TAKEX SENSOR SWITCH

MS-100E (DC12V)

Instruction Manual

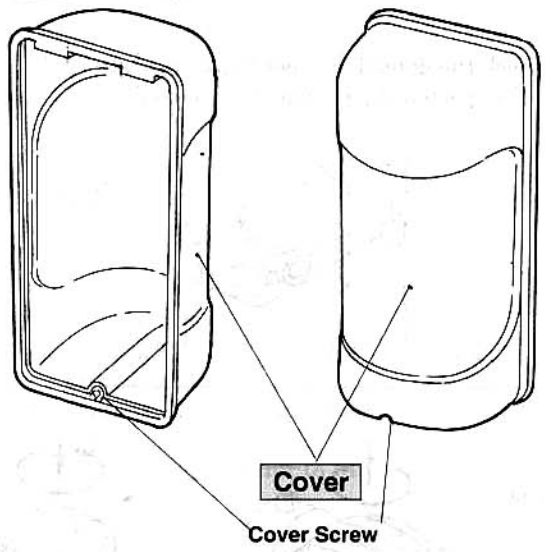
Thank you for purchasing a TAKEX product.
This switch will provide long and dependable service when properly installed.
Please read this Instruction Manual carefully for correct and effective use.

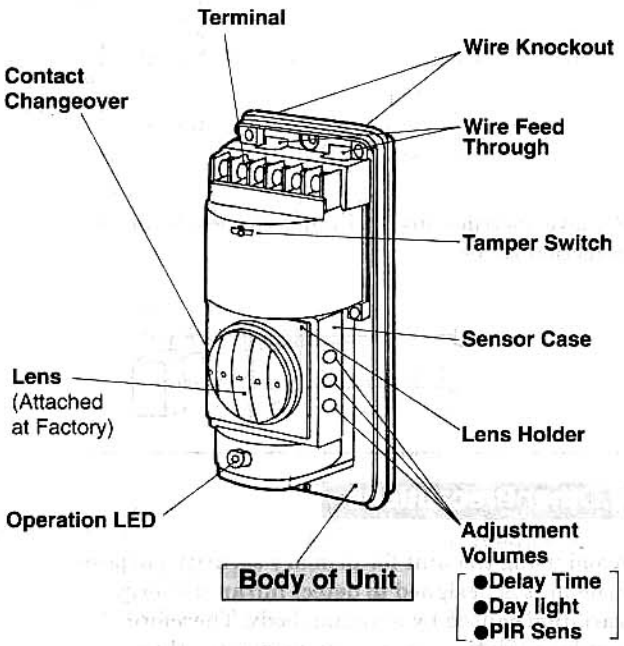
Please Note : This switch is designed to detect passing objects and to initiate a signal ; it is not a burglary-preventing device. TAKEX is not responsible for damage or losses caused by accident, theft, Acts of God (including lightning), abuse, misuse, abnormal usage, faulty installation or improper maintenance.

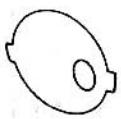
1 PRODUCT DESCRIPTION

The Sensor Switch is an automatic switch which uses a passive infrared sensor to detect infrared (≒ body temprature) emitted from a human body.
This switch is designed for wide applications such as a switch to control illumination or home automation apparatus.

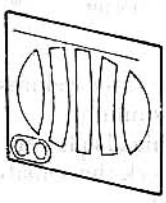
2 PARTS DESCRIPTION







Filter



Masking Seal

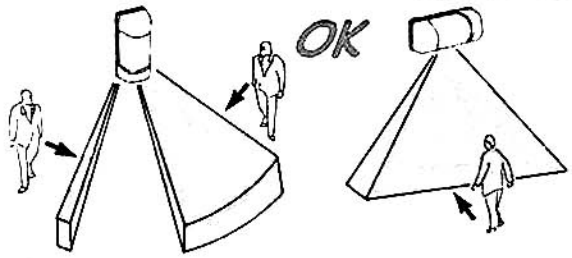
Screws : 2

Lens For Long Range

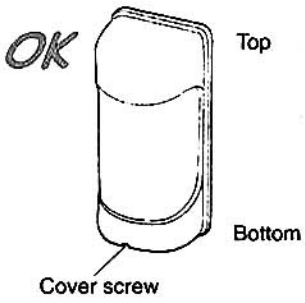
3 PRECAUTIONS

1.Precautions on Installation

●Install the unit in such a direction that people are more likely to cross the detection zones.

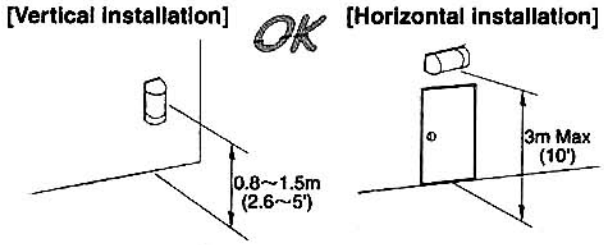


◎For horizontal installation, do not install in a site which is subject to rainfall.

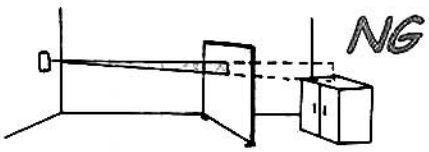


◎Cover screw should be downward.

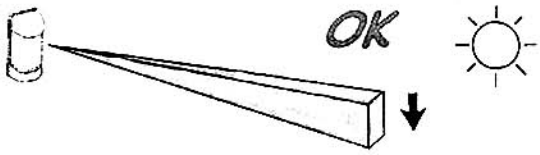
●The unit should be installed as the following.



●Remove obstructions, including glasses, from the detection zones.

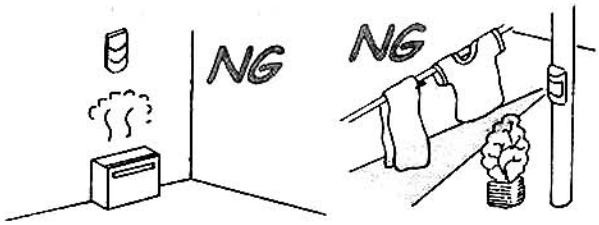


●In case of outdoor installation, adjust the lens holder to 2°, 4°, 6°. downward from horizontal.

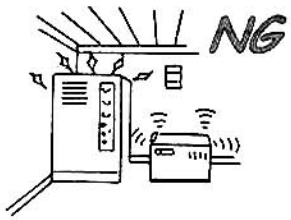


●Install in a site which avoid direct sunlight. If not, use the filter. (See below)

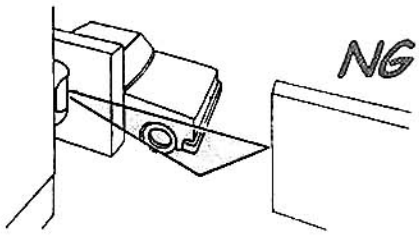
●Do not install the unit by an air conditioning exhanst vent.
Remove all obstructions (trees, clotheslines, etc.)



●Do not install in a site which is subject to electrical noise or vibration.



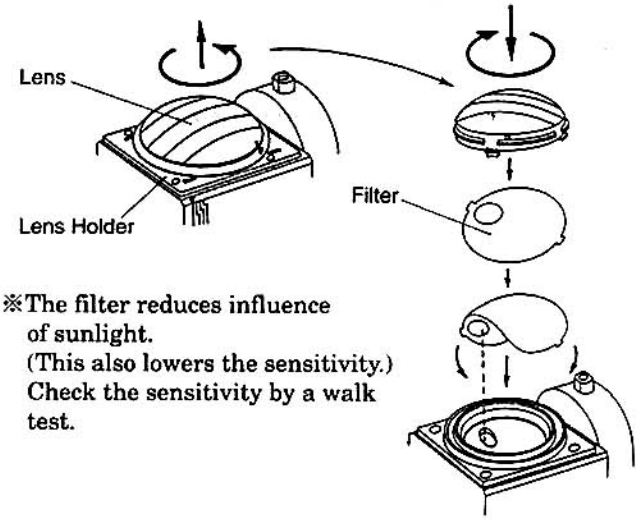
●Check the detection zones before operation. (Unexpected objects may be detected.)



2.Other Precautions

●Avoid using the unit for primary security purpose. (The unit is designed to detect infrared energy variation caused by a human body. Therefore, similar variations in conditions due to other reasons, may cause the sensor to create a signal as it is unable to distinguish between the sources.)

●Insert the filter between the lens and the lens holder when using the unit in a site which is subject to direct sunlight.

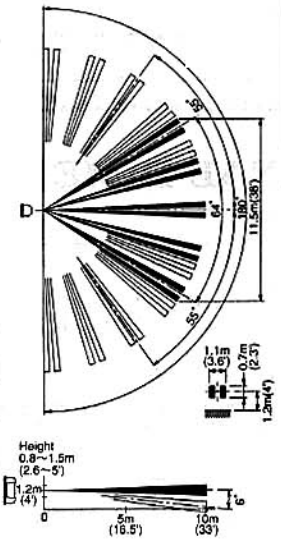
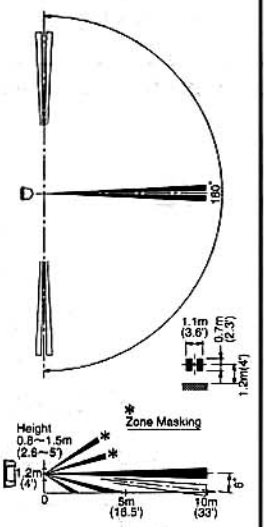
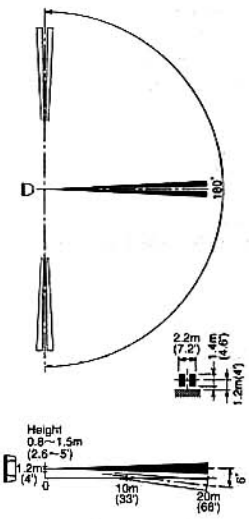
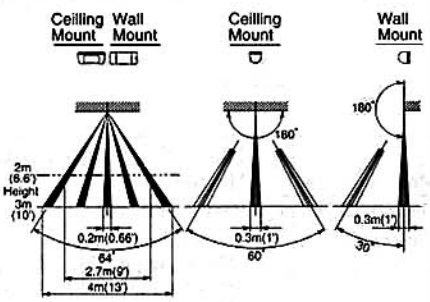
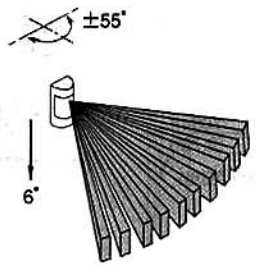
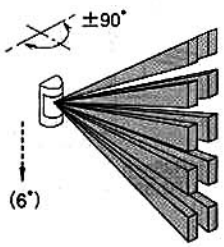
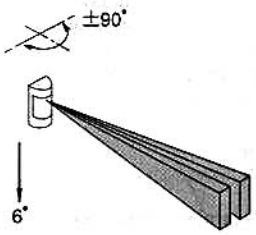
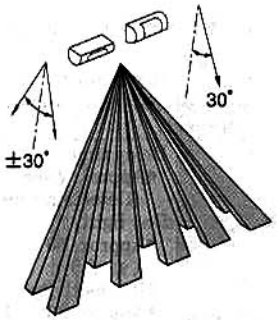
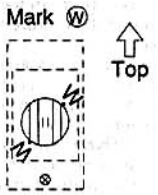
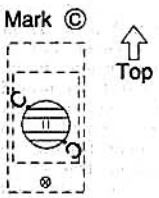
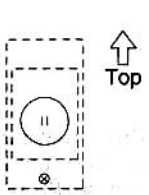
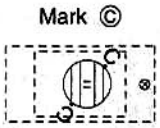


※The filter reduces influence of sunlight.
(This also lowers the sensitivity.)
Check the sensitivity by a walk test.

4 DETECTION AREA

MS-100E can set up 4 different patterns of coverages with 2 types of lens.

1.Detection chart

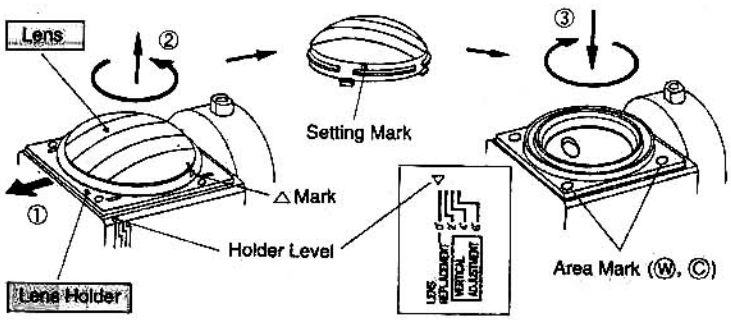
Installation	Vertical Installation			Horizontal Installation
Mounting Position	Indoor / Outdoor Mounting Height 0.8~1.5m (2.6~5')			Indoor Height 3m (10')
Detection Area (Wide Angle : Set at factory)	Wide Angle [Max. 10m (33')]	Curtain [Max. 10m (33')]	Long Range [Max. 20m (66')]	Curtain [Max. 3m (10')]
				
Coverage				
Lens	Lens (Attached at Factory)		Lens for Long Range	Lens (Attached at Factory)
Lens setting				
Cautions on Outdoor Mounting	● Install properly. ● Do not fail to set coverage to a lower angle than horizontal. (2°, 4°, 6°) ● Mask two upper zones.			● Do not install in a site which is subject to direct rain fall.

2. Lens Setting

①Adjust lens holder to set holder level to 0°.

②Remove lens from lens holder.

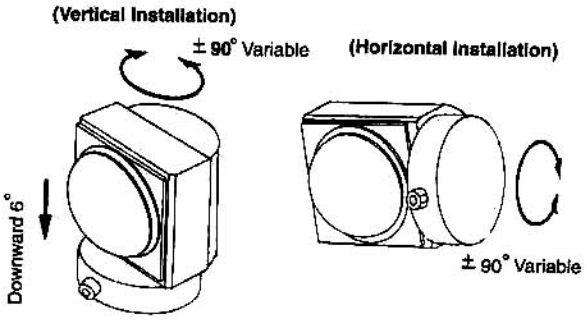
③Refer to lens setting in chart (4 . 1).
Attach appropriate lens on lens holder and, adjust lens to fit Setting Mark to mark Ⓦ or Ⓒ.



3.Angle Adjustment

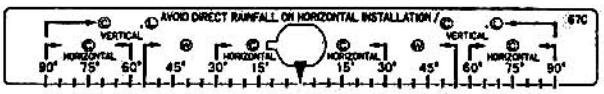
(1) Angle Adjustment

①Sensor Case



②Angle Adjustment Level

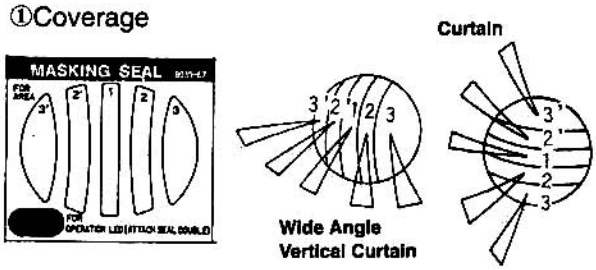
(a) Turn sensor case to adjust the required angle.
Refer to the seal on the unit.



(b) In case of vertical installation at outdoor, adjust lens holder to set holder level to 2°,4°, or 6°.

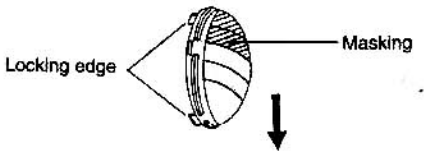
(2) Zone Masking

①Coverage



- Use zone masking seal to cut unnecessary zones.

* In case of curtain coverage, omit two upper zones with seals.
Cut off locking edges of lens and adjust lens holder to set holder level to 2°,4°, or 6°.

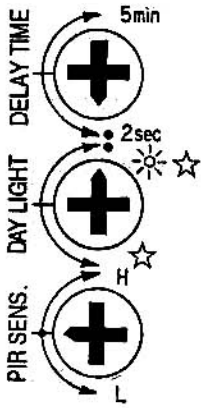


②Operation LED

Use masking seals to mask the hole of Operation LED

5 ADJUSTMENT

- **Adjustment Volumes**



(1) DELAY TIME
- Operation time can be adjusted between approx. 2 sec. and approx. 5 min.

(2) DAY LIGHT (E.E switch)
- Operation output can be controlled according to the surrounding daylight.
- When the volume is turned to ☆ , the switch operates during nighttime only.
When turned to ☼☆ , the switch operates day and night.

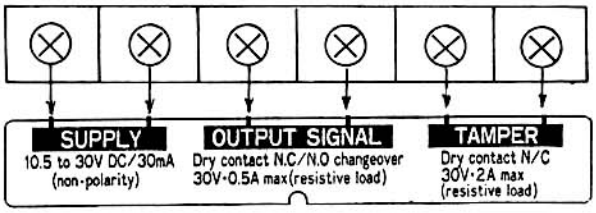
(3) PIR SENSITIVITY
- This volume is for adjusting the sensitivity of passive infrared sensor.
- Adjust sensitivity as necessary according to environment.
Usually there is no need to change the sensitivity set at the factory.

- **Contact Changeover**

(1) OUTPUT CONTACT
- Output contact can be selectable.
(Either N / O or N / C.)

6 WIRING

1.Terminal Configuration



SUPPLY VOLTAGE

- DC10.5~30V (Non Polarity)
- Power Consumption 30mA MAX

OUTPUT SIGNAL

- Dry contact relay output form N.O / N.C changeover.

DAYLIGHT :
Output operates when daylight is below setting.

CONTACT OPERATION :
Detection time + off delay
(approx. 2 sec. — approx. 5 min.)

CONTACT CAPACITY :
30V (AC · DC), 0.5A MAX. (resistive load)

TAMPER

- Dry contact relay output N / C

CONTACT CAPACITY :
30V (AC · DC), 2A MAX. (resistive load)

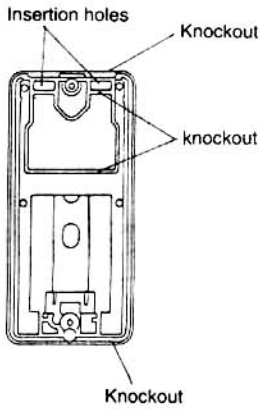
2.Wiring distance

Input Voltage / Size of Wire	DC 12V	DC 24V
AWG 22 (Dia. 0.65mm)	Up to 250m (830ft)	Up to 2600m (8500ft)
AWG 20 (Dia. 0.8mm)	Up to 450m (1450ft)	Up to 4300m (14000ft)
AWG 18 (Dia. 1mm)	Up to 700m (2300ft)	Up to 6500m (21000ft)

NOTE : Maximum wiring distance when two or more sets are connected is the value above divided by number of sets.

3.Wire insertion

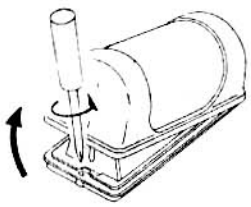
- Break either the top or bottom knock-outs, if necessary.
  Pull wire through the insertion holes.



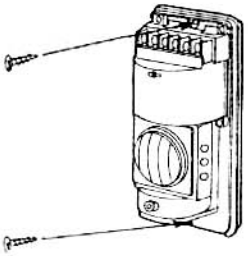
7 INSTALLATION

INSTALLATION

①Read PRECAUTIONS (3) before installation.
②Loosen the cover screw and remove cover from unit.



③Refer to DETECTION AREA (4) and adjust to the required angle.
④Refer to WIRING (6) and connect wires to the terminal.
⑤Secure the body of unit to wall with screws provided.



⑥Refer to OPERATION CHECK (8) and check the operation.
⑦Refer to ADJUSTMENT (5) and set up for desired operation.
⑧Replace the cover.

8 OPERATION CHECK

1.Setting for operation check

Delay time ····· 2 sec.
Day light ····· ☼ ☆ } Set at factory
Contact ·····Form N.O / N.C

Adjust to the required angle.

2.Operation check

(1) Supply power with cover detached and wait approx. 1 min··· for warm-up period.

(2) After warm-up period, operate a walk test in the detection area to check, if the required area is covered.
(Operation LED is activated at the time of detection.)

(3) Readjust the sensor case or mask zones, if necessary.

(4) Check if whole system functions.

9 TROUBLESHOOTING

Analyze possible problems according to the following table.

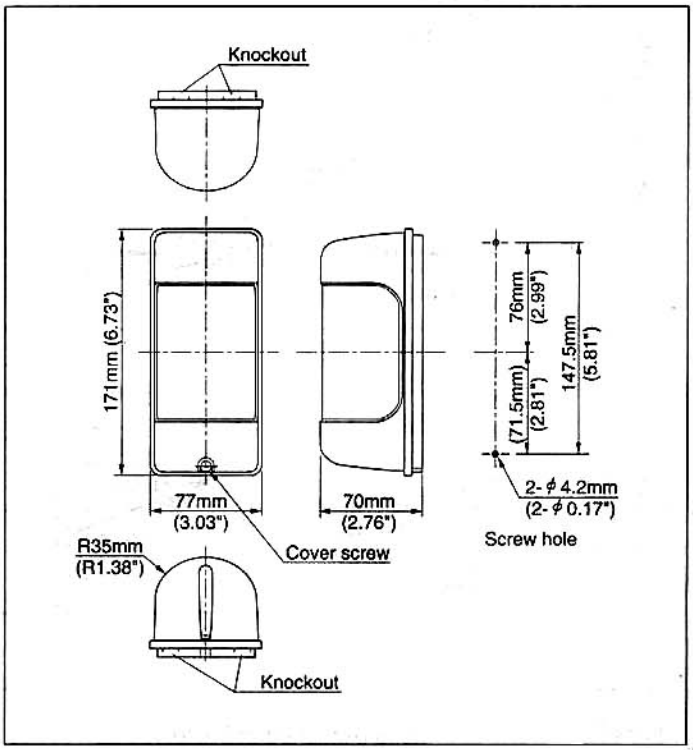
Symptom	Possible Cause	Remedy
Inactive	1. No power supply. Inadequate voltage. 2. Warm-up period. 3. Obstructions in the coverage. 4. Mis-alignment of coverage. 5. Mis-setting of "DAY LIGHT" volume. 6. Stained cover.	1. Ensure correct and adequate supply voltage. 2. Wait 1 min. after power is supplied. 3. Remove obstructions. 4. Readjust. 5. Reset properly. 6. Clean with soft cloth.
Malfunction False signal	1. Unstable voltage. 2. Something moving or rapid temperature variation in detection area. 3. A large electric noise source is located nearby. 4. Direct sunlight shining on the unit. 5. Detecting untargetted objects. 6. Small animals.	1. Stabilize supply voltage. 2. Remove cause or change coverage. Turn the sensitivity down. 3. Remove the problem or replace the unit. 4. Remove the problem or replace the unit. Readjust the coverage. Insert the attached filter. 5. Readjust the coverage. 6. Prevent small animals from coming in or readjust unit.
Installed unit does not operate, while LED is on.	1. Bad wiring connection or broken wire or short. 2. Improper terminal connection. 3. Improper unit is connected.	1. Check wiring again. 2. Check terminal connection with a tester. 3. Check connected unit.

If normal operation can not be restored by these means, contact either the dealer from whom you bought the unit or TAKEX directly.

10 SPECIFICATIONS

Sensor Switch	
Model	MS-100E
Detection system	Passive infrared
Coverrage	Vertical Installation •Wide Angle [Max. 10m (33')] •Curtain [Max. 10m (33')] •Long Range [Max. 20m (66')] Horizontal Installation •Vertical Curtain [Max. 3m (10')]
Supply voltage	10.5VDC to 30VDC (Non polarity)
Power consumption	30mA or less
Output signal	Dry contact relay output Form N.C. / N.O. changeover •Contact capacity : 30V (AC · DC), 0.5A MAX. (Resistive load) •Contact operation : Detection time + off delay (Approx. 2 sec. - approx. 5 min.)
Tamper signal	Dry contact relay output N / C •Contact capacity : 30V (AC · DC), 2A MAX. (Resistive load)
Adjustment Volumes	Delay time •Approx. 2 sec. – Approx. 5 min. (Detection time + off delay) Day light •Approx. 10 lux (☆) – ∞ (Regaraless illuminance) (☼ ☆) PIR sensitivity •Approx. 30% (L) – Approx. 170% (H) (100% set at factory)
Contact changeover	Form N.C / N.O changeover (by switch)
Ambient temperature	-4°F to +122°F (-20°C to +50°C)
Mounting position	Vertical Installation •Indoor / outdoor Horizontal Installation •Indoor
Operation LED	Light at the detection time + off delay
Connection	Terminals
Weight	7.7 oz (220g)
Appearance	Cover : PE resin (white) Body : AES resin (White)
Optional	Pole cover (BP-11), Wall mount attachment (BW-14), Magnetic sheet (BR-M5), Pole attachment (BP-12)

11 EXTERNAL DIMENSIONS



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, 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.

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