



3.2 Wiring lengths

Each value in the table below represents the maximum wiring distance (one way) when using DC12V or DC24V power source. When installing 2 or more sets on one wire, obtain the maximum length by dividing the maximum wire length listed below by the number of sets installed. When using a thicker wire gauge (19 AWG or 0.9 mm wire), use relays for connection. It is not possible to connect directly to the terminal inside of the detector.

| Wire Gauge |      | Maximum wiring distance |               |                |               |                |               |
|------------|------|-------------------------|---------------|----------------|---------------|----------------|---------------|
|            |      | ISC-FPB1-W30DS          |               | ISC-FPB1-W60DS |               | ISC-FPB1-W90DS |               |
| AWG        | Ø mm | 12V                     | 24V           | 12V            | 24V           | 12V            | 24V           |
| 22         | 0.65 | 270m/885ft              | 1980m/6500ft  | 210m/670ft     | 1890m/6200ft  | 170m/560ft     | 1530m/5020ft  |
| 19         | 0.90 | 530m/1738ft             | 4770m/15650ft | 410m/1350ft    | 3690m/12105ft | 340m/1115ft    | 3060m/10040ft |
| 16         | 1.20 | 970m/3182ft             | 8730m/28701ft | 750m/2460ft    | 6750m/22150ft | 620m/2035ft    | 5580m/18310ft |

Table 3.2: Wire lengths



CAUTION!

Ensure that proper safety precautions such as powering off the device, and/or protecting the wire from outdoor elements is adhered to. Failure to do so may result in personal injury, or damage to the device.

4 Beam spread

The optical path forms as the beam spreads when it is reflected against an adjacent reflective surface such as a wall. Reflection of this beam may prevent a true alarm condition even if the beam from the transmitter to the receiver is interrupted. The beam from another detector may affect and cause malfunction when a multiple number of detectors are installed.The beam spread angle of this unit is about ±1°. Refer to the figure and table below to determine the installation position and distance to be used when installing a multiple number of units.

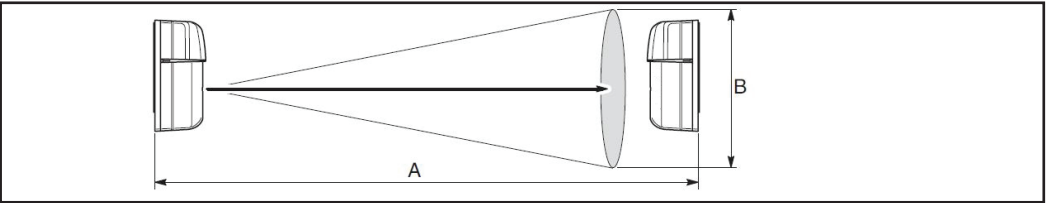


Figure 4.1: Beam spread distances

| Distance and (approximate) beam spread |                       |              |                       |
|--|-----------------------|--------------|-----------------------|
| Distance (A)                           | Beam spread width (B) | Distance (A) | Beam spread width (B) |
| 15m/49 ft                              | 0.5m/1.6 ft           | 90m/295 ft   | 3.0m/9.8 ft           |
| 30m/98 ft                              | 1.0m/3.3 ft           | 120m/394 ft  | 4.0m/13.1 ft          |
| 60m/197 ft                             | 2.0m/6.6 ft           | 180m/591 ft  | 6.0m/19.7 ft          |

5 Sensitivity adjustment

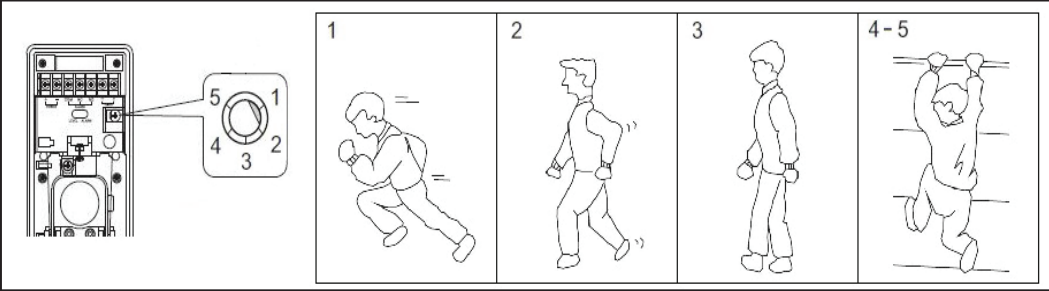


Figure 5.1: Sensitivity adjustments

| Callout - Description          |                    |
|--------------------------------|--------------------|
| 1 - Fast running at full speed | 3 - Normal walking |
| 2 - Walking with quick steps   | 4-5 - Slow motion  |

6 Optical axis alignment

You can align an optical axis two ways: with a level LED and/or with a tester.

6.1 Using an optical alignment

6.1.1 Coarse adjustment

Use the horizontal adjustment turntable and the vertical adjustment screw to aim the optics at the detector scope view finder.

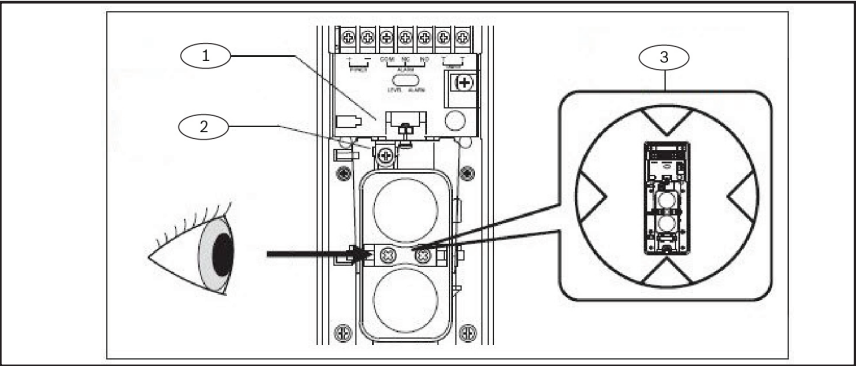


Figure 6.1: Level LED adjustment

| Callout - Description         |                       |
|-------------------------------|-----------------------|
| 1 - Turntable                 | 3 - Scope view finder |
| 2 - Verticle adjustment screw |                       |

6.2 Using a tester

6.1.2 Fine adjustment

Insert the volt meter tips into the test terminals of the receiver to check the voltage. If the value is 1.9V or more, the adjustment is completed. If it is less than 1.9V, adjust the transmitter and receiver until 1.9V or more voltage is obtained. A voltage level of 2.2V or above is ideal.

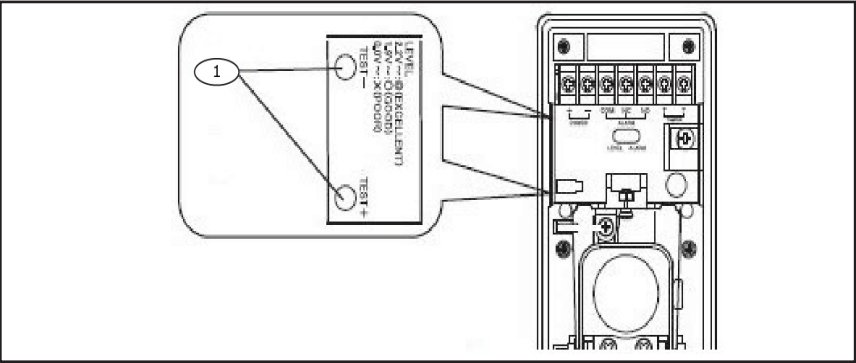


Figure 6.2: Using the test terminals

| Callout - Description |  |
|-----------------------|--|
| 1 - Test terminals    |  |

7 Operational check

Perform the following to test the operation of the detector.

7.1 Alarm operation

- To check the alarm operation, walk along the assumed intrusion path near the transmitter and receiver, in a “zig-zag” pattern to disrupt the beam signal.
- Check that the alarm LED lights up and the control panel receives the alarm signal when the beam is interrupted.

7.2 Tamper operation

- Check that the control panel receives a tamper alarm when either of the transmitter and/or receiver covers are open.

8 Maintenance

Inspect the device regularly for proper functionality. Check the following:

- Tester voltage level is above 1.9V.
- Power input voltage is between DC 10.5V and 28V.
- Alarm and tamper outputs are functional.

9 Troubleshooting

| Problem      | Cause  | Solution  |
|--------------|--|---|
| False alarms | Obstacle in the line of sight.                                   | Remove obstacle.  |
|              | Optical alignment is incomplete.                                 | Perform optical alignment to obtain 1.9V or higher.   |
|              | Unstable installation.   | Stabilize the installation condition.   |
|              | Distance between transmitter and receiver exceeds maximum range. | Adjust the installation distances to meet specified requirements.                                 |
|              | Interference from another transmitter.                           | Take proper measurement to avoid interference.  |
|              | Electrical noise nearby  | Change the location of the devices.   |
|              | Sunlight penetrates receiver within +/- 3°.                      | Swap the location of the transmitter and receiver.  |
| No alarm     | A reflective surface is parallel with the beam.                  | Adjust horizontal axis to avoid beam reflection, or adjust unit distance from reflective surface. |
|              | Reflective floor surface.  | Adjust vertical axis to avoid beam reflection, or adjust unit distance from reflective surface.   |
|              | Interference from another transmitter.                           | Take proper measurements to avoid beam interference.  |

10 Certifications

| Region | Certification   |
|--------|---|
| US     | UL 639 Listed - Intrusion Detection Units and Systems |

11 Specifications

| Product Name                              | Photoelectric Detector                             |                |                |
|---|--|----------------|----------------|
| Model                                     | ISC-FPB1-W30DS                                     | ISC-FPB1-W60DS | ISC-FPB1-W90DS |
| Max. outdoor range                        | 30 m (100 ft)                                      | 60 m (200 ft)  | 90 m (300 ft)  |
| Max. indoor range                         | 60 m (200 ft)                                      | 120 m (400 ft) | 180 m (600 ft) |
| Transmitter current draw at 25°C (77°F)   | 6 mA   | 10 mA          | 15 mA          |
| Receiver current draw at 25°C (77°F)      | 24 mA  |                |                |
| Power                                     | DC10.5V - 28VDC                                    |                |                |
| Sensitivity                               | 50 ms - 700ms (Selectable)                         |                |                |
| Horizontal adjustability                  | +/- 90°  |                |                |
| Vertical adjustability                    | +/-5°  |                |                |
| Alarm output                              | Form C relay (DC30V, 0.1A)                         |                |                |
| Tamper output                             | Form B relay (DC30V, 0.1A)                         |                |                |
| Operating Temperature (Relative humidity) | -25° C - +55° C (-13° F - +131° F (96% or less RH) |                |                |
| Storage Temp/Humd                         | -30° C - +60° C (-22° F - 140° F (95% or less)     |                |                |
| IP rating (indoor/outdoor)                | IP55   |                |                |
| Weight (transmitter and receiver each)    | 380 g (0.84 lbs)                                   |                |                |
| Dimensions                                | 77 x 177 x 83 mm (3 x 7 x 3.27 in)                 |                |                |

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