

Photobeam 3000

ISC-FPB1-W30DS, ISC-FPB1-W60DS, ISC-FPB1-W90DS



en Installation Guide



1 Overview

The ISC-FPB1-W30DS, ISC-FPB1-W60DS, and ISC-FPB1-W90DS are dual-beam photoelectric detectors designed for indoor and outdoor applications. Consisting of a separate transmitter and receiver, they are designed to activate an alarm when an intruder passes within the direct line of sight between the transmitter and receiver.

1.1 Coverage range:

Model	Outdoor	Indoor
ISC-FPB1-W30DS	30 m/100 ft	60 m/200 ft
ISC-FPB1-W60DS	60 m/200 ft	120 m/400 ft
ISC-FPB1-W90DS	90 m/300 ft	180 m/600 ft

1.2 Accessories:

Accessories	
BH12T	10.5V-28VDC Heater
MP1	Metal pole, 1 m (3 ft)
MP2	Metal pole, 1.2 m (4 ft)
MP3	Lcurved metal pole

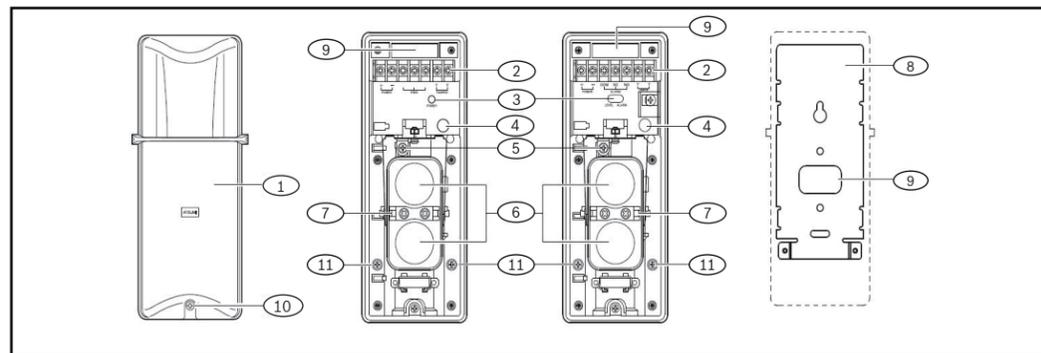


Figure 1.1 Transmitter and receiver overview

Callout - Description	
1 - Cover	7 - Optical Alignment scope
2 - Wiring terminals	8 - Mounting plate
3 - LED indicators	9 - Wire entry
4 - Tamper switch	10 - Cover securing screws
5 - Vertical adjustment screw	11 - Device securing screws
6 - Twin lens	

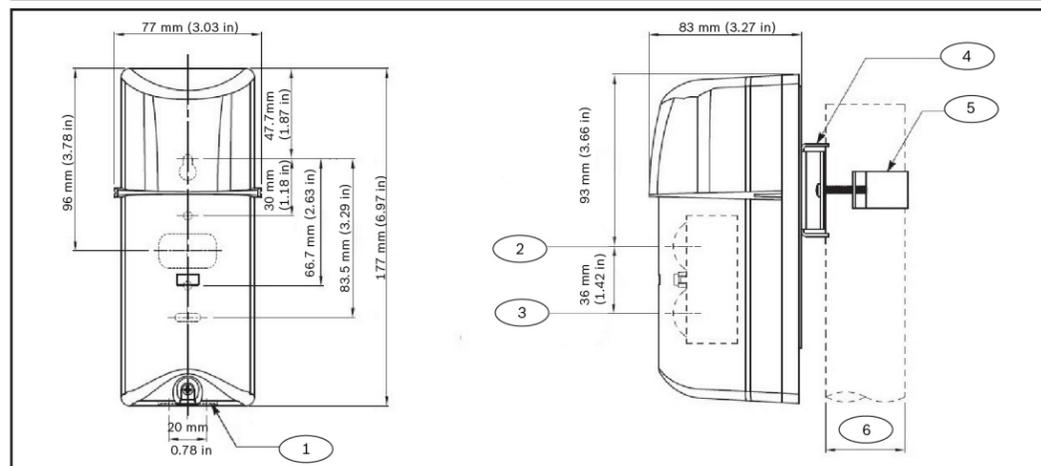


Figure 1.2 Transmitter/receiver dimensions

Callout - Description	
1 - Knockout	4 - Pole mount bracket
2 - Center of the upper beam	5 - Pole mount clamp
3 - Center of the lower beam	6 - Pole diameter between 38-42.7 mm/1.49-1.68 in

2 Installation

2.1 Wall mount installation

1. Remove the cover and the mounting plate. Refer to Figure 2.1.
2. Fasten the mounting plate by drilling holes, and then installing the screws, and fastening the mounting plate onto the wall.

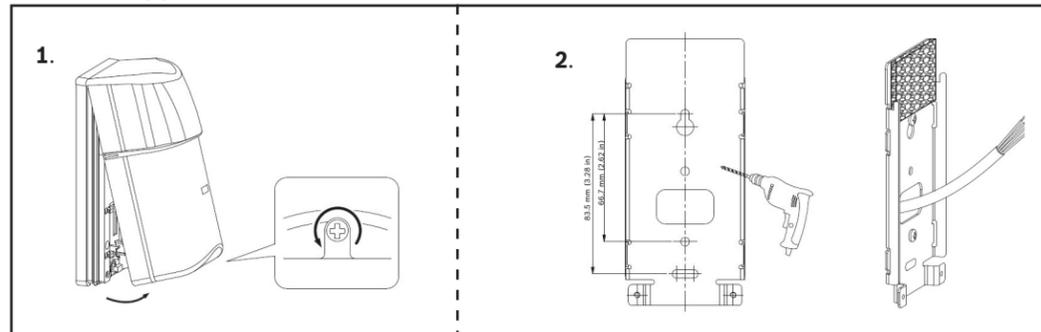


Figure 2.1: Fastening the mounting plate and removing the cover.

3. Route the wire through by inserting the wire between the foam sealing block. Verify the foam seals against the wires to prevent insects from entering the device. Refer to Figure 2.2.

4. Attach the sensor to the mounting plate, and then fasten the screws.

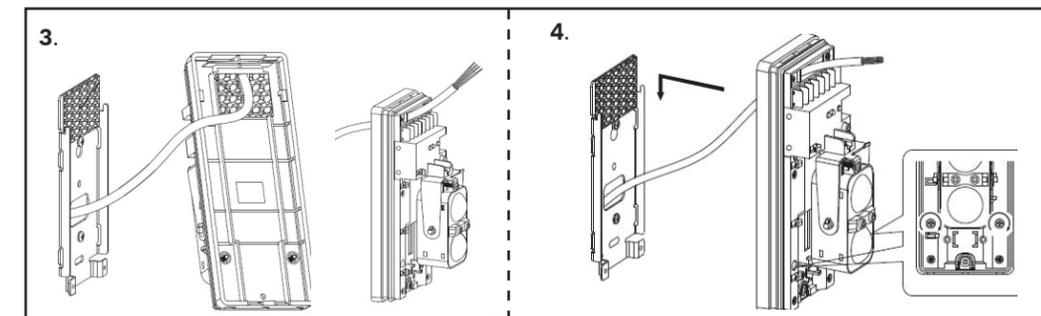


Figure 2.2: Inserting the wire and fastening the mounting plate to the sensor.

5. Close the sensor by fastening the device fixing screws, and then close the cover.

2.2 Pole mount installation

1. Route the wire through the wire hole of the pole.
2. Attach the bracket to the pole with the pole mount clamp.

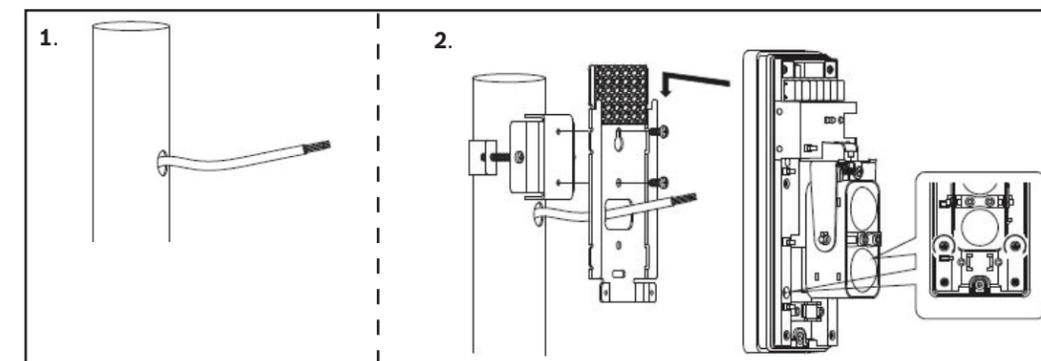


Figure 2.3: Routing the wire through the pole and attaching the bracket to the pole holder.



CAUTION!

Ensure that the pole mount installation is secure and stable. Failure to do so may result in personal injury, or damage the device.

3 Wiring

3.1 Terminal strip overview

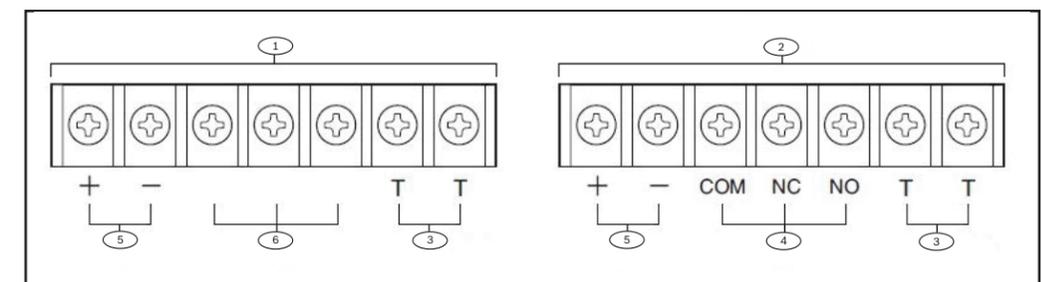


Figure 3.1: Terminal strip overview and wiring example.

Callout - Description	
1 - Transmitter	4 - Alarm contacts
2 - Receiver	5 - Power (non-polarized)
3 - Tamper (normally closed)	6 - FREE (unused)

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.

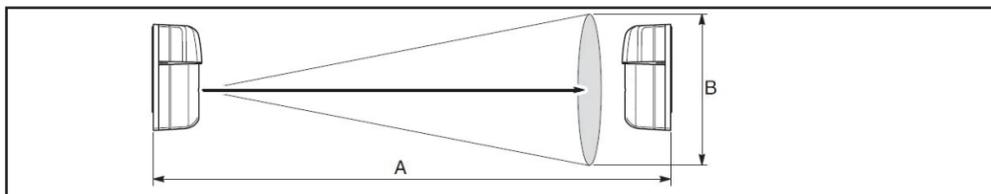


Figure 4.1: Beam spread distances

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

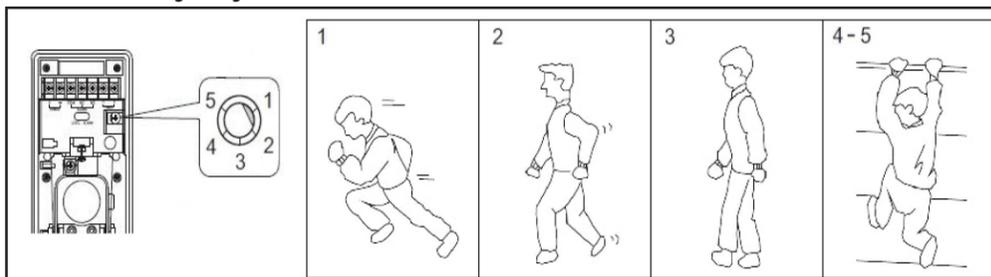


Figure 5.1: Sensitivity adjustments

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.

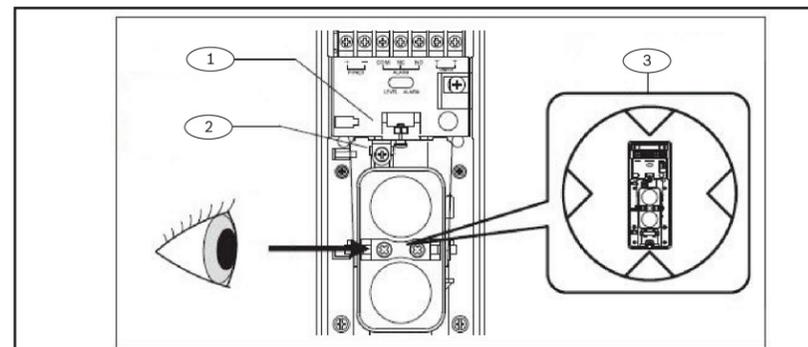


Figure 6.1: Level LED adjustment

Callout - Description	
1 - Turntable	3 - Scope view finder
2 - Vertical 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.

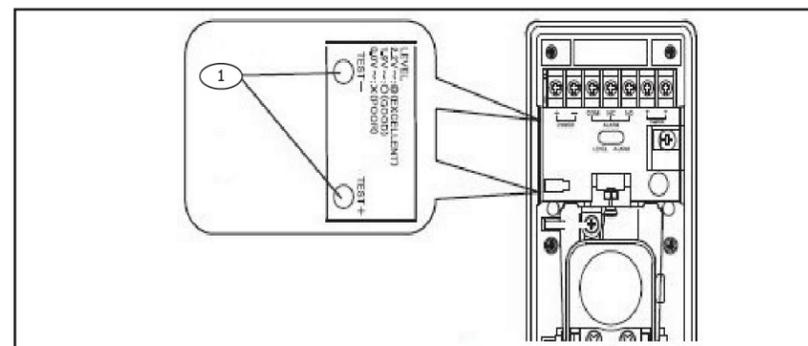


Figure 6.2: Using the test terminals

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.
No alarm	Sunlight penetrates receiver within +/- 3°.	Swap the location of the transmitter and receiver.
	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)		

Copyright

This document is the intellectual property of Bosch Security Systems, Inc. and is protected by copyright. All rights reserved.

Trademarks

All hardware and software product names used in this document are likely to be registered trademarks and must be treated accordingly.

Bosch Security Systems, Inc. product manufacturing dates

Use the serial number located on the product label and refer to the Bosch Security Systems, Inc. Web site at: <http://www.boschsecurity.com/datecodes/>.

Bosch Security Systems, Inc.
130 Perinton Parkway
Fairport, NY 14450
USA
www.boschsecurity.com

Bosch Sicherheitssysteme GmbH
Robert-Bosch-Ring 5
85630 Grasbrunn
Germany

