

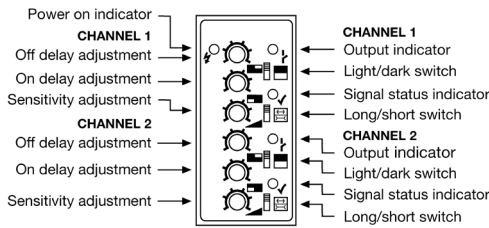
**Product Data**

Electrical Data	
Supply voltage	24 V dc, 24 V ac, 115 V ac or 230 V ac
Voltage tolerance	+/- 15%
Power consumption	Max. 3.0 VA
Output: relay	1 open / 1 closed, 250 V ac / 3 A, 120 V ac / 5 A
Output: transistor	40 mA / 30 V dc

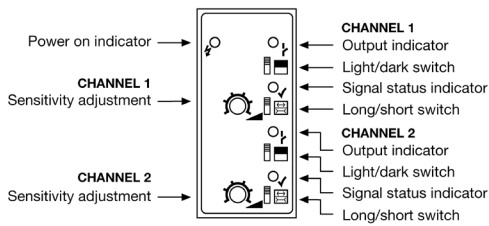
Environmental Data	
Temperature, operation	-10 to +50 °C
Sealing class	IP 40
Approvals	

Applicable Remote Sensors & Sensing Ranges			
Remote Sensor Series	100	110	120
	Sensing Range		
Long range mode	10 m	25 m	45 m
Short range mode	3 m	8 m	14 m

**Illustration** MPA 21 A

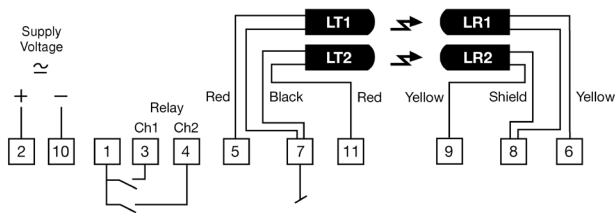


**MPA 21 B**

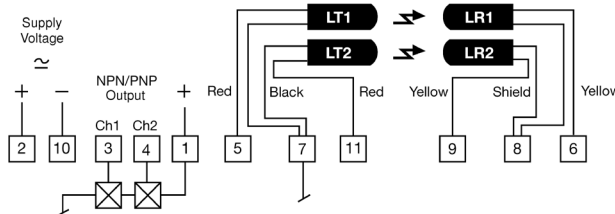


**Connection**

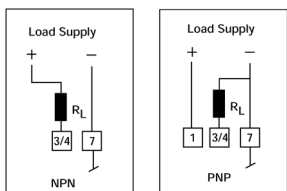
**Wiring Diagrams**



Relay output – MPA 21 A/B 50X



Transistor output – MPA 21 A/B 60X



**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 (power-on) LED is on.

**Adjustments**

**Long/Short Range Selection**

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



**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 channel output to be inactive when there is an object present in the detection area.	
Dark Operated	Enables the channel output to be active when there is an object present in the detection area.	

**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

**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 changes.
- 6 Remove target object. Observe the output status has changed.
- 7 Repeat the procedure for each channel.

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** MPA 21 A

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 - 3 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 device is not to be used for Personnel Protection in Machine Guarding Safety applications. This device does not include the self-checking redundant circuitry necessary to allow its use in personnel machine guarding stand-alone safety applications.