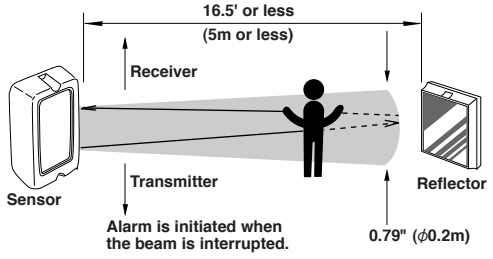
TAKEX PHOTOELECTRIC BEAM SENSOR PR-5B

Instruction Manual

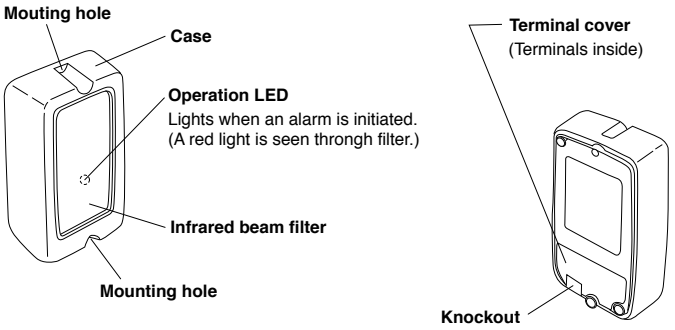
Thank you for purchasing the TAKEX product.
This sensor will provide long and dependable service when properly installed.
Please read this Instruction Manual carefully for correct and effective use.
Please note : This sensor is designed to detect intrusion and to initiate an alarm ; it is not a burglary-preventing device.
TAKEX is not responsible for damage, injury or losses caused by accident, theft, Acts of God (including inductive surge by lightning), abuse, misuse, abnormal usage, faulty installation or improper maintenance.

1 PRODUCT DESCRIPTION

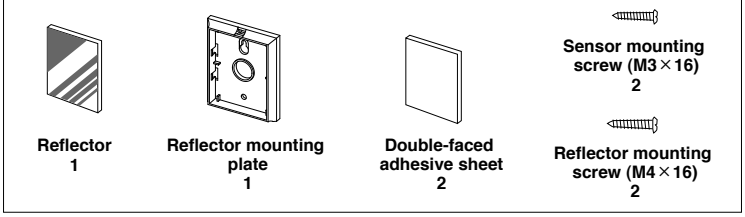
This sensor consists of a transmitter that emits infrared beam and a receiver that receives it.
As illustrated below, the infrared beam emitted from the transmitter are reflected in the direction of incidence and then enter the receiver.
A protection loop is formed in the route of the transmitter infrared beam→reflector infrared beam→receiver.
Whenever this loop is interrupted (if any object should interrupt the infrared beam), it is detected and an alarm is initiated.



2 PARTS DESCRIPTION

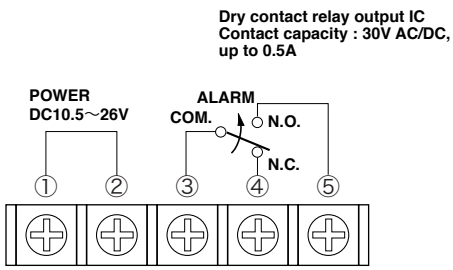


Accessory



3 WIRING

①Terminal arrangement



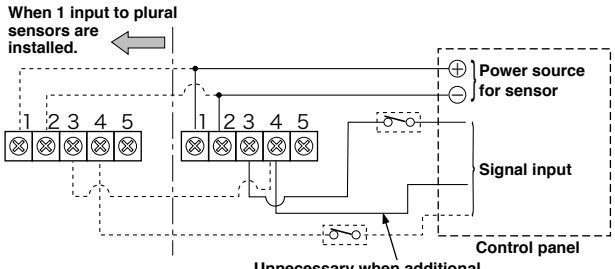
②Wiring distance between sensor and control panel

Input voltage / Size of wire used	DC 12V	DC 24V
AWG 22 (Dia. 0.65mm)	up to 1000' (300m)	up to 5000' (1500m)
AWG 20 (Dia. 0.8mm)	up to 1800' (550m)	up to 9000' (2750m)
AWG 18 (Dia. 1.0mm)	up to 2800' (850m)	up to 13500' (4250m)

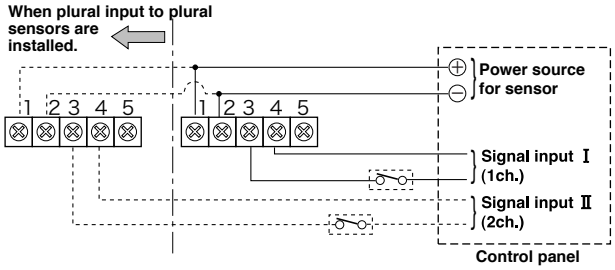
Note 1. To obtain the maximum length of wiring when two or more sensors are connected, divide the above figures by the number of units used.
2. Signal line can be up to 3,300ft (1,000m) using AWG 22 telephone wire.

③Examples of connections

●Example 1



●Example 2



Note 1. When a magnetic switch or the like is used in the circuit, insert it in the section ⊣○○⊢. For more details, refer to instruction manual for control panel.
2. The dotted lines indicate connections for additional sensors installed.

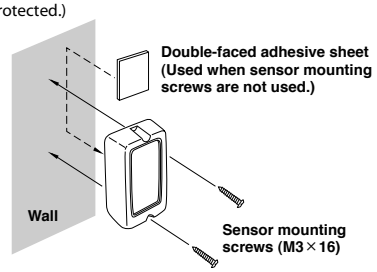
④Wiring connections

Remove the terminal cover. Connect the wires with the corresponding terminals correctly as instructed on the back side of the sensor. Break the knockouts if necessary.

4 INSTALLATION

Installation of sensor

(Install the sensor facing the direction to be protected.)



Note: Where the sensor is installed on a rough, irregular surface like concrete, use a steel plate of about 2mm in thickness as foundation to prevent misalignment of the optical system.

Installation of reflector

Confirm that the sensor faces correctly to the direction to be protected, then turn on the power source. When power source is on, the operation LED lights up.
Turn the reflector to the sensor and move it to look for 4 positions in every directions where operation LED goes out. The reflector is to be installed in the center of the 4 positions.
Install the reflector as shown in Fig. 1.

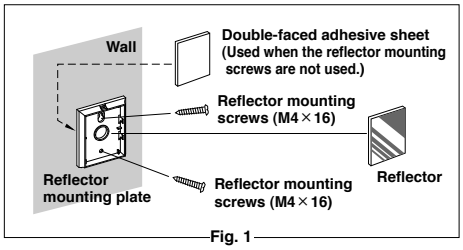


Fig. 1

Note: Install the reflector within the range of 2' (0.6m) to 15' (5m) from the sensor.
Note that the installation angle as well as the position of the reflector. (See Fig. 2.)

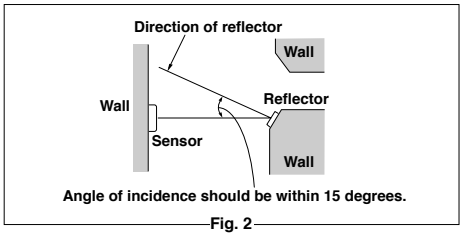
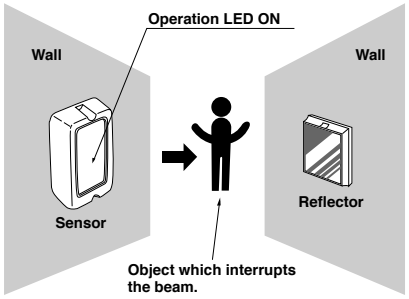


Fig. 2

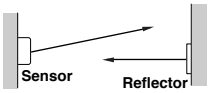
The reflector has the function of reflecting infrared beam in the direction of incidence within ±15° of the incidence angle. When the reflector is tilted, be sure to use it within the above range.

5 OPERATION



Supply power to the sensor.
If the sensor faces the reflector properly, the operation LED does not light. If the LED lights, refer to 4. INSTALLATION and re-adjust.
Next, interrupt the path of infrared beam between the sensor and the reflector with beam shielding objects (human body or the other objects which interrupts infrared beam), and confirm that an alarm is given and the operation LED is ON.
If the alarm stops when this object is removed (LED off), the system is working correctly.
Regular maintenance and inspection by installer and frequent testing by user are vital to continuous satisfactory operation of any alarm system.

6 TROUBLESHOOTING

Symptom	Possible cause	Remedy
No alarm condition	①Breaker of control panel is cut off. (No voltage on power terminals for sensor)	Recover the breaker. (Search the cause of cut-off of breaker)
Continuous alarm	②Either sensor or reflector is not set in a correct direction. 	Correct the direction of the sensor or reflector with reference to 4. Installation of reflector. 
	③Disconnection or separation of wiring between sensor and control panel.	Repair the disconnection or separation.
Frequent alarm with no intrusion.	Infrared beam filter of the sensor or the reflector is stained with water drops, dust, or the like.(Alarm may be given continuously in severe cases.)	Clean the filter or the reflector with soft cloth.
	Moving objects in the protected area.(like curtain, animal, etc.)	Remove the moving objects from the protected area.

Analyze possible problems according to the above table. If normal operation can not be restored by the means, contact either the dealer from whom you bought the unit or TAKEX.

Limited Warranty

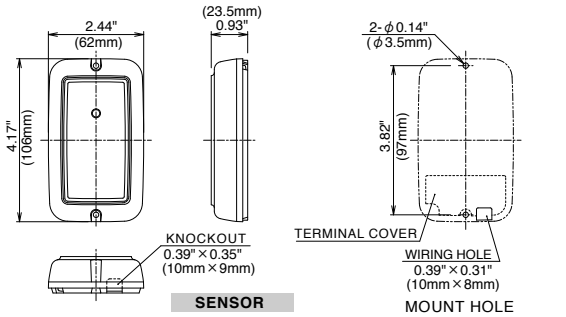
TAKEX products are warranted to be free from defects in material and workmanship for 12 months from original date of shipment. Our warranty does not cover damage or failure caused by Acts of God (including inductive surge by lightning), abuse, misuse, abnormal usage, faulty installation, improper maintenance or any repairs other than those provided by TAKEX. All implied warranties with respect to TAKEX, including implied warranties for merchantability and implied warranties for fitness, are limited in duration to 12 months from original date of shipment. During the Warranty Period, TAKEX will repair or replace, at its sole option, free of charge, any defective parts returned prepaid. Please provide the model number of the products, original date of shipment and nature of difficulty being experienced. There will be charges rendered for product repairs made after our Warranty period has expired.

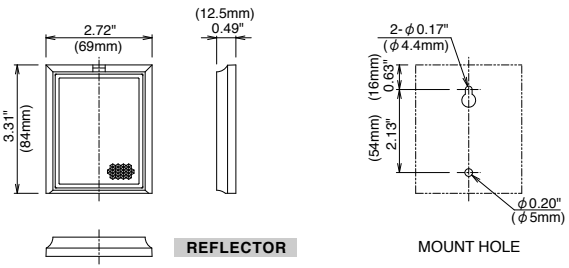
7 SPECIFICATIONS

Model	PR-5B
Protected distance	16.5' (5m) or less
Light source	Infrared light emitting diode
Response time	50msec. or more
Alarm signal	Dry contact relay output S.P.D.T. form C. Contact capacity : 30V (AC/DC) up to 0.5A
Supply voltage	10.5－26V DC (Non-polarity)
Power consumption	37mA (at 12V DC)
Ambient temperature range	-20° C to +50° C (-4° F to +122° F)
Mounting positions	Indoor-entrance, exit, window, passageway
Weight (excluding accessories)	sensor : 90g (3.2 oz) Reflector : 50g (1.8 oz)
Appearance	ABS resin (white)

The specifications are subject to change without notice.

8 DINENSIONS





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