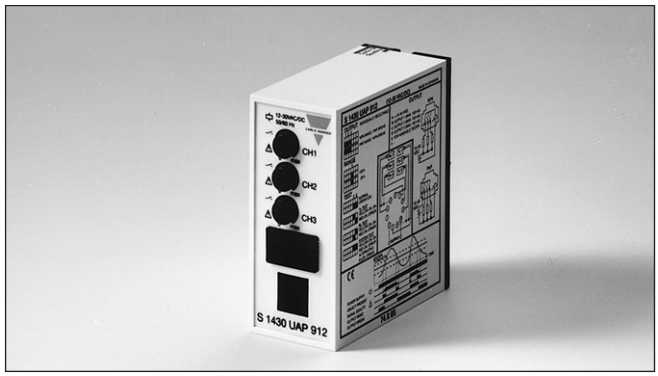
Photoelectrics
Amplifier, µ-Processor Controlled
Type S1430 RAL, 3 Inputs/3 Relay Outputs



- **µ-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**

CE

Product Description

µ-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 system test. Protected against reverse wiring or cross talk from adjecent 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

Rated operational voltage (U_B)		
pins 2 & 10	DC	13.5 to 33 VDC
	AC	13.5 to 33 VAC, 45 to 65 Hz
Rated operational power		
AC supply		5 VA
DC supply		5 W
Power ON delay (t_v)		< 300 ms
Output		
Contact Rating (AgCdO)		
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)		≥ 20 x10^6 operations at 18000 imp/H
Electrical life (typical)		≥ 300000 operating at 220 VAC - 2A resistive load
Output function		Relay Make function
Protection, outputs		Reverse polarity, short-circuit, transients
Supply to photoelectric switch Emitter		Tx1: Pin 1 Tx2: Pin 9 Tx3: Pin 6 Shield: Pin 11 (common)

Supply to photoelectric switch Emitter (cont.)	
Supply voltage (open loop)	7 V square wave
Current	≤ 300 mA short-circuit protected
Output resistance	10 Ω
Receiver	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 Ω
Sensitivity (% of S_n)	• 2 ranges, DIP-switch selectable - low sensitivity (25%) - high sensitivity (100%) • Sensitivity adjustment with 270°: Turn knob on CH 1, 2, 3
Note:	• Maximum range indicated on photoelectric switch data sheet in high sensitivity range only • Operation within low sensitivity range, increases ambient light and cross-talk immunity

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Specifications (cont.)

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

Truth Table

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

[1)] 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 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 switches 1

LED Indication

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

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. Operating 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.

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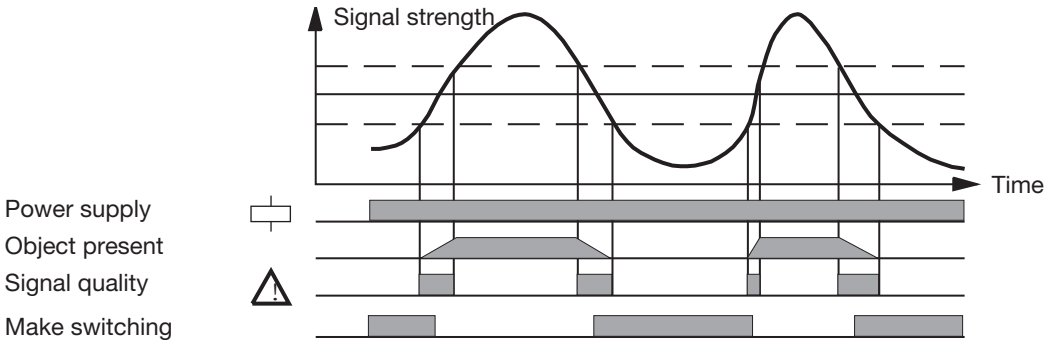
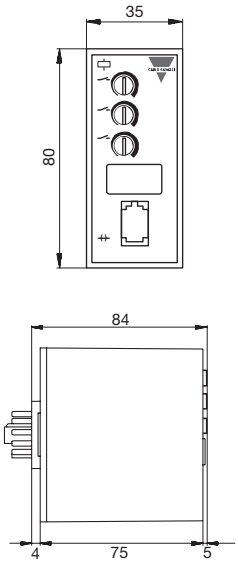
Operation Diagram



Dimensions



DIP-Switch (located behind cover):

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)

sw 1, 2, 3:
- Break
- Make

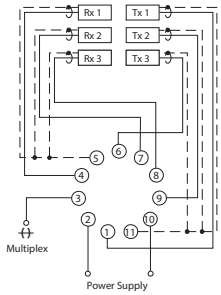
sw 4:
- Range 25%
- Range 100%, normal operation

sw 5:
- Transmitter test
- Normal operation

sw 6:
- Receiver test
- Normal operation

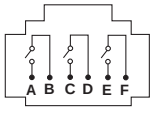
sw 5+6:
- System test
- Normal operation

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



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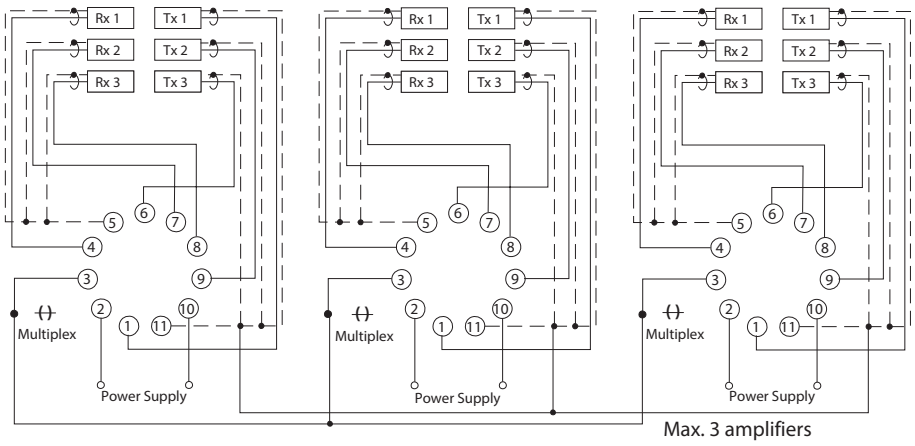
Wiring Diagram, Multiplex Mode



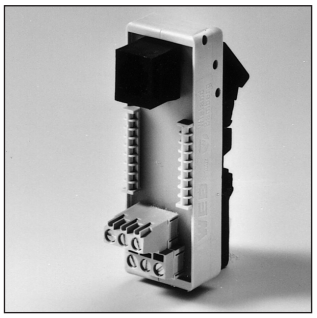
Accessories

- 11 pole circular socket	S111, S111A, S411, ZPD11
- Socket cover for S111	BB1
- Socket cover for S411	BB4
- Holding down spring	HF
- Mounting rack	SM13
- Front panel mounting bezel	FRS2
- Connection cable (2 plugs) 2 x 6/6 modular plugs	2.0 m, 6 wires two plugs
- Power supply for 115/230 VAC	SS120-series
- DIN-rail interface	6IODC

Delivery Contents

• Output connection cable	1 m, 6 wires one plug
• Output connection cable	0.2 m, 6 wires two plugs
• Amplifier	S 1430 RAL 915
• DIN-rail interface	6IODC
• Screw driver	
• **Packaging:**	Cardboard box

Interface



6IODC
DIN-rail interface
(DIN EN 50 035, EN 50 022)
Output from plug to screw terminals

Specifications are subject to change without notice (04.11.2016)