## S62 SERIES

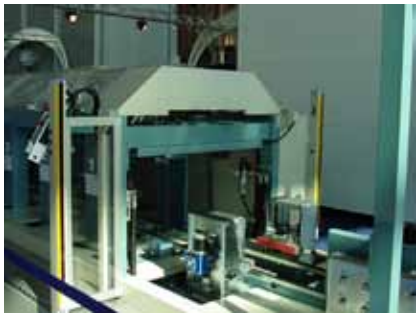
S62 photoelectric sensor line offers compact dimensions and competitive prices for all basic and advanced models.
All universal optic functions are available at best performances in the standard 50x50x18 mm compact plastic housing with IP67 mechanical protection.
Laser emission models for high resolution detection are also available for polarized retroreflex, diffuse proximity and background suppression.
S62 allows a great versatility of installations with Vac/dc multivoltage power supply and SPDT relay output, as well as 10-30 Vdc version with NPN/PNP configurable output or NO-NC standard outputs. The connection is available with 2 m cable or M12 4-poles rotatable connector.
S62 series is the first choice when looking for a photoelectric sensor with the best price / performance ratio in a compact standard case.

## HIGHLIGHTS

- High-resolution sensors with **LED** or **LASER** emission
- High installation flexibility
- Background suppression, retroreflex polarized and diffuse proximity Laser versions
- **Vac/dc** multivoltage version
- Sensitivity/distance adjustment trimmer
- **Cable** or **M12 rotatable connector**
- PNP, NPN, PNP/NPN or SPDT Relay output

## APPLICATIONS

**Ceramics**



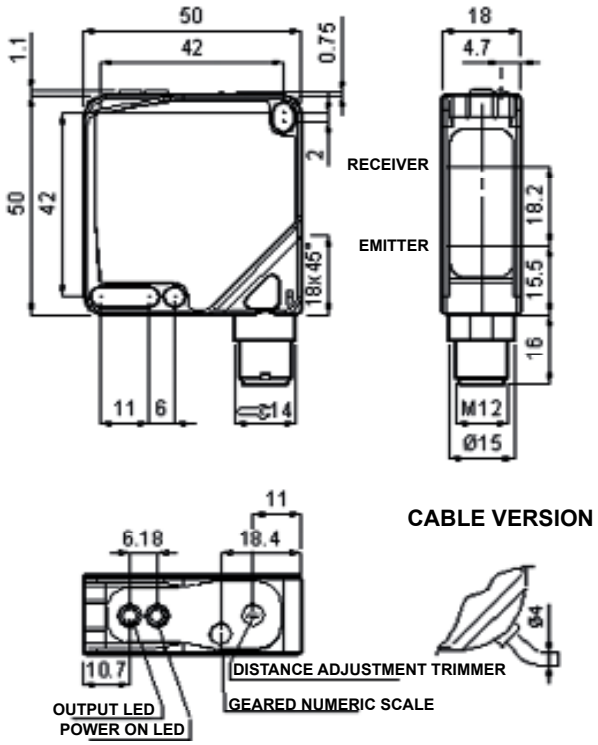
**Beverage & Bottling**

**Transportation lines**

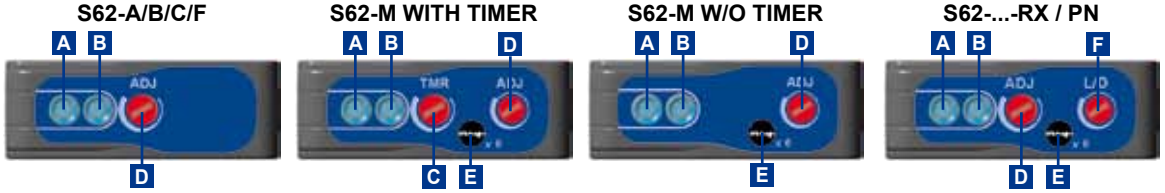
**Packaging lines**

The background suppression proximity can set very precisely the limit over which the object is not detected, with minimum differences also between objects with material or colour differences. The threshold switching adjustment is easier and more precise thanks to the multiturn mechanical trimmer and the gear numeric scale. The polarised retroreflex, thanks to high-polarisation optic filters, detects very reflective objects even with mirror surfaces, that however do not rotate the polarisation plane of the reflected light, like the prismatic reflector.

## DIMENSIONS




## INDICATORS AND SETTINGS




- A Output status LED
- B Stability LED or Power ON LED (laser vers.)
- C Timer adjustment trimmer
- D Distance adjustment trimmer
- E Geared numeric scale
- F Light / Dark selection trimmer

## CONNECTIONS

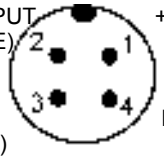
**S62-PA-1**
(AC Models)

RED
WHITE
BROWN
BLACK — 24...240 Vac
BLUE — 24...60 Vdc

**S62-PA-2**
(PNP / NPN Models)

BROWN — + — 10 ... 30 Vdc
WHITE — NC OUTPUT
BLACK — NO OUTPUT
BLUE — 0V -

**S62-PA-5**



## TECHNICAL DATA

| | S62-PA-2/5 LED/LASER Vdc | S62-PA-1 LED Vac/dc |
|---|---|---|
| **Power supply** | 10 ... 30 Vdc | 24…240 Vac/ 24…60 Vcc |
| **Ripple** | ≤ 2 Vpp | 10% max |
| **Current Consumption** | <30 mA | < 3 VA |
| **Output current** | ≤ 100 mA (overload and overvoltage protection) | 2A max (resist load) |
| **Saturation voltage** | ≤ 2 V | - |
| **Emission type** | RED(640nm)(S62…A/B/C/G) | |
| **Dielectric strength** | 500 Vac 1 min., between electronics and housing | |
| **Insulation resistence** | >20 MΩ 500 Vdc, between electronics and housing | |
| **Mechanical protection** | IP67 | |
| **Ambient light rejection** | According to EN 60947-5-2 | |
| **Vibrations** | 0.5 mm amplitude, 10 … 55 Hz frequency, for each axis (EN60068-2-6) | |
| **Shock resistence** | 11ms (30G) 6 shock for every axis (EN60068-2-27) | |
| **Housing** | ABS | |
| **Indicators** | OUTPUT LED (yellow)/STABILITY LED(green) | |
| | S62…G (emitter): POWER LED(green) | |
| **Adjustment** | Sensititivity adjustment trimmer | |
| | Mono-turn light/dark trimmer(S62…RX/PN) | |
| **Timing function** | 0...1 s (DELAY off) | |
| **Connection** | Cable vers.: 2 m Ø 4 mm | |
| | Cable vers.: 2 m Ø 5 mm (AC version)z | |
| | Connector vers.: M12 4-pole connector | |
| **Lens material** | PMMA window, policarbonate lens | |
| **Weight** | 40 g max mod. M12 | |
| | 90 g max mod. cable | |
| **Operating temperature** | -10...+55°C | |
| **Storage temperature** | -20...+70°C | |
| **UL requirements** | VDC models: they are intended to be connected to a Class 2 transformer or class 2 power supply. VAC models: these devices shall be connected to a powersupply or system,including filters or air-gaps, of overvoltage category II (“load level – secondary circuit of a protected utility transformer”), suitable to control over-voltages at the maximum “rated impulse withstand voltage peak of 1.2KV and with a short-circuit power limit at max 500VA. | |

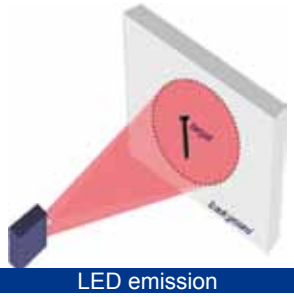
## EMISSION TYPE

The very low black/white difference of background suppression sensors allows to detect a dark-coloured target presence, or absence, even onto a light-coloured very reflective background. However, if the target is much smaller than the light spot and smaller than the background area, the detection can be critical either for the low resolution and for the ‘cross-eyed effect’ (excessive light reflected by the background).

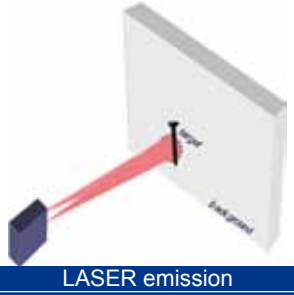
The narrow collimated light beam of the **S62** LASER background suppression sensor is the right solution able to offer the requested resolution and avoid the cross-eyed effect, thus permitting the detection of the smallest objects or their minimal movements, even in presence of large and reflective background area.

The LASER polarised retroreflex sensor of the **S62** series, as well as increasing the maximum operating distance, offers the improvement of the detection resolution thanks to the smaller dimensions of the light beam respect to the LED emission beam.

Basically, the mimumum detectable dimension corresponds to the emission beam diameter at the detection distance. The maximum resolution can be obtained only with microprismatic reflectors (0.8 mm microcubes), such as the small **R8** suitable for short distances up to 2 m, or the **R7** and **R20** models for distance up to 22 m.



LED emission



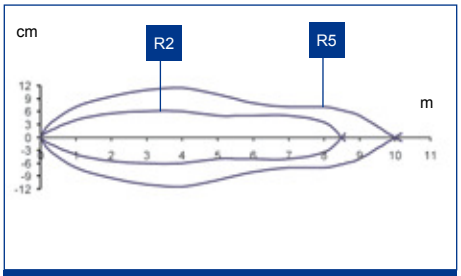
LASER emission

## TECHNICAL DATA OF MODELS WITH LED EMISSION

| OPTIC FUNCTION | EMISSION | OPERATING DISTANCE | CONNECTION | SETTING | OUTPUT | SWITCH FREQUENCY | RESPONSE TIME |
|---|---|---|---|---|---|---|---|
| **non-polarised retroflex** | LED red (640nm) | 0,1 … 13m | Vac cable | mono-turn light/dark trimmer | relay | 20 Hz | 25 ms |
| | | | cable | sensitivity trimmer (mono turn) | PNP/NPN* | 1 kHz | 500 µs |
| | | | connector M12 | | PNP/NPN* | | |
| **polarised retroflex** | LED red (640nm) | 0,1 … 8m (on R2 reflector) | Vac cable | mono-turn light/dark trimmer | relay | 20 Hz | 25 ms |
| | | | cable | sensitivity trimmer (mono-turn) | PNP | 1 kHz | 500 µs |
| | | | | | PNP/NPN* | | |
| | | | connector M12 | | PNP | | |
| | | | | | NPN | | |
| | | | | | PNP/NPN* | | |
| **diffuse proximity** | LED red (640nm) | 0 … 90cm (S62-...-C01) | Vac cable | mono-turn light/dark trimmer | relay | 20 Hz | 25 ms |
| | | | cable | sensitivity trimmer (mono-turn) | PNP/NPN* | 1 kHz | 500 µs |
| | | | | | PNP | | |
| | | | | | NPN | | |
| | | | connector M12 | | PNP/NPN* | | |
| | | | | | PNP | | |
| | | | | | NPN | | |
| | | 0 … 200cm (S62-...-C11) | Vac cable | mono-turn light/dark trimmer | relay | | |
| | | | cable | sensitivity trimmer (mono turn) | PNP/NPN* | | |
| | | | | | PNP | | |
| | | | | | NPN | | |
| | | | connector M12 | | PNP/NPN* | | |
| | | | | | PNP | | |
| | | | | | NPN | | |
| **through beam receiver** | (receiver) | 0 … 25m | Vac cable | mono-turn light/dark trimmer | relay | 20 Hz | 25 ms |
| | | | cable | sensitivity trimmer (mono turn) | PNP/NPN* | 500 Hz | 1 ms |
| | | | | | PNP | | |
| | | | | | NPN | | |
| | | | connector M12 | | PNP/NPN* | | |
| | | | | | PNP | | |
| | | | | | NPN | | |
| **through beam emitter** | LED red (640nm) | 0 … 25m | Vac cable | sensitivity trimmer (mono turn) | /// | 20 Hz | 25 ms |
| | | | cable | | Test + Test - | 500 Hz | 1 ms |
| | | | connector M12 | | Test + Test - | | |
| **background suppression** | LED red (640nm) | 30 … 300mm (S62-...-M01) | cable | multidistance adjustment trimmer | PNP/NPN* | 1 kHz | 500 µs |
| | | | | | PNP | | |
| | | | connector M12 | | PNP/NPN* | | |
| | | | | | PNP | | |
| | | | | | NPN | | |
| | | | | timer adjustment trimmer | PNP | | |
| | | | | | NPN | | |
| | | 60 … 600mm (S62-...-M1x) | cable | multidistance adjustment trimmer | PNP | | |
| | | | | | PNP | | |
| | | | connector M12 | | NPN | | |
| | | | | timer adjustment trimmer | PNP | | |
| | | | | | NPN | | |
| | LED infrared (880nm) | 60 … 1200mm (S62-...-M21) | cable | multidistance adjustment trimmer | PNP | 500 Hz | 1 ms |
| | | | | | PNP | | |
| | | | connector M12 | | NPN | | |
| | | | | timer adjustment trimmer | PNP | | |
| | | | | | NPN | | |
| | | 200 … 2000mm (S62-...-M3x) | cable | multidistance adjustment trimmer | PNP | 330 Hz | 1,5 ms |
| | | | | | PNP | | |
| | | | connector M12 | | NPN | | |
| | | | | timer adjustment trimmer | PNP | | |
| | | | | | NPN | | |

** L / D Selection trimmer*

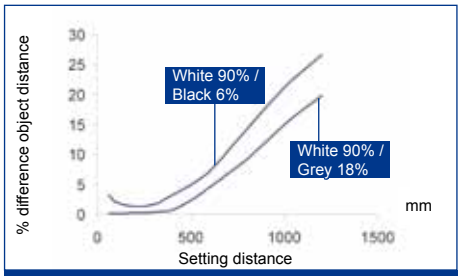
## DETECTION DIAGRAMS OF MODELS WITH LED EMISSION




Polarised retroreflex

30 ... 300 mm background suppression

60 ... 600 mm background suppression

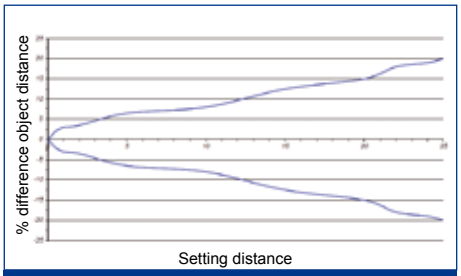



60 ... 1200 mm background suppression

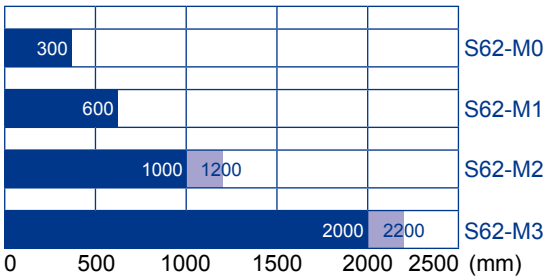
200 ... 2000 mm background suppression

0 ... 90 cm short diffuse proximity

0 ... 200 cm long diffuse proximity




0 ... 25 m through beam



Recommended operating distance

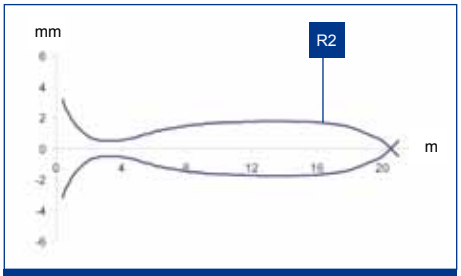
Maximum operating distance

## TECHNICAL DATA OF MODELS WITH LASER EMISSION

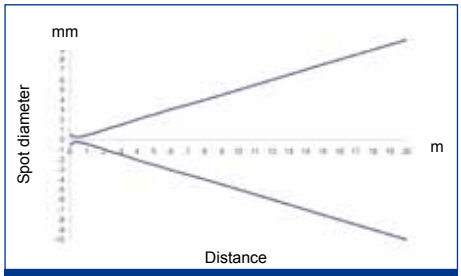
*RED LASER (λ=645…665nm); Class 2 EN 60825-1, Class II CDRH 21 CFR PART 1040.10.*
*Pulsed emission: pot. max ≤5mW; pulse duration=5µs; frequency max=32KHz*

| OPTIC FUNCTION | EMISSION | OPERATING DISTANCE | CONNECTION | SETTING | OUTPUT | SWITCH FREQUENCY | RESPONSE TIME |
|---|---|---|---|---|---|---|---|
| **polarised retroflex** | LASER | 0,3 ... 20 m (on R2 reflector) | connector M12 | sensitivity trimmer (mono-turn) | PNP<br>NPN | 2,5k Hz | 200 µs |
| **diffuse proximity** | LASER | 0 … 90 cm | cable | sensitivity trimmer (mono turn) | PNP<br>NPN | 1k Hz | 500 µs |
| | | | connector M12 | | PNP<br>NPN | | |
| **background suppression** | LASER | 30 … 150 mm (S62-...-M01) | connector M12 | 4 turn distance trimmer | PNP<br>NPN | 3,5k Hz | 140 µs |
| | | 50 … 350 mm (S62-...-M11) | | 6 turn distance trimmer | PNP<br>NPN | 2,5k Hz | 200 µs |

## DETECTION DIAGRAMS OF MODELS WITH LASER EMISSION



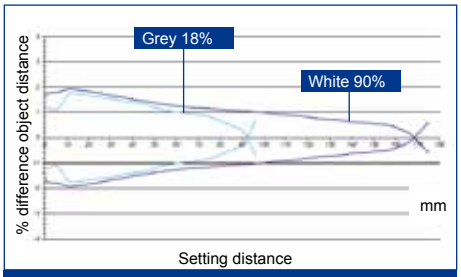

Laser polarised retroreflex




Light spot dimension - Laser polarised retroreflex

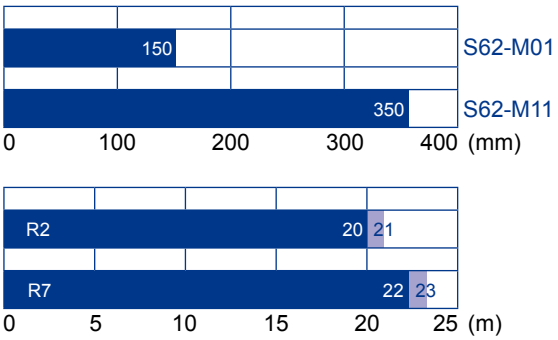
30 ... 150 mm laser background suppression

50 ... 350 mm laser background suppression




0 ... 90 cm laser dffuse proximity

| Reflector operating distances (m) | | | | |
|---|---|---|---|---|
| R1 | R2 | R6 | R7 / R20 | R8 |
| 0.3 … 16 | 0.3 … 20 | 0.4 … 22 | 0.3 … 22 | 0.2 … 2 |
| The use of the RT3970 reflecting tape is suggested. | | | | |

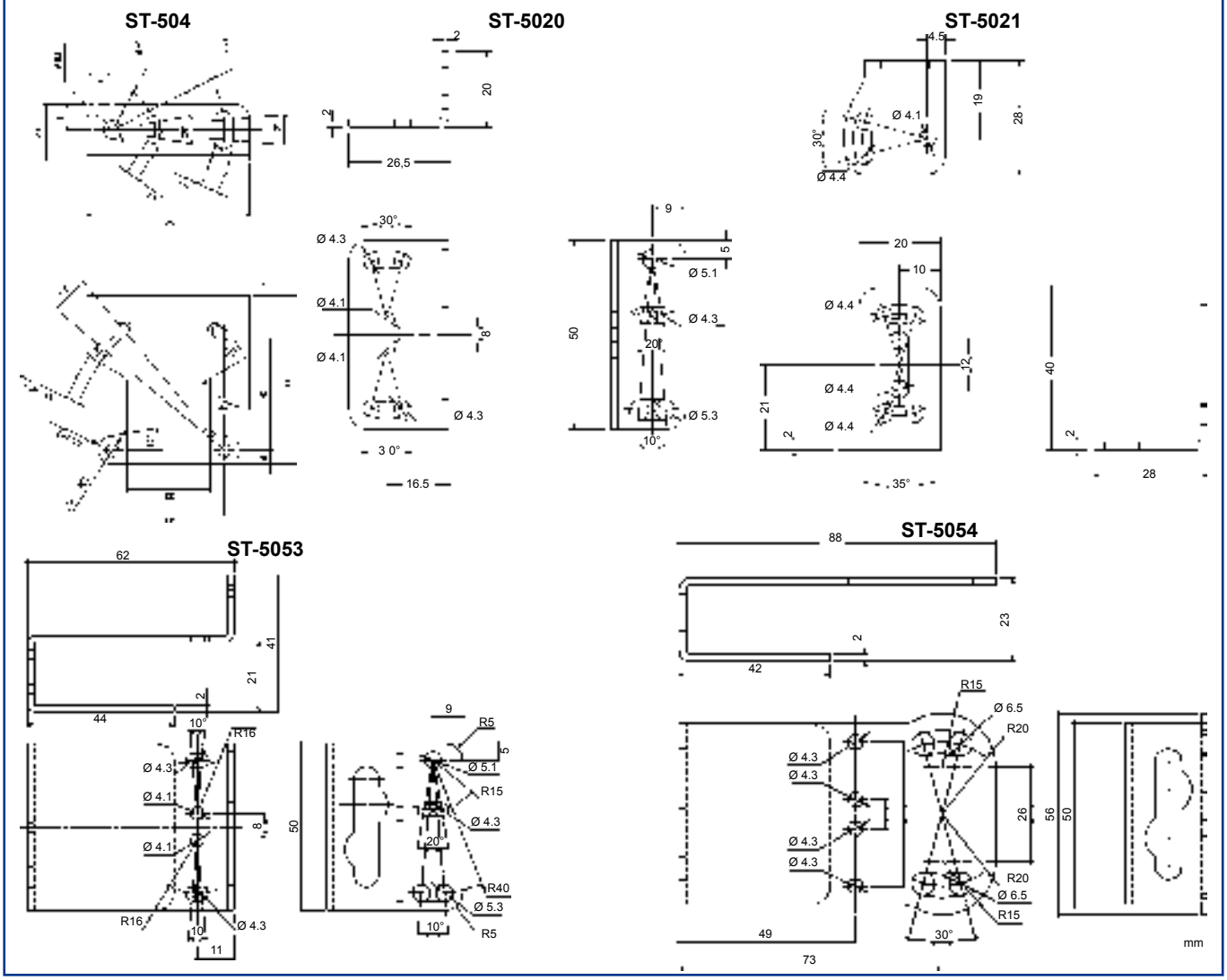


## MODEL SELECTION AND ORDER INFORMATION

| OPTIC FUNCTION | EMISSION | CONNECTION | SETTING | OUTPUT | MODEL | ORDER NO. |
|---|---|---|---|---|---|---|
| non-polarised retroflex | LED red (640nm) | Vac cable | mono-turn light/dark trimmer | relay | S62-PA-1-A01-RX | 956211180 |
| | | cable | sensitivity trimmer (mono turn) | PNP/NPN* | S62-PA-2-A01-PN | 956211240 |
| | | connector M12 | | PNP/NPN* | S62-PA-5-A01-PN | 956211310 |
| polarised retroflex | LED red (640nm) | Vac cable | mono-turn light/dark trimmer | relay | S62-PA-1-B01-RX | 956211190 |
| | | cable | sensitivity trimmer (mono-turn) | PNP | S62-PA-2-B01-PP | 956211010 |
| | | | | PNP/NPN* | S62-PA-2-B01-PN | 956211250 |
| | | connector M12 | | PNP | S62-PA-5-B01-PP | 956211110 |
| | | | | NPN | S62-PA-5-B01-NN | 956211020 |
| | | | | PNP/NPN* | S62-PA-5-B01-PN | 956211320 |
| | LASER | connector M12 | | PNP | S62-PL-5-B01-PP | 956211110 |
| | | | | NPN | S62-PL-5-B01-NN | 956211100 |
| diffuse proximity (0...90 cm) | LED red (640nm) | Vac cable | mono-turn light/dark trimmer | relay | S62-PA-1-C01-RX | 956211200 |
| | | cable | sensitivity trimmer (mono-turn) | PNP/NPN* | S62-PA-2-C01-PN | 956211260 |
| | | | | PNP | S62-PA-2-C01-PP | 956211380 |
| | | | | NPN | S62-PA-2-C01-NN | 956211420 |
| | | connector M12 | | PNP/NPN* | S62-PA-5-C01-PN | 956211330 |
| | | | | PNP | S62-PA-5-C01-PP | 956211460 |
| | | | | NPN | S62-PA-5-C01-NN | 956211500 |
| diffuse proximity (0...200 cm) | | Vac cable | mono-turn light/dark trimmer | relay | S62-PA-1-C11-RX | 956211210 |
| | | cable | sensitivity trimmer (mono turn) | PNP/NPN* | S62-PA-2-C11-PN | 956211270 |
| | | | | PNP | S62-PA-2-C11-PP | 956211390 |
| | | | | NPN | S62-PA-2-C11-NN | 956211430 |
| | | connector M12 | | PNP/NPN* | S62-PA-5-C11-PN | 956211340 |
| | | | | PNP | S62-PA-5-C11-PP | 956211470 |
| | | | | NPN | S62-PA-5-C11-NN | 956211510 |
| diffuse proximity (0...90 cm) | LASER | cable | | PNP | S62-PL-2-C01-PP | 956211400 |
| | | | | NPN | S62-PL-2-C01-NN | 956211440 |
| | | connector M12 | | PNP | S62-PL-5-C01-PP | 956211480 |
| | | | | NPN | S62-PL-2C01-NN | 956211520 |
| through beam receiver | (receiver) | Vac cable | mono-turn light/dark trimmer | relay | S62-PA-1-F01-RX | 956211220 |
| | | cable | sensitivity trimmer (mono turn) | PNP/NPN* | S62-PA-2-F01-PN | 956211290 |
| | | | | PNP | S62-PA-2-F01-PP | 956211410 |
| | | | | NPN | S62-PA-2-F01-NN | 956211450 |
| | | connector M12 | | PNP/NPN* | S62-PA-5-F01-PN | 956211360 |
| | | | | PNP | S62-PA-5-F01-PP | 956211490 |
| | | | | NPN | S62-PA-5-F01-NN | 956211530 |
| through beam emitter | LED red (640nm) | Vac cable | sensitivity trimmer (mono turn) | /// | S62-PA-1-G00-XX | 956211230 |
| | | cable | | Test + Test - | S62-PA-2-G00-XG | 956211300 |
| | | connector M12 | | Test + Test - | S62-PA-5-G00-XG | 956211370 |
| background suppression (30...300 mm) | LED red (640nm) | cable | multidistance adjustment trimmer | PNP | S62-PA-2-M01-PP | 956201841 |
| | | | | PNP/NPN* | S62-PA-2-M01-PN | 956211280 |
| | | connector M12 | | PNP/NPN* | S62-PA-5-M01-PN | 956211350 |
| | | | | PNP | S62-PA-5-M01-PP | 956201831 |
| | | | | NPN | S62-PA-5-M01-NN | 956201811 |
| | | | timer adjustment trimmer | PNP | S62-PA-5-M05-PP | 956201821 |
| | | | | NPN | S62-PA-5-M05-NN | 956201801 |
| background suppression (60...600 mm) | | cable | multidistance adjustment trimmer | PNP | S62-PA-2-M11-PP | 956201891 |
| | | connector M12 | | PNP | S62-PA-5-M11-PP | 956201881 |
| | | | | NPN | S62-PA-5-M11-NN | 956201861 |
| | | | timer adjustment trimmer | PNP | S62-PA-5-M15-PP | 956201871 |
| | | | | NPN | S62-PA-5-M15-NN | 956201851 |
| background suppression (60...1200 mm) | LED infrared (880nm) | cable | multidistance adjustment trimmer | PNP | S62-PA-2-M21-PP | 956201940 |
| | | connector M12 | | PNP | S62-PA-5-M21-PP | 956201900 |
| | | | | NPN | S62-PA-5-M21-NN | 956201910 |
| | | | timer adjustment trimmer | PNP | S62-PA-5-M25-PP | 956201920 |
| | | | | NPN | S62-PA-5-M25-NN | 956201930 |
| background suppression (200...2000 mm) | | cable | multidistance adjustment trimmer | PNP | S62-PA-2-M31-PP | 956211050 |
| | | connector M12 | | PNP | S62-PA-5-M31-PP | 956211070 |
| | | | | NPN | S62-PA-5-M31-NN | 956211060 |
| | | | timer adjustment trimmer | PNP | S62-PA-5-M35-PP | 956211090 |
| | | | | NPN | S62-PA-5-M35-NN | 956211080 |
| background suppression (30...150 mm) | LASER | connector M12 | 4 turn distance trimmer | PNP | S62-PL-5-M01-PP | 956211130 |
| | | | | NPN | S62-PL-5-M01-NN | 956211120 |
| background suppression (50...350 mm) | | | 6 turn distance trimmer | PNP | S62-PL-5-M11-PP | 956211150 |
| | | | | NPN | S62-PL-5-M11-NN | 956211140 |

** L / D Selection trimmer*

## ACCESSORIES




**Joint-62:** as ST-5054 with jointed support

## ACCESSORY SELECTION AND ORDER INFORMATION

| DESCRIPTION | MODEL | ORDER N° |
|---|---|---|
| Ø 23 mm prismatic reflector with Ø 31 mm support | R1 | S940700023 |
| Ø 48 mm prismatic reflector with Ø 63 mm support | R2 | S940700048 |
| 36 x 55 mm prismatic reflector with 40.5 x 60 mm support | R6 | 95A151350 |
| 38 x 40 mm microprism reflector with 51 x 60.7 mm support | R7 | 95A151360 |
| 9.7 x 19 mm microprism reflector with 13.8 x 23 mm support | R8 | 95A151370 |
| Ø 48 mm prismatic reflector with Ø 63 mm support | R20 | 95A151090 |
| protection bracket with jointed support | JOINT-S62 | 95ACC2430 |
| fixing bracket | ST-504 | 95ACC2820 |
| fixing bracket | ST-5020 | 95ACC5330 |
| fixing bracket | ST-5021 | 95ACC5340 |
| protection bracket | ST-5053 | 95ACC2410 |
| protection bracket | ST-5054 | 95ACC2420 |

The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.