

TAKEX GLASS BREAK SENSOR

GS-1100E

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.

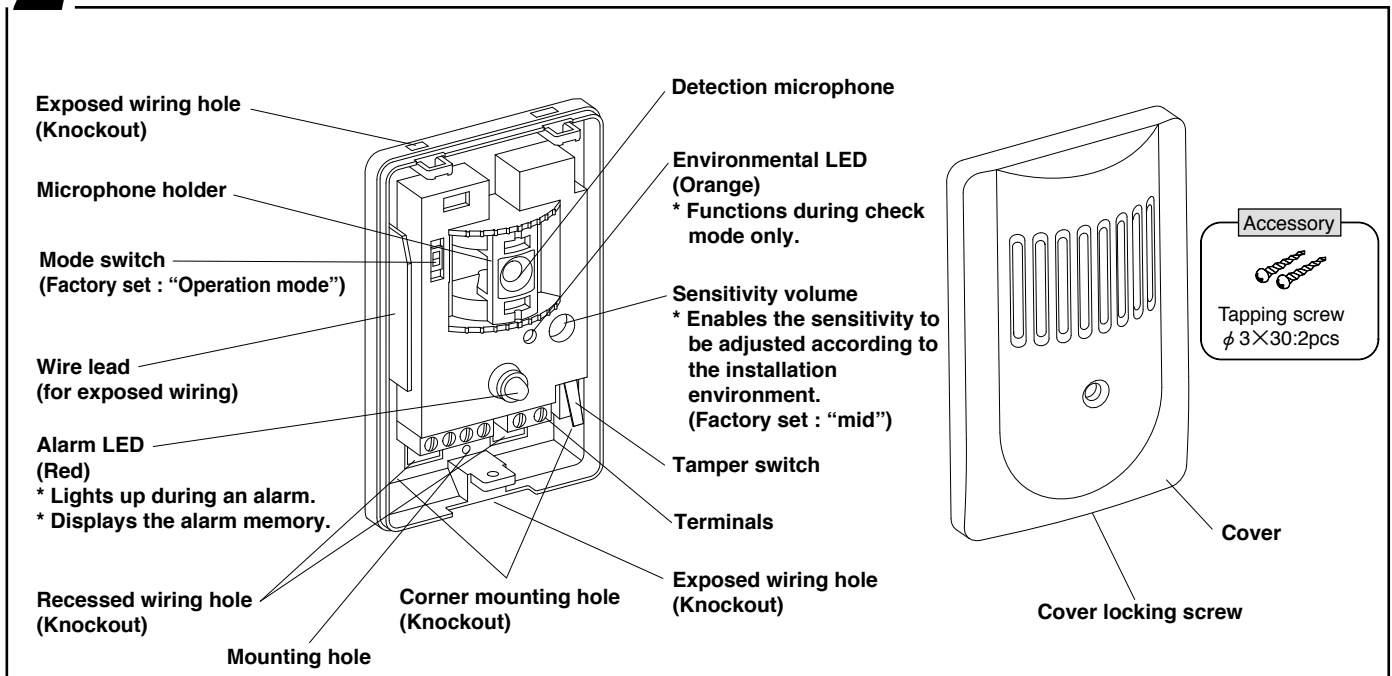
Note : This sensor is designed to detect intrusion and to initiate an alarm ; it is not a burglary-preventing device.

TAKEX is not responsible for damage or losses caused by accident, theft, Acts of God (including inductive lightning), abuse, misuse, abnormal usage, faulty installation or improper maintenance.

1 PRODUCT DESCRIPTION

GS-1100E is an ultrasonic sensor designed to detect the sound of breaking glass such as plate glass windows, doors, showcases etc.

2 PARTS DESCRIPTION



3 DO'S AND DON'T'S

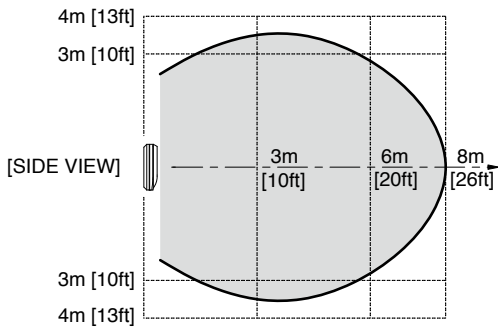
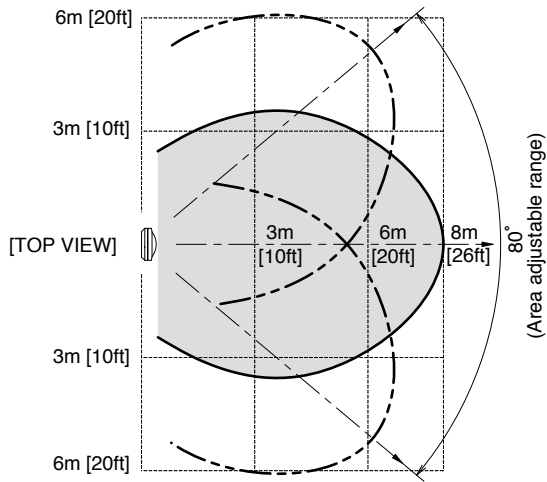
Precautions for use

- This unit is designed to detect the sound given when glass is broken due to impact. If glass is broken due to stress or other means this may not be detected.
- Use of input voltage exceeding specifications may result in fire.
- Use of equipment exceeding contact capacity of 30V (AC/DC) may result in fire.
- Unit should not be disassembled or modified due to risk of electric shock or fire hazard.
- Do not drop unit or subject to hard knocks.
- Liquids, metallic and inflammable materials should not be allowed to enter the unit.

Precautions on installation

- Unit is designed for Indoor use only.
- Unit is designed for use in an enclosed environment only.
- Do not install in an environment subject to electrical noise or intense vibration.
- Do not install in an environment subject to smoke, steam, excessive humidity or dust.
- Do not install near products generating ultrasonic noise, such as 'bell' telephones, printers, air conditioning vents, or in environments generating similar ultrasonic sounds.
- Do not use in environments with poorly fitted window panes.
- Unit is designed for unmanned (vacant) protection only. Alarms may be generated in the case of ultrasonic sounds artificially generated.
- Ensure target to be protected is within protection area.
(Horizontal: 8m (26') Max. Vertical : 7m (23') Max.)

4 COVERAGE

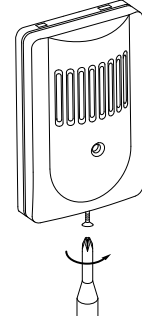
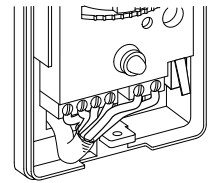


- * The coverage indicated in the diagram does not have surrounding walls or other objects that would reflect ultrasonic waves, and the sensitivity volume is turned all the way to H.
- * Install the sensor so that sensor coverage could cover all surface of protected window. For reference, glass surface to be protected is 5m or less square.
- * Confirm the install position of the sensor and the position of the surface of protected window. Determine the optimal area angle, and use the Microphone holder inside the sensor to set it.

③ Connect as per wiring diagram 5. (2).

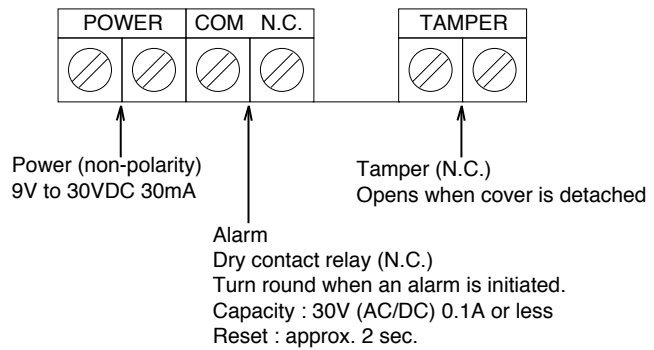
④ Set coverage and check operation. Refer to 5. (3) Area setting and 6. Operation check.

⑤ Replace cover and tighten cover locking screw.



(2) Wiring

[Terminal arrangement]



[Allowable wiring distance between sensor and power source]

Size of wire used	Distance at 12VDC
AWG 22 (ϕ 0.65mm)	250m (830 ft.)
AWG 20 (ϕ 0.8mm)	450m (1460 ft.)
AWG 18 (ϕ 1.0mm)	700m (2300 ft.)

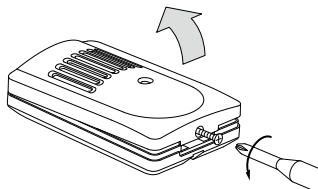
Note 1) The maximum wire length, when two or more units are connected, is the above distance divided by the number of units.

2) The protection circuit can be wired to a distance of max. 1,000m (3,300 ft) with AWG 22 (ϕ 0.65mm) wire.

5 INSTALLATION

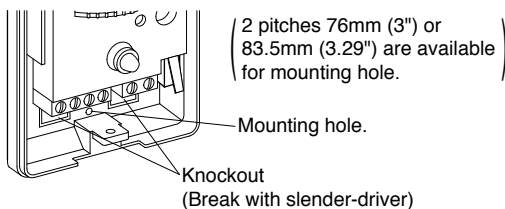
(1) Installation

① Loosen cover locking screw to detach cover.



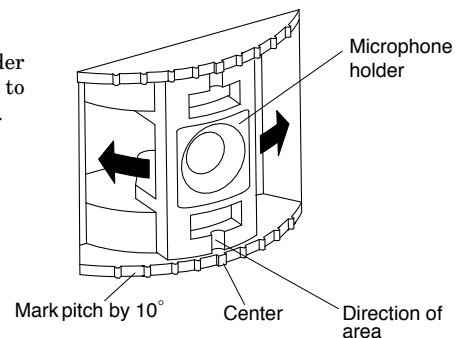
② Check protection direction and install base on wall.

* Break knockouts and attach sensor with supplied screws.



(3) Area setting

Rotate Microphone holder to set area direction to center of protected glass.



[Horizontal direction]

Use the Microphone holder to set a coverage that corresponds to the installing position. (Adjustable by $\pm 40^\circ$)

6 OPERATION CHECK

For precise operation, use EG-2000 (sold separately), and perform the following operation and sensitivity checks.

* Follow the EG-2000 instruction manual when performing these checks.

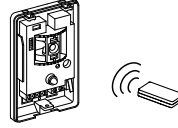
Sensitivity check

While checking that the sensor environmental LED lights ON, check the range of the coverage and the optimal sensitivity.

Set the internal output switch of the EG-2000 to L for use.

① Supply power to the sensor with its cover removed, and select "Check" mode with the mode switch.
Refer to 7. Operation description.

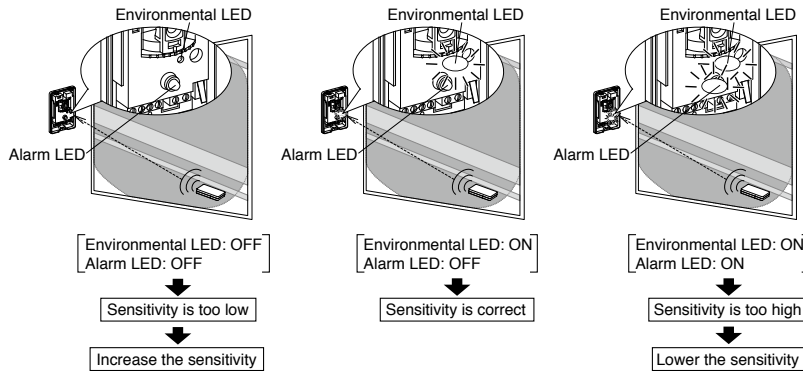
② First, begin activation by pressing the EG-2000 Send Button near the sensor. Ensure that both the alarm LED (Red) and the environmental LED (Orange) of the sensor are lit.



③ From the surface of protected window, point the wave transmission part of the EG-2000 at the sensor. Operate the equipment and check the sensitivity. Check the sensitivity of the sensor at all positions at the surface of protected window.

Note: Some positions where light is reflected from ceilings, walls, and floors make detection difficult for the EG-2000. Shift the position of the unit slightly to the left or right. If only the environmental LED of sensor lights ON, the sensor sensitivity is normal.

④ Operate the sensor from the furthest point of required protection. Sensitivity is correct when just the environmental LED lights. If neither alarm LED or environmental LED light, then sensitivity is too low. If the alarm LED also lights, sensitivity is too high. If sensitivity is not optimal in certain locations, check the coverage again or adjust the sensor sensitivity by the sensitivity volume.



⑤ If there is a possibility of sound or noise within the same room, whether within or outside the coverage, make some sound or noise and check to make sure that the Environmental LED does not light up. If it lights up from some sound or noise, change the install position, or increase the number of sensors, giving them each a smaller range of coverage and lower sensitivity.

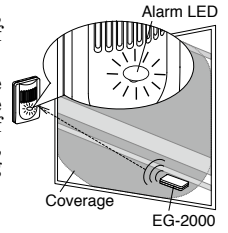
⑥ After checking the sensitivity, set the mode switch to operation mode, and then replace the cover and tighten the cover lock screws.

Alarm operation check

Check the operation of the installed sensor. Use for daily sensor operation checks and during inspection ONLY.

Set the internal output switch of the EG-2000 to H for use.

① Set the sensor mode switch to Operation mode, and check the operation of the alarm.



② From within the coverage of the sensor, point the wave transmission part of the EG-2000 at the sensor, and operate by pressing the send button. If the sensor alarm LED is lit, the operation of the sensor alarm is correct.

Note: 1) A glass jar/bottle containing metal coins can be used as a substitute for the EG-2000.

Using 7 or more coins in a strong sealed glass container, the shaking of which replicates the EG-2000.

2) This is an alternative method of testing unit sensitivity and operational in the absence of the correct equipment.

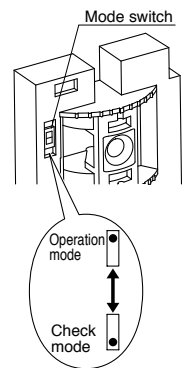
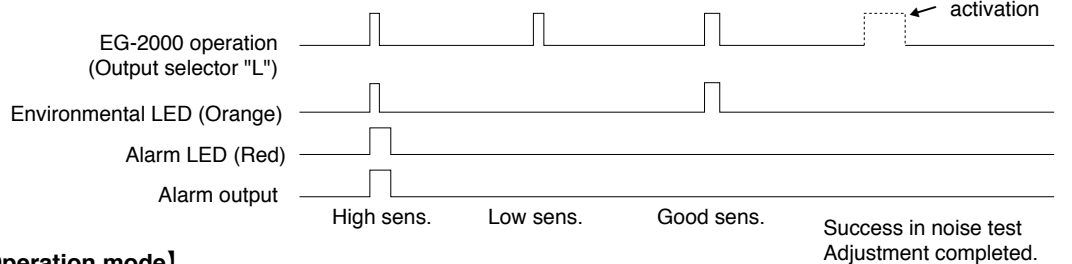
3) Obvious special care is needed if this method is used as shaking too vigorously may result in the glass breaking and personal injury.

7 OPERATION DESCRIPTION

[Check mode]

Select "Check" mode for operation check and sensitivity adjustment.

In this mode, both environmental LED (Orange) and alarm LED (Red) activate.

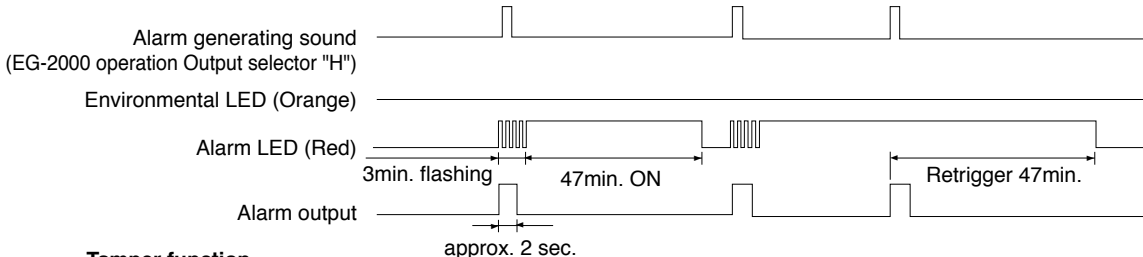


[Operation mode]

When the unit has been activated the Alarm LED will flash for 3 minutes, and then it will remain constantly lit for 47 minutes.

This will enable identification of triggered devices in a multiple use scenario.

This can be manually reset either by interrupting the power supply or by switching the unit to "Check" mode, (please note removal of cover will initiate tamper alarm).



Tamper function

This function is for detecting tampering or intentional removal of the cover. It detects the removal of the cover from the sensor unit and outputs an alarm.

It is reset if the cover is returned to its original position, but check the operation of the sensor immediately if this situation

8 TROUBLESHOOTING

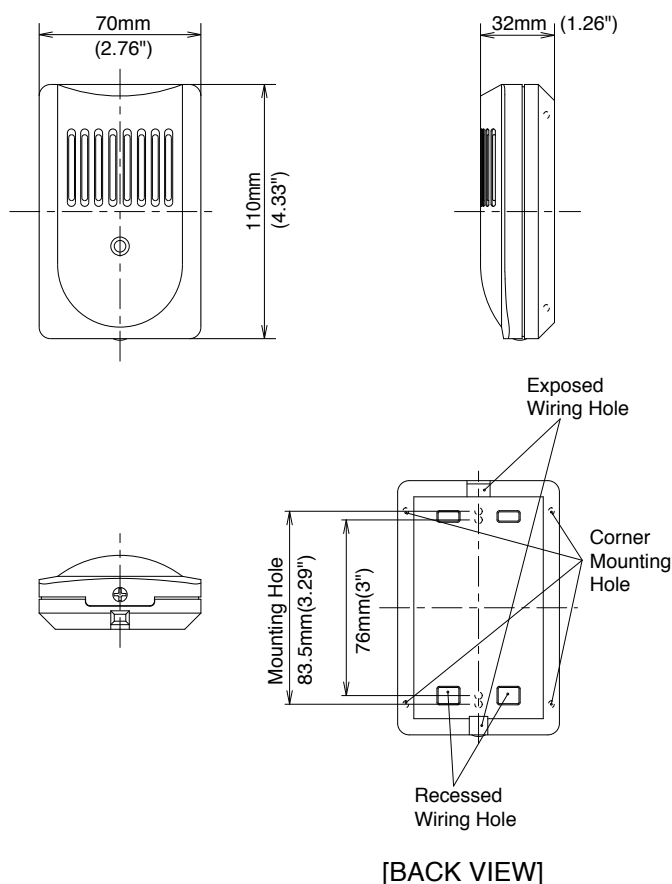
Analyze possible problems according to the following table .
If normal operation cannot be restored by this means, contact either the dealer from whom you bought the unit or TAKEX.

Trouble	Possible cause	Remedy
Completely inactive.	No power supply.	Check power and wiring.
	Sensitivity too low.	Set sensitivity to midium and recheck.
Frequent alarm with no detection. (alarm LED often lights.)	There is noise making source nearby such as bell, ultrasonic sensor, etc.	Keep distance 3m or more from the noise source. Set sensitivity lower and perform operation check 6.
	There is an electrical noise source such as power source or its wiring is located nearby.	Change installation site. Change path of wiring.
	Improper power voltage.	Adjust to proper voltage.
Control panel is inactive though LED works normally.	Broken/improper wiring of signal line.	Check wiring with tester and remove the cause.

9 SPECIFICATIONS

Model	GS-1100E
Detection system	Ultrasonic microphone
Coverage	Horizontal : 8m (26') max. Vertical : 7m (23') max. (plate glass of 400 square cm or more, one side 20cm)
Angle adjustment	Horizontally $\pm 40^\circ$
Power voltage	9V to 30V DC (non-polarity)
Current consumption	30mA or less
Alarm output	Dry contact relay N.C. Reset : Approx. 2 sec. 30V (AC/DC) 0.1A or less
Alarm LED	Red LED lights at alarm
Alarm memory	Alarm LED is flickering for 3 min., lighting for 47 min. and then automatically reset at detection.
Tamper signal	Dry contact relay N.C.
Environmental LED	Orange LED Light at bad environments (at check mode)
Ambient temperature range	- 10° C to + 50° C (+ 14° F to + 122° F)
Mounting position	Indoor (wall)
Wiring	Terminals
Weight	120g (3.86oz)
Appearance	Resin (White)

10 EXTERNAL DIMENSIONS



This sensor is designed to detect breaking sound of plate glass with a shock.

Note that glass breaking without a shock (glass breaking caused by distortion of building) may cause undetection.

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 natural disasters, 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.

TAKEX TAKENAKA ENGINEERING CO., LTD.

In Japan
Takenaka Engineering Co., Ltd.
 83-1, Gojo-Dori, Sotokan Nishi-iru, Higashino,
 Yamashina-ku, Kyoto 607-8156, Japan
 Tel : 81-75-501-6651
 Fax : 81-75-593-3816
<https://www.take-ex-eng.co.jp/>

In the U.S.
Takex America Inc.
 151, San Zeno WAY
 Sunnyvale, CA 94086, USA
 Tel : 408-747-0100
 Fax : 408-734-1100
<https://www.take-ex.com>

In Australia
Takex America Inc.
 4/15 Howleys Road, Notting Hill,
 VIC, 3168
 Tel : +61 (03) 9544-2477
 Fax : +61 (03) 9543-2342
<https://www.take-ex.com>

In the U.K.
Takex Europe Ltd.
 Aviary Court, Wade Road,
 Basingstoke, Hampshire. RG24 8PE, U.K.
 Tel : (+44) 01256-475555
 Fax : (+44) 01256-466268
<https://www.take-ex.com>