TAKEX PHOTOELECTRIC BEAM SENSOR
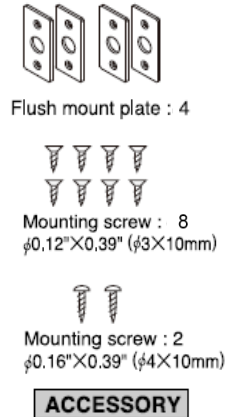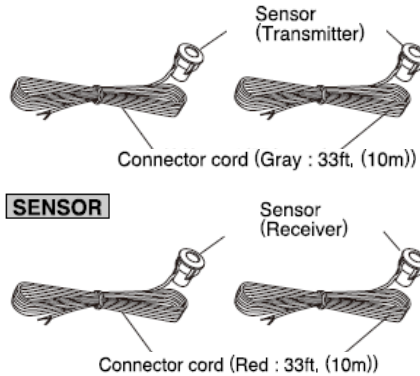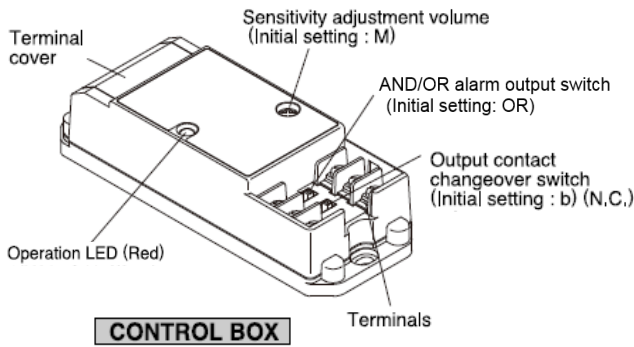## PB-10TNS — Instruction Manual

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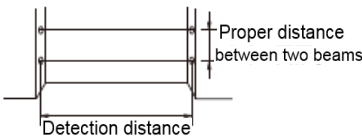Please read this Instruction Manual carefully for correct and effective use.
Please Note : This sensor is designed to detect intrusion to initiate an alarm : it is not a burglary-preventing device.
TAKEX is not responsible for damage, injury or losses caused by accident, theft, Acts of God (including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

1 PARTS DESCRIPTION

Terminal cover
Sensitivity adjustment volume (Initial setting : M)
AND/OR alarm output switch (Initial setting: OR)
Output contact changeover switch (Initial setting : b) (N.C.)
Operation LED (Red)
Terminals
CONTROL BOX

Sensor (Transmitter)
Connector cord (Gray : 33ft, (10m))
SENSOR
Sensor (Receiver)
Connector cord (Red : 33ft, (10m))

Flush mount plate : 4
Mounting screw : 8 φ0.12"×0.39" (φ3×10mm)
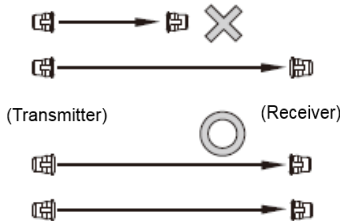Mounting screw : 2 φ0.16"×0.39" (φ4×10mm)
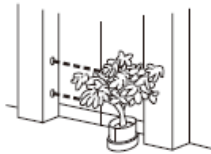**ACCESSORY**

2 DO'S AND DON'T'S

1. Set detection distance 10m or less. When AND output switch is selected, set the distance between two beams properly so that objects don't fail to be detected.

Proper distance between two beams
Detection distance

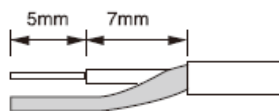2. Use both two beams under the same distances.

(Transmitter) (Receiver)

3. Remove obstacles that may interrupt the beams.

4. Do not extend conector cords. Extension of connector cords will cause deterioration of sensitivity. In case extension is obliged, extend only transmitter cords(gray).
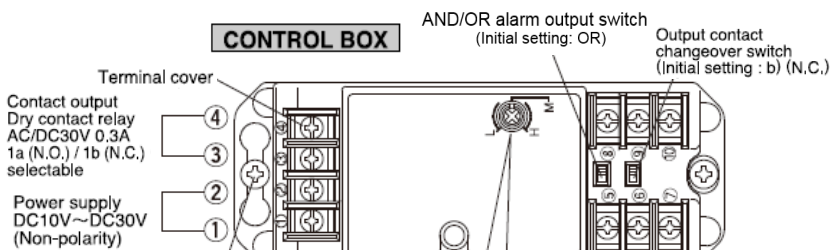
5. Cut connection cords as the following figure, when necessary.

5mm   7mm

- Do not supply the power during engineering work of installation.
- Put terminal cover on terminals after the wiring.
- Do not use this product with outside of the supply voltage indicated. It may cause fire or electric shock.
- Contact output volume is ⟨30V (AC / DC) 0.3A⟩ or less. Make the connected device's volume within this capacity. Otherwise it may cause fire.
- Do not disassemble or modify the device. It may cause fire or electric shock.
- When AND output switch is selected, install the sensor with correct distance between two beams for secure detection of the object. (In case of incorrect installation with wrong distance may cause lost detection.)

3 INSTALLATION AND WIRING

CONTROL BOX
AND/OR alarm output switch (Initial setting: OR)
Output contact changeover switch (Initial setting : b) (N.C.)
Terminal cover
Contact output Dry contact relay AC/DC30V 0.3A 1a (N.O.) / 1b (N.C.) selectable ④ ③
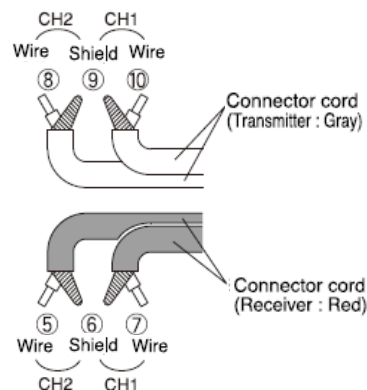Power supply DC10V~DC30V (Non-polarity) ② ①

- φ0.16" (φ4mm) Mounting screw Tentatively screw up, and tighten the mounting screw in the center of the mounting hole.

●Sensitivity adjustment volume

Detection Distance	Volume position
< 3.3'(1m)	L
< 9.8'(3m)	M
> 9.8'(3m)	H

WIRING
CH2 CH1
Wire Shield Wire
⑧   ⑨   ⑩
Connector cord (Transmitter : Gray)
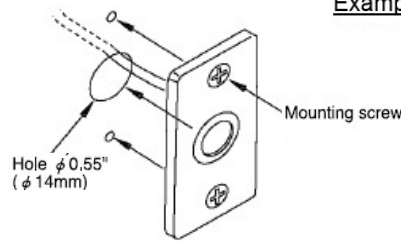Connector cord (Receiver : Red)
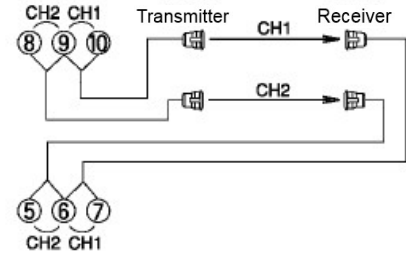⑤   ⑥   ⑦
Wire Shield Wire
CH2   CH1

INSTALLATION

(1) Make a hole and clean the rough hole edge.

(2) Attach sensor to flush mount plate and fix it
    to the hole with screws.

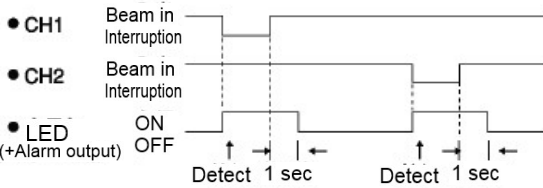* Attach transmitter and receiver at the same height.

Example

Mounting screw

Hole φ0.55"
(φ14mm)

CH2 CH1
⑧ ⑨ ⑩

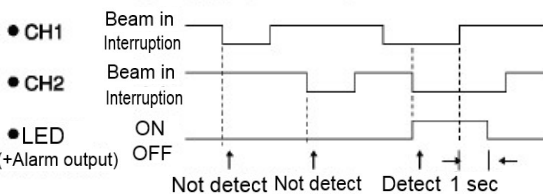Transmitter   CH1   Receiver

CH2

⑤ ⑥ ⑦
CH2 CH1

4 OPERATION CHECK

(1) Make installation and wiring of control box and sensors.
    [REF, 3. Installation and wiring]

(2) Supply the power, and make sure that operation LED on
    the control box goes off.
    Operation LED lights up when beam is interrupted and
    goes out when beam is not interrupted.

(3) Select alarm output switch "OR"
    Interrupt two beams individually to check if operation LED lights up
    for each interruption and connected devices work properly.
    Select alarm output switch "AND".
    First, interrupt two beams individually to check if LED remains off
    and connected devices have no change. Then, interrupt two beams
    simultaneouosly to check if operation LED lights up, and connected
    devices work properly.

(NOTE) In case operation LED goes off even though beam is
    interrupted, sensitivity may be too high.
    Reduce sensitivity by turning sensitivity adjustment
    volume.

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* OR Detection :
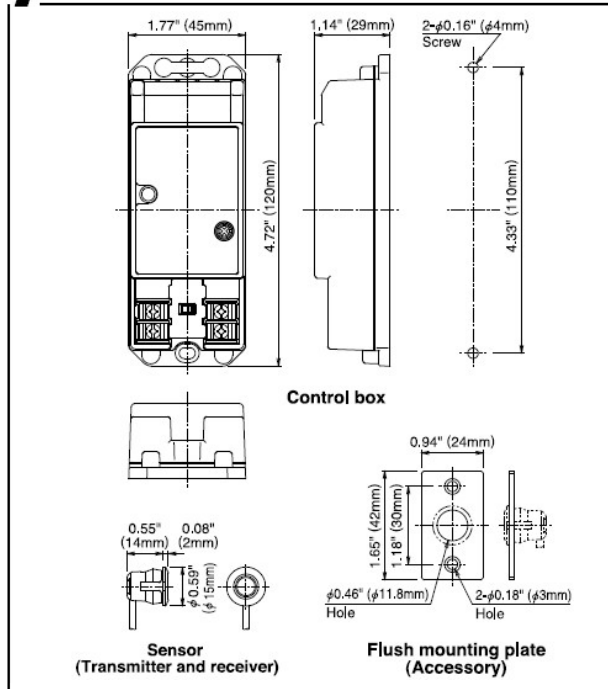 Alarm is initiated when one of two beam(or both) is interrupted.

* CH1   Beam in Interruption

* CH2   Beam in Interruption

* LED   ON / OFF
  (+Alarm output)

  Detect 1 sec   Detect 1 sec

* AND Detection :
  Alarm is initiated when both of two beams are interrupted.

* CH1   Beam in Interruption

* CH2   Beam in Interruption

* LED   ON / OFF
  (+Alarm output)

  Not detect Not detect Detect 1 sec

5 TROUBLE SHOOTING

Symptom	Possible cause	Remedy
Inactive	Broken / improper wiring.	Check / correct wiring.
Malfunction	Detection distance does not match with sensitivity adjustment.	Adjust sensitivity.
	Some obstacles are interrupting the beam.	Remove interrupting obstacles.
	Protection distance is over 33ft. (10m).	Set the distance within 33ft. (10m).
	Lens surface is soiled or frozen.	Clear the lens surface.

6 SPECIFICATIONS

Model	PB-10TNS
Detection system	Near infrared beam
Protection distance	33ft. (10m) or less
Supply voltage	DC10V to DC30V (Non-polarity)
Current consumption	55mA. or less
Alarm output	Dry contact relay : 30V (AC / DC) 0.3A 1a (N.O.) / 1b (N.C.) selectable Contact action : Interruption time + Delay time (approx. 1 sec.)
Response time	Detect 100msec. or more of beam interruption
Operation LED	Lights Red when detection (beam is interrupted)
Ambient temperature range	-13°F to +131°F (-25℃ to +55℃) (without condensation or frozen)
Appearance	Sensor : PC resin (clear) Control box : ABS resin (white)
Weight	Sensor : 4.2oz (120g) Control box : 3.3oz (95g)
Accessory	φ 0.16"×0.39" (φ 4×10mm) mounting screw × 2 φ 0.12"×0.39"(φ 3×10mm) mounting screw × 8 (for flush mounting plate) Flush mounting plate × 4

7 EXTERNAL DIMENSIONS

1.77" (45mm)   1.14" (29mm)   2-φ0.16" (φ4mm) Screw

4.72" (120mm)   4.33" (110mm)

Control box

0.55" (14mm)   0.08" (2mm)   0.59" (φ 15mm)

Sensor
(Transmitter and receiver)

0.94" (24mm)
1.65" (42mm)   1.18" (30mm)
φ0.46" (φ11.8mm) Hole   2-φ0.18" (φ3mm) Hole

Flush mounting plate
(Accessory)