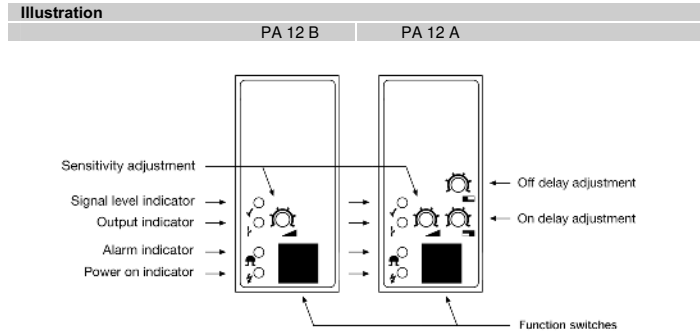


4 Transmitter frequencies selectable
1-channel manual photoelectric amplifier

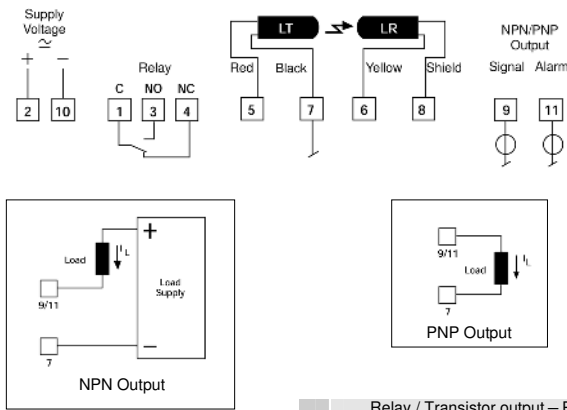
Product Data	
Electrical Data	
Supply voltage	24 V dc, 24 V ac, 115 V ac or 230 V ac
Voltage tolerance	+/- 15%
Power consumption	Max. 3 VA
Output: relay	1 open / 1 closed, 250 V ac / 3 A, 120 V ac / 5 A
Output: NPN transistor	40 mA / 30 V dc
Output: PNP transistor	5 mA / 12 V dc (for PA 12 A/B 003: 40 mA / 24 Vdc)
Environmental Data	
Temperature, operation	-10 to +50 °C
Sealing class	IP 40
Approvals	

Applicable Remote Sensors & Sensing Ranges			
Remote Sensor Series	100	110	120
	Sensing Range		
Long range mode	15 m	35 m	60 m
Short range mode	5 m	12 m	20 m



Connection

Wiring Diagrams



Relay / Transistor output – PA 12 A/B

Connection Steps

- 1 Check the power supply and output of the amplifier type.
- 2 Make sure power is off. Connect wires to the 11-pin socket according to wiring diagram.
- 3 Plug-in the amplifier into the 11-pin socket. Turn power on.
- 4 When the amplifier is operating, the green LED (power-on) is on.

Adjustments

Long/Short Range Selection

Short range	Short range mode enables the system to operate at 30% of maximum range, in order to ease sensitivity adjustment at shorter ranges and to reduce the response time.	
Long range	Long range mode enables the system to operate at 100% (maximum range).	

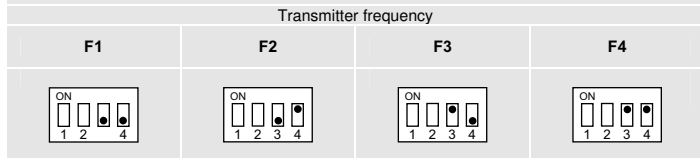
Output Mode Selection

The output mode can be selected via the light/dark switch. Refer to Output Logic table for reference.	
Light Operated	Enables the output to be inactive (red LED is off) when there is an object present in the detection area.

Dark Operated	Enables the output to be active (red LED is on) when there is an object present in the detection area.	
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Frequency Selection

The PA 12 photo amplifier allows to use, up to four individual amplifiers and sensors with different frequencies that reduce the risk of cross-talk significantly. However, it is important to point out, that if two or more sensors sets are in operation within a confined space, and if the neighbour signal gets too high, cross-talk may occur.
Four different transmitter frequencies can be selected with dip switch n° 3 and n° 4.



Output Logic

Detection (thru beam)	Output mode	Relay Output	Transistor Output		Output indicator
			NPN	PNP	
Object present 	Dark		Closed	Open	On
	Light		Open	Closed	Off
Object absent 	Dark		Open	Closed	Off
	Light		Closed	Open	On

Alarm Output

The alarm LED indicates if the adjustments are incorrect, due to, for example, contamination of the sensors.

Signal Level	Signal Status Indicator	Alarm Indicator	Alarm Transistor Output	
			NPN	PNP
Low Level	Off	On	Closed	Open
Normal Level	On	Off	Open	Closed

Sensitivity Adjustment

Maximum sensitivity can be used for most applications and is advised for applications with contaminated environments e.g. dirt, water and dust. Increase the sensitivity to maximum by turning the potentiometer to full clockwise position.

Sensitivity adjustment may be required in applications where objects to be detected are small or translucent. Proceed with the following steps:

- 1 Adjust the sensitivity to maximum by turning the potentiometer to full clockwise position.
 - 2 Check there is no object present interrupting the beam and the sensor pair is correctly aligned and within their specified sensing range.
 - 3 Select target object with smallest dimensions and most translucent surface.
 - 4 Place target object between remote transmitter and receiver sensors. If the output status changes, adjustment is not required. If the output status has not changed proceed to step 5.
 - 5 Decrease the sensitivity by turning the potentiometer counter clockwise until the output is activated.
 - 6 Remove target object. Observe the output status has changed.
- If the signal level is low, the green LED (signal status) will go off. In general, it is recommended to increase the sensitivity till the LED goes on and to check the following:
- Alignment of sensors
 - Transmitter and receiver sensors are within sensing range
 - Sensor heads are not excessively contaminated

Time Delay Adjustment

The on delay enables output signal to only activate if an object in the detection area is present for the adjusted time period. (In Dark operated mode)

The off delay enables output signal to remain activated for the adjusted time period. The time delay is adjustable between 0 - 10 sec.

On delay	Increase or decrease on delay by turning potentiometer clockwise or counter clockwise respectively.
Off delay	Increase or decrease off delay by turning potentiometer clockwise or counter clockwise respectively.



Warning
This product is not a safety system and must not be used as such. It is not designed for personnel safety applications, and must not be used as a stand alone personnel safety system.