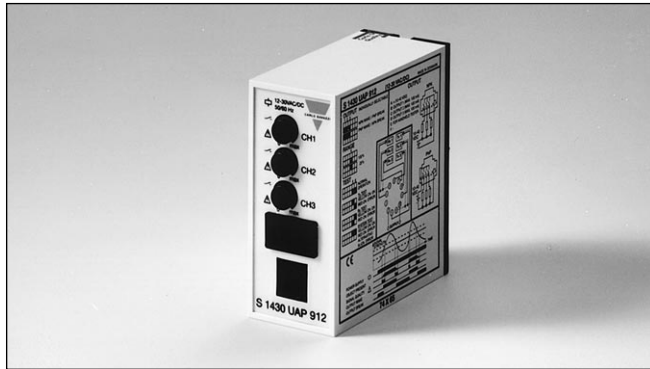


# Photoelectrics Amplifier, $\mu$ -Processor Controlled Type S1430, 3 Inputs/3 Outputs

CARLO GAVAZZI



- $\mu$ -Processor controlled
- Amplifier unit for 3 sets of photoelectrics
- 3 independent outputs
- NPN/PNP both NO or NC selectable
- Self-diagnostic functions
- Alignment failure indication
- Multivoltage 12 to 30 VAC/DC
- Modulated and synchronized light
- Adjustable sensitivity for each channel
- LED indications: supply, outputs, signal quality
- 11-pin plug-in housing
- For 115 or 230 VAC use power supplies S1430 PWS115 or S1430 PWS230

## 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, outputs freely selectable for NPN/PNP or NO/NC. Self-

diagnostics for system test. Protected against short-circuits, 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 UAP 912

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

## Type Selection

Plug type	Ordering no. Supply: 12 - 30 VAC/DC	Ordering no. Supply: 115 VAC	Ordering no. Supply: 230 VAC
Circular, 11 pins	S 1430 UAP 912	S 1430 PWS 115 Power Supply for S 1430 UAP 912	S 1430 PWS 230 Power Supply for S 1430 UAP 912

## Specifications

<b>Rated operational voltage <math>U_b</math></b> pins 2 & 10	DC 10.8 to 33 VDC AC 10.8 to 33 VAC, 45 to 65 Hz
<b>Rated operational power</b>	AC supply 4 VA DC supply 3 W
<b>Power ON delay (<math>t_r</math>)</b>	< 300 ms
<b>Output function</b>	NPN and PNP switching Make and break function DIP-switch selectable
<b>Output current</b>	Continuous ( $I_o$ ) 100 mA per output Short-time ( $I$ ) 100 mA max.
<b>Min. load current (<math>I_m</math>)</b>	0.5 mA
<b>OFF-state current (<math>I_r</math>)</b>	Max. 100 $\mu$ A
<b>Voltage drop (<math>U_d</math>)</b>	$\leq$ 3.5 VDC
<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)
Supply voltage (open loop)	7 V square wave

Current	$\leq$ 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)	5 VDC
Short-circuit current	10 mA
Input resistance	470 $\Omega$
<b>Sensitivity</b> (% of $S_n$ )	<ul style="list-style-type: none"> <li>• 2 ranges, DIP-switch selectable</li> <li>- low sensitivity (25%)</li> <li>- 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 crosstalk immunity</li> </ul>
Note:	

## Specifications (cont.)

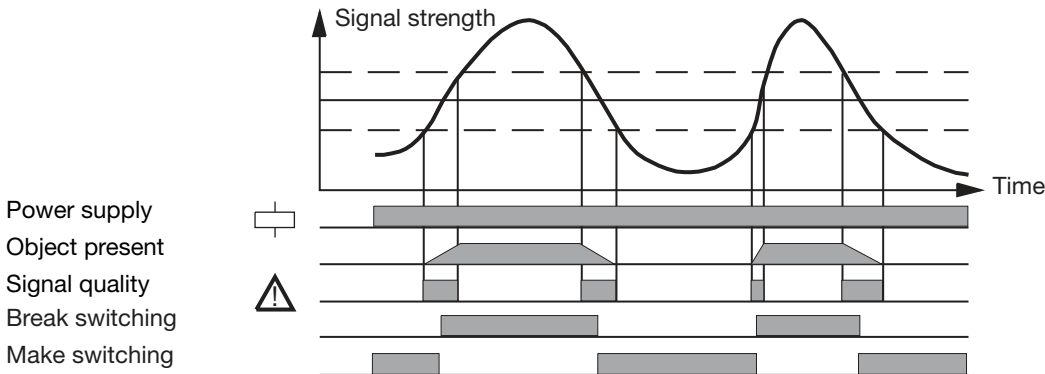
<b>Operating frequency (f)</b>	
Light/dark ratio 1:1	16 Hz
<b>Response time</b>	
OFF-ON ( $t_{ON}$ )	20 ms
ON-OFF ( $t_{OFF}$ )	20 ms
<b>Indication</b>	
Supply ON	LED, green
Output ON	LED, yellow
Signal quality	LED, red
<b>Environment</b>	
Overvoltage category	III (IEC 664)
Degree of protection	IP 20 (IEC 529, 947-1)
Pollution degree	3 (IEC 664/664A, 947-1)
<b>Temperature</b>	
Operating	-20° to +50°C (-4° to +122°F)
Storage	-50° to +85°C (-58° to 185°F)
<b>Weight</b>	150 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 <sup>1)</sup>	--	No	Yes <sup>1)</sup>
Output LED yellow	OFF	ON	ON	OFF	ON	ON
Level LED red	OFF	OFF	ON or flashing	OFF	OFF	ON or flashing
Output NPN/PNP	OFF	ON	ON	ON	OFF	OFF

<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.

## Operation Diagram



## Dimensions

DIP-switch (located behind cover):

1: PNP/NPN CH 1 output  
 2: PNP/NPN CH 2 output  
 3: PNP/NPN 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)

sw 1, 2, 3:

- PNP make/NPN break
- NPN make/PNP break

sw 4:

- Range 25%
- Range 100%, normal operation

sw 5:

- Transmitter test
- Normal operation

sw 6:

- Receiver test
- Normal operation

sw 5+6:

- System test
- Normal operation



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

### Transmitter test (pin 5 in the up position)

When pin 5 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 **pin 5** for normal operation of system when testing completed.

### Receiver test (pin 6 in the up position)

When pin 6 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 **pin 6** for normal operation of system when testing completed.

### Function test (pin 5 and 6 in the up position)

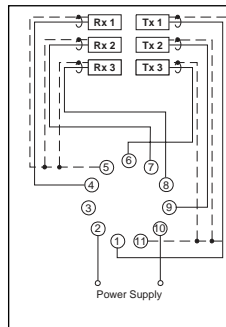
When pin 5 and 6 are both placed in the up position (simultaneously) the yellow and red LED's on the front of the housing will begin to flash simultaneously and then the LED's will cycle from channel

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 pins 5 and 6 are reset.

#### LED Indication

—	Yellow LED ON	}	<b>System Test OK</b>
△	Red LED OFF		
—	Yellow LED ON	}	<b>Tx's and Rx's mismatched, e.g. Rx3 seeing Tx1</b>
△	Red LED ON		
—	Yellow LED OFF	}	<b>Alignment error or beam obstructed by object</b>
△	Red LED ON		

## Wiring Diagrams



#### ON sockets

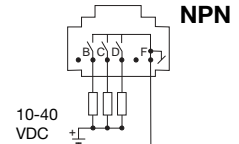
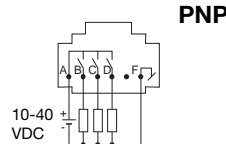
- 1: Transmitter 1
- 2: Supply (+ VDC)
- 3: No connection
- 4: Receiver 1
- 5: GND (Receivers)
- 6: Transmitter 3
- 7: Receiver 2
- 8: Receiver 3
- 9: Transmitter 2
- 10: Supply (- VDC)
- 11: GND (Transmitters)

#### Output

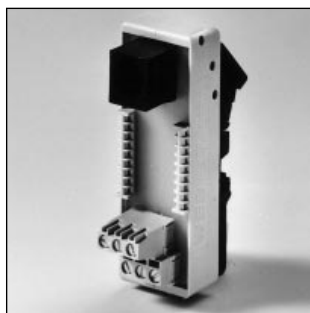
- A: + (10-40 VDC)
- B: Output 1 (max. 100 mA)
- C: Output 2 (max. 100 mA)
- D: Output 3 (max. 100 mA)
- E: For handheld tester
- F: - DC

#### Wire colour coding

- white
- black
- red
- green
- yellow
- blue



## Interface



**6IODC**  
DIN-rail interface  
(DIN EN 50 035, EN 50 022)

## Power Supply



**S 1430 PWS ....**  
Power supply for 12 VDC/1 A

## Accessories

- 11 pole circular socket
  - Socket cover for S111
  - Socket cover for S411
  - Holding down spring
  - Mounting rack
  - Front panel mounting bezel
  - Connection cable (2 plugs)
  - 2 x 6/6 modular plugs
  - Power supply for 115 VAC
  - Power supply for 230 VAC
  - DIN-rail interface
- S111, S111A, S411, ZPD11
  - BB1
  - BB4
  - HF
  - SM13
  - FRS2
  - 2 x 6/6 mod. 2.0 m
  - S 1430 PWS 115
  - S 1430 PWS 230
  - 6IODC

## Delivery Contents

- Output connection cable
  - Amplifier
  - DIN-rail interface
  - Screw driver
  - **Packaging:** cardboard box
- 1 x 6/6 mod. 1.0 m
  - S 1430 UAP 912
  - 6IODC