

# Photoelectric sensors

## Through-beam for Separate Amplifier MOFT, MOFR



- Built-in lens: 2°, 5° or 8°
- Rated operating distance: 20 m or 50 m
- Modulated infrared light
- High immunity to ambient light
- For amplifier series S142... and PAM03...
- Degree of protection IP 66/IP 67
- For harsh environment
- High penetration power
- 15 m shielded PVC cable
- Ø 10 mm polycarbonate housing or M12 or M14 stainless steel housing



### Description

Small through beam photoelectric sensors. To be used with amplifiers series S142... and PAM03...  
Rated operating distance up to 50 m. 3 beam angles. 15 m shielded cable, PVC. Ø 10 x 42 mm polycarbonate or M12 or M14 stainless steel housing. Straight optical axis. Waterproof, for dirty environment, i.e. water, dust, steam etc.

### Part selection key

|              |     |                                |
|--------------|-----|--------------------------------|
| <b>MOF</b>   | -   | Photoelectric sensor           |
| <b>X</b>     | T   | Emitter                        |
|              | R   | Receiver                       |
| <b>X</b>     | 20  | Rated operating distance: 20 m |
|              | 50  | Rated operating distance: 50 m |
| <b>X</b>     | -   | Housing diameter: Ø10          |
|              | M12 | Housing diameter: M12          |
|              | M14 | Housing diameter: M14          |
| <b>X</b>     | -/2 | Optical angle: 2°              |
|              | 5   | Optical angle: 5°              |
|              | 8   | Optical angle: 8°              |
| <b>PAM03</b> | -   | For the PAM03... amplifier     |

### Part selection

| Housing diameter | Rated operating distance (S <sub>r</sub> ) | Optical angle | Part number (Emitter)      | Part number (Receiver) |
|------------------|--------------------------------------------|---------------|----------------------------|------------------------|
| Ø 10 mm          | 20 m                                       | 2°            | <b>MOFT 20</b>             | <b>MOFR</b>            |
|                  | 20 m                                       | 5°            | <b>MOFT 20-5</b>           | <b>MOFR-5</b>          |
|                  | 20 m                                       | 8°            | <b>MOFT 20-8 *</b>         | <b>MOFR-8</b>          |
|                  | 20 m                                       | 8°            | <b>MOFT 20-8-PAM03</b>     | <b>MOFR-8</b>          |
|                  | 50 m                                       | 2°            | <b>MOFT 50</b>             | <b>MOFR</b>            |
| M12              | 20 m                                       | 2°            | <b>MOFT 20-M12-2</b>       | <b>MOFR-M12-2</b>      |
|                  | 20 m                                       | 5°            | <b>MOFT 20-M12-5</b>       | <b>MOFR-M12-5</b>      |
|                  | 20 m                                       | 8°            | <b>MOFT 20-M12-8 *</b>     | <b>MOFR-M12-8</b>      |
|                  | 20 m                                       | 8°            | <b>MOFT 20-M12-8-PAM03</b> | <b>MOFR-M12-8</b>      |
|                  | 50 m                                       | 2°            | <b>MOFT 50</b>             | <b>MOFR-M12-2</b>      |
| M14              | 20 m                                       | 8°            | <b>MOFT 20-M14-8 *</b>     | <b>MOFR-M14-8</b>      |
|                  | 20 m                                       | 8°            | <b>MOFT 20-M14-8-PAM03</b> | <b>MOFR-M14-8</b>      |

\* Not for PAM03...

## Features

### Main operational data Emitter

|                                    |                                               |
|------------------------------------|-----------------------------------------------|
| <b>Functional principle</b>        | Photoelectric emitter                         |
| <b>Sensing</b>                     |                                               |
| Rated operating distance ( $S_r$ ) | 20 m<br>50 m                                  |
| <b>Optical information</b>         |                                               |
| Light source                       | GaAlAs LED, 880 nm                            |
| Light type                         | Infrared, modulated                           |
| Optical angle                      | $\pm 2^\circ$ , $\pm 5^\circ$ , $\pm 8^\circ$ |

### Main operational data Receiver

|                                          |                                               |
|------------------------------------------|-----------------------------------------------|
| <b>Functional principle</b>              | Photoelectric receiver                        |
| <b>Sensing</b>                           |                                               |
| Sensitivity adjustment                   | Adjustable on amplifier                       |
| Operating frequency (f)                  | See amplifier data                            |
| Response time ( $t_{OFF}$ and $t_{ON}$ ) | See amplifier data                            |
| <b>Optical information</b>               |                                               |
| Optical angle                            | $\pm 2^\circ$ , $\pm 5^\circ$ , $\pm 8^\circ$ |

### Electrical data

|                                     |                       |
|-------------------------------------|-----------------------|
| <b>Power supply</b>                 |                       |
| Rated operational voltage ( $U_e$ ) | Supplied by amplifier |
| Power-ON delay ( $t_v$ )            | See amplifier data    |

### Environmental data

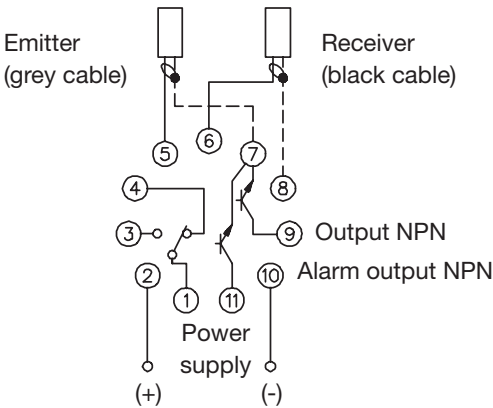
|                               |                                                                                                                                                  |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Ambient temperatures</b>   |                                                                                                                                                  |
| Operating                     | $-20^\circ \dots +60^\circ\text{C}$ ( $-4^\circ \dots +140^\circ\text{F}$ )*                                                                     |
| Storage                       | $-40^\circ \dots +80^\circ\text{C}$ ( $-40^\circ \dots +176^\circ\text{F}$ )*                                                                    |
| <b>Ambient light</b>          | 10,000 lux (sensitivity $\pm 5\%$ )<br><b>Note:</b> The actual range will be within $\pm 5\%$ of the set range at an ambient light of 10,000 lux |
| <b>Mechanical influences</b>  |                                                                                                                                                  |
| Vibration                     | 10...150 Hz, 0.5 mm/7.5 g (EN IEC 60068-2-6)                                                                                                     |
| Drop test                     | 2 x 1 m and 100 x 0.5 m (EN IEC 60068-2-31)                                                                                                      |
| <b>Categorization</b>         |                                                                                                                                                  |
| Pollution degree              | 3 (EN IEC 60664, 60664A; EN IEC 60947-1)                                                                                                         |
| Overvoltage category          | III (EN IEC 60664; EN IEC 60947-1)                                                                                                               |
| Degree of protection          | IP66/IP67 (EN IEC 60539; EN IEC 60947-1)                                                                                                         |
| <b>Safety (electrical)</b>    |                                                                                                                                                  |
| Protections                   | Short circuits, reverse polarity                                                                                                                 |
| Dielectric insulation voltage | 500 VAC (rms)                                                                                                                                    |

Structure

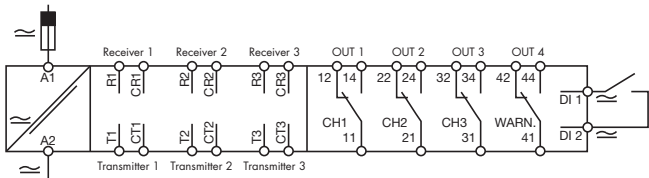
Housing

| Housing          |                                                          |
|------------------|----------------------------------------------------------|
| Housing          | Cylindrical                                              |
| Body             | Ø10: Polycarbonate, black<br>M12 or M14: Stainless steel |
| Dimensions       |                                                          |
| Optical angle 2° | Ø10 x 42 mm                                              |
| Optical angle 5° | M12 x 42 mm                                              |
| Optical angle 8° | Ø10 x 39.5 mm<br>M12 x 39.5 mm<br>M14 x 39.5 mm          |
| Weight           |                                                          |
| Emitter          | 347 g (Cable incl.)                                      |
| Receiver         | 347 g (Cable incl.)                                      |
| Connection cable |                                                          |
| Emitter          | Grey, 15 m oilproof PVC, Ø 4 mm, 1 x 0.25 mm², shielded  |
| Receiver         | Black, 15 m oilproof PVC, Ø 4 mm, 1 x 0.25 mm², shielded |

Wiring



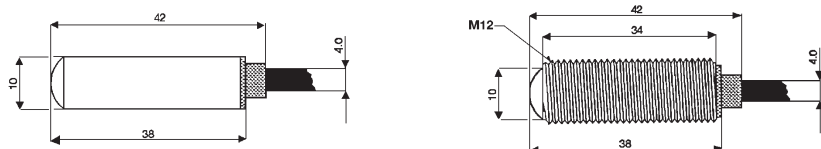
S142...



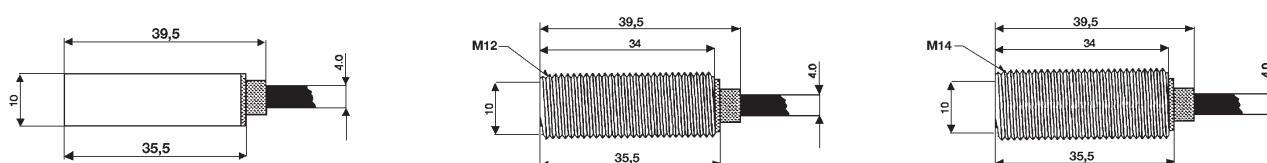
PAM03...

## Dimensions in mm

### 2° and 5° types



### 8° types



## LED indication

|             |              |
|-------------|--------------|
| Indications | On amplifier |
|-------------|--------------|

## Installation

### Mounting

1. When installing the sensors, make sure that the maximum range is not exceeded and - if two separate systems are mounted close to each other - place the sensors so cross-talk is avoided, or use PAM03...
2. To protect the receiver and the transmitter from damage, proper fittings must be used in the installation.
3. Connect the receiver and the emitter to the dedicated terminals on the S142... or PAM03... system.

## Delivery contents and accessories

### Delivery contents

- MOFT... and MOFR...
- All M12-types: 2 pcs. M12 nuts
- All M14-types: 2 pcs. M14 nuts
- Packaging: Plastic bag, emitter and receiver packed separately

### Accessories

- Mounting bracket MB-M01

### Further informations

Carlo Gavazzi website

[www.gavazziautomation.com](http://www.gavazziautomation.com)

