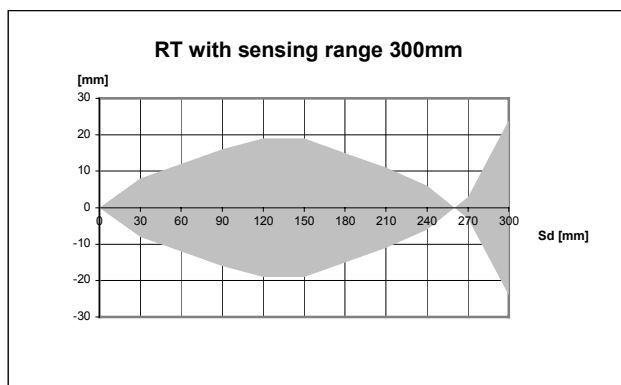
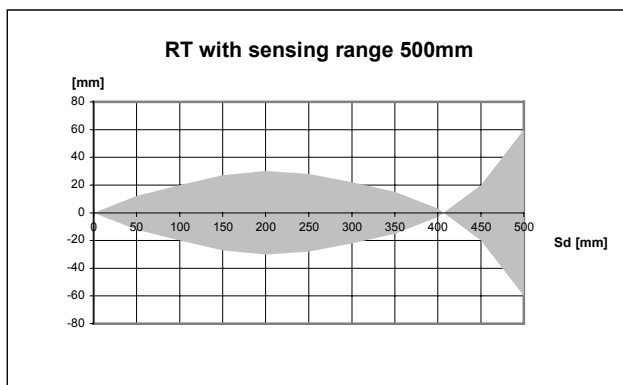
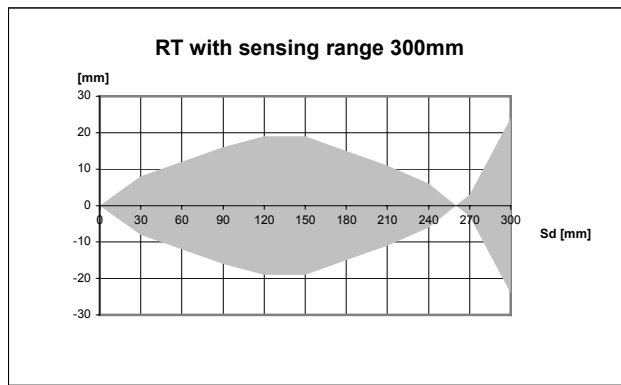
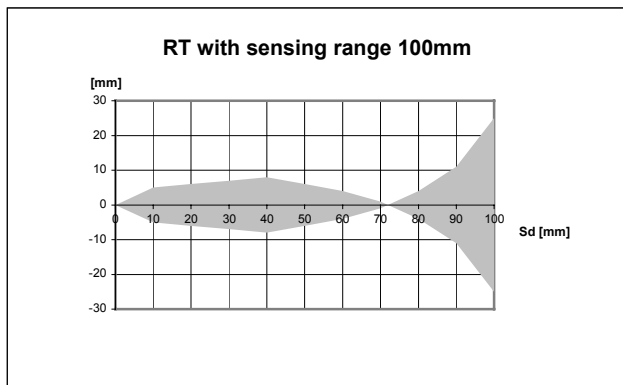


C = Control-Input. The emitter will be turned off when „Control“ and „-“ get connected (system test).

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Typical sensing range



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Identifying characteristics in accordance with EN 60947-5-2

| Electrical data | | |
|----------------------------------|------------------|---|
| Sensing range | S _d | see overview FF 40mm / RT 100mm = Target white 100mm x 100mm RT 300mm / 500mm = Target white 200mm x 200mm PS 800mm = Reflector 60mm x 51mm PS 2,5m / RS 3m = Reflector Ø80mm |
| Switching element function | | programmable (L.A. / D.A.), permanent overload protection, indication: LED yellow |
| Repeat accuracy | R | ≤ 10% |
| Differential travel (hysteresis) | H | ≤ 15% |
| Operational voltage range | U _B | 10-36VDC |
| Rated insulation voltage | U _i | 75VDC |
| Rated impulse withstand voltage | U _{imp} | 500V |
| Voltage drop | U _d | ≤ 2V |
| Utilization category | | DC-13 @ I _e = 50mA and U _e = 33VDC |
| Minimum operational current | I _m | ≤ 1mA |
| Off-state current | I _r | ≤ 0,1mA |
| No-load supply current | I _o | ≤ 15mA, (transmitter ≤ 25mA) |
| Max. rated output current | | 200mA |
| Ambient light proof | | 10kLux |
| Short-circuit protection | | pulsed |
| Frequency of operating cycles | f | 500Hz |
| False polarity protection | | yes |
| Time delay before availability | t _v | 50ms |
| Turn on time | t _{on} | 1ms |

| Electromagnetic compatibility (EMC) | | |
|---|---------------|---|
| Electromagnetic field test | IEC 61000-4-3 | 3V/m |
| Electrostatic discharge test | IEC 61000-4-2 | 4kV (metallic enclosure) 8kV (plastic enclosure) |
| Electrical fast transient immunity test (Burst) | IEC 61000-4-4 | 2kV |
| Impulse voltage withstand ability (Surge) | IEC 61000-4-5 | 500V, 1,2/50µs @ R _i = 42Ω |
| Radiated disturbance field strength | EN 55011 | ≤ 40dB (µV/m) |

| Mechanische Daten | |
|-------------------------|---|
| Enclosure | OT = PBT black OM = brass, nickel plated ON = stainless steel (Niro 1.4305) |
| End cap | PA66 black |
| Beam-output | PA12, PS: Glass lens |
| Ambient air temperature | -20°C...+70°C |
| Type of protection | IP67 (plug-in connection: only in fully locked position with it's plugs) |
| Pollution degree | 3 (Pollution of the optic can cause impairments of the sensing range.) |
| Indication | Output LED yellow; Transmitter LED green |
| Termination type | Cable 3x0,34mm ² x 2m, PVC-Outer jacket, black Cable 4x0,34mm ² x 2m, PVC-Outer jacket, black Plug Socket M12x1, PA |
| For attachment | Hexagonal / knurled nut, ABS black Hexagon nut; brass, nickel plated or stainless steel (Niro 1.4305) |

| EC-Conformity | CE |
|---------------|----|
|---------------|----|

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