

# Photoelectrics Through-beam System, Relay Output Type MPF.RSL

CARLO GAVAZZI



- Industrial doors and gates
- Range: 15 m
- Modulated infrared light
- Option with individually adjustable channel sensitivity
- Amplifier with "Snap-ON" photoelectric switches
- Supply voltage: 12-24 VAC/DC
- Output: SPST relay (low voltage)
- LED indications for light ON and supply ON
- Ø12 mm "Snap-ON", Ø18 or M14 photoelectric housing
- 1, 2 or 3 multiplexed channels
- With make or break test input
- CE, UL325 and UL508 approved

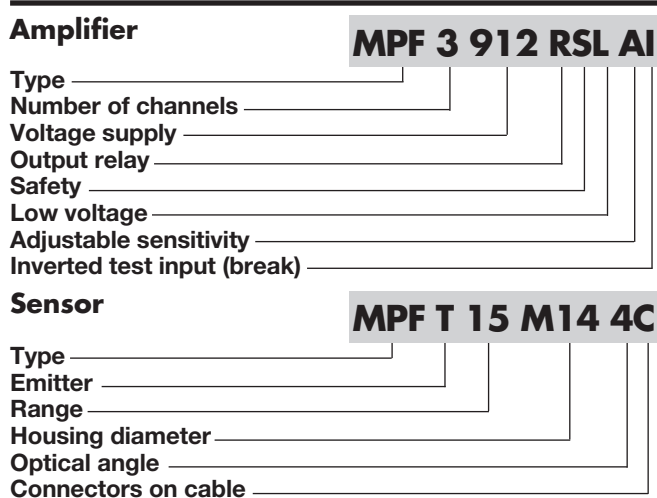


## Product Description

The MPFRS. is a family of inexpensive general purpose photoelectric sensors in 3 different types of housings with separate amplifier. They are designed to meet the requirements for industrial doors and gates. The "Snap-ON" photo switch can be mounted in material with a thickness from 0.6 mm and up to 2.25 mm. The sensor set is easy to use and no adjustments are necessary. The amplifier has

a test input designed to disable the emitters and therefore evaluate the sensor function. Multiplexed channels prevent cross-talk between each set of photosensors. The amplifier is available with the following voltage: 12-24 VAC/DC. The output is made as positive security e.g. power lost, short-circuit or broken sensor cable makes the relay go to off state.

## Ordering Key



## Type Selection, Amplifier


| Housing<br>W x H x D | Ordering no.<br>Supply: 12-24 VAC/DC  |
|----------------------|---|
| 70 x 57 x 86 mm      | MPF1-912 RSL<br>MPF2-912 RSL<br>MPF3-912 RSL<br>MPF1-912 RSLI *)<br>MPF2-912 RSLI *)<br>MPF3-912 RSLI *)<br>MPF1-912 RSLA *)<br>MPF2-912 RSLA *)<br>MPF3-912 RSLA *)<br>MPF1-912 RSLAI *)<br>MPF2-912 RSLAI *)<br>MPF3-912 RSLAI *) |

\*) Products available on request

## Type Selection, Photoelectric Switch

| Housing diameter | Rated operational distance (S <sub>n</sub> ) | Optical angle | Ordering no. Emitter | Ordering no. Receiver | Ordering no. Fitting |
|------------------|--|---------------|----------------------|-----------------------|----------------------|
| Ø12 mm           | 15 m   | 4°            | MPFT 15-4            | MPFR-4                | AMPF-MB1             |
| M14              | 15 m   | 4°            | MPFT 15-M14-4        | MPFR-M14-4            |                      |
| D11              | 15 m   | 4°            | MPF 15-D11-4         | MPFR-D11-4            |                      |
| D18              | 15 m   | 4°            | MPFT 15-D18-4        | MPFR-D18-4            |                      |
| Ø12 mm           | 15 m   | 4°            | MPFT 15-4C           | MPFR-4C               |                      |
| M14              | 15 m   | 4°            | MPFT 15-M14-4C       | MPFR-M14-4C           |                      |
| D11              | 15 m   | 4°            | MPF 15-D11-4C        | MPFR-D11-4C           |                      |
| D18              | 15 m   | 4°            | MPFT 15-D18-4C       | MPFR-D18-4C           |                      |
| Fitting for Ø12  |  |               |                      |                       |                      |

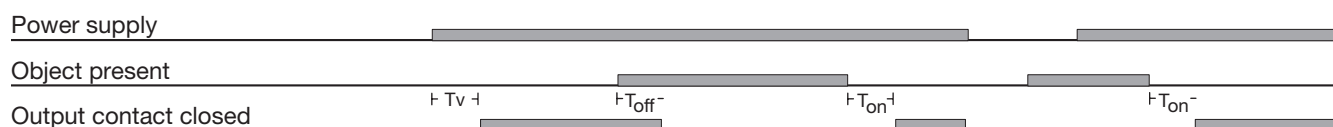
## Specifications, Amplifier

|  |   |   |  |
|--|---|---|--|
| <b>Rated operational volt.</b><br>AC types (U <sub>B</sub> )<br>Terminals 1 & 3<br>MPF.- 912 RSL.                              | 12-24 VAC/DC ± 15%, 50 to 60 Hz                         | <b>Environment</b><br>Overvoltage category<br>Degree of protection<br>Pollution degree    | III (IEC 66064)<br>IP 40 (IEC 60529/60947-5-2)<br>3 (IEC 60664/60664A,<br>60947-1) |
| <b>Dielectric voltage</b>  | 4 kVAC (rms)  | <b>Temperature</b><br>Operating<br>Storage  | -20° to +60°C (-4° to +140°F)<br>-30° to +80°C (-22° to +176°F)                    |
| <b>Rated impulse withstand volt.</b>   | 4 kV (1.2/50 μs)  | <b>Connection</b>   | Screw terminals<br>(max. 2.5 mm <sup>2</sup> )                                     |
| <b>Rated operational power</b><br>AC supply<br>DC supply   | 3 VA<br>2 W   | <b>Protection output</b>  | Reverse output, transients,<br>short-circuit                                       |
| <b>Output Specifications</b><br>Resistive load<br>MPF.-912 RSL, RSLA, RSLI,<br>RSLAI<br>600.000 switching<br>100.000 switching | 0.5 A@50 VAC/30 VDC<br>0.5 A@125 VAC/1 A@30<br>VDC (UL) | <b>Test input</b><br>MPF.- 912 RSL.<br>Testfunction activated<br>Testfunction deactivated | Max. 28 V@15 mA AC/DC<br>≥ 3.5 V AC/DC<br>≤ 1.0 V AC/DC                            |
| <b>Rated insulation volt. (U<sub>i</sub>)</b>  | 50 VAC (rms), 50 VDC                                    | MPF.- 912 RSLI.<br>Testfunction deactivated<br>Testfunction activated                     | Max. 28 V@15 mA AC/DC<br>≥ 3.5 V AC/DC<br>≤ 1.0 V AC/DC                            |
| <b>Operating frequency (f)</b><br>Light/dark ratio 1:1<br>Contact output   | 10 Hz   | <b>Housing material</b>   | PC   |
| <b>Response time</b><br>OFF-ON (t <sub>ON</sub> )<br>ON-OFF (t <sub>OFF</sub> )  | ≤ 50 ms<br>≤ 40 ms                                      | <b>Weight</b><br>MPF.- 912 RSL.   | 126 g  |
| <b>Power ON delay (t<sub>v</sub>)</b>  | ≤ 300 ms  | <b>CE-marking</b><br><b>UL-Approval</b>   | Yes<br>UL325, CSA-C22.2 No.247<br>UL508  |
| <b>Output function</b><br>MPF1+2<br>MPF3   | Relay 2 x SPST<br>Relay 2 x SPST + 2 x SPST             |      |  |
| <b>Indication function</b><br>Supply ON<br>Beam ON (no object present)   | LED, green<br>LED, yellow                               |   |  |

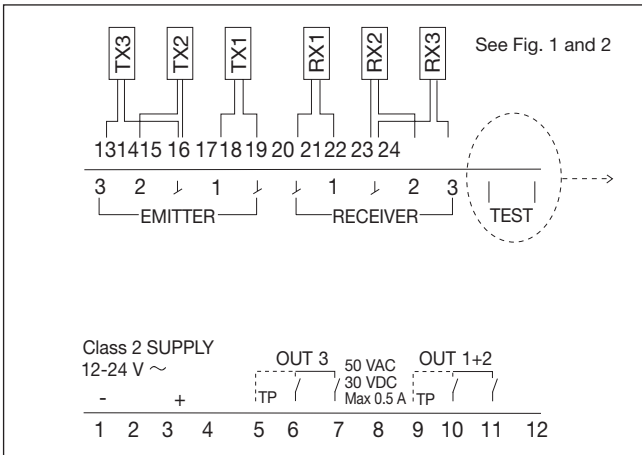
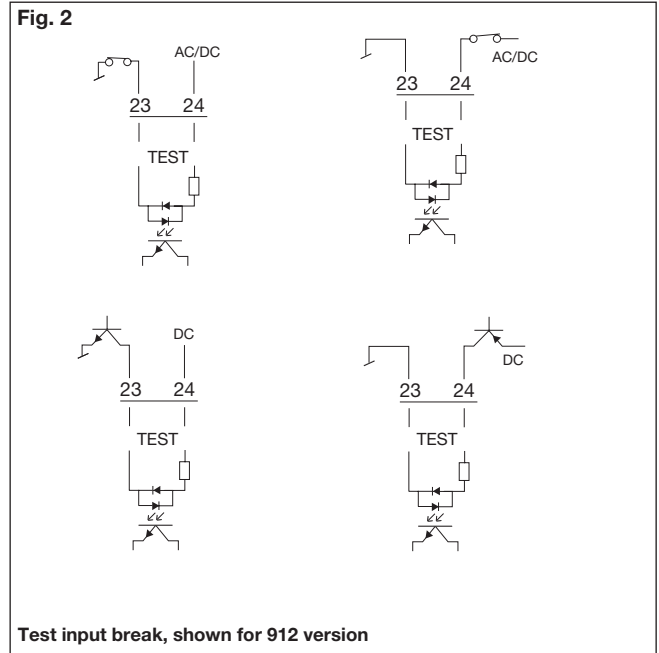
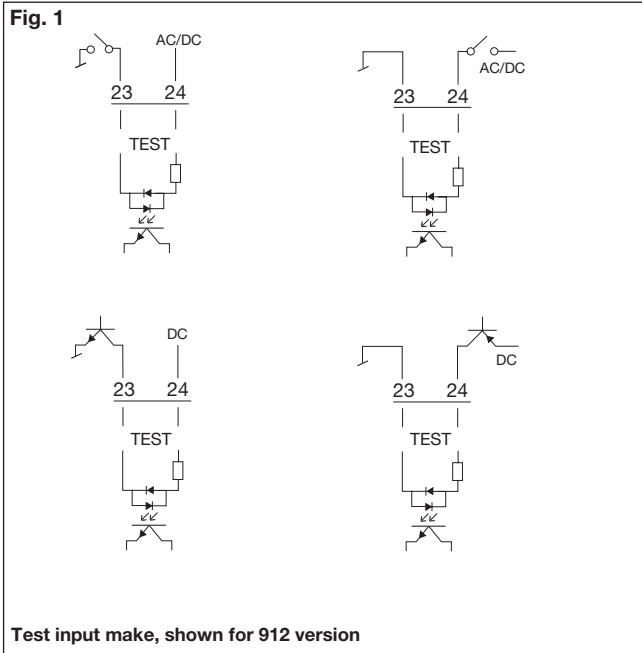
## Specifications, Photoelectric Switches

|  |  |   |  |
|--|--|---|--|
| <b>Rated operation dist. (S<sub>n</sub>)</b>   | 15 m - 8 m (UL 325)  | MPFT15-XXX-4C<br>MPFR15-XXX-4C<br><i>Connector is placed 15 cm from sensorhead</i><br>Cable   | Red connector pair<br>White connector pair<br>PVC, grey, 10 m, Ø 2.9 mm <sup>2</sup> |
| <b>Light source</b>  | LED 880 nm   | <b>Degree of protection</b>   | IP 67 (IEC 60529/60947-5-2)  |
| <b>Light type</b>  | Infrared modulated   | <b>Mounting</b><br>"Snap-ON"<br>MPFT15-4/C<br>MPFR-4/C<br>Rubber profile<br>MPFT15-D11-4/C<br>MPFR-D11-4/C<br>Rubber profile<br>MPFT15-D18-4/C<br>MPFR-D18-4/C<br>Threaded barrel<br>MPFT15-M14-4/C<br>MPFR-M14-4/C | Ø12 mm or fitting<br>D11<br>D18<br>M14   |
| <b>Ambient light</b>   | > 20.000 lux   | <b>CE-marking</b><br><b>UL-Approval</b>   | Yes<br>UL325, CSA-C22.2 No.247<br>UL508  |
| <b>Housing material</b><br>MPFT15-4/C<br>MPFT15-D18-4/C<br>MPFR-4/C<br>MPFR-D11-4/C<br>MPFR-D18-4/C<br>Housing<br>Backpart | PA6 Glass filled<br><br>PC<br>ABS  |   |  |
| MPFT15-M14-4/C<br>MPFR15-M14-4/C<br>House<br>Backpart  | Stainless steel/PC<br>PTE  |   |  |
| <b>Connection</b><br>MPFT15-XXX-4<br>MPFR15-XXX-4<br>Cable   | Max. 10 m cable length<br>Max. 25 m cable length<br>PVC, grey, 10 m, Ø 2.9 mm <sup>2</sup> |   |  |

## Operation Diagram



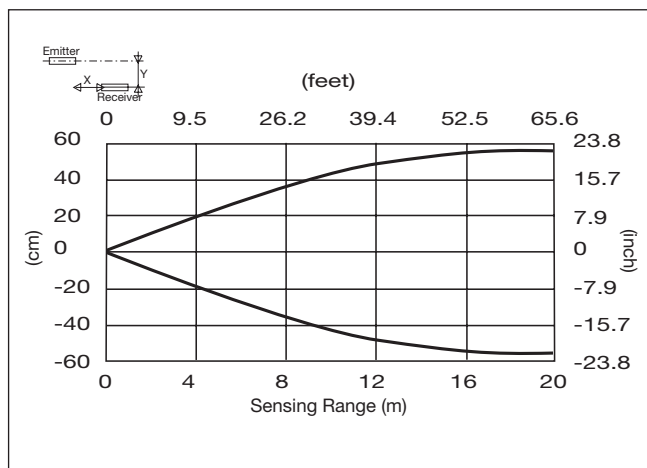
# Wiring Diagrams



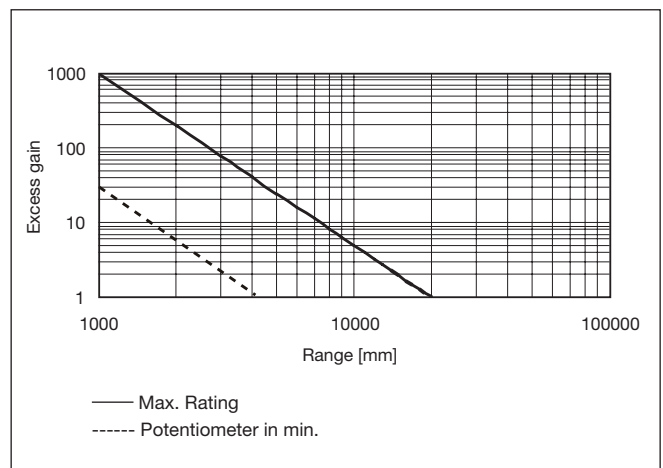
## Delivery Contents

- Amplifier, MPF..
- Installation instruction
- **Packaging:** cardboard box

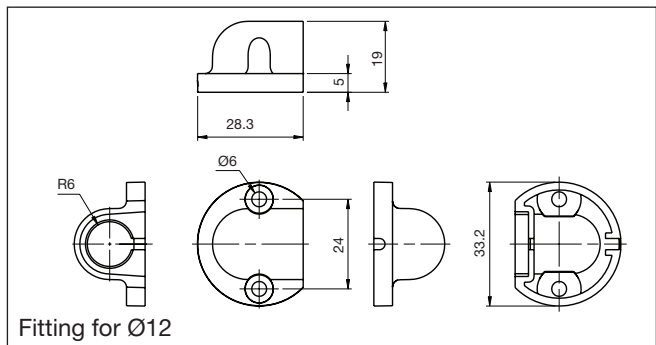
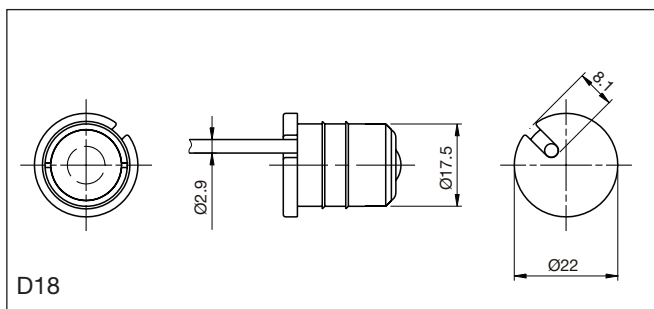
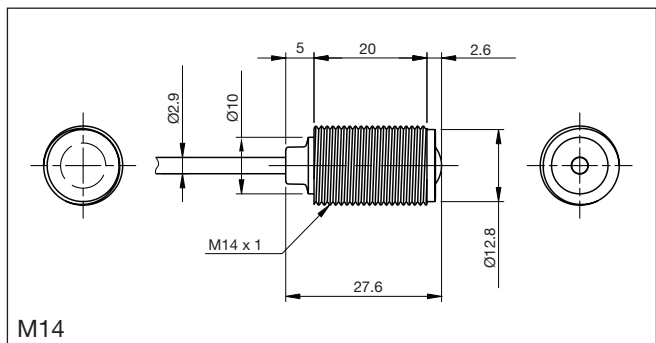
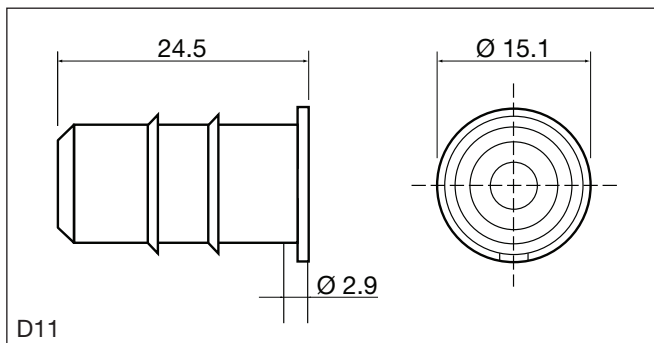
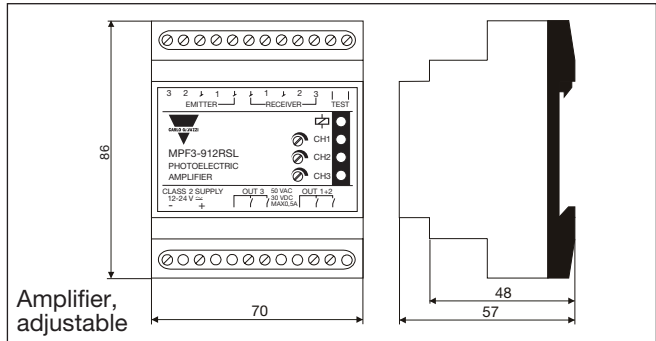
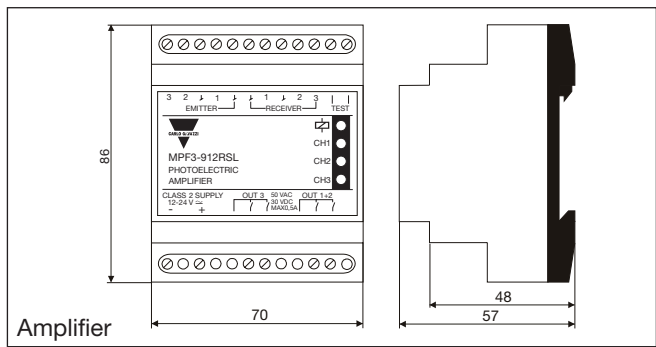
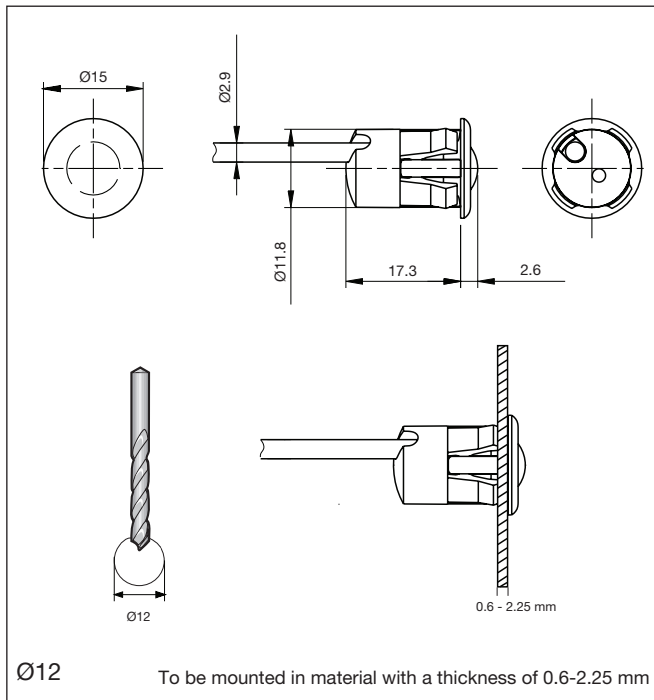
## Detection Diagram



## Excess Gain



## Dimensions



## Installation Hints

