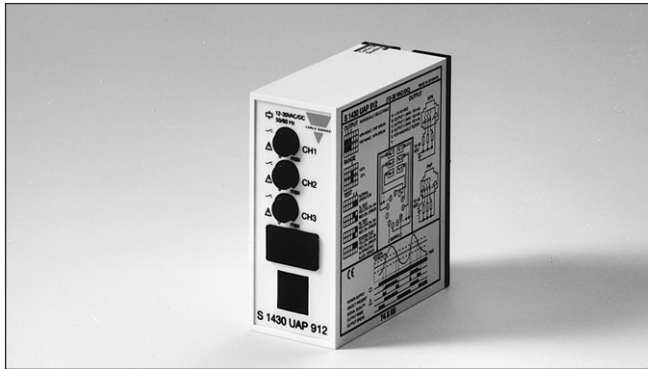


# Photoelectrics Amplifier, $\mu$ -Processor Controlled Type S1430 RAL, 3 Inputs/3 Relay Outputs

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- $\mu$ -Processor controlled
- Amplifier unit for 3 sets of photoelectrics
- 3 independent outputs with 1 x Relay SPDT, make switching function
- Self-diagnostic functions
- Alignment failure indication
- Multivoltage 15 to 30 VAC/DC
- Modulated and synchronized light
- Adjustable sensitivity for each channel
- LED indications: supply, outputs, signal quality
- 11-pin plug-in housing



## Product Description

$\mu$ -Processor controlled amplifier for 3 sets of photoelectric sensors, type MOFTR, MKFTR, MIFTR or MHFTR. Utilising an 11-pin circular plug for easy connection. Relay outputs (NO). Self-diagnostics for sys-

tem test. Protected against reverse wiring or cross talk from adjacent photoelectrics. Multi-voltage power supply. Sensitivity is individually adjustable for each set of photoelectrics.

## Ordering Key

**S14 30 RAL 915**

Type \_\_\_\_\_  
 Special function \_\_\_\_\_  
 Output type \_\_\_\_\_  
 Power supply \_\_\_\_\_

## Type Selection

Plug type	Ordering no. Supply: 15 - 30 VAC/DC
Circular, 11 pins	S 1430 RAL 915

## Specifications

<b>Rated operational voltage (<math>U_b</math>)</b> pins 2 & 10	DC 13.5 to 33 VDC AC 13.5 to 33 VAC, 45 to 65 Hz
<b>Rated operational power</b> AC supply DC supply	5 VA 5 W
<b>Power ON delay (<math>t_v</math>)</b>	< 300 ms
<b>Output</b> <b>Contact Rating (AgCdO)</b>	
Resistive loads AC 1	1.5 A/100 VAC
DC 1	1.5 A/30 VDC
Small induc. loads AC 15	1.5 A/100 VAC
DC 13	1.5 A/30 VDC
Mechanical life (typical)	$\geq 20 \times 10^6$ operations at 18000 imp/H
Electrical life (typical)	$\geq 300000$ operating at 220 VAC - 2A resistive load
<b>Output function</b>	Relay Make function
<b>Protection, outputs</b>	Reverse polarity, short-circuit, transients
<b>Supply to photoelectric switch</b> <b>Emitter</b>	Tx1: Pin 1 Tx2: Pin 9 Tx3: Pin 6 Shield: Pin 11 (common)

<b>Supply to photoelectric switch</b> <b>Emitter (cont.)</b> Supply voltage (open loop) Current	7 V square wave $\leq 300$ mA short-circuit protected
Output resistance	10 $\Omega$
<b>Receiver</b>	Rx1: Pin 4 Rx2: Pin 7 Rx3: Pin 8 Shield: Pin 5 (common)
Supply voltage (open loop) Short-circuit current Input resistance	5 VDC 10 mA 470 $\Omega$
<b>Sensitivity</b> (% of $S_n$ )	<ul style="list-style-type: none"> <li>• 2 ranges, DIP-switch selectable - low sensitivity (25%) - high sensitivity (100%)</li> <li>• Sensitivity adjustment with 270°: Turn knob on CH 1, 2, 3</li> <li>• Maximum range indicated on photoelectric switch data sheet in high sensitivity range only</li> <li>• Operation within low sensitivity range, increases ambient light and cross-talk immunity</li> </ul>
Note:	

## Specifications (cont.)

<b>Operating frequency (f)</b> Light/dark ratio 1:1	12.5 Hz
<b>Response time</b> OFF-ON ( $t_{ON}$ ) ON-OFF ( $t_{OFF}$ ) Multiplex cycle time	30 ms 30 ms 20 ms
<b>Indication</b> Supply ON Output ON Signal quality Multiplex activated	LED, green LED, yellow LED, red LED, yellow
<b>Environment</b> Overvoltage category Degree of protection Pollution degree	III (IEC 60664) IP 20 (IEC 60529, 60947-1) 3 (IEC 60664/60664A, 60947-1)
<b>Temperature</b> Operating Storage	-20° to +50°C (-4° to +122°F) -50° to +85°C (-58° to 185°F)
<b>Weight</b>	150 g
<b>CE-marking</b>	Yes

## Truth Table

	Make switching		
Object present	Yes	No	No
Dirt on lenses, misaligned or sensitivity too low	--	No	Yes <sup>1)</sup>
Output LED yellow	OFF	ON	ON
Level LED red	OFF	OFF	ON or flashing
Output	OFF	ON	

<sup>1)</sup> Under normal operating conditions, the red level indication LED has to be OFF. The level indication LED will turn on shortly each time an object enters or exits the sensing zone, even if the photoelectric switch is correctly installed and adjusted.

## Procedure for Test Functions (DIP-switch Selection)

### Transmitter test

#### (switch 1 in the up position)

When switch 1 is placed in the up position all yellow and red LED's on the front of the unit will flash simultaneously. Once the test is completed (approx. 3 scans) and a wiring fault is detected, such as reverse polarity or short-circuit, the transmitter that has the fault condition will be indicated by the red LED being continuously ON. If a fault condition is not existing then only the yellow LED will be ON. If a fault exists, correct the fault condition and then repeat the test, this will ensure proper wiring has been done. Always reset **switch 1** for normal operation of system when testing completed.

### Receiver test

#### (switch 2 in the up position)

When switch 2 is placed in the up position all yellow and red LED's on the front of the unit will flash simultaneously. Once the test is completed (approx. 3 scans) and a wiring fault is detected, such as reverse polarity or short-circuit, the receiver that has the fault condition will be indicated by the red LED being continuously ON. If a fault condition is not existing then only the yellow LED will be ON. If a fault exists, correct the fault condition and then repeat the test, this will ensure proper wiring has been done. Always reset **switch 2** for normal operation of system when testing completed.








### Function test

#### (switch 1 and 2 in the up position)

When switch 1 and 2 are both placed in the up position (simultaneously) the yellow and red LED's on the front of the housing will begin to flash simultan-

eously and then the LED's will cycle from channel 1 to channel 2 and then to channel 3. Once the complete system scan is done the indication of the system condition will be displayed (see below). System test will continue until switches 1

### LED Indication

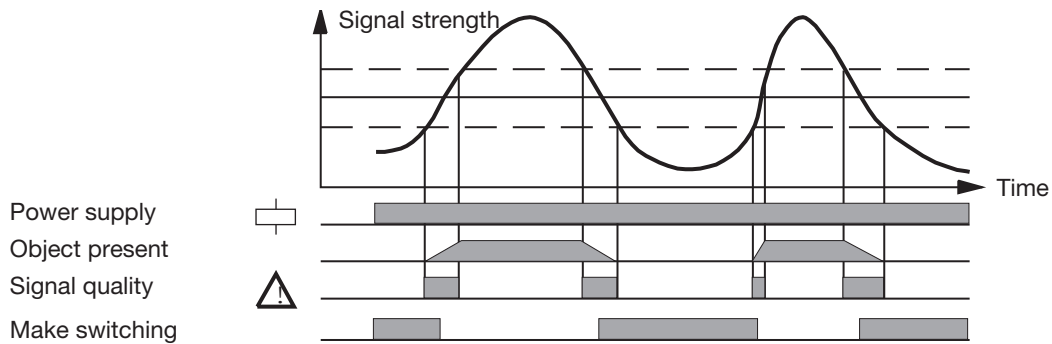
 	Yellow LED ON Red LED OFF	} <b>System Test OK</b>
 	Yellow LED ON Red LED ON	} <b>Tx's and Rx's mismatched, e.g. Rx3 seeing Tx1</b>
 	Yellow LED OFF Red LED ON	} <b>Alignment error or beam obstructed by</b>
	Yellow LED	} <b>When max. 3 amplifiers are linked the LED flashes</b>

## Multiplex Mode

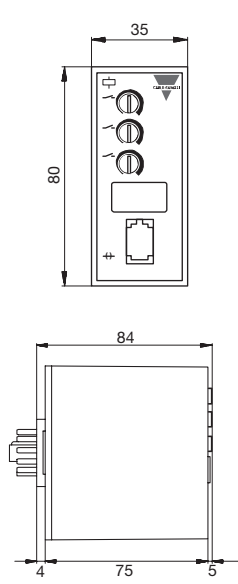
Multiplex mode is when having up to 3 amplifiers linked together via connection no. 3 in the 11-pole socket. The system activates amplifier no. 1 channel 1, 2 and 3. Then amplifier no. 2 channel 1, 2 and 3 and finally amplifier no. 3 channel 1, 2 and 3. Then back to amplifier no. 1 etc. Operat-

ing frequency in a multiplex system is divided with the number of amplifiers used. Response time in a multiplex system is multiplied with the number of amplifiers used. When working in a multiplex system the yellow LED flashes.


## Operation Diagram



## Dimensions



DIP-Switch (located behind cover):

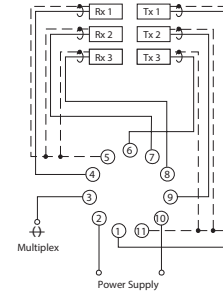


SW 1 2 3 4 5 6

- 1: Make/break CH 1 output
- 2: Make/break CH 2 output
- 3: Make/break CH 3 output
- 4: Low sensitivity (25%) / high sensitivity (100%)
- 5: Test button, transmitters are transmitting, no short, wired correctly
- 6: Test button, receivers are receiving, no short, wired correctly
- 5+6 together: System test (transmitter and receiver)

<p>sw 1, 2, 3:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Break</li> <li><input type="checkbox"/> Make</li> </ul> <p>sw 5:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Transmitter test</li> <li><input type="checkbox"/> Normal operation</li> </ul> <p>sw 5+6:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> System test</li> <li><input type="checkbox"/> Normal operation</li> </ul>	<p>sw 4:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Range 25%</li> <li><input type="checkbox"/> Range 100%, normal operation</li> </ul> <p>sw 6:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Receiver test</li> <li><input type="checkbox"/> Normal operation</li> </ul>
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## Wiring Diagrams



**ON sockets**

- 1: Transmitter 1
- 2: Supply (+ VDC)
- 3: Multiplex
- 4: Receiver 1
- 5: GND (Receivers)
- 6: Transmitter 3
- 7: Receiver 2
- 8: Receiver 3
- 9: Transmitter 2
- 10: Supply (- VDC)
- 11: GND (Transmitters)

**Output wiring**

A: } Output 1 (max. 30 VDC, 100 VAC, 1.5A)	}	white black
B: }		
C: } Output 2 (max. 30 VDC, 100 VAC, 1.5A)	}	red green
D: }		
E: } Output 3 (max. 30 VDC, 100 VAC, 1.5A)	}	yellow blue
F: }		

