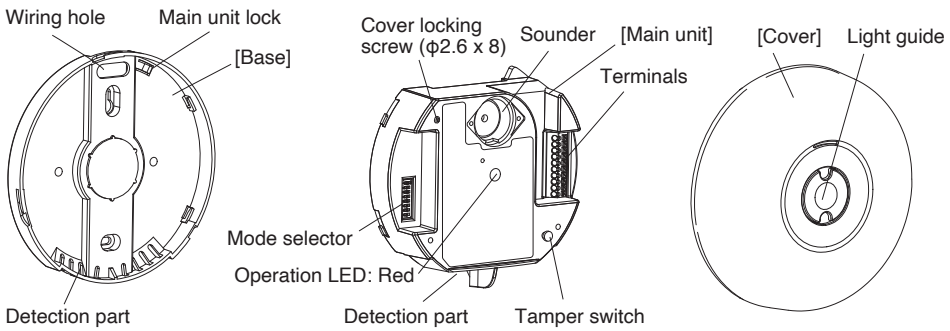
TAKEX

Instruction Manual

VAPE SENSOR
VS-1000E

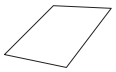
Thank you very much for purchasing this product, please read this instruction manual to ensure correct operation.
Please Note : This sensor is designed to detect vaping/smoking and initiate an alarm; it is not a fire alarm equipment such as fire/smoke detectors.
TAKEX is not responsible for damage, injury 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



ACCESSORIES

Tapping screw
φ4×30
(2pcs)



Instruction manual
(this book)

Cover locking screw
φ2.6×8
(1pc)
*Included in the main unit

2 PRECAUTIONS

Be sure to observe

● This manual describes precautions by classifying them based on degrees of danger and damage that would be generated when using the unit incorrectly.

⚠ Warning This indicates the possibility of severe injury, and even death, if ignored or a user handles the unit incorrectly.

⚠ Caution This indicates the possibility of minor injury and/or damage to properties, or of a notification delay in your system due to false operations and/or non-detection, if ignored or a user handles the unit incorrectly.

● These precautions are categorized throughout the manual using the following symbols.

⃠ A prohibited action, you must not do.	❗ An action you must do, and information you should keep in mind.

⚠ Warning

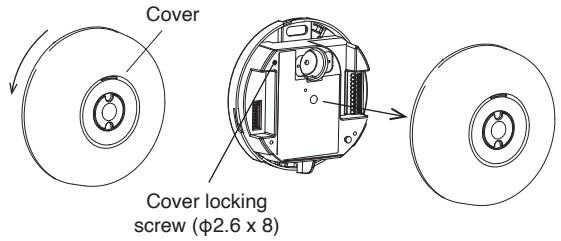
- ⃠ Do not disassemble or modify this device. This may cause a fire, electrical shock, or malfunction of the device.
- ⃠ Do not connect devices that exceed the indicated capacity to the output contact of the unit. Failure to follow this may result in fire, electric shock, and/or malfunction.
- ❗ This product is a detector which outputs alarm caused by vaping/smoking by monitoring the particle concentrations in the air, NOT Fire Alarm equipment such as Fire/Smoke detectors.
- ⃠ Do not touch terminals with wet hands. Failure to follow this may result in electric shock.
- ❗ If the following events occur, turn off the power of the unit immediately, and ask the place of purchase for repair. Failure to follow this may result in fire, electric shock, and/or malfunction.
  - Smoke, abnormal odor, and/or sound are found
  - Liquid such as water and/or foreign material has entered the unit
  - The unit has deformed and/or damaged parts

⚠ Caution

- ⃠ Do not apply impact to the unit. It may cause performance degradation.
- ⃠ Do not perform overhead wiring to avoid fire/electric shock.
- ❗ Do not install the unit near any device which generates a strong magnetic field. Also, the magnetism or magnetic field which this sensor emits will give some influence to the devices nearby. Check the situation prior to operation.
- ❗ Make sure to perform a sufficient operation check on the whole system before operation.
- ❗ Make sure to seal unused holes such as wiring hole or knockout with caulking to prevent from water ingress.
- ❗ This unit is for indoor use. Do not use the unit in places subject to water and/or high humidity. Failure to follow this may result in malfunction if water gets into the unit.
- ❗ Detection requires time for particle from the vape to reach the sensor.
- ❗ Detection performance is greatly affected by mounting position, installation environment and the way of vaping/smoking. Please follow "***3 INSTALLATION***" and "***6 OPERATION CHECK***" for appropriate operation.
- ❗ Avoid acting below to prevent deteriorating the detection performance or getting malfunction.
  - Use in environment including high concentration of volatile chemicals (ethanol, isopropanol, methanol, acetone, toluene, etc.) or ozone
  - Use in environment including strong acidic or alkaline chemicals (HCl, H2SO4, HNO3, NH3, etc.)
  - Spray onto the sensor directly
- ❗ This product cannot distinguish the smoke of vape/cigarette with vapor/smoke caused by other source.
  *Followings may cause false alarms;
  Steam, mist, yellow sand, dust, exhaust gas, or smoke from fuel combustion or cooking
- ❗ Dust on detection part may cause unstable operation or malfunction. Please do cleaning in regular basis.

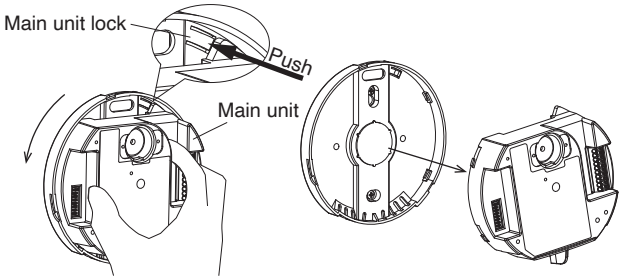
3 INSTALLATION

1. Rotate the cover counterclockwise and remove.



*Previously detach the cover locking screw if you need to lock the cover. (Used later: refer to "Cover locking")

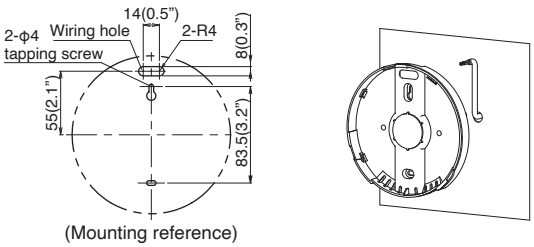
2. Remove the main unit from the base by rotating it counterclockwise while pushing the main unit lock.



3. Pull in the wiring through the wiring hole depending on the way of installation.

(1) Hidden wiring

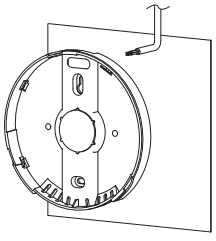
Open wiring hole by referring to "Mounting reference".



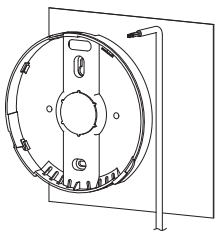
(2) Exposed wiring

Pull in wiring as below diagram.

Wiring from above



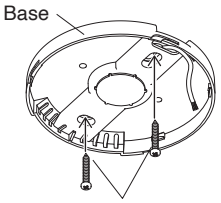
Wiring from below



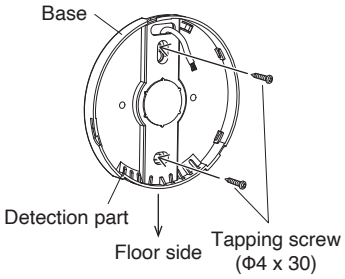
⚠ Be sure to use wiring Φ5mm (0.19") or less to avoid interfering with the main unit. In case you need to use wiring Φ5mm (0.19"), strip the sheath and wiring.

4. Install the base with attached tapping screw (Φ4 x 30) x 2. (Refer to "Mounting reference")

(1) Ceiling mount



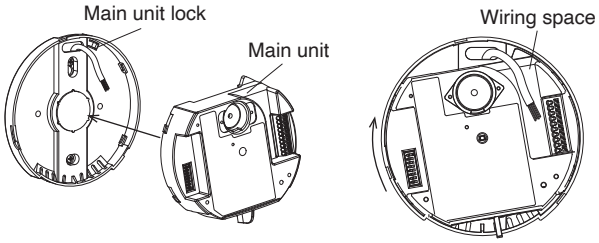
(2) Wall mount



IMPORTANT

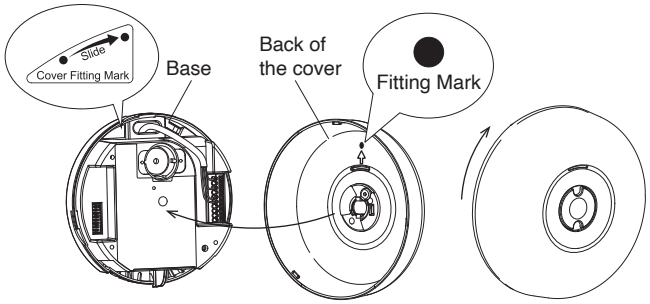
-Recommended mounting height is within 2.4m(8'). The lower detection performance will be the higher mounting position it is.
-For wall mounting, the detection part must face towards floor side.
-Install the detector in the position where vape particles can reach to the detection part.
-Install the detector in a location with low air flow. Avoid mounting near by air conditioning machine, exhaust port, vent, window or door. Especially, the air flow crossed the detector makes target object(smoke/vape) not to reach the sensor.

5. Rotate the main unit clockwise until click sound is made.



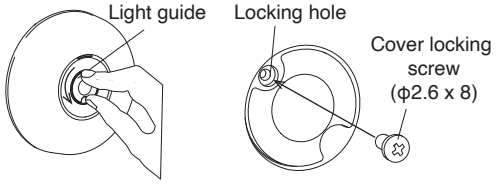
6. Connect wiring to the terminal block. (Refer to "***4 WIRING***")

7. Align two cover fitting marks of the back of the cover and on the base when attaching the cover to the main unit. Be sure the wire would not be interfered to the cover.

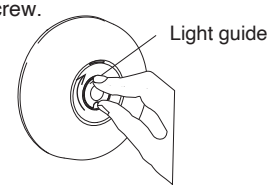


Cover locking

8. Rotate the light guide towards counterclockwise and install the cover locking screw to the locking hole.

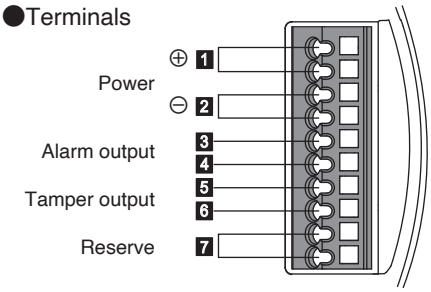


9. Rotate the light guide to the original position to hide the cover locking screw.



4 WIRING

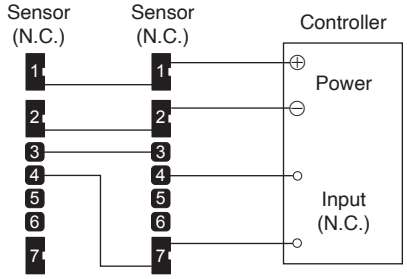
●Terminals



1	Power +	DC10.5 to 28V (non-polarity)
2	Power –	
3 4	Alarm output	Contact : Solid state relay (N.C./N.O. selectable) Operation: One shot (approx. 2 sec.)/ Detecting time (selectable) Capacity : 30V (AC/DC) 0.2A (resistive load)
5 6	Tamper output	Contact : Dry contact relay (N.C.) Operation: Activated when cover is detached (continuous output) Capacity : 30V (AC/DC) 0.1A (resistive load)
7	Reserve	For interconnected wiring

Transition wiring is available for 1 2 7. Terminals with the same number are internally connected.
Terminal block is screwless type. As removing the wire, pull out with keep pushing the release button on the terminal block.

●Connection (2 sensors connected)



●Usable electric wires

Solid wire: AWG22 to AWG16

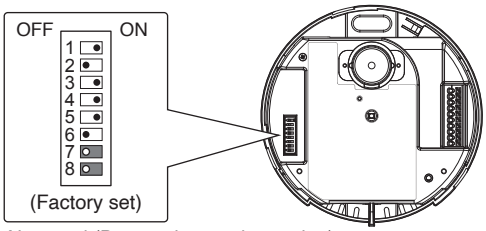
Stripping length: 8.5 to 9.5mm

●Wiring distance

Wire size \ Voltage	12V DC	24V DC
AWG 22 (Dia.0.65mm)	50m (165')	700m (2,300')
AWG 20 (Dia.0.8mm)	100m (330')	1,100m (3,600')
AWG 18 (Dia.1.0mm)	200m (660')	1,800m (5,900')
AWG 16 (Dia.1.25mm)	300m (1,000')	3,000m (10,000')

*When 2 or more units are connected, the wiring distance is calculated as follows: [Above / number of units]

5 FUNCTIONS



7,8:Not used (Do not change the setting)

Operation LED

ON : Lights when detecting
OFF : LED disabled

*Even if the setting is OFF, LED operates compulsorily under the condition such as warm-up and error status.

Switch 1	
1 ● OFF	1 ● ON (Factory set)

Alarm Output Contact

ON : N.O.
OFF : N.C.

Switch 2	
2 ● N.C. (Factory set)	2 ● N.O.

Alarm Output Mode

ON : Continuous output during detection
OFF : One shot (approx. 2sec.)

Switch 3	
3 ● One shot 2sec.	3 ● Detection time (Factory set)

Detection Sensitivity

ON : Standard
OFF : Low

Switch 4	
4 ● Low	4 ● Standard (Factory set)

*Select "Low" only in case nuisance alarms occur at "Standard" mode.

Alarm Buzzer Operation

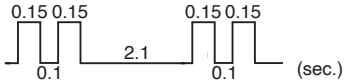
*Buzzer duration time would not be extended by re-input signal.

Switch 5, 6	
5 ● 6 ● Disabled	5 ● 6 ● 10sec. (Factory set)
5 ● 6 ● 30sec.	5 ● 6 ● Detection time

Self-diagnosis Function

The sensor unit monitors itself if there is no failure.
Continuous alarm output and LED blinking report an error immediately at the sensor failure.

LED operation at error



6 OPERATION CHECK

1. Turn power ON and confirm indication LED(red) starts blinking for 1 minute under warm-up mode.
   *The sensor is inactive during warm-up mode.
2. Demonstrate if the sensor detects actual vape smoking and initiates alarm after warm-up mode ended.
   Be sure to check this operation both on the sensor side(indication LED) and the controller side.
   *In case you check the operation in succession, please wait indication LED turns off once and then try operation check again.
3. After operation check done, set Operation LED "OFF" as needed. (Refer to "***5 FUNCTIONS*** Operation LED")

7 TROUBLESHOOTING

Trouble	Cause	Action
Completely inactive	(1) No power supply (Broken wire or improper wire) or low voltage	(1) Correct wiring or adjust power voltage
Non-detection	(1) 1 minute has not been passed since the detector powered (Indication LED blinking) (2) Foreign objects attached to the detection part (3) Affected by air conditioning/outside air flow	(1) Wait 1 minute (2) Clean up the detection part (3) Block air flow or relocate the detector
Malfunction	(1) Unstable power voltage (2) Large electrical noise source such as high-power voltage wire nearby (3) Affected by outside air comes from windows/doors opening (4) Other detectable substances nearby (Refer to "***2 PRECAUTIONS***")	(1) Adjust power voltage (2) Change wiring route (3) Relocate the detector or set sensitivity “Low” (4) Remove the source of detectable substance or relocate the detector
The alarm continuously output and the indicator LED blinks fast	(1) Power supply is too low (2) Foreign objects attached to the detection part	(1) Adjust power voltage (2) Clean-up the detection part and reboot the detector

Maintenance

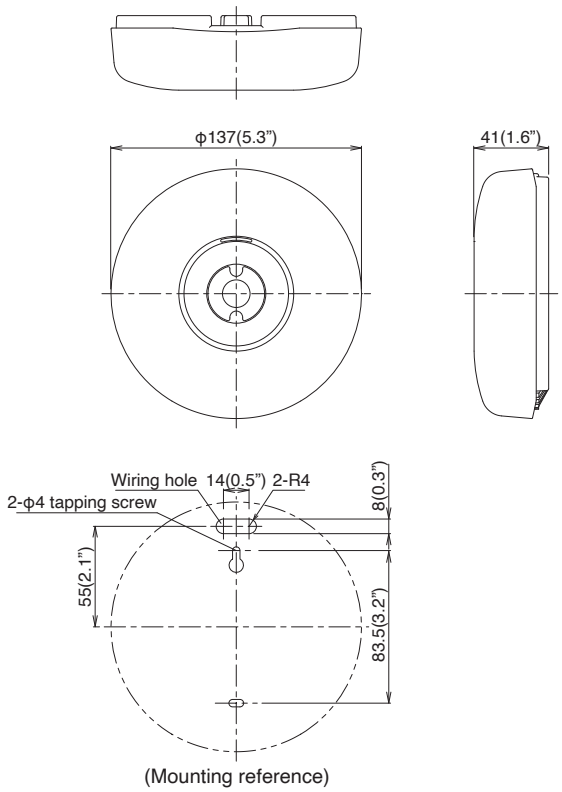
1. To clean the device, use a soft, wet cloth and then wipe off any water drops. Do not use substances such as alcohol, detergent, thinner or benzene. (The plastic parts may be deformed, discolored or deteriorated. Also, it may cause malfunctions and/or disorder.)
2. Perform operation check once a week in regular basis.

8 SPECIFICATION

Product name	VAPE SENSOR
Model	VS-1000E
Supply voltage	10.5V to 28V DC (non-polarity)
Current consumption	85mA max.
Alarm output	Contact : Solid state relay (N.C./N.O. selectable) Operation : One shot (approx. 2sec.) / Detecting time Capacity : 30V (AC/DC) 0.2A (resistive load)
Tamper output	Contact : Dry contact relay (N.C.) Operation : Activated when cover is detached (Continuous output) Capacity : 30V (AC/DC) 0.1A (resistive load)
Alarm LED (Red)	Warm-up : Blinking Detection : Lights on (LED ON/OFF selectable) Error : Fast blinking
Buzzer	Sound at detecting (disable / 10sec. / 30sec. / continuous)
Wiring connection	Screwless terminal
Ambient temperature	0°C to +50 °C (+32˚F to +122˚F) without condensation/frozen
Mounting position	Indoor (Ceiling / Wall)
Weight	210g (7.4oz)
Appearance	Resin (Body: White / Base: Black)

Specifications and design are subject to change without prior notice.

9 EXTERNAL DIMENSIONS *(Unit: mm)*



(Mounting reference)

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.

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No.06-379 C5014