

# Photoelectrics Amplifier Type S142C..

CARLO GAVAZZI



- $\mu$ -Processor controlled
- Amplifier relay for photoelectric switches
- Automatic or manual emitter power regulation
- Multiplex system, master/slave 20 ms cycle
- Self-diagnostic functions
- Alignment help
- Rated operational voltage:  
24 VAC/DC, 115 VAC or 230 VAC
- Output 8 A/250 VAC SPDT relay
- LED indication: Automatic gain, output, level, emitter or receiver fault



## Product Description

$\mu$ -Processor controlled amplifier for one set of photoelectric sensors, type MOFTR. Utilising an 11-pin circular plug for easy connection. 8 A SPDT relay output. Diagnostics for sensor test during operation. Alignment help via LED. Level indication for

dirt accumulation. Manual or automatic emitter power regulation. Master/ Slave system fully multiplexed for high neighbour immunity. Two emitter codes available for high neighbour immunity between two separate master/slave networks.

## Ordering Key

**S142 C RXM 924**

Type \_\_\_\_\_  
 Special function \_\_\_\_\_  
 Output type \_\_\_\_\_  
 R-Relay \_\_\_\_\_  
 X-None \_\_\_\_\_  
 M-Manuel adj. \_\_\_\_\_  
 A-Manuel and automatic adj. \_\_\_\_\_  
 Power supply \_\_\_\_\_

## Type Selection

| Function                               | Ordering no.<br>Supply: 24 VAC/DC | Ordering no.<br>Supply: 115 VAC | Ordering no.<br>Supply: 230 VAC |
|--|-----------------------------------|---------------------------------|---------------------------------|
| Manuel or Automatic adj. <sup>1)</sup> | <b>S142 C RXA 924</b>             | <b>S142 C RXA 115</b>           | <b>S142 C RXA 230</b>           |
| Manuel adj. <sup>2)</sup>              | <b>S142 C RXM 924</b>             | <b>S142 C RXM 115</b>           | <b>S142 C RXM 230</b>           |

<sup>1)</sup> Amplifier can not be used as replacement in old systems, if used in old systems all amplifiers must be replaced.

<sup>2)</sup> Amplifier direct replacement for S1423156xxx, only for replacement not for new design.

## Specifications

|   |                          |   |  |  |
|---|--------------------------|---|--|--|
| <b>Rated operational voltage (U<sub>B</sub>)</b><br>Pins 2 & 10                     | 230<br>115<br>924        | 195 to 265 VAC, 45 to 65 Hz<br>98 to 132 VAC, 45 to 65 Hz<br>20.4 to 27.6 VAC/DC Class 2                            | <b>Receiver</b><br>Supply voltage (open loop)<br>Short-circuit current<br>Input resistance | Pins 6 & 8<br>5 VDC<br>10 mA<br>470 $\Omega$   |
| <b>Rated operational power</b><br>AC supply<br>AC/DC supply                         | 3.3 VA<br>1.6 VA / 1.4 W |   | <b>Emitter power</b><br>Power  | Settings on DIP switch no 4,<br>50 % or 100 % range                                  |
| <b>Delay on operate (t<sub>v</sub>)</b>   | < 300 mS                 |   | <b>Sensitivity adjustment</b><br>Manual<br>Automatic /Auto LED ON)                         | 240° Potentiometer<br>Potentiometer settings fully<br>counter clockwise              |
| <b>Outputs</b><br><b>Relay Rating (AgCdO)</b><br>Resistive loads                    | AC1<br>DC1<br>or<br>AC1  | $\mu$ (micro gap)<br>8 A / 250 VAC (2500 VA)<br>0.2 A / 250 VDC (50 W)<br>2 A 25 VDC (50 W)<br>> 100.000 operations | <b>Max. sensing distance</b>   | Maximum range indicated on<br>photoelectric switch data-<br>sheets in 100 % settings |
| <b>Output function</b><br>Relay   |                          | Make or break on DIP-switch<br>SPDT   | <b>Rated insulation voltage (U<sub>i</sub>)</b>  | 250 VAC  |
| <b>Supply to sensors</b><br><b>Emitter</b><br>Supply voltage (open loop)<br>Current |                          | Pins 5 & 7<br>15 V square wave<br>< 450 mA, short circuit<br>protected  | <b>Dielectric voltage</b>  | >2.0 KVAC (rms)<br>(contacts / electronics)  |
| Output resistance   | 10 $\Omega$              |   | <b>Rated impulse withstand volt.</b>   | 4 kV (1.2/50 $\mu$ S) (contacts /<br>electronics) (IEC 664)                          |
|   |                          |   | <b>Operating frequency (f)</b><br>Light / Dark ratio<br>Relay output                       | 1:1<br>20 HZ   |

## Specifications

|  |   |  |   |
|--|---|--|---|
| <b>Response time</b><br>OFF-ON ( $t_{ON}$ )<br>ON-OFF ( $t_{OFF}$ )                    | 20 mS x no. of systems<br>20 mS x no. of systems                                  | <b>Housing material</b>                    | NORYL SE1, light grey                             |
| <b>Environment</b><br>Overvoltage category<br>Degree of protection<br>Pollution degree | III (IEC 60664)<br>IP 20 /IEC 60529, 60947-1)<br>3 (IEC 60664/60664A,<br>60947-1) | <b>Weight</b><br>AC supply<br>AC/DC supply | 200 g<br>125 g                                    |
| <b>Temperature</b><br>Operating<br>Storage   | -20° to +50°C (-4° to +122°F)<br>-50° to +85°C (-58° to +185°F)                   | <b>Approvals</b><br><b>CE marking</b>      | UL508, UL325, CSA<br>EN12445, EN12453,<br>EN12978 |

## Specifications

### Diagnostic

If a fault occurs on either the emitter or receiver the Alarm LED and output will turn ON.

### Receiver fault

During normal operation the receiver is monitored for faults.

If the wires are short-circuited the "Code A, Yellow LED" flashes at a rate of 2 Hz.

If the wires are broken the "Code A, Yellow LED" flashes at a rate of 4 Hz.

### Emitter fault

During normal operation the emitter is monitored for faults.

If the wires are short-circuited the "Code B, Green LED"

flashes at a rate of 2 Hz.

If the wires are broken the "Code B, Green LED" flashes at a rate of 4 Hz.

### Alignment

If the alignment DIP switch is set the Yellow Signal LED Flashes according to the signal quality.

Low frequency means weak signal.

Steady indication means maximum signal. On long distance it is not possible to get a steady signal but the alignment is optimal when the led flashes with the highest frequency.

On short distance the sensitivity can be reduced using the potentiometer and then

get better readings in the alignment LED.

The ALARM output will follow the Signal LED in alignment mode, so a Sensor tester (optional) can be connected to serve as a remote indication during alignment of the sensors.

**NB!** In alignment mode the output is off.

### Code A or B

When two sensor pairs are mounted close to each other it is recommended to select one set to Code A and the other to Code B to minimize crosstalk.

### Dirt reserve

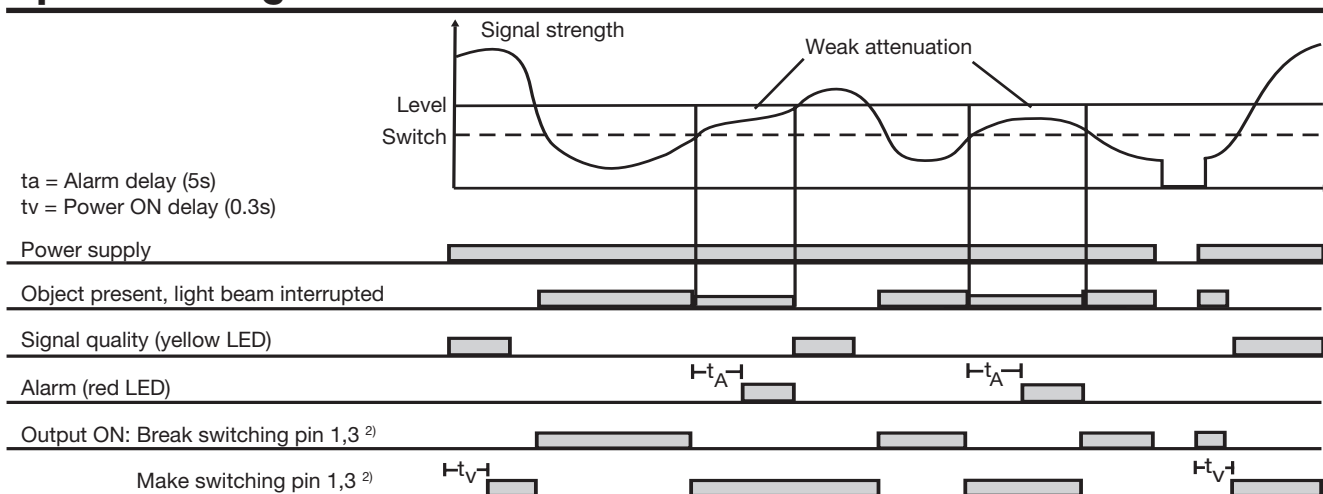
For optimal detection excess gain settings can be selected using the Level Low/High DIP switch:

- High: Allows high dirt build-up.
- Low: Allows detection of semi-transparent objects.

### Power settings

To avoid a too strong emitter the power can be reduced to 50% reducing the max distance to 25%

## Operation Diagram



<sup>2)</sup> Switching function selected by DIP-switch, inverted function on pin 1, 4