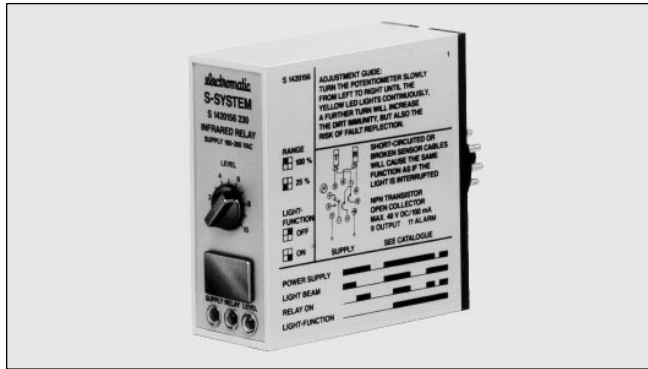


Photoelectrics Amplifier Types S1420, S1421



- Amplifier relay for photoelectric switches
- Sensivity range DIP-switch selectable
- Sensivity adjustment by potmeter
- Dirt accumulation alarm and alignment control
- Timer functions
- Modulated and synchronized light
- Make and break switching funct. DIP-switch selectable
- Rated operational voltage:
24 VDC or VAC, 115 VAC, 230 VAC
- Output 10 A/250 V SPDT relay and 100 mA NPN
- LED indications: Power supply, output, level
- Plug-in module

Product Description

Amplifier relay for long-range photoelectric switch types MIF, MKF, MHF, MCF, MDF, MMF, MNF and MFFD. Carlo Gavazzi "S-System" plug-in housing. Adjustable sensitivity, high and low range selection with LED indication. Mis-

alignment and dirt accumulation alarm output. Make and break switching function DIP-switch selectable. Short-circuit protected supply to photoelectric switches. ON-delay and OFF-delay adjustable from 0 to 10 s on S1421 types.

Ordering Key **S142 1 156 724**

Type _____
 Special function _____
 Output type _____
 Power supply _____

Type Selection

Plug type	Function	Ordering no. Supply: 24 VDC	Ordering no. Supply: 24 VAC	Ordering no. Supply: 115 VAC	Ordering no. Supply: 230 VAC
Circular 11 pins	Adjustable sensitivity, dirt alarm, alignment indication	S 1420 156 724	S 1420 156 024	S 1420 156 115	S 1420 156 230
Circular 11 pins	Adjustable sensitivity, dirt alarm, alignment indication, ON delay & OFF delay	S 1421 156 724	S 1421 156 024	S 1421 156 115	S 1421 156 230

Specifications

Rated operational volt.	
AC types (U_B) pins 2 & 10	230 195 to 265 VAC, 45 to 65 Hz 115 98 to 132 VAC, 45 to 65 Hz 024 20.4 to 27.6 VAC, 45 to 65 Hz
Voltage Interruption	≤ 40 ms
Dielectric voltage	≥ 2.0 kVAC (rms)
Rated impulse withstand volt.	4 kV (1.2/50 μs)
Rated operational volt.	
DC types (U_B) pins 2 positive & 10 negative	724 20.4 to 27.6 VDC
Dielectric voltage	None
Rated impulse withstand volt.	800 V (1.2/50 μs)
Rated operational power	
AC supply	2.5 VA
DC supply	3 W

Supply to photoelectric switch	
Emitter	Pins 5 & 7
Supply voltage (open loop)	8 V square wave
Current	≤ 100mA short-circuit protected
Light modulation frequency	35 kHz
Output resistance	47 Ω
Receiver	Pins 6 & 8
Supply voltage (open loop)	8 VDC
Short circuit current	18 mA
Input resistance	470 Ω



Specifications (cont.)

Output Specifications

Switching function	
Contact output current (1 & 3) Continuous AC (I_a)	10 A/250 VAC ohmic load (2500 VA)
Continuous DC (I_a)	1 A/250 VDC ohmic load (250 W)
Contact life mechanical	30 x 10 ⁵ operations
Contact life electrical	2.5 x 10 ⁵ operations
NPN Output (Pin 9)	
Continuous (I_a)	100 mA/40 VDC not protected
Short-time (I)	100 mA/40 VDC
Alarm function (Pin 11)	
NPN Output	
Continuous (I_a)	100 mA/40 VDC, not protected
Short-time (I)	100 mA/40 VDC
Rated insulation volt. (U_i)	250 VAC (rms)
Dielectric voltage	≥ 2.0 kVAC (rms) (contact/electronics)
Rated impulse withstand volt.	4 kV (1.2/50μs) (contact/ electronics) (IEC 664)
Sensitivity (% of S _n)	<ul style="list-style-type: none"> 2 ranges, DIP-switch selectable - low sensitivity (25%) - high sensitivity (100%) Fine adjustment with 270° turn knob

Sensitivity (cont.)

Note:

- Maximum range indicated on photoelectric switch data sheet in high sensitivity range only
- Operation within low sensitivity range, increases ambient light and crosstalk immunity.

Operating frequency (f)	S 1420 S 1421	
Light/dark ratio 1:1		
Contact output	15 Hz	5 Hz delayset
NPN output	15 Hz	5 Hz delayset
Response time		
OFF-ON (t _{ON})	33 ms	0.1 to 14 s +/- 4 s
ON-OFF (t _{OFF})	33 ms	0.1 to 14 s +/- 4 s ON and OFF delay
Power ON delay (t_v)	< 300 ms	
Output function	Make and break switching DIP-switch selectable	
Indication		
Supply ON	LED, green	
Output ON	LED, red	
Alignment/dirt accumulation (sensitivity level)	LED, yellow (Steadily on if sensitivity adjusted properly)	
Environment		
Overvoltage category	III (IEC 664)	
Degree of protection	IP 20 (IEC 529, 947-1)	
Pollution degree	3 (IEC 664/664A, 947-1)	
Temperature		
Operating	-20° to +50°C (-4° to +122°F)	
Storage	-50° to +85°C (-58° to 185°F)	
Weight		
AC supply	200 g	
DC supply	125 g	

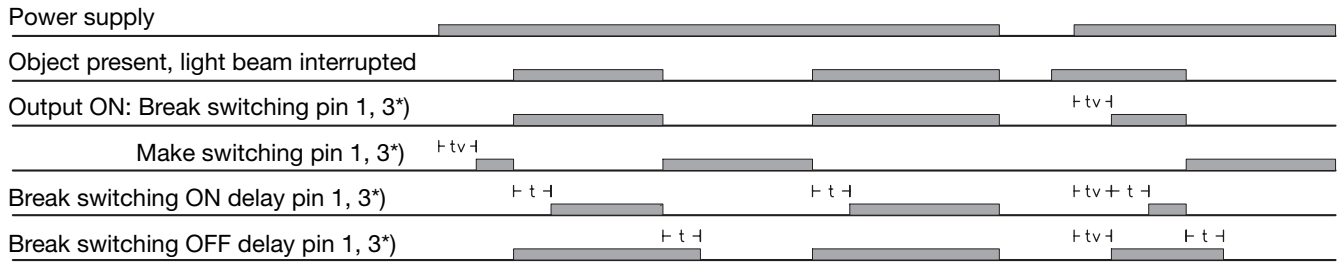
Truth Table

	Make switching			Break switching		
	Yes	No	No	Yes	No	No
Object present	Yes	No	No	Yes	No	No
Dirt on lenses, misaligned or sensitivity too low	--	No	Yes ¹⁾	--	No	Yes ¹⁾
Output LED red	OFF	ON	ON	ON	OFF	OFF
Level LED yellow	OFF	ON steadily	OFF or weakly OFF	OFF	ON steadily	OFF or weakly OFF
Load Pins 1 & 3	N-act.	Active	Active	Active.	N-act.	N-act.
Output NPN Pi. 9&7	High	Low	Low	Low	High	High
Alarm Output ²⁾ NPN Pins 11&7	High	High	Low	High	High	Low

¹⁾ Under normal operating conditions, the yellow level indication LED has to be on steadily (bright) and alarm output has to be high.

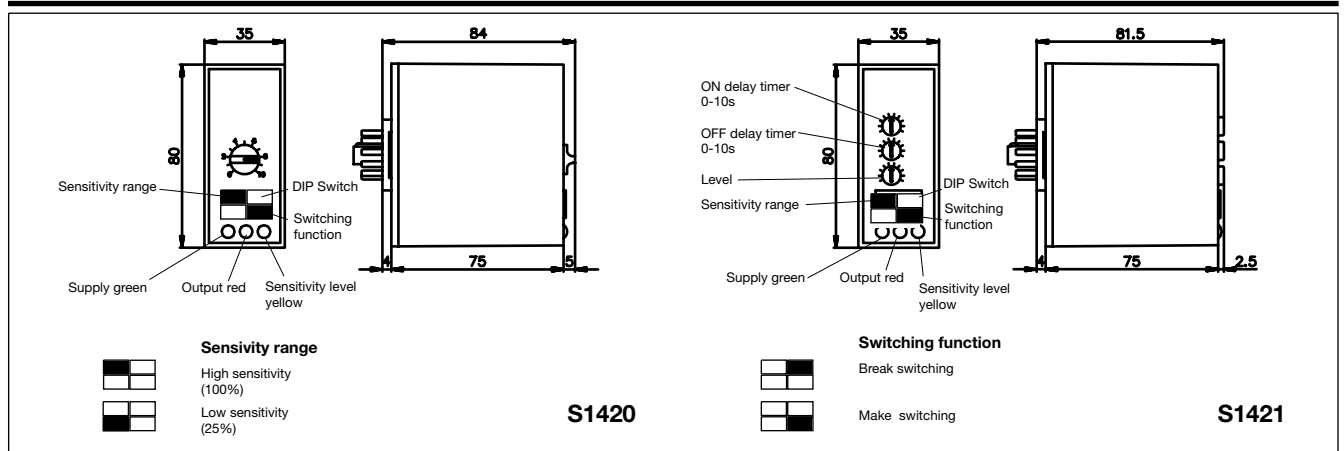
²⁾ The alarm output will turn on shortly each time an object enters or exits the sensing zone, even if the photoelectric switch is correctly installed and adjusted. To avoid false signals, the alarm functions should be delayed with an external ON delay timer (i.e. Carlo Gavazzi timer S111 series).

Operation Diagram

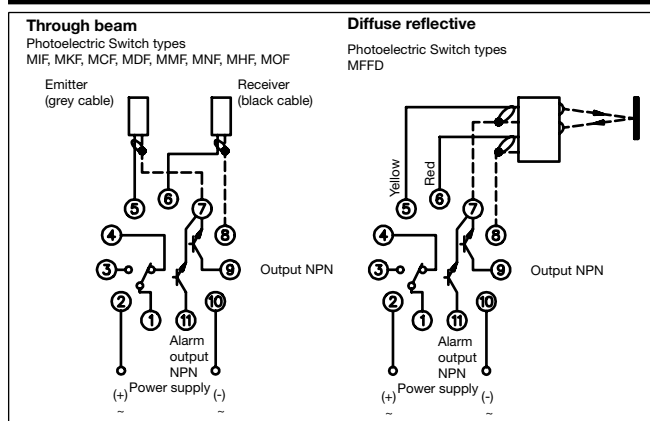


*) Switching function selected by DIP-switch, inverted function on pin 1, 4

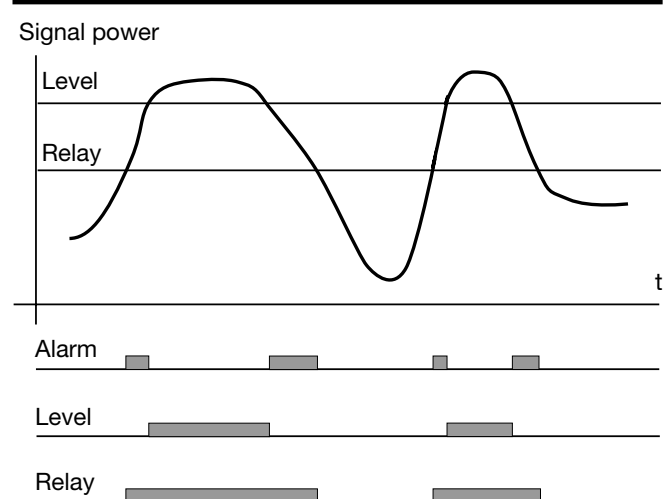
Dimensions



Wiring Diagrams



Alarm Diagram



Accessories

- 11 pole circular socket
- Socket cover for S111
- Socket cover for S411
- Holding down spring
- Mounting rack
- Front panel mounting bezel
- Potentiometer knob lock
- S111, S111A, S411, ZPD11
- BB1
- BB4
- HF
- SM13
- FRS2
- PL1

Delivery Contents

- Amplifier
- **Packaging:** styropor box