

Product Data

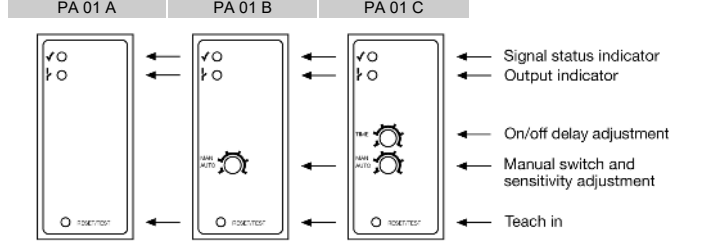
Electrical Data	
Supply voltage	12-30 V ac / 12-36 V dc, 115 V ac or 230 V ac
Voltage tolerance	+/- 15%
Power consumption	Max. 2.5 VA
Output: relay	1 open / 1 closed, 250 V ac / 3 A, 120 V ac / 5 A
Output: transistor	100 mA / 36 V dc

Environmental Data	
Temperature, operation	-10 to +55 °C
Sealing class	IP 40
Approvals	

Applicable Remote Sensors & Sensing Ranges				
Remote Sensor Series	101	100	110	120
	Sensing Range			
Long range mode	8 m	N/A	N/A	N/A
Short range mode	2.5 m	10 m	23 m	45 m

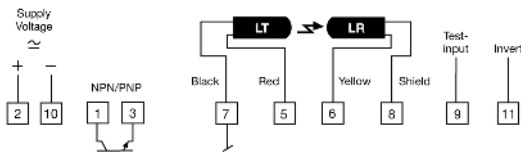
Note: Long range mode must only be selected with the 101 series.

Illustration

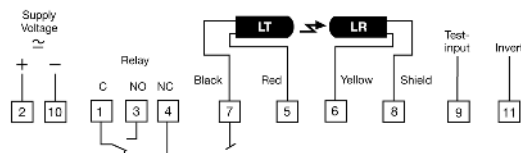


Connection

Wiring Diagrams



Transistor output – PA 01 X 61X



Relay output – PA 01 X 51X

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 (signal status) LED is on.

Adjustments

DIP Switch Settings
 DIP Switches are located on the back of the amplifier.

	PA 01 A	Model PA 01 B	PA 01 C
	Long range	Long range	Long range
	Short range	Short range	Short range
	Light operated	Light operated	On delay
	Dark operated	Dark operated	Off delay

Light operated: enables the output to be inactive when there is an object present.
 Dark operated: enables the output to be active when there is an object present.

Note: All types will be light operated when pin 11 is shorted to pin 7. This overrides the light/dark selection.

Output Logic

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

Manual Sensitivity Adjustment PA 01 B/C

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 Begin with turning the potentiometer to MAN position. Manual sensitivity adjustment mode has now been selected.
 - 2 Increase the sensitivity to maximum by turning the potentiometer to full clockwise position.
 - 3 Check there is no object present interrupting the beam and the sensor pair is correctly aligned and within their specified sensing range.
 - 4 Select target object with smallest dimensions and most translucent surface.
 - 5 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 6.
 - 6 Decrease the sensitivity by turning the potentiometer counter clockwise until the output is activated.
 - 7 Remove target object. Observe the output status has changed.
- If the signal level is low, the green LED (signal status) will flash slowly. 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

Automatic Sensitivity Adjustment - Teach-In PA 01 A/B/C

Automatic sensitivity can be used in applications where changes in the environment occur e.g. change of ambient light or moderate contamination. This adjustment must not be used in applications where the environment is very contaminated.

- 1 Observe that no object is between remote transmitter and receiver sensors.
 - 2 For PA 01 A proceed to step 3
 For PA 01 B/C turn the potentiometer to full counter clockwise position to AUTO and proceed to step 3.
 - 3 Push the RESET / TEST button to initiate teach-in. The green LED will flash when automatic adjustment is in progress.
 - 4 When the automatic adjustment has completed, the green LED will be stable. The system is now adjusted for optimal detection.
 - 5 Move an object in and out of the detection area. Observe on the yellow LED that the output changes correctly (refer to Output Logic table).
 - 6 For a new adjustment, push the RESET / TEST button to initiate teach-in.
- If a severe disturbance occurs, the green LED (signal status) will flash quickly.

Time Delay Adjustment PA 01 C

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.

- 1 Select on delay or off delay using the DIP switch. Refer to DIP Switch Settings.
- 2 Increase or decrease time delay by turning potentiometer clockwise or counter clockwise respectively.

Test Input

The transmitter can be disabled and enabled for test purposes. Make sure no object is present in the detection area, between remote transmitter and receiver sensor, when test is activated. When the transmitter is disabled, a change in output should occur.

Disable transmitter	Push RESET / TEST button (only in manual mode) or short pin 9 to pin 7 or pull-down below 2.0 V dc
Enable transmitter	Do not short pin 9 to pin 7 or pull-up to maximum 5.0 V dc



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.