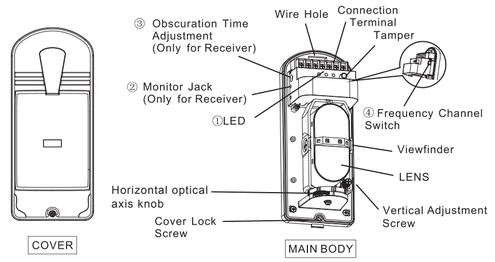
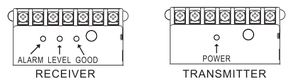
DUAL BEAM SELECTABLE FREQUENCY PHOTOELECTRIC DETECTOR
INSTRUCTION MANUAL

DS-PI-D30/FM
DS-PI-D40/FM
DS-PI-D60/FM
DS-PI-D80/FM
DS-PI-D100/FM

1 PARTS DESCRIPTION





●GOOD (Green)
:on when optically aligned
:off when optically not aligned
●POWER (Green)
: on when the transmitter is working
●LEVEL (Red)
:blink when signal is weak
●ALARM (Red)
:on when Alarm is activated in accordance with Alarm LED (Red) and ALARM (Red)
② Monitor jack : Should be used for making the optimum optical axis adjustment
(Refer to **' how to use the monitor jack'**)
③ Obscuration time adjustment : To be used for setting the obscuration time
(Refer to **' adjustment of obscuration time '**)
④ Frequency Channel

2 SUGGESTIONS FOR INSTALLATION 1

Ensure the sensors line of sight is free from any false alarm sources such as bushes, trees, etc. (Pay attention to these as they may change seasonally.)

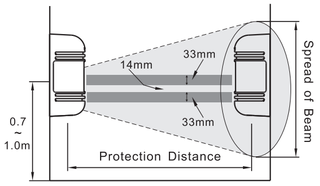
Ensure the sensors are mounted on a stable and firm fixing.

Ensure strong sunlight or car headlights do not shine directly on to the receiver. (Within ±2° from the optical axis is not recommended.)

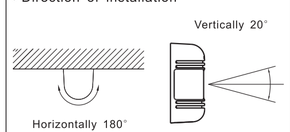
3 SUGGESTIONS FOR INSTALLATION 2

● Height of installation and protection distance

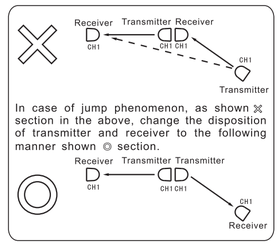
Model	Protection Distance	Spread of Beam
DS-PI-D30/FM	30m	0.9m
DS-PI-D40/FM	40m	1.2m
DS-PI-D60/FM	60m	1.8m
DS-PI-D80/FM	80m	2.4m
DS-PI-D100/FM	100m	3.0m



● Direction of installation



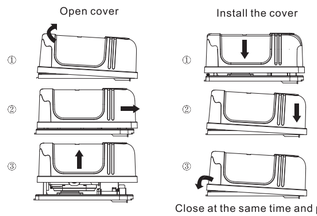
Because angle of reflection mirror is adjustable in ± 90° horizontally and ± 10° vertically, the unit can be installed in various directions.



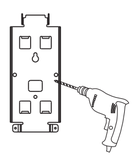
4 INSTALLATION

● WALL MOUNT

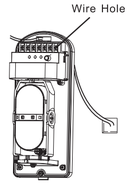
1. Loosen screw holding cover and remove the cover.



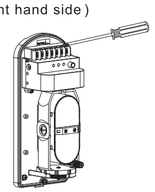
2. Attach the bracket to the wall, mark the installation holes, and make guide holes.



3. Pull wire through, install onto flange and the wall.



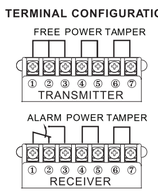
4. Connect wires to the terminal. (Refer to the Terminal Configuration right hand side)



5. Wiring distance

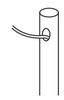
Model	DS-PI-D30/FM		DS-PI-D40/FM		DS-PI-D60/FM		DS-PI-D80/FM		DS-PI-D100/FM	
Voltage / Wire diameter	12V	24V	12V	24V	12V	24V	12V	24V	12V	24V
0.3mm'(φ0.6)	238m	2143m	238m	2143m	238m	2143m	238m	2143m	238m	2143m
0.5mm'(φ0.8)	417m	3750m	417m	3750m	417m	3750m	417m	3750m	417m	3750m
0.75mm'(φ1.0)	556m	5000m	556m	5000m	556m	5000m	556m	5000m	556m	5000m
1.25mm'(φ1.2)	833m	7500m	833m	7500m	833m	7500m	833m	7500m	833m	7500m

TERMINAL CONFIGURATION



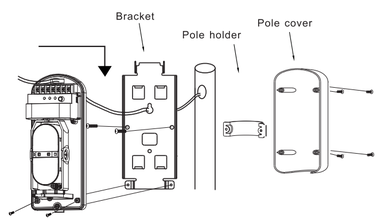
● POLE MOUNT

1. Pull the wire through the wire hole of the pole.



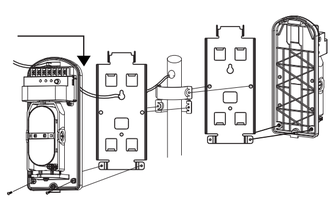
φ38mm~φ47mm

2. Attach the bracket to the pole with the pole holder.



● Pole mount back-to-back

Each bracket to be reversely attached.

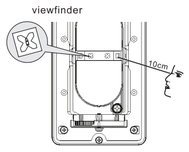


5 ADJUSTMENT OF OPTICAL AXIS

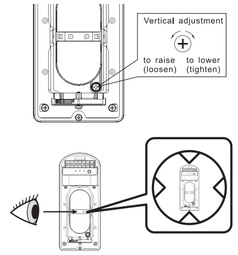
● It is important to ensure correct optical alignment between the transmitter and receiver for proper operation.

1. Turn on the power supply after uninstallation.
2. Frequency Channel
The transmitter and the receiver select the same channel.

3. Place the viewfinder on either right or left hand side of the lens whichever makes easier viewing. Look through the viewfinder as shown below.



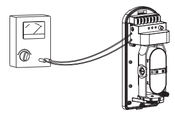
4. Adjust the angle of the lens via the Horizontal angle adjustment and the Vertical adjustment screw so that the sensor can be seen in the center of the Viewfinder.This adjustment is carried out on both the Transmitter and Receiver. Confirm after adjustment that the green GOOD LED is on, otherwise alignment should be readjusted.



● HOW TO USE THE MONITOR JACK

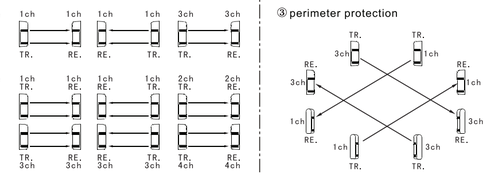
The best adjustment of optical axis can be done by reading the output voltage of the monitor jack.

1. Insert the meter pins into the monitor jack.
(pay attention to the polarity because of DC voltage)
2. a) Adjust the horizontal adjustment until the output is at a maximum.
b) Adjust the vertical adjustment screw to obtain best signal.
(Do not interrupt beam by hands during the adjustment)
3. The following minimum voltages should be obtained to ensure best performance 1.45V for all of the series.
If this is not obtained then the transmitter and receiver should be re-aligned.



● Examples of the installation

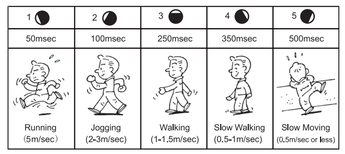
To avoid the mutual interference ofbeams,please set the beams at different channels, when installing more than one pairs at the same time.
TR:Transmitter; RE:Receiver



6 ADJUSTMENT OF OBSCURATION

Set the obscuration time of the receiver by adjusting the obscuration time control to the required setting according to the sketch beside. The obscuration time should be set lower to detect faster moving targets, however care should be taken to note the environmental conditions as the obscuration time should be set higher to ignore conditions where there are a lot of birds or wind blown material.

Obscuration time control



7 CONFIRMATION OF OPERATION

After completion of the installation, confirm correct operation by suitable walk test. Refer to the following LED indications during the walk test. Confirm tamper operation prior to replacing covers. Confirm system operation with covers replaced.

	Conditions		Indication
Transmitter	Transmitting		Power LED (green) is on
Receiver	Operating	Good Sensitivity	Good LED (green) is on
		Poor Sensitivity	Level LED (green) is on
	Alarm Activated		Alarm (red) LED is on

NOTE: Conduct a Walk Test at least once a year

8 TROUBLE SHOOTING GUIDE

Q Symptom	Possible cause	A Remedy
Indication lamp of Transmitter does not light.	Improper voltage of power supply	Check power supply and wiring
Power supply indication Lamp of Receiver does not light.	Improper voltage of power supply	Check power supply and wiring
Alarm indication lamp does not light even when the beams are intercepted.	① Infrared beam from Transmitter is reflected on another object and sent into the Receiver. ② Two beams are not intercepted at the same time. ③ Shorter obscuration time than that set on the obscuration control.	① Remove the reflecting object or change the place for installation and the optical axis direction. ② Check two beams to intercept at the same time. ③ Adjust obscuration time setting to be shorter.
Although alarm LED lights when the beams are intercepted, alarm does not ring.	① Broken wires or short on the signal wires. ② Melted bridge on the signal connection (Wrong current on the signal wires)	① Check the wiring. ② It needs to be repaired.
Alarm LED on the Receiver does not turn off.	① Inadequate optical axis. ② Shading objects between the Transmitter and the Receiver. ③ Dirty cover or dirty reflection mirror of the Transmitter and or Receiver. ④ Diffent CH to be setted betewn units.	① Readjust the optical axis. ② Remove the shading objects. ③ Clean optics with soft cloth. ④ Re-set the units correctlly
Intermittent alarm.	① Bad wiring connection. ② Change of supply voltage. ③ Shading objects moving by wind between the Transmitter and the Receiver. ④ Unstable installation of the sensor unit. ⑤ Incomplete optical axis adjustment. ⑥ Birds and other large flying objects intercept the beam.	① Check the wiring connection. ② Check the voltage (for stabilized supply voltage.) ③ Remove the shading objects or change the place for installation. ④ Fix steadily. ⑤ Readjust the optical axis. ⑥ Readjust the obscuration time to be longer or reposition.

9 SPECIFICATION

Model	DS-PI-D30/FM	DS-PI-D40/FM	DS-PI-D60/FM	DS-PI-D80/FM	DS-PI-D100/FM
Alarm Distance	30m	40m	60m	80m	100m
Max reaching distance	300m	400m	600m	800m	1000m
Beams NO.	2 beams				
Detecting Way	2 beams Intercepted simultaneously				
Light Source	IR LED				
Response Time	50~500ms				
Channel Choice	4 Channels CH1~CH4				
Alarm Output	FORM C(NO/NC changeable), Contact ratings DC 30V 0.5A max.				
Supply Voltage	DC10.5~24V (non-polarity)				
Recommend supply Voltage	DC 12V (non-polarity)				
Supply Current	45mA	45mA	50mA	55mA	55mA
Operation Temperature Range	-25°C~+60°C				
Tamper Output	Contact Output 1b DC 30V 0.05A max				
Optic axis horizontal adjust	180°(±90°)				
Optic axis vertical adjust	20°(±10°)				
Sight	one-piece				
Strategy to dew/frost	Ultrasonic structure				
Other additional functions	Receiving light Indicate、OK Indicate、Testing Terminal				
Material	PC front cover; ABS Back Cover				
Dimensions (H×W×D)	194.5×83×82mm				
Weight	Around 850g (Transmitter and Receiver)				

10 OUTLINE DIMENSION