



## Advanced line of miniature Asian style of photoelectric sensors

- 40-300 mm background suppression
- 0.7 m proximity, 150 mm with narrow beam
- 4 m polarized retroreflective
- 30 m LASER through beam
- Standard 3-wire output configuration

### APPLICATIONS

- Processing and Packaging machinery
- Electronics assembling



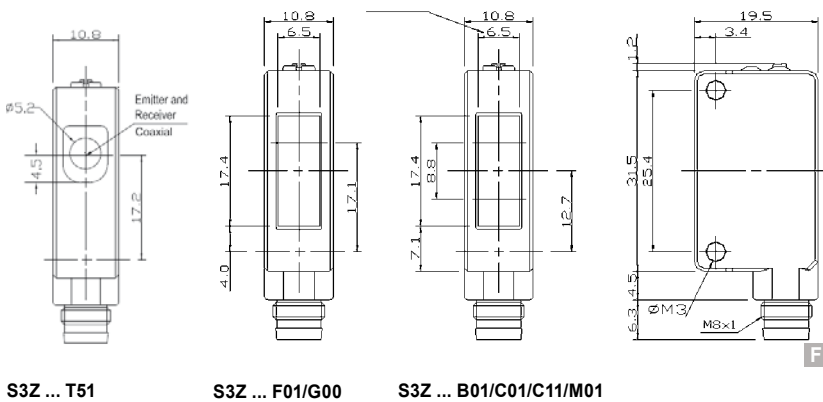
SENSORS



| S3Z                                               |           |                                            |
|---------------------------------------------------|-----------|--------------------------------------------|
| Through beam                                      |           | 0...20 m<br>0...30 m (class 1 LASER)       |
| Polarized retroreflective                         |           | 0.05...4 m<br>0,3...10 m (class 1 LASER)   |
| Retroreflective for transparent (on R2 reflector) |           | 0...2 m                                    |
| Diffuse proximity                                 |           | 0...700 mm<br>50...150 mm (narrow beam)    |
| Background suppression                            |           | 50...300 mm<br>40...300 mm (class 1 LASER) |
| Power supply                                      | Vdc       | 10...30 V                                  |
|                                                   | Vac       |                                            |
| Output                                            | Vac/dc    |                                            |
|                                                   | PNP       | ▪                                          |
|                                                   | NPN       | ▪                                          |
|                                                   | NPN/PNP   |                                            |
|                                                   | relay     |                                            |
| Connection                                        | other     |                                            |
|                                                   | cable     | ▪                                          |
|                                                   | connector | ▪                                          |
|                                                   | pig-tail  |                                            |
| Approximate dimensions (mm)                       |           | 11x31x19                                   |
| Housing material                                  |           | PC/PBT                                     |
| Mechanical protection                             |           | IP67                                       |

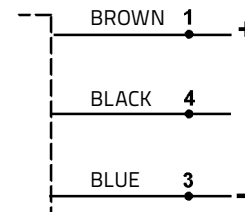
| GENERAL DATA                          |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| Power supply                          | 10 ... 30 Vdc                                                                             |
| Output current                        | ≤100 mA                                                                                   |
| Saturation voltage                    | ≤ 2V (LED Mod.), ≤ 1,5V (LASER Mod.)                                                      |
| Consumption (output current excluded) | 35 mA max.                                                                                |
| Response time                         | 1 ms (LED Mod.), 250 μs (LASER Mod.)                                                      |
| Switching frequency                   | 500 Hz (LED Mod.), 2 kHz (LASER Mod.)                                                     |
| Light emission                        | RED LED 665 nm,<br>INFRARED LED 870 nm (S3Z...-C11/FG01),<br>RED LASER class 1 EN 60825-1 |
| Setting                               | Sensitivity trimmer,<br>L/D selection trimmer (LASER Mod.)                                |
| Indicators                            | Yellow OUTPUT LED, Green STABILITY LED,<br>Green POWER ON LED (through beam emitter)      |
| Outputs                               | PNP or NPN,<br>LIGHT mode (N.O.), DARK mode (N.C.)                                        |
| Protection devices                    | Reverse polarity protection,<br>Overload and short-circuit protection                     |
| Operating temperature                 | -25 ... +55° c                                                                            |
| Storage temperature                   | -25 ... +70° c                                                                            |
| Housing material                      | Body PBT / indicators cover PC                                                            |
| Lens material                         | PMMA, PC                                                                                  |
| Insulating strength                   | 500 Vac 1 min., between electronics and housing                                           |
| Insulating resistance                 | >20 MΩ 500 Vdc, between electronics and housing                                           |
| Ambient light rejection               | according to EN 60947-5-2                                                                 |
| Vibration                             | 0.5 mm amplitude, 10 ... 55 Hz frequency, for every axis (EN60068-2-6)                    |
| Shock resistance                      | 11 ms (30 G) 6 shock for every axis (EN60068-2-27)                                        |
| Mechanical protection                 | IP67                                                                                      |
| Connections                           | 2 m cable, Ø 3.5 mm,<br>4-pole M8 connector                                               |
| Weight                                | 10 g (Connector Mod.), 50 g (Cable Mod.)                                                  |

## DIMENSIONS

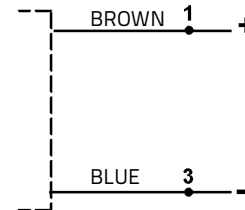


## CONNECTIONS

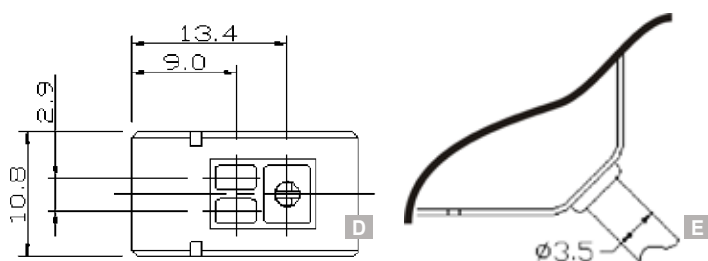
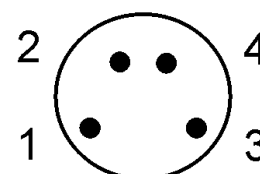
### S3Z ... B01/C01/C11/M01/T51



### S3Z ... G00



### M8 CONNECTOR



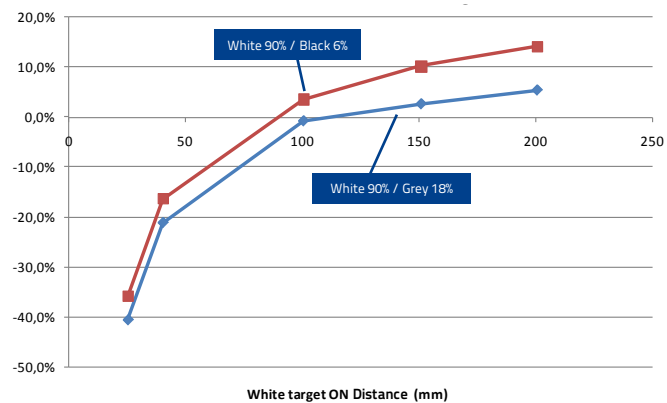
| RED LED MODELS                            |                    |             |              |                 |           |
|-------------------------------------------|--------------------|-------------|--------------|-----------------|-----------|
| OPTIC FUNCTION                            | OPERATING DISTANCE | OUTPUT      | CONNECTION   | MODEL           | ORDER No. |
| Polarized retroreflective                 | 6 m (on R5)        | PNP - LIGHT | 2 m cable    | S3Z-PR-2-B01-PL | 95B010081 |
|                                           |                    |             | M8 connector | S3Z-PR-5-B01-PL | 95B010091 |
|                                           |                    | PNP - DARK  | 2 m cable    | S3Z-PR-2-B01-PD | 95B010101 |
|                                           |                    |             | M8 connector | S3Z-PR-5-B01-PD | 95B010111 |
|                                           |                    | NPN - LIGHT | 2 m cable    | S3Z-PR-2-B01-NL | 95B010241 |
|                                           |                    |             | M8 connector | S3Z-PR-5-B01-NL | 95B010251 |
|                                           |                    | NPN - DARK  | 2 m cable    | S3Z-PR-2-B01-ND | 95B010261 |
|                                           |                    |             | M8 connector | S3Z-PR-5-B01-ND | 95B010271 |
| Polarized retroreflective for transparent | 0...2 m (on R2)    | PNP - DARK  | 2 m cable    | S3Z-PR-2-T51-PD | 95B010380 |
|                                           |                    |             | M8 connector | S3Z-PR-5-T51-PD | 95B010360 |
|                                           |                    | NPN - DARK  | 2 m cable    | S3Z-PR-2-T51-ND | 95B010390 |
|                                           |                    |             | M8 connector | S3Z-PR-5-T51-ND | 95B010370 |
| Short diffuse proximity                   | 50...150 mm        | PNP - LIGHT | 2 m cable    | S3Z-PR-2-C01-PL | 95B010040 |
|                                           |                    |             | M8 connector | S3Z-PR-5-C01-PL | 95B010050 |
|                                           |                    | PNP - DARK  | 2 m cable    | S3Z-PR-2-C01-PD | 95B010060 |
|                                           |                    |             | M8 connector | S3Z-PR-5-C01-PD | 95B010070 |
|                                           |                    | NPN - LIGHT | 2 m cable    | S3Z-PR-2-C01-NL | 95B010200 |
|                                           |                    |             | M8 connector | S3Z-PR-5-C01-NL | 95B010210 |
|                                           |                    | NPN - DARK  | 2 m cable    | S3Z-PR-2-C01-ND | 95B010220 |
|                                           |                    |             | M8 connector | S3Z-PR-5-C01-ND | 95B010230 |
| Background suppression                    | 50...300 mm        | PNP - LIGHT | 2 m cable    | S3Z-PR-2-M01-PL | 95B010330 |
|                                           |                    |             | M8 connector | S3Z-PR-5-M01-PL | 95B010350 |
|                                           |                    | NPN - LIGHT | 2 m cable    | S3Z-PR-2-M01-NL | 95B010320 |
|                                           |                    |             | M8 connector | S3Z-PR-5-M01-NL | 95B010340 |

| INFRARED LED MODELS                    |                    |             |              |                  |           |
|----------------------------------------|--------------------|-------------|--------------|------------------|-----------|
| OPTIC FUNCTION                         | OPERATING DISTANCE | OUTPUT      | CONNECTION   | MODEL            | ORDER No. |
| Long diffuse proximity                 | 0... 700 mm        | PNP - LIGHT | 2 m cable    | S3Z-PR-2-C11-PL  | 95B010001 |
|                                        |                    |             | M8 connector | S3Z-PR-5-C11-PL  | 95B010011 |
|                                        |                    | PNP - DARK  | 2 m cable    | S3Z-PR-2-C11-PD  | 95B010021 |
|                                        |                    |             | M8 connector | S3Z-PR-5-C11-PD  | 95B010031 |
|                                        |                    | NPN - LIGHT | 2 m cable    | S3Z-PR-2-C11-NL  | 95B010161 |
|                                        |                    |             | M8 connector | S3Z-PR-5-C11-NL  | 95B010171 |
|                                        |                    | NPN - DARK  | 2 m cable    | S3Z-PR-2-C11-ND  | 95B010181 |
|                                        |                    |             | M8 connector | S3Z-PR-5-C11-ND  | 95B010191 |
| Through beam (emitter & receiver unit) | 0...20 m           | PNP - LIGHT | 2 m cable    | S3Z-PR-2-FG01-PL | 95B010121 |
|                                        |                    |             | M8 connector | S3Z-PR-5-FG01-PL | 95B010131 |
|                                        |                    | PNP - DARK  | 2 m cable    | S3Z-PR-2-FG01-PD | 95B010141 |
|                                        |                    |             | M8 connector | S3Z-PR-5-FG01-PD | 95B010151 |
|                                        |                    | NPN - LIGHT | 2 m cable    | S3Z-PR-2-FG01-NL | 95B010281 |
|                                        |                    |             | M8 connector | S3Z-PR-5-FG01-NL | 95B010291 |
|                                        |                    | NPN - DARK  | 2 m cable    | S3Z-PR-2-FG01-ND | 95B010301 |
|                                        |                    |             | M8 connector | S3Z-PR-5-FG01-ND | 95B010311 |

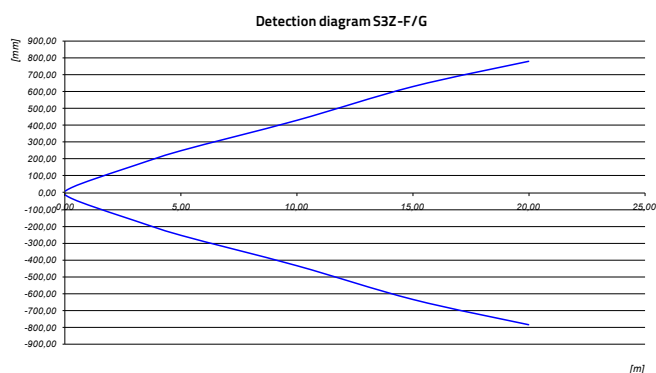
LIGHT= N.O.  
DARK= N.C.

## DIAGRAM LED MODELS

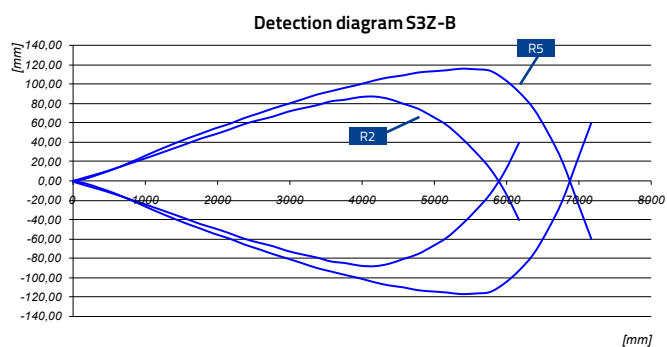
BACKGROUND SUPPRESSION - DISTANCE DIFFERENCE VS REFLECTANCE TARGET



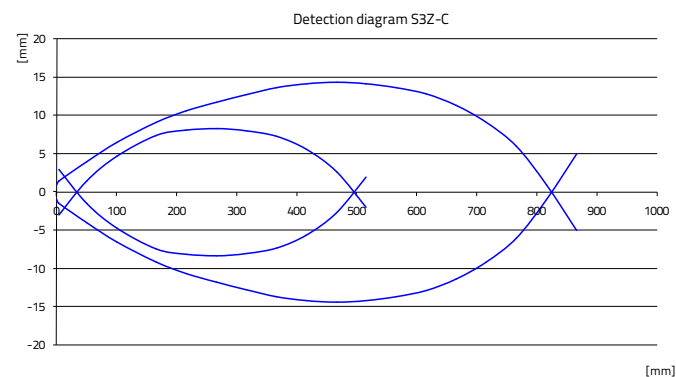
THROUGH BEAM - DETECTION AREA



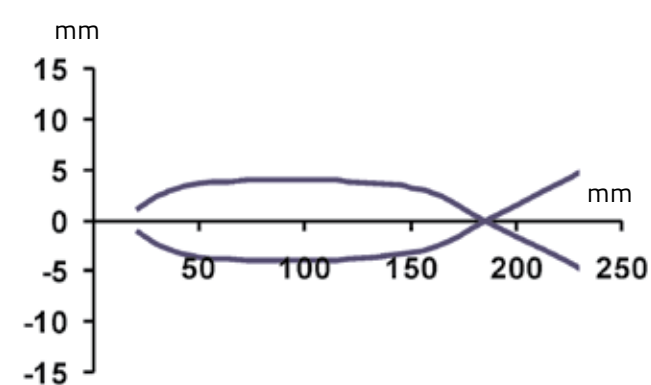
POLARIZED RETROREFLECTIVE - DETECTION AREA



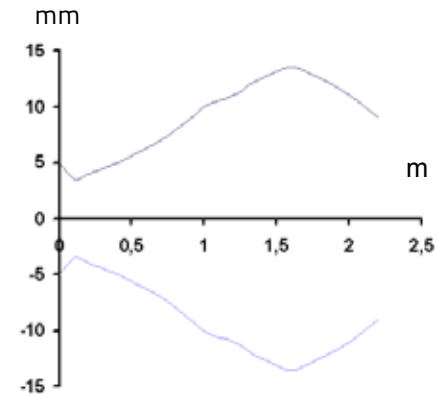
DIFFUSE PROXIMITY - DETECTION AREA



NARROW BEAM PROXIMITY - DETECTION AREA



POLARIZED RETROREFLECTIVE FOR TRANSPARENT - DETECTION AREA

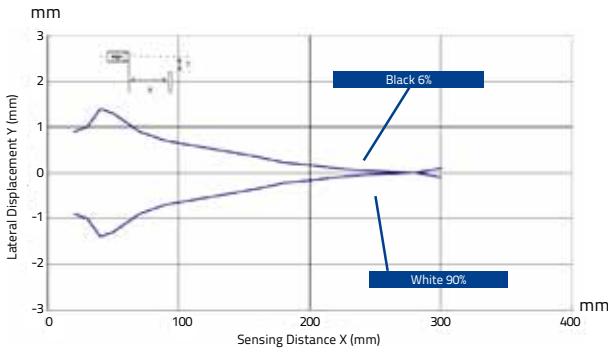


| RED LASER MODELS                                                                                                                               |                                                              |                  |              |                  |           |
|------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|------------------|--------------|------------------|-----------|
| RED LASER: Class 1 EN 60825-1 (2007) (mod.B01/C01/G00)<br>Class II CDRH 21 CFR PART 1040.10 (mod.B01/C01/G00)<br>Max. power ≤ 7 mW; λ = 650 nm |                                                              |                  |              |                  |           |
| OPTIC FUNCTION                                                                                                                                 | OPERATING DISTANCE                                           | CONNECTION       | OUTPUT       | MODEL            | ORDER No. |
| Polarized retroreflective                                                                                                                      | 0,3...10 m (on R2)<br>(spot: Φ 5mm @ 3m)                     | PNP - DARK/LIGHT | 2 m cable    | S3Z-PH-2-B01-PP  | 95B010440 |
|                                                                                                                                                |                                                              |                  | M8 connector | S3Z-PH-5-B01-PP  | 95B010460 |
|                                                                                                                                                |                                                              | NPN - DARK/LIGHT | 2 m cable    | S3Z-PH-2-B01-NN  | 95B010450 |
|                                                                                                                                                |                                                              |                  | M8 connector | S3Z-PH-5-B01-NN  | 95B010470 |
| Through beam                                                                                                                                   | 0...30 m<br>(spot: Φ 5mm @ 3m)                               | PNP - DARK/LIGHT | 2 m cable    | S3Z-PH-2-FG01-PP | 95B010520 |
|                                                                                                                                                |                                                              |                  | M8 connector | S3Z-PH-5-FG01-PP | 95B010540 |
|                                                                                                                                                |                                                              | NPN - DARK/LIGHT | 2 m cable    | S3Z-PH-2-FG01-NN | 95B010530 |
|                                                                                                                                                |                                                              |                  | M8 connector | S3Z-PH-5-FG01-NN | 95B010550 |
| Background suppression                                                                                                                         | 40...300 mm,<br>ΔGrey/White: 10%<br>(spot: Φ 0,5mm @ 170 mm) | PNP - DARK/LIGHT | 2 m cable    | S3Z-PH-2-M01-PP  | 95B010480 |
|                                                                                                                                                |                                                              |                  | M8 connector | S3Z-PH-5-M01-PP  | 95B010500 |
|                                                                                                                                                |                                                              | NPN - DARK/LIGHT | 2 m cable    | S3Z-PH-2-M01-NN  | 95B010490 |
|                                                                                                                                                |                                                              |                  | M8 connector | S3Z-PH-5-M01-NN  | 95B010510 |

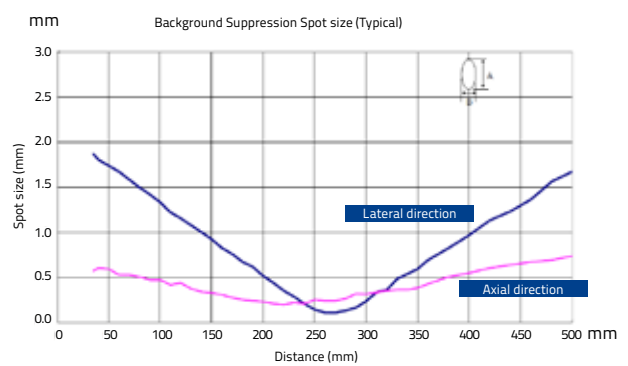
LIGHT= N.O.  
DARK= N.C.

## DIAGRAMS LASER MODELS

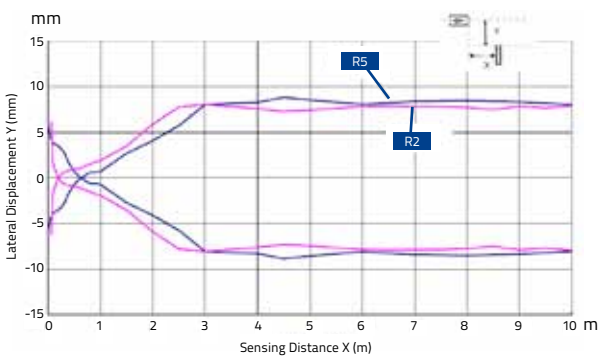
### BACKGROUND SUPPRESSION - DETECTION AREA



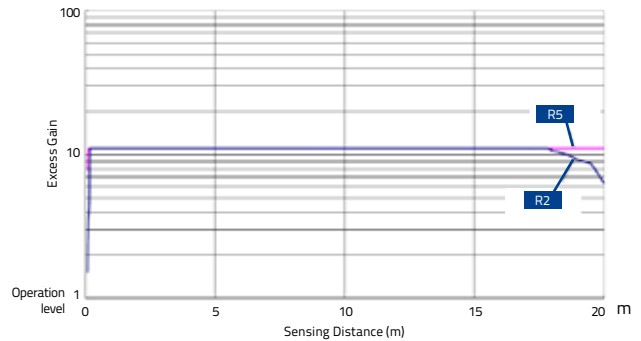
### BACKGROUND SUPPRESSION - SPOT DIMENSION



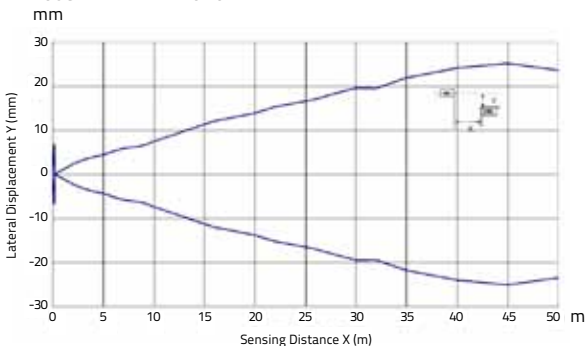
### POLARIZED RETROREFLECTIVE - DETECTION AREA



### POLARIZED RETROREFLECTIVE - EXCESS GAIN



### THROUGH BEAM - DETECTION AREA



### THROUGH BEAM - EXCESS GAIN

