



Anti-Tailgate & Anti-Piggyback Sensor System





Model : Control Box A3001CB  
: TOF Sensor A3001S  
Installation instruction  
(Version 1.02.01)

## Before your operation



- Read this instruction manual carefully prior to installation and operation.
- After reading, store this manual carefully in an easily accessible place for reference.

### ◆ Pictorial indication

This manual uses the following warning indications for correct use of the project, harm to you or other people and damage to your assets, which are described below. Be sure to understand the description before reading the rest of this manual.








	Failure to follow the instruction manual provided with this indication and improper handling may cause death or serious injury.
 CAUTION	Failure to follow the instruction manual provided with this indication and improper handling may cause injury and/or property damage.






This symbol represents important notes

	This symbol indicates prohibition.
	This symbol indicates mandatory actions.

## Document disclaimer





Please read carefully the following instructions for installation, wiring and setting.




 WARNING	<b>Follow the instructions below to reduce the risk of fire or electrical shock.</b>
	Do not turn on the power during installation. Connect wires into the terminal blocks firmly. If the connection is not firm or comes off, it may cause a fire.  Do not use the products beyond the specifications on power or power consumption. If the product is in use under such irregular environment, it may cause a fire or electric shock. Stop using the product when there is smoke or a strange smell coming from it or when it fell down or damaged.
	Do not use the products beyond the specifications; otherwise, it may cause a fire or electric shock by a short circuit or heat.  Do not wash or insert anything into the product. Do not put anything over the product in use. It may generate heat and burn the inside; therefore, it may cause a fire or electric shock.
 WARNING	Never attempt to disassemble or repair the product.  It may cause fire or damage to the devices.
	<b>To reduce the risk of injury</b>
	Check if the products (detection unit and control box) are mounted firmly and periodically. If the mounting plate or screws rust, those may fall of and injure a person(s).  Do not touch the unit base or power terminals of the product with a wet hand (do not touch when the product is wet with rain, etc.).  It may cause electric shock.

 CAUTION	<b>To reduce the risk of injury</b>
	Be careful with your fingers when closing the cover of the control box. 
	<b>To reduce the risk of failure.</b>
	Do not use the products under environments with extreme humidity, oil, smoke, dust and any severe vibration.  Do not stand or put any heavy objects on the products.
	<b>To reduce the risk of performance degradation.</b>
	Use the specified wires.  Make sure there are no objects next to the product, which may interfere to the performance, such as an emergency light.
	The product is designed only for interior usage; inside building, so do not use it outside.  Do not install the product in height beyond the specification. This may decrease the performance. Do not touch the window of detection unit. This may reduce the detection performance. Do not spray any chemical products on the products, such as thinner, benzene, an air freshener or insect spray.

## Inform a building owner or facility manager

Inform a building owner or facility manager of the following instruction, [Warning], [Caution] for proper operation and ask them to follow.

 WARNING	<b>Follow the instructions below to reduce the risk of fire or electric shock</b>
	Stop using the product when there is smoke or a strange smell coming from it. 
	Do not wash or insert any objects in the products.  Do not break down and modify, and repair the products. 

 CAUTION	<b>To reduce the risk of performance degradation.</b>
	Please contact the installing company when the detection units are moved or the installed location is changed after the delivery. Otherwise, the product does not work properly. (However, the control box may be moved.)  If the window of detection unit is dirty, it may reduce the detection performance. Use a neutral detergent and clean the unit.
	Do not use alkaline, acid detergent, or thinner.  Do not paint the products.



## Precautions

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➤ This product can only be incorporated with certain specific conditions in case that outward opening interlock door and door opening width 1,000mm max.

➤ TOF Sensor is ceiling mount and please install the front of TOF Sensor horizontally downward

Note that the product does not prevent unauthorized entry physically. It must be used under restrictions of the product as mentioned in the instruction manual.

Install the product properly according to required local regulations or guidelines.

Do not connect a fire alarm or smoke detector to this product.

The product is designed to register only and therefore not to prevent property loss and casualty, or physical damage.

Please note that the manufacturer and distributors are not liable for any densification by any damages.

This product may not detect properly an object(s) under certain specific conditions in case that

➤ definitely at the place where the ground such as slopes is not level and the place with the unevenness

➤ by unusual behavior of a person or persons

➤ with a cart or trolley, or large baggage or an umbrella

➤ a poster or an sign paper on the door or on the wall

## ◆Copyright

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➤ Software licensed based on GNU General Public License (GPL) is included in this product. We obtain a source code of the software concerned and, according to GPL reproduce it and distribute it and can modify the visitor. Please contact us for the open source code using with this product.

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## Definition of terms

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The following terms are important to know in order that the product works properly.

- Secured area  
Area with entry limitation by an authorization device.
- Interlock area  
Area in interlock.
- Non-secured area  
Area with no entry restrictions
  
- Tailgating  
Unauthorized person is following an authorized person into the Interlock area.
- Piggybacking  
Unauthorized person is hugging an authorized person or actually on authorized person's back into the Interlock area.
  
- Inward opening  
Door opening into the interlock area
- Outward opening  
Door opening into out of the interlock area
  
- Door open  
Status that the door is open, or a signal of the status "Door open"
- Door close  
Status that the door is close, or a signal of the status "Door close"



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# 1 Introduction

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## 1-1 Features

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A3001 is Anti-Tailgate & Anti-Piggyback Sensor System that uses Time Of Flight technology.

This product can only be incorporated with the size limited outward opening Interlock door.

Note that the product does not prevent unauthorized entry physically.

Control Box is accessible to up to two TOF Sensor, it can be used for both direction One way (only entry) and Two way (entry and exit)

The product is designed to register only and therefore not to prevent property loss and casualty, or physical damage.

Please note that the manufacturer and distributors are not liable for any densification by any damages.

## 1-2 Contents

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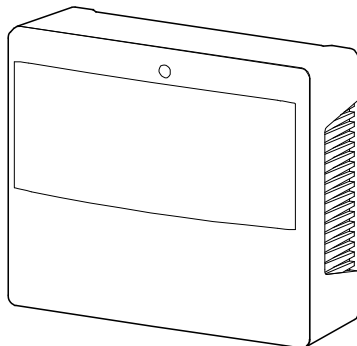
Make sure that all parts are available and without any damage before use.

<Notes>

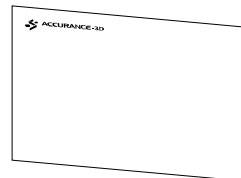
Detection unit and control box are supplied separately.

### ◆Control Box A3001CB

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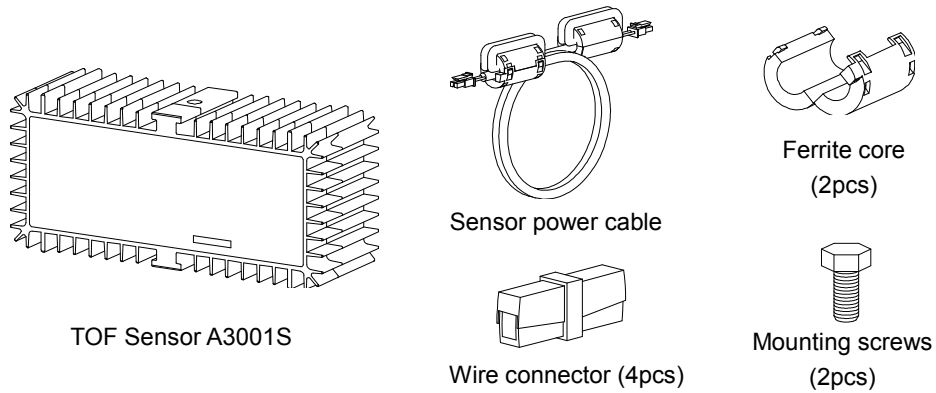
Control Box A3001CB



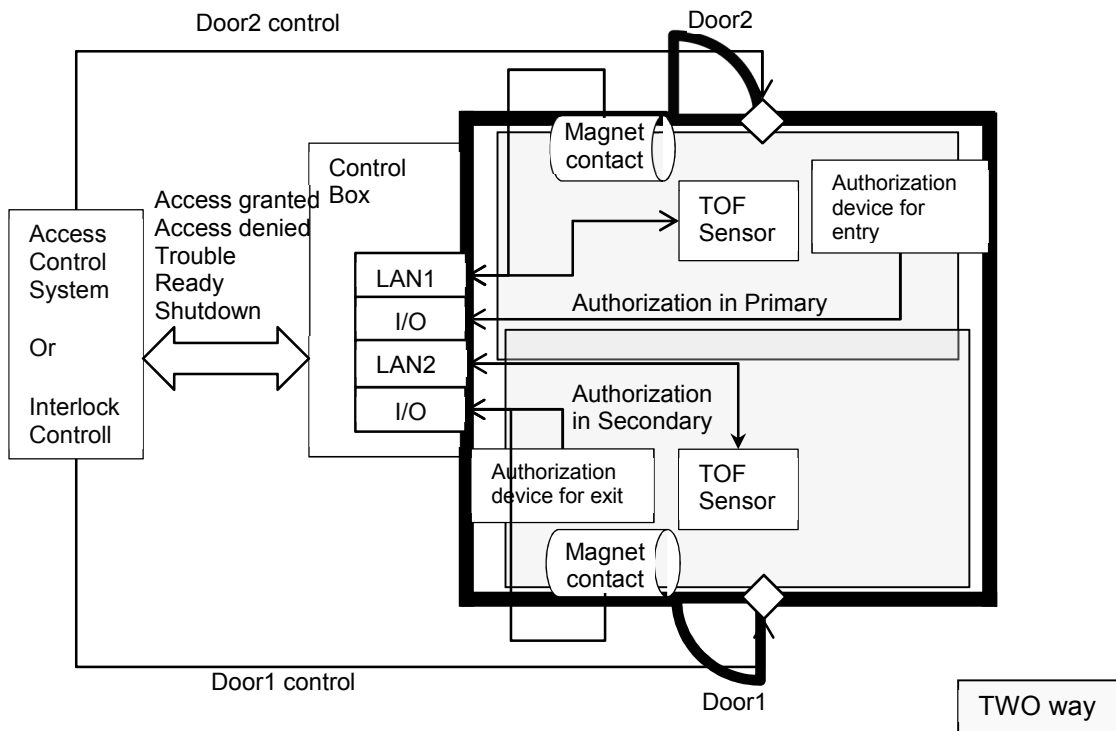
Manual



### ◆ TOF Sensor A3001S



### 1-3 System example for A3001

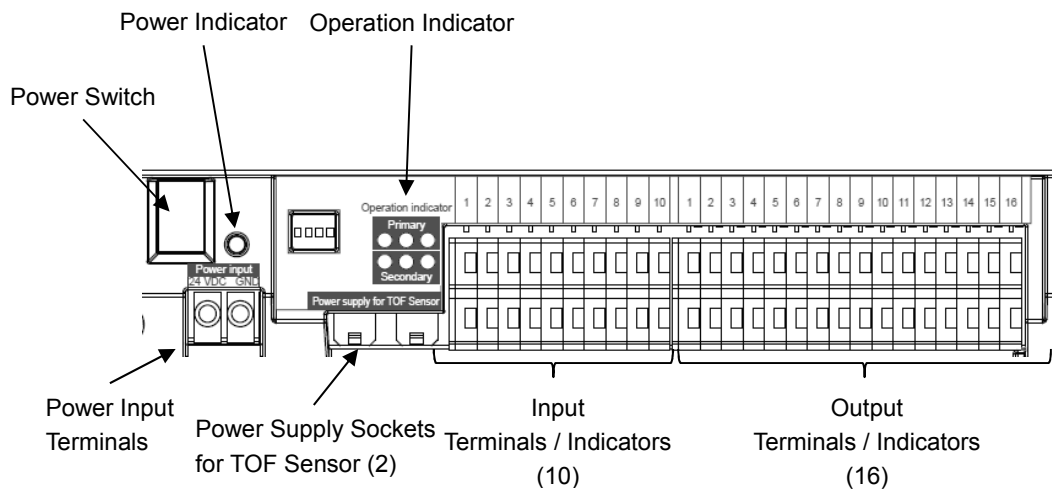
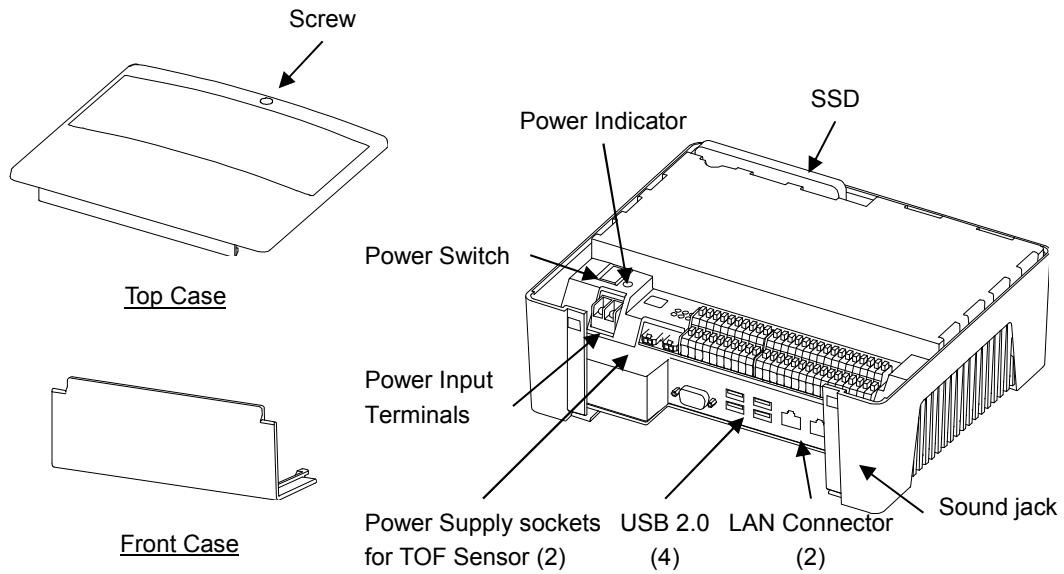


<Notes>

Authorization device means ID reader or Biometric reader etc...

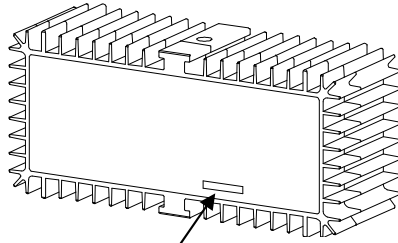
## 1-4 Part Names

### ◆Control box



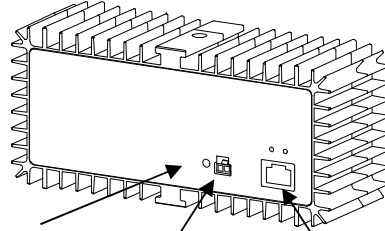
◆ TOF sensor

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Operation indicator  
(3 colors)

Front side



Power indicator  
(Green)  
Power input socket LAN connector

Back side

## 2 Mounting and wiring

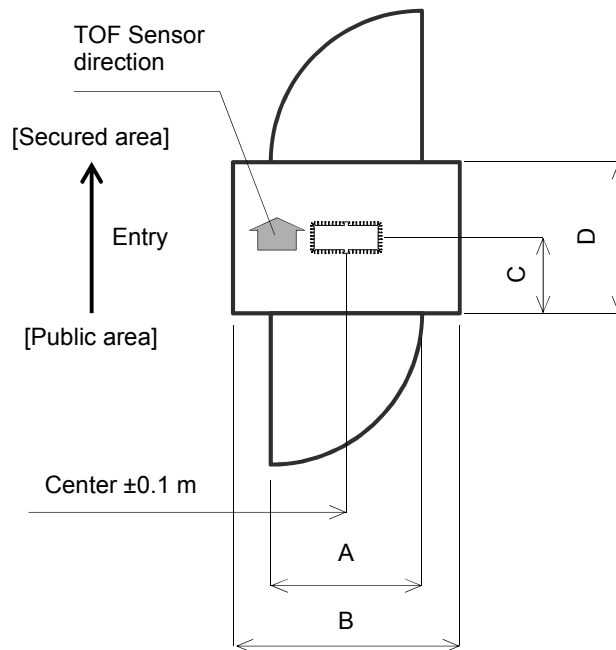
### 2-1 Mounting TOF sensor

#### ◆ Mounting position of TOF Sensor

The mounting position of TOF Sensor changes by a use (One way or Two way) and size of interlock area as shown as below;

##### · For One way

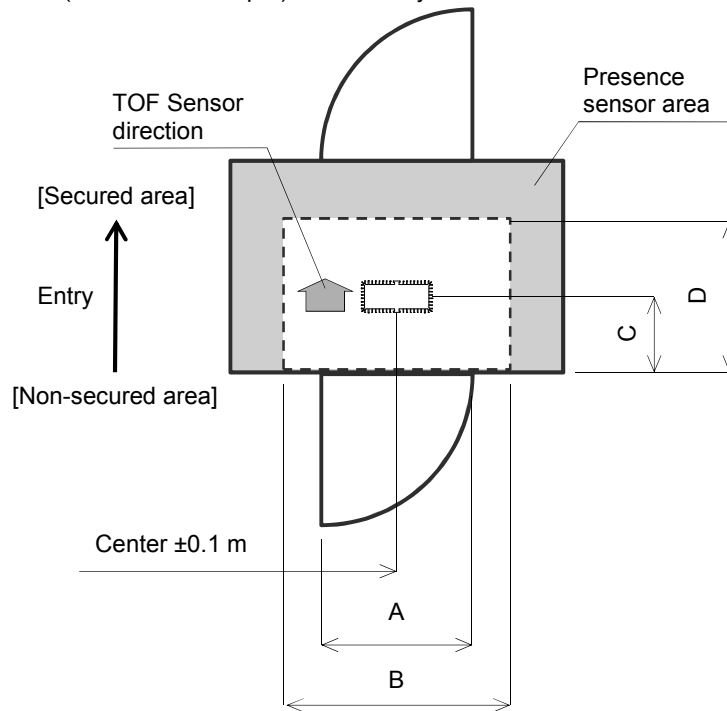
- Interlock area within 1.5 m × 1.0 m (W × D)



		Mounting height		
		2.3 m	2.6 m	2.9 m
Door width	A	1.0 m max.		
TOF Sensor area width	B	1.5 m max.		
TOF Sensor center	C	0.3 to 0.5 m	0.4 to 0.6 m	0.5 to 0.7 m
TOF Sensor area depth	D	C + 0.5 m max.	C + 0.6 m max.	C + 0.7 m max.

- Interlock area over 1.5 m×1.0 m (W×D)

Presence sensor (Other sensors input) is necessary



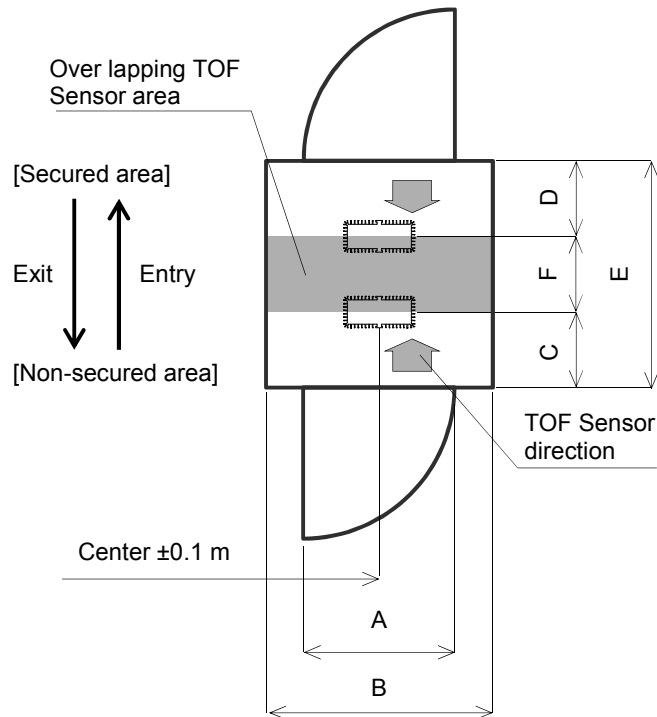
		Mounting height		
		2.3 m	2.6 m	2.9 m
Door width	A	1.0 m max.		
TOF Sensor area width	B	1.5 m max.		
TOF Sensor center	C	0.3 to 0.5 m	0.4 to 0.6 m	0.5 to 0.7 m
TOF Sensor area depth	D	C + 0.5 m max.	C + 0.6 m max.	C + 0.7 m max.

<Notes>

Presence sensor area and TOF sensor area need to be overlapped each other.

· For Two way

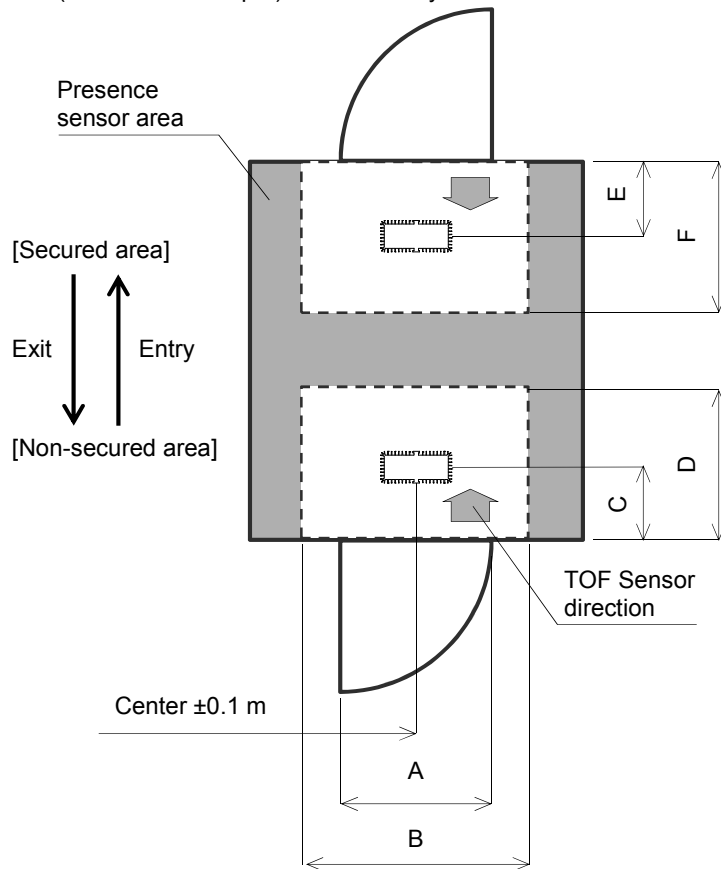
- Interlock area within 1.5 m×1.5 m (W×D)



		Mounting height		
		2.3 m	2.6 m	2.9 m
Door width	A	1.0 m max.		
TOF Sensor area width	B	1.5 m max		
TOF Sensor center	C	0.3 to 0.5 m	0.4 to 0.6 m	0.5 to 0.7 m
TOF Sensor center	D	0.3 to 0.5 m	0.4 to 0.6 m	0.5 to 0.7 m
TOF Sensor area depth	E	1.5 m max.		
Overlapping TOF Sensor area	F	more than 0.5 m		

- Interlock area over 1.5 m×1.5 m (W×D)

Presence sensors(Other sensors input) are necessary



		Mounting height		
		2.3 m	2.6 m	2.9 m
Door width	A	1.0 m max.		
TOF Sensor area width	B	1.5 m max		
TOF Sensor center	C	0.3 to 0.5 m	0.4 to 0.6 m	0.5 to 0.7 m
TOF Sensor area depth	D	C + 0.5 m max.	C + 0.6 m max.	C + 0.7 m max.
TOF Sensor center	E	0.3 to 0.5 m	0.4 to 0.6 m	0.5 to 0.7 m
TOF Sensor area depth	F	E + 0.5 m max.	E + 0.6 m max.	E + 0.7 m max.

<Notes>

Presence sensor area and TOF sensor area need to be overlapped each other.

## ◆How to mount TOF Sensor

TOF Sensor must be mounted on a ceiling with no dealing facing the floor downward.  
(90 degree vertically to the floor)

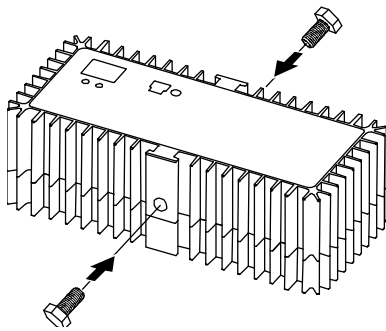
<Notes>

The allow mark on TOF Sensor is indicated in the figures.

This system has the direction sensing function. Wrong orientation may cause false detections,  
"One" person may result in "Access denied".

Remove the arrow mark sticker on the front of TOF Sensor after mounting TOF Sensor.

The sticker blocks the field of view of the TOF Sensor.



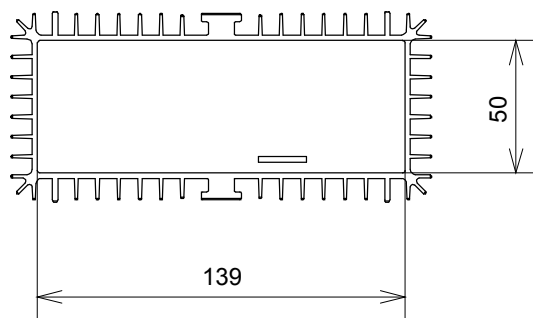
Fix TOF Sensor with screws (provided).

<Notes>

Make sure that the direction of the arrow of TOF Sensor is same with the arrow of figures of mounting position.

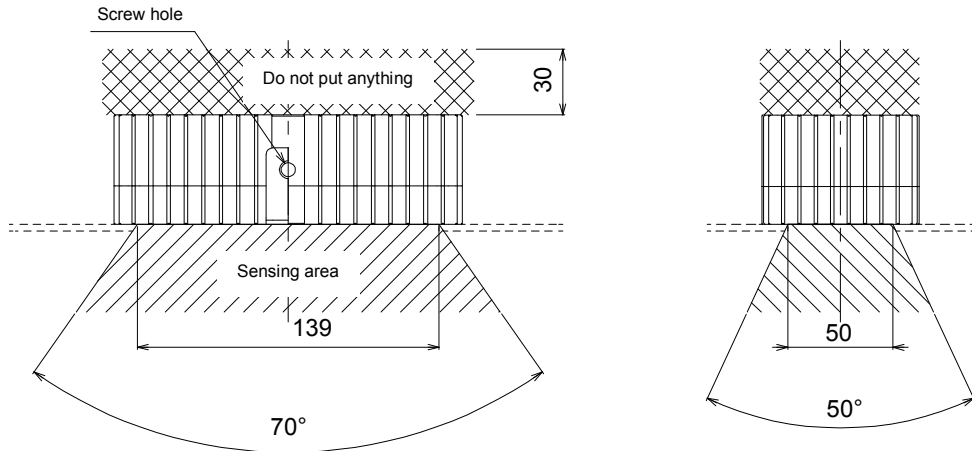
When mount TOF Sensor, ensure that there is no obstacle in the Sensing Area (139 mm×50 mm) as shown in the figure below, and keep 30 mm space in the back of TOF Sensor.

\*Keep TOF Sensor not free from static electricity to prevent the dust adhesion to a Sensing area.

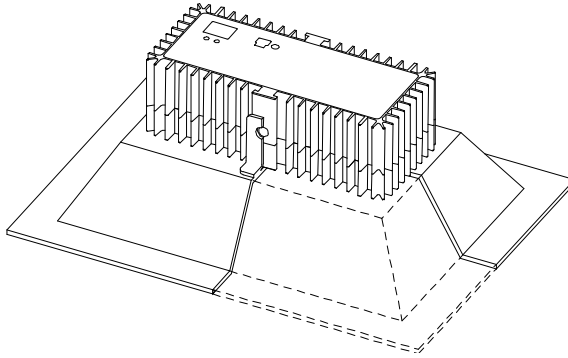


[mm]



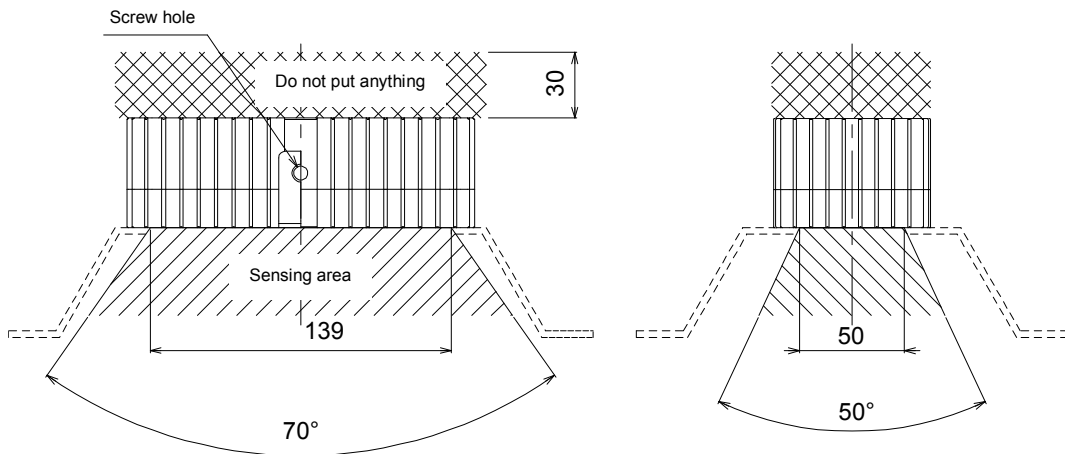


If mounting height is lower than 2.3 m, make mounting jig.



<Notes>

This figure is only for reference.



[mm]

<Notes>

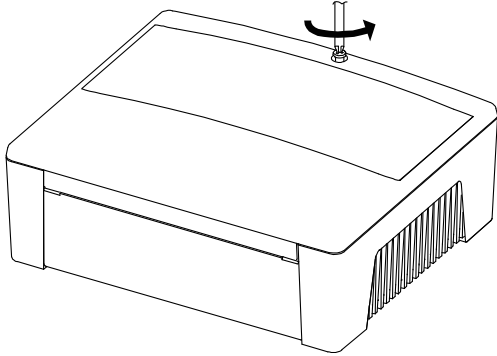
Please mount TOF Sensor under the local law and the local regulations.

## 2-2 Mounting Control Box

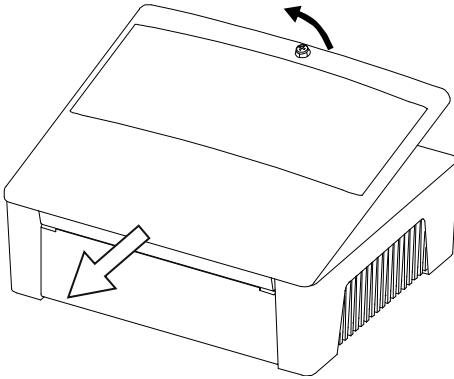
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### ◆Disassembling top case

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- 1 Turning the screw on the upper side of body.  
※The screw does not come off.

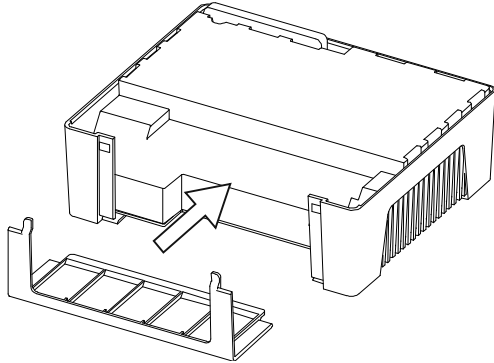


- 2 Remove top case

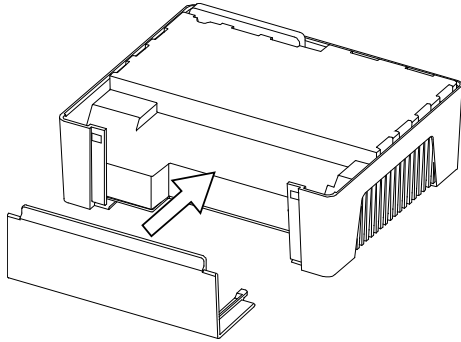
### ◆Assembling front case

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Front Case can be used in 2 ways by assembly direction.

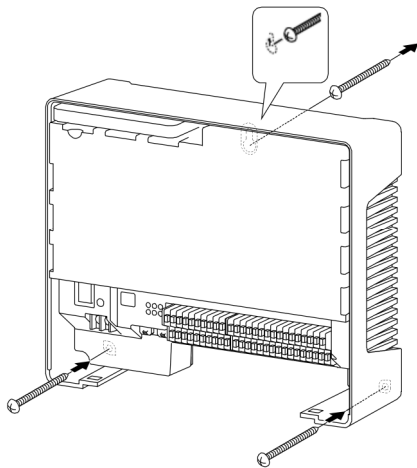
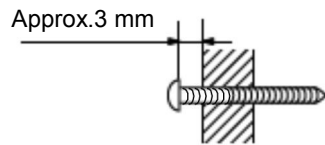
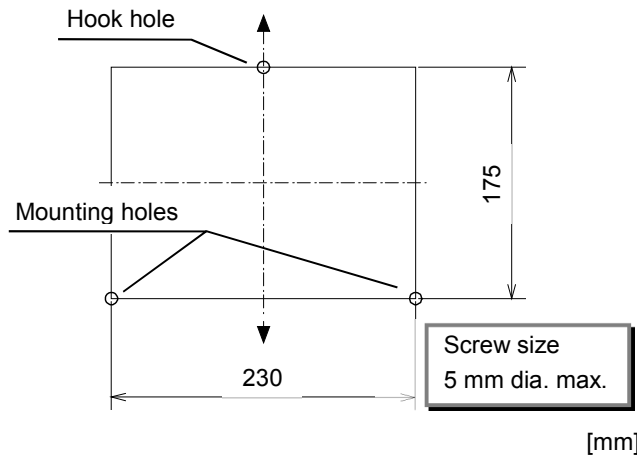


1 For front wiring.



2 For back wiring.

## ◆How to mount Control Box



- 1 Drill a hook hole and two mounting holes.

(mounting template)

Please prepare three screws or three anchors depending on the mounting wall.

- 2 Making a hook.

\*Make 3mm distance between the screw head and the wall.

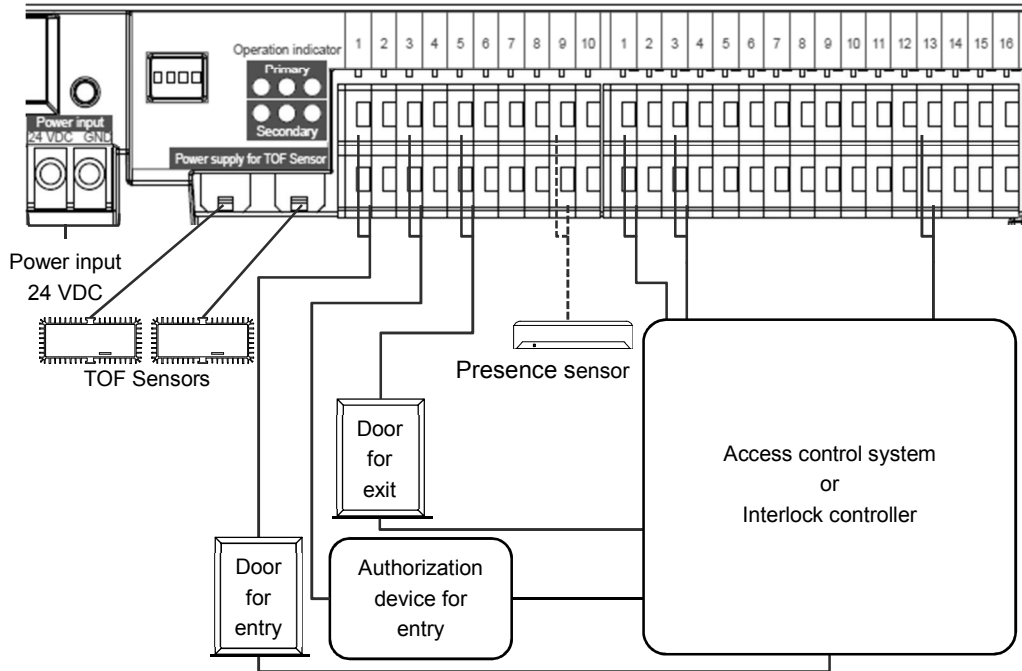
- 3 Hook the control box on the screw, which was made on step 2.

- 4 Align the control box and fasten it with two screws.

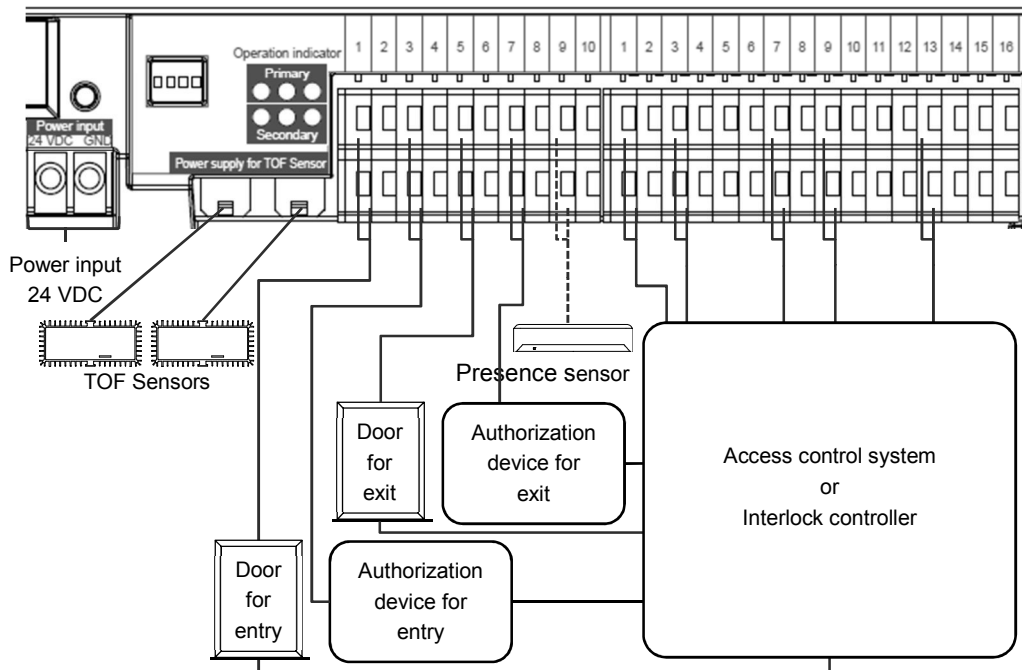
## 2-3 Wiring

### ◆Wiring example of A3001

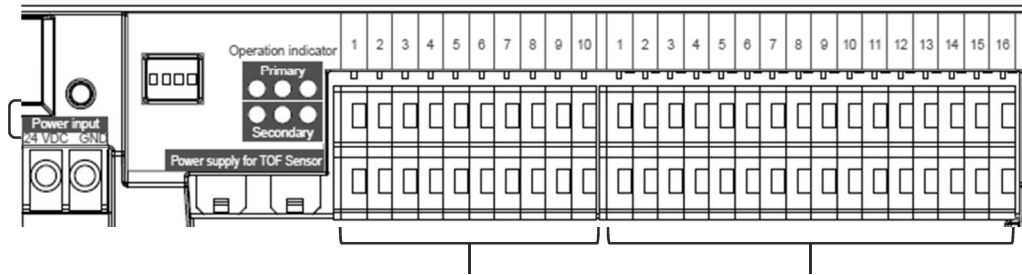
#### ➤ One way



#### ➤ Two way

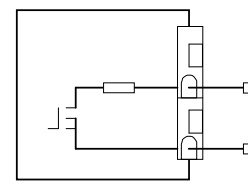
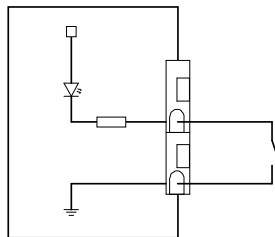


## ◆ Input/Output terminals



Input terminals (10)

Output terminals (16)



	NO	Direction	Terminal name	
Input terminal	1	Primary	Activation	
	2		-	
	3		Authorization	
	4		-	
	5	Secondary	Activation	
	6		-	
	7		Authorization	
	8	-		
	9	Common	Other sensors	
	10		Shutdown	
Output terminal	1	Primary	Access granted	N.O.
	2		N.C.	
	3		Access denied	N.O.
	4		N.C.	
	5	-		
	6	-		
	7	Secondary	Access granted	N.O.
	8		N.C.	
	9		Access denied	N.O.
	10		N.C.	
	11	-		
	12	-		
	13	Common	Ready	N.O.
	14		N.C.	
	15		Trouble	N.O.
	16			N.C.

· **Activation**

Sensing starts when A3001CB receives Activation input. Door open/close signal or door lock/unlock signal is suitable as this input. If this signal is more than 120 sec, sensing result is Access denied.

· **Authorizaiton**

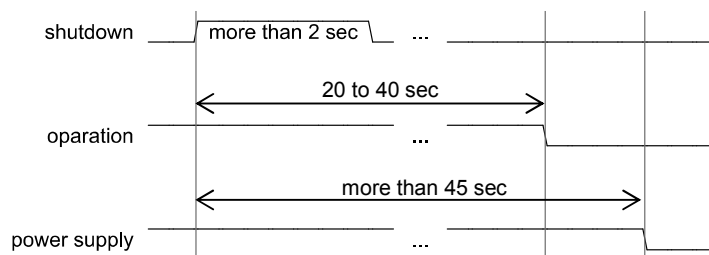
Authorization input is countable.

· **Other sensors**

When two A3001S is not enough to watch whole interlock, to use Other sensors input is necessary. This terminal should be connected to output of presence sensors.

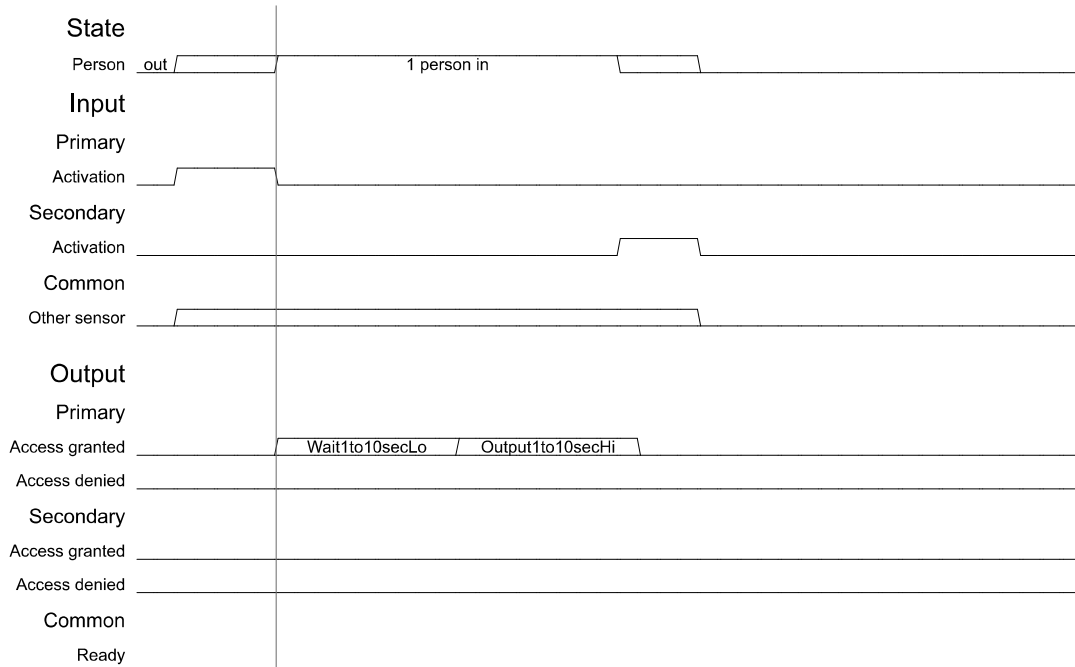
· **Shutdown**

When Shutdown input comes over 2sec, A3001CB starts to shutdown. After sending shutdown signal, to continue power supply until 45 sec later is necessary.



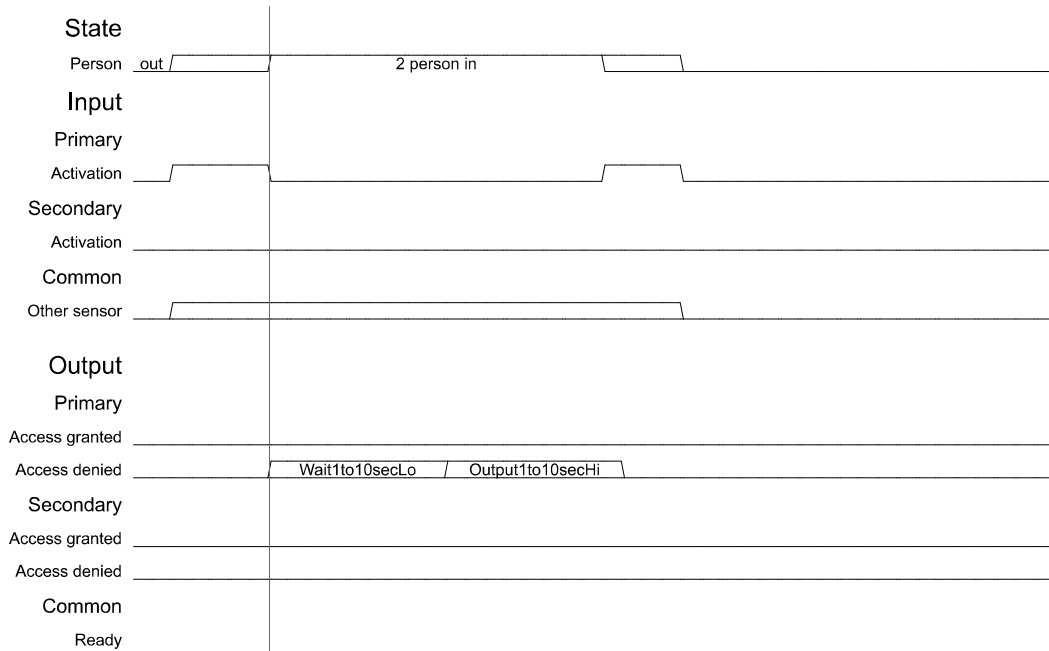
· **Access granted**

When sensing result is one person entry, A3001CB sends Access granted output. The output starts after Activation signal finishes and Wait timer is time up.



· **Access denied**

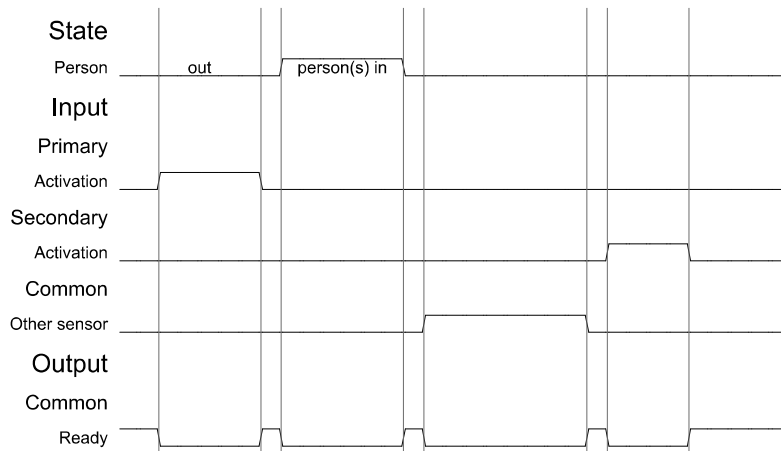
When sensing result is suspicious, or more person entry, A3001CB sends Access denied output. Suspicious means something is in the interlock but there is high possibility something is not person. Otherwise, sensor is masked. More person means more than 2 person entry happens or is high possibility. The output starts after Activation signal finishes and Wait timer is time up.



<Notes>  
 When Suspicious and More person happens, the person(s) have to get out of interlock and close the door. Interlock must be vacant once.

· **Ready**

When the interlock is vacant and no Activation input, Ready output starts. What the interlock is vacant means that there is no Other sensors input, and no detection by A3001S.



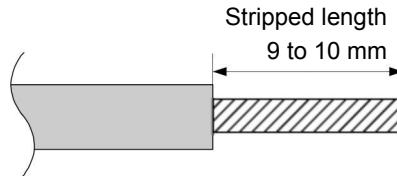
· **Trouble**

After starting up, if the communication between A3001CB and A3001S is fail, Trouble output starts.



### ◆Wire specification

Please refer to the chart below as to usable wire rod and length of stripping the cable sheath

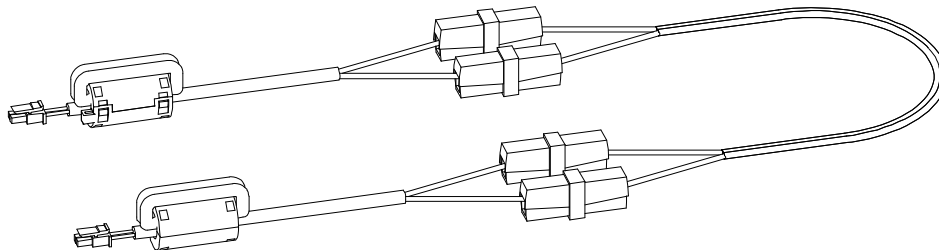


Intended use	Applicable wire	
Input/output	Single wire: 0.65 to 1.60 mm dia. (AWG22 to AWG14)	
Control Box TOF Sensor	Power supply	Sensor Power Cable (provided) (AWG22)
	LAN (Ethernet)	Cat5e Cable (not provided)

<Notes>

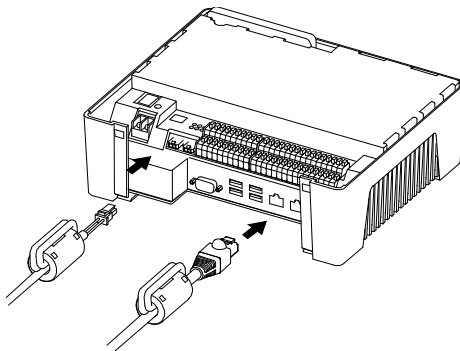
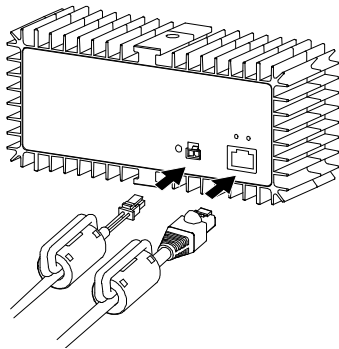
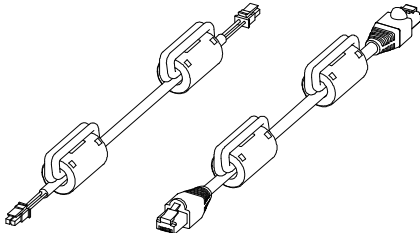
LAN (Ethernet) Cable is not provided.

Please make a power cable for TOF Sensor from Control Box using addition a cable(AWG22)(not provided)  
The length of the additional cable should be fitted the distance between Control Box and TOF Sensor.



## ◆Wiring between Control Box and TOF Sensor

Connect Control Box and TOF Sensor with Ethernet Cable (not provided) and Sensor Power Cable (provided)



- 1 Prepare Sensor Power Cable and Ethernet Cable.

\*Please set ferrite to the both end of the Ethernet Cable.

- 2 Insert both cables to back of the TOF Sensor. Insert the connectors all the way until the lock is in place.

To remove connectors, pull out cables while pressing the locks.

- 3 Insert both cables to the Control Box. Insert the connectors all the way until the lock is in place.

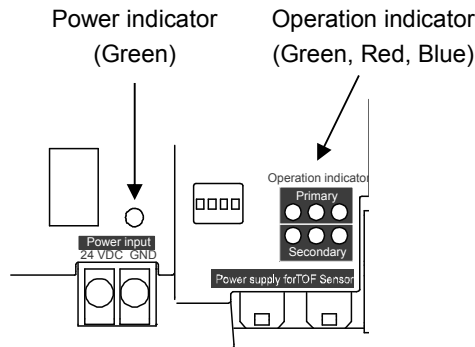
To remove connectors, pull out cables while pressing the locks.

\*When use one unit of TOF Sensor, please connect to LAN1 (left side)

\*When use two units of TOF Sensors, please see PC Setting.

## 2-4 LED indications

### ◆LED indications of Control Box



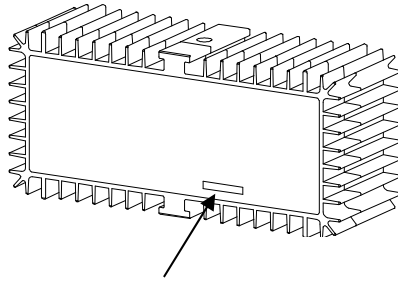
#### ➤ Power indicator

Mode	Status	Indicating	
Operation	Power ON	ON	Green

#### ➤ Operation indicators

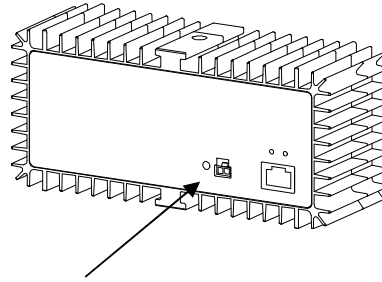
Mode	Status		Indicating		Timing		
					1 sec	1 sec	1 sec
Start up	Learning door position		Blinking	Green	[Blinking pattern]		
	Position initialization complete		ON	Green	[Solid bar]		
	Operating system starting up		Blinking	Red	[Blinking pattern]		
	Operating system starting up complete		ON	Red	[Solid bar]		
	Sensor initialization		Blinking	Blue	[Blinking pattern]		
	Sensor initialization complete		ON	Blue	[Solid bar]		
	TOF system ready to run		ON for 2 sec	Green Red Blue	[Green bar] [Red bar] [Blue bar]		
Operation	AIR	Detection	Blinking	Green	[Blinking pattern]		
		Non detection	ON	Green	[Solid bar]		
	Access granted		ON for 2 sec	Blue	[Solid bar]		
	Access denied	Zero	ON for 0.2 sec	Blue	[Short solid bar]		
		More person	ON for 2 sec	Red	[Solid bar]		
Suspicious		ON for 2 sec	Red Blue	[Red bar] [Blue bar]			
Error	When NOT communicating (e.g. LAN disconnection, hardware/software defect)		Simultaneous blinking	Red Blue	[Red/Blue alternating blinking pattern]		
	Insufficient reflection		Alternative blinking	Red Blue	[Red/Blue alternating blinking pattern]		

## ◆LED indications of TOF Sensor



Operation indicators  
(Green, Red, Blue)

Front side



Power indicator  
(Green)

Back side

### ➤ Power indicator

Mode	Status	Indicating	
Operation	Power ON	ON	Green

### ➤ Operation indicators

Mode	Status		Indicating	Color	Timing		
					1 sec	1 sec	1 sec
Start up	During power up (first 2 sec)		ON for 2 sec	Green	[Solid bar for 2 seconds]		
	When not communicating			Simultaneous blinking	Red	[Blinking pattern]	
		Blue			[Blinking pattern]		
Operation	AIR	Detection	Blinking	Green	[Blinking pattern]		
		Non detection	ON	Green	[Solid bar for 2 seconds]		
	Access granted		ON for 2 sec	Blue	[Solid bar for 2 seconds]		
	Access denied	Zero	ON for 0.2 sec	Blue	[Short solid bar for 0.2 seconds]		
		More person	ON for 2 sec	Red	[Solid bar for 2 seconds]		
		Suspicious	ON for 2 sec	Red	[Solid bar for 2 seconds]		
				Blue	[Solid bar for 2 seconds]		
Error	When NOT communicating (e.g. LAN disconnection, hardware/software defect)		Simultaneous blinking	Red	[Blinking pattern]		
				Blue	[Blinking pattern]		
		Insufficient reflection	Alternative blinking	Red	[Blinking pattern]		
				Blue	[Blinking pattern]		

## 3 Turning on and setting up Accurance-3D

### 3-1 Connection to PC

#### ◆ Before initial setting

This product is installed and configured through wired LAN (Ethernet). Separately prepare a Windows PC and LAN cable for configuration of settings (installation). And when use two units of TOF Sensor, prepare Ethernet hub.

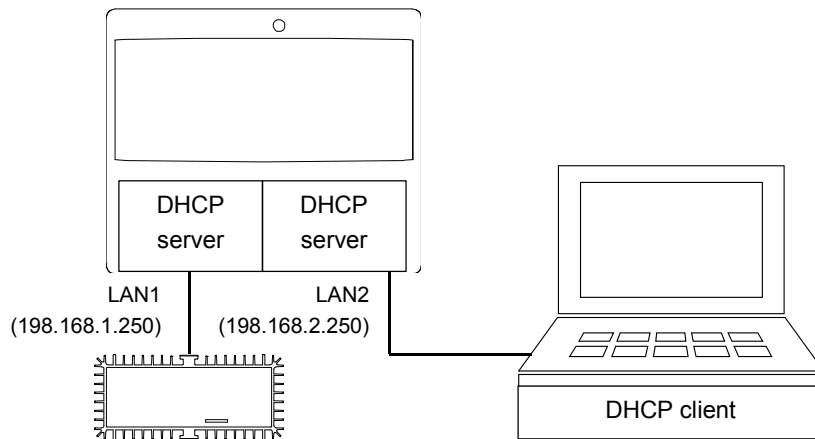
In addition, use Remote Desktop Connection for settings.

<Notes>

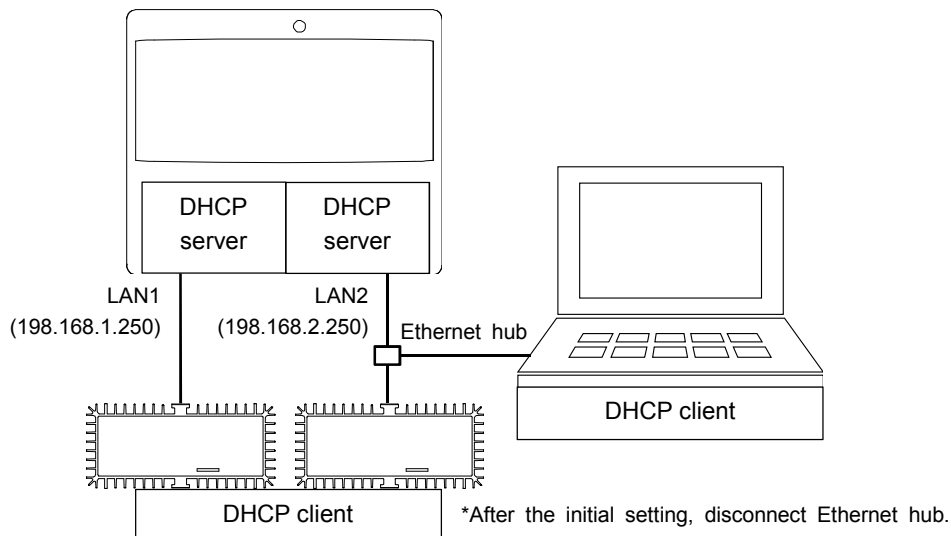
- Please use more than transmission rate of 1G bps.
- This product has been confirmed to work with Remote Desktop Connection (Windows 7, Windows 8, Windows 8.1 and Windows 10).

#### ◆ LAN connection

- In case of 1 TOF Sensor usage (One way)

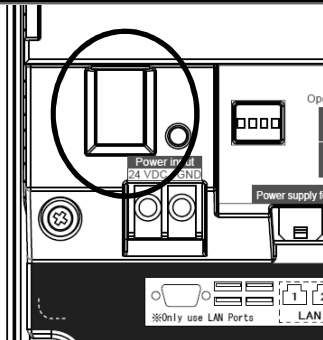


- In case of 2 TOF Sensors usage (Two way or Two doors)



## 3-2 Turning on Control Box

---



Set the power switch to ON to turn on the Control Box

## 3-3 PC setting

---

### ◆TCP/IP

---

Before setting Control Box, configure the LAN (TCP/IP) setting of your PC as follows;

- Proxy setting : Disable
- Wired LAN : Enable
- Wireless LAN : Disable

<Notes>

Only one wired LAN should be used, or it may cause problems.

- Firewall : Disable

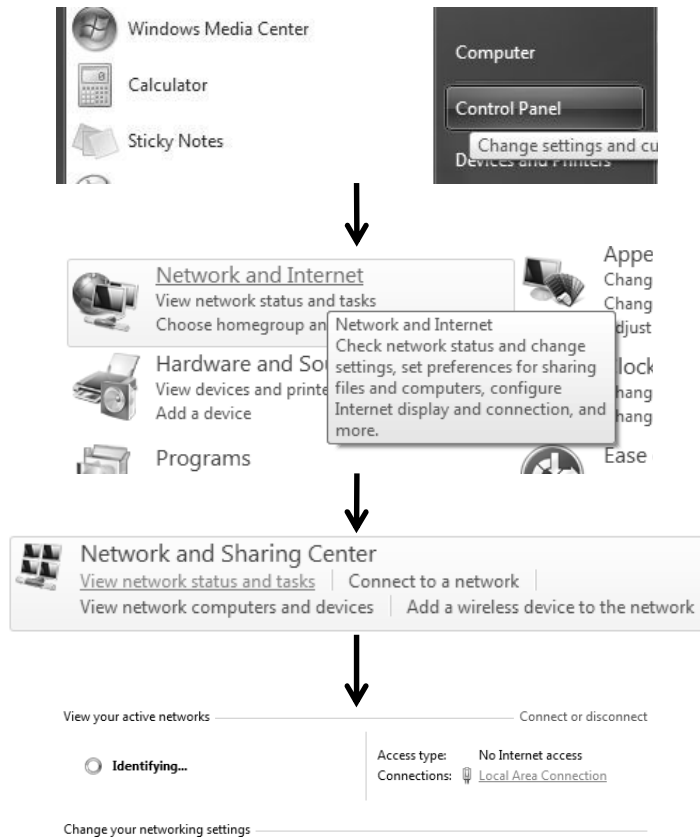
<Notes>

The firewall may influence the operation.

See PC manual for LAN(TCP/IP) setting of your PC.

## ◆PC network setting

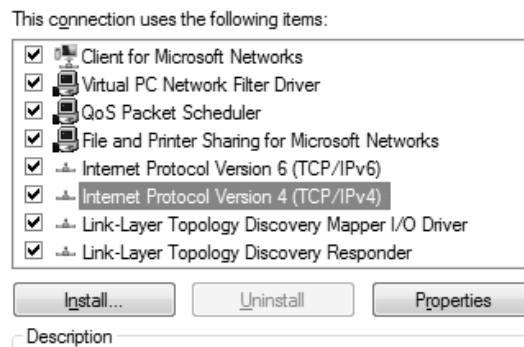
Click Control Panel -> Network and Internet -> view network status and tasks -> Local Area Connection, and show the status of Local Area Connection.



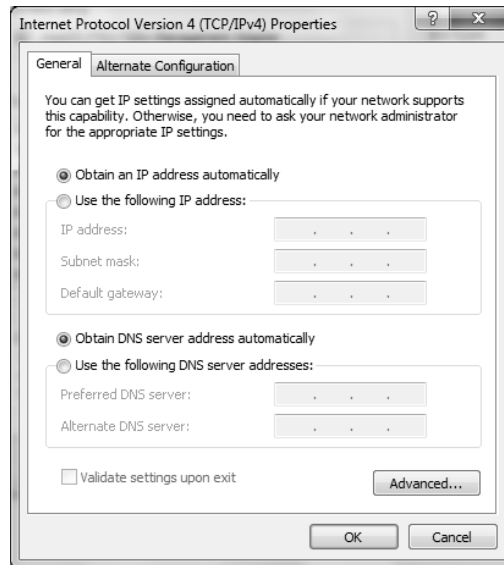
Click Properties of Local Area Connection Status.



Select Internet Protocol Version 4 (TCP/IPv4) of Local Area Connection Status Properties, and click Properties.

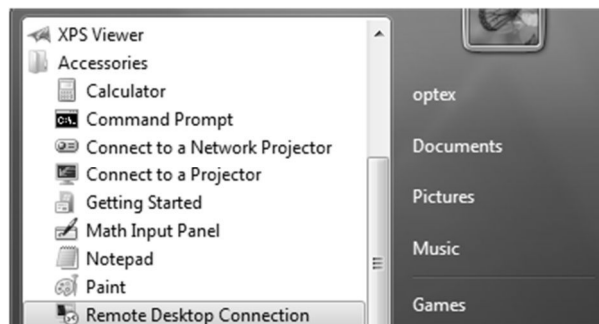
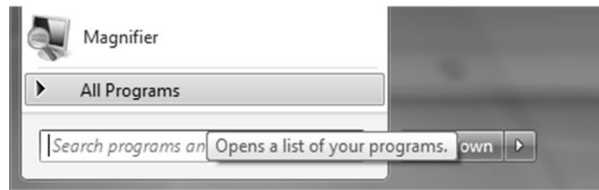


Select Obtain an IP address automatically and Obtain DNS server address automatically of Internet Protocol Version 4 (TCP/ IPv4) Properties, and click OK.



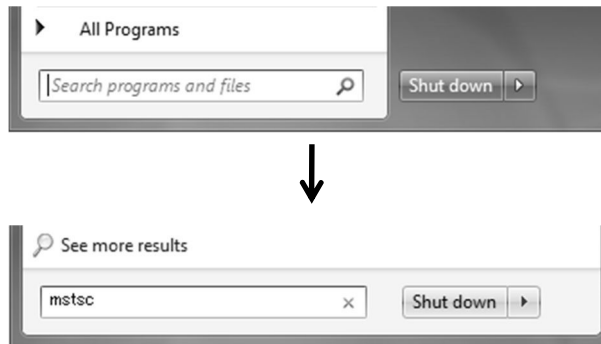
### ◆ Start-up Remote Desktop Connection

Click All Programs -> Accessories -> Remote Desktop Connection from Start menu.





Or, input "mstsc" to Search programs and files of Start menu.



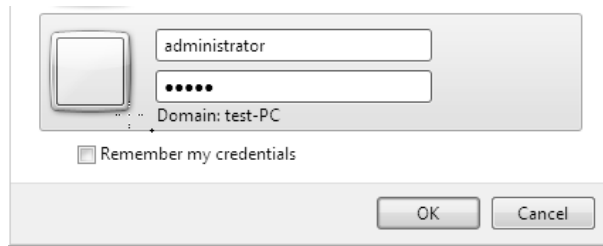
Input '192.168.2.250' to Computer: of Remote Desktop Connection, and click Connect.



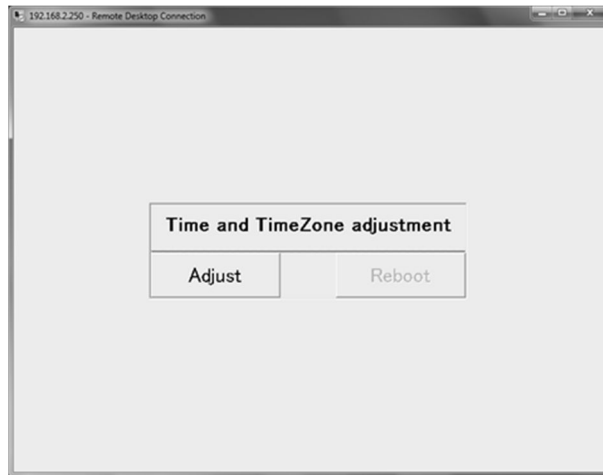
Select Don't ask me again for connections to this computer, and click Yes.



Input 'Administrator' to User name, "accuracy" to Password, and click OK.



After Log On, the screen changes to ACCURANCE-3D application.



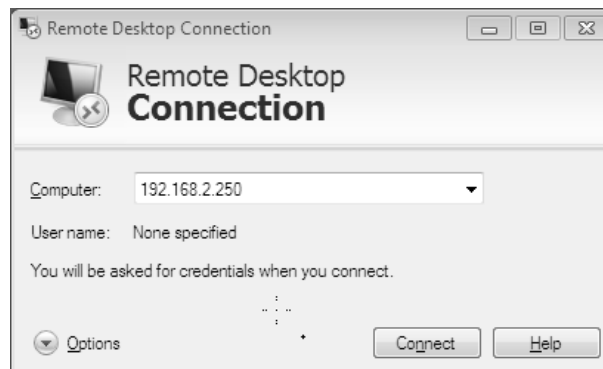
\*For ACCURANCE-3D application setting, see "Initial Setting of ACCURANCE-3D application".

### ◆ Automatic log on of Remote Desktop Connection

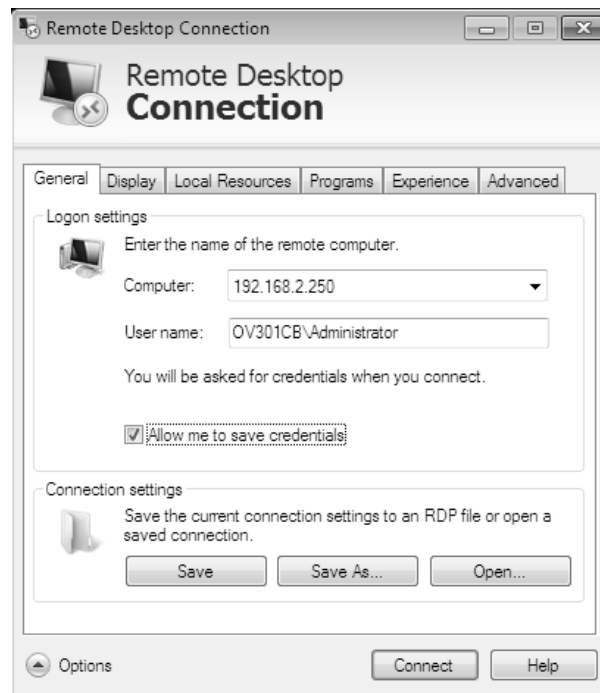
Reconnection of Remote Desktop Connection is necessary at the time of setting of the ACCURANCE-3D application.

Performing the following setting is recommended.

Click Option of Remote Desktop Connection.



Input "Administrator" to User name, and select Allow me to save credentials, and click Connect.



When asked “Do you trust this remote connection?”, select Don't ask me again for connections to this computer, and click Connect.

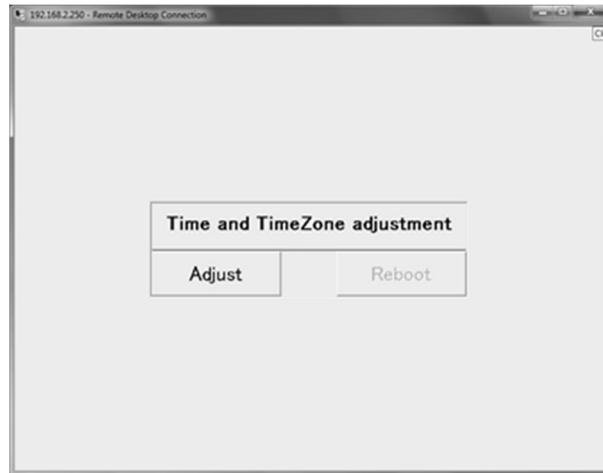
Input 'accurance' to Administrator Password, click OK.



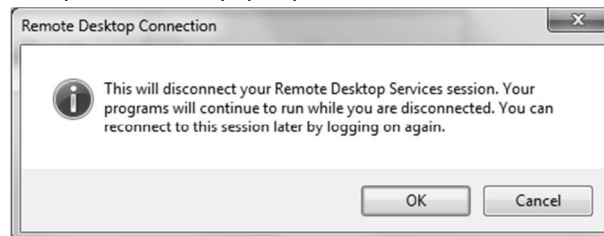
## ◆ Remove of Remote Desktop Connection

---

Click X of Remote Desktop Connection in the corner on the upper right.



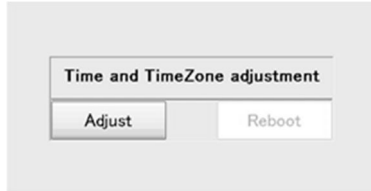
When asked "Remote Desktop Connection" pops up, click OK.



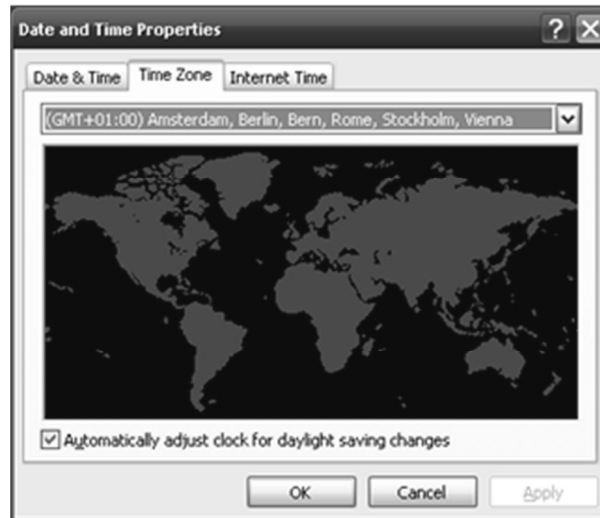
### 3-4 Initial setting of ACCURACE-3D application

#### ◆Date & Time adjustment

Firstly, adjust the time. Click 'Adjust'

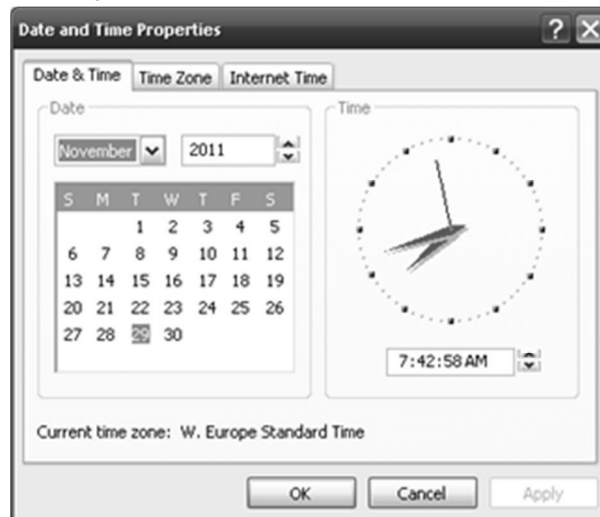


Click Time Zone, and the following figure below appears. Select the Area and click Apply.



Return to Date & Time, please confirm the setting of date and time.

\*Date and time can also be changed later.



After adjusting date and time, click OK. And click Reboot on the first screen.

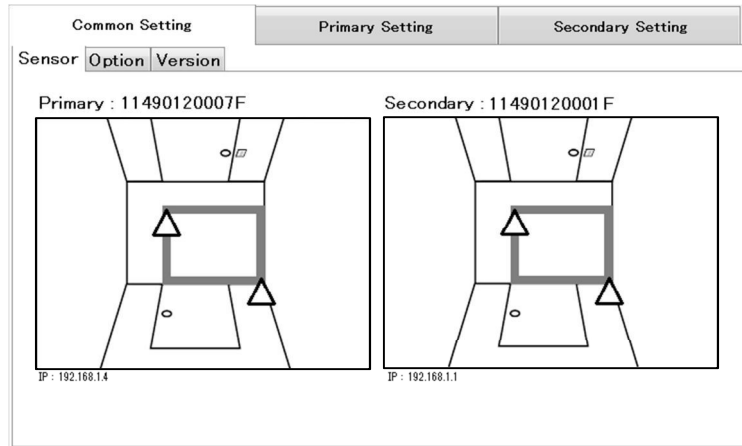
Wait for a while (2 to 3 minutes) for Control Box to reboot.

\*When set to Automatic Log on of Remote Desktop Connection, reconnect the Control Box automatically. But User name and Password may need to be entered.

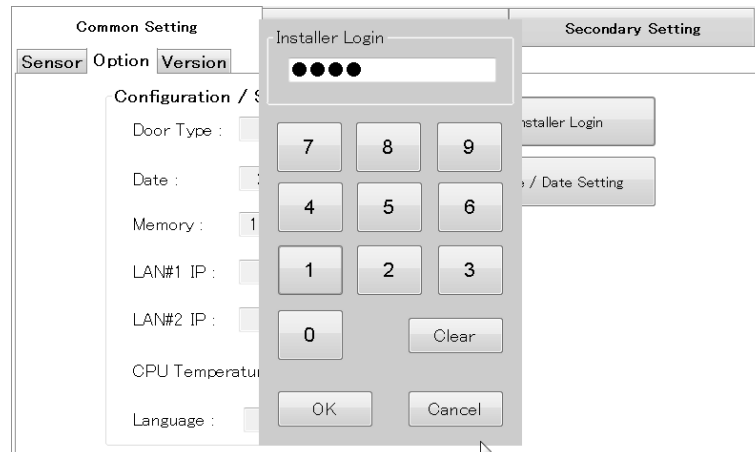
\*For the setting of Automatic Log on of Remote Desktop Connection see "Automatic Log on of Remote Desktop Connection" about the setting.

## ◆ Installer setting

After restart Control Box, click option as shown in the figure on the below.



Click Installer Login as shown in the screen on the right.



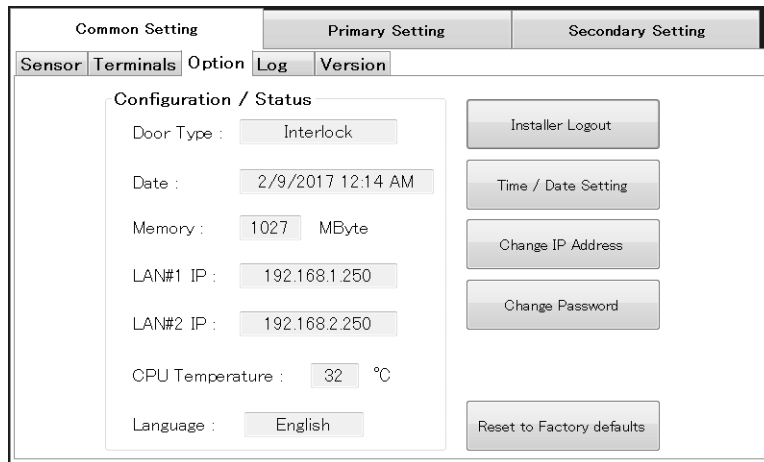
After typing the password, click OK on the password-typing screen.

After Login "Login successful" appears, click OK

<Notes>

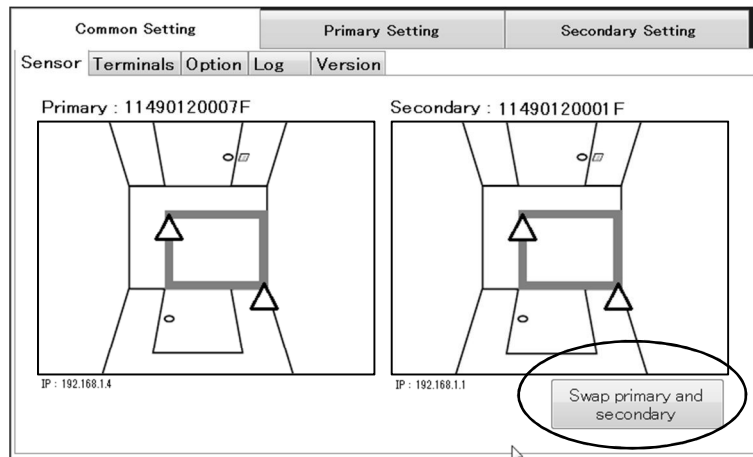
Default password is "1111".

When logged in, and the background of the screen becomes blue, and the buttons are added.



When using two units of TOF Sensor, please check that Primary and Secondary are set respectively for each TOF Sensors.

When not correctly set, click "Swap primary and secondary" button.



## ◆ Terminals

Common Setting		Primary Setting		Secondary Setting	
Sensor	Terminals	Option	Log	Version	
<b>Input</b>					
<b>Primary</b>					
<input type="checkbox"/> Activation	<input checked="" type="radio"/> NO.	<input type="radio"/> N.C.			
<input type="checkbox"/> N/A	<input checked="" type="radio"/> NO.	<input type="radio"/> N.C.			
<input type="checkbox"/> Authorization	<input checked="" type="radio"/> NO.	<input type="radio"/> N.C.			
<input type="checkbox"/> N/A	<input checked="" type="radio"/> NO.	<input type="radio"/> N.C.			
<b>Secondary</b>					
<input type="checkbox"/> Activation	<input checked="" type="radio"/> NO.	<input type="radio"/> N.C.			
<input type="checkbox"/> N/A	<input checked="" type="radio"/> NO.	<input type="radio"/> N.C.			
<input type="checkbox"/> Authorization	<input checked="" type="radio"/> NO.	<input type="radio"/> N.C.			
<input type="checkbox"/> N/A	<input checked="" type="radio"/> NO.	<input type="radio"/> N.C.			
<b>Common</b>					
<input type="checkbox"/> Other sensors	<input checked="" type="radio"/> NO.	<input type="radio"/> N.C.			
<input type="checkbox"/> Shutdown					
<b>Output</b>					
<b>Primary</b>					
<input type="checkbox"/> Access Granted					
<input type="checkbox"/> Access Denied					
<input type="checkbox"/> N/A					
<b>Secondary</b>					
<input type="checkbox"/> Access Granted					
<input type="checkbox"/> Access Denied					
<input type="checkbox"/> N/A					
<b>Common</b>					
<input type="checkbox"/> Ready					
<input type="checkbox"/> Trouble					

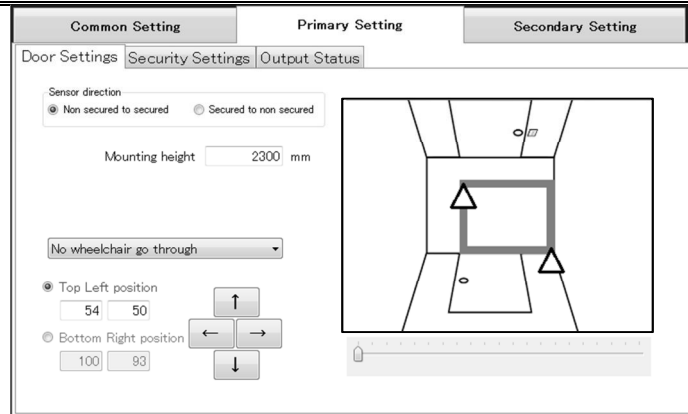
Input and output terminal statuses are shown. Contact type of input terminals is selectable. When N.O. is selected, the terminal is normally open. When N.C. is selected, the terminal is normally close.

**<Notes>**

When the terminal is not active, the indicator color is black. The indicator means not electric state but logic state.



## ◆ Door Settings



< Before Position Setting >

### • Sensor direction

Select the direction of the sensor. Select whether the installation is for detection from the non-secured side to the secured side or from the secured side to the non-secured side.

### • Mounting height

Set the values of Mounting height [2,300 to 2,900] mm. Hit return key after set the value.

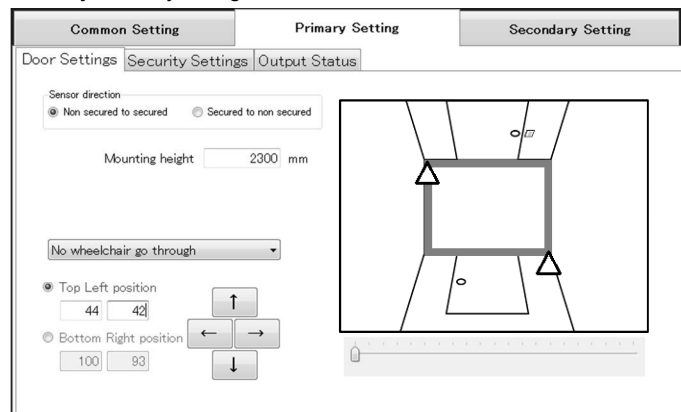
### • Setting detection area

#### ➤ Top Left position

Select the click the top left position shown on the floor on the screen as shown in the figure above (on the picture I wrote an appropriate detection zone). This position can be fine-adjusted by using the arrow buttons on the screen.

#### ➤ Bottom Right position

Select the click the bottom right position shown on the floor on the screen as shown in the figure above. This position can be fine-adjusted by using the arrow buttons on the screen.



< After Position Setting >

#### <Notes>

Set the detection area to cover all floor in the interlock area except a part of wall and equipment on the wall, for example Biometric reader.

Those obstacles may cause false rejections.

## ◆ Security settings

Common Setting		Primary Setting	Secondary Setting
Door Settings		Security Settings	Output Status
<b>Volume</b>	Low security ←	5 	High security →
<b>Moment</b>	Low security ←	5 	High security →
<b>Low object</b>	Low security ←	5 	High security →
<b>Sensor Blinding</b>	Low security ←	5 	High security →
<b>One person</b>	Low security ←	5 	High security →
<b>More person</b>	Low security ←	5 	High security →

< Parameter Setting >

<Notes>

Default setting is All = 5 ※the factory settings for all controls are 5.

This product has six sensitivity adjustments: Volume, Moment, Low object, Sensor Blinding, One person and More persons.

All sensitivity controls have the options of 1 to 9 and the factory settings for all controls are 5.

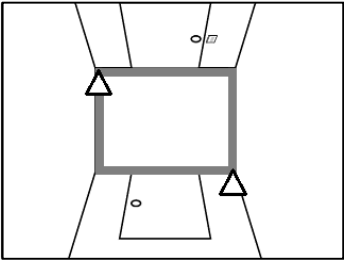
Changing these settings allows the adjustment of piggy-backing sensitivity.



Parameter	HIGH		LOW	Remarks
Volume	Description	Total size of person/object in the door		The piggyback detection is influenced more by other parameters such as "More person" and "Moment" when choosing Low.  When "Volume" rejection occurs, Red LED turns on for 2 sec indicating "More person" output.
	Advantage / Way to Adjust	Better detection for two persons	Less rejection of big person	
	Consequence	More rejection of big person	Less detection for two persons	
Moment	Description	Space between two persons		The piggyback detection is influenced by setting of other parameters such as "More persons" and "Volume" when choosing Low.  When "Moment" rejection occurs, Red LED turns on for 2 sec indicating "More person" output.
	Advantage / Way to Adjust	Better rejection accuracy for two persons with space between.	Less rejection for two persons with space between.	
	Consequence	More rejection of big person	More chance to miss piggyback	
Low object	Description	Presence of low height object		
	Advantage / Way to Adjust	Better detection for crawling or sneaking entry	Less rejection for entry with carrying bag or similar	
	Consequence	More rejection for person with carrying bag or similar.	More chance to miss crawling or sneaking entry	
Sensor Blinding	Description	Obstacle sensor performance		
	Advantage / Way to Adjust	Better detection of tampering	Less rejection for tall person	
	Consequence	More rejection of tall person due to the distance to the sensor	More chance to miss sensor blinding	
One person	Description	Entry Behavior		When "Sensor blinding" rejection occurs, Blue and Red LED turns on for 2 sec indicating "Suspicious" output.
	Advantage / Way to Adjust	Better detection for anti-piggyback	Less rejection against various entry behaviors	
	Consequence	More rejection of untrained entry (must enter with straight head, or no arms up etc.)	More chance to miss piggyback	
More persons	Description	Shape of multiple persons		When "One person" rejection occurs, Blue and Red LED turns on for 2 sec indicating "Suspicious" output.
	Advantage / Way to Adjust	Better detection for entry of multiple persons	Less rejection of big person	
	Consequence	Behaviors like using mobile or carrying box during entry may be rejected.	More chance to miss piggyback	

## ◆ Output status

Common Setting		Primary Setting		Secondary Setting	
Door Settings		Security Settings		Output Status	
Input		Count	Timer		
Activation	Wait		1 s		
Authorization		0			
Output		Count	Timer		
Access granted		0	1 s		
Access denied		0	1 s		
Ready					
Trouble					
Clear					



### • Activation

When an Activation signal is received from door controller, the background color turns into red. After Activation signal finishes, Wait timer starts to count down and its background color turns orange. The timer is changeable from 1 to 10sec. Input the timer value and hit return key, if there is necessary to change the value.

### • Authorization

When an authorization signal is received from door controller, the background color turns into red. It shows the number of authorization.

### • Access granted/denied

Each background color is changed by output result. It shows the number of output. After the wait timer is time up, one of them starts. The output length is changeable from 1 to 10sec. Input the timer value and hit return key, if there is necessary to change the value.

### • Ready

When Ready output is on, the background color turns into green.

### • Trouble

When Trouble output is on, the background color turns into red.

### • Clear button

Reset the number of the counts with "Clear" button.

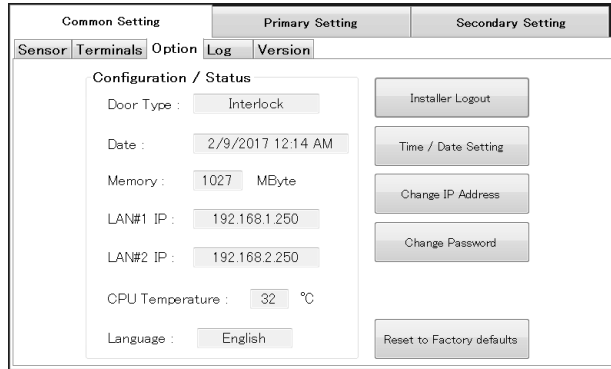
#### <Notes>

When using two units of TOF Sensor, please set Secondary Setting in the same way as above.  
About terminals, see page 21.

## ◆ Change IP settings of LAN2

IP address of LAN2 is changeable.

Click Change IP Address button.



The screenshot shows a configuration window with tabs for 'Common Setting', 'Primary Setting', and 'Secondary Setting'. Under 'Primary Setting', there are sub-tabs for 'Sensor', 'Terminals', 'Option', 'Log', and 'Version'. The 'Option' sub-tab is active, showing 'Configuration / Status' with fields for Door Type (Interlock), Date (2/9/2017 12:14 AM), Memory (1027 MByte), LAN#1 IP (192.168.1.250), LAN#2 IP (192.168.2.250), CPU Temperature (32 °C), and Language (English). On the right side, there are buttons for 'Installer Logout', 'Time / Date Setting', 'Change IP Address', 'Change Password', and 'Reset to Factory defaults'.

### Change IP Settings



The screenshot shows the 'Local Area Connection 2' properties dialog box. Under the 'LAN2' section, the 'Use the following IP address' radio button is selected. The IP Address is set to 192.168.2.250, Subnet mask to 255.255.255.0, and Gateway to 192.168.2.254. The 'DHCP Server Function' section has the 'Activate' checkbox checked. The 'PC Name' field contains 'OEM-YGFB68W6A20' and an 'OK' button is visible at the bottom right.

- Obtain an IP address automatically  
DHCP server is NOT active and LAN2 is DHCP client.
- Use the following IP address  
LAN2 has static IP address and if "Activate" is checked, DHCP server is active.
- PC Name  
PC name / host name of Control Box.

Click "OK" button then CB restarts as new IP settings.

#### <Notes>

The IP address of LAN1 is NOT changeable.

Do not set IP address of LAN2 "192.168.1.250/24".

Do not set network address of LAN2 "192.168.1.250/24".

IP address of LAN2 must be acceptable for Windows.

If LAN2 is a DHCP client, do not serve IP address "192.168.1.250/24" to LAN2.

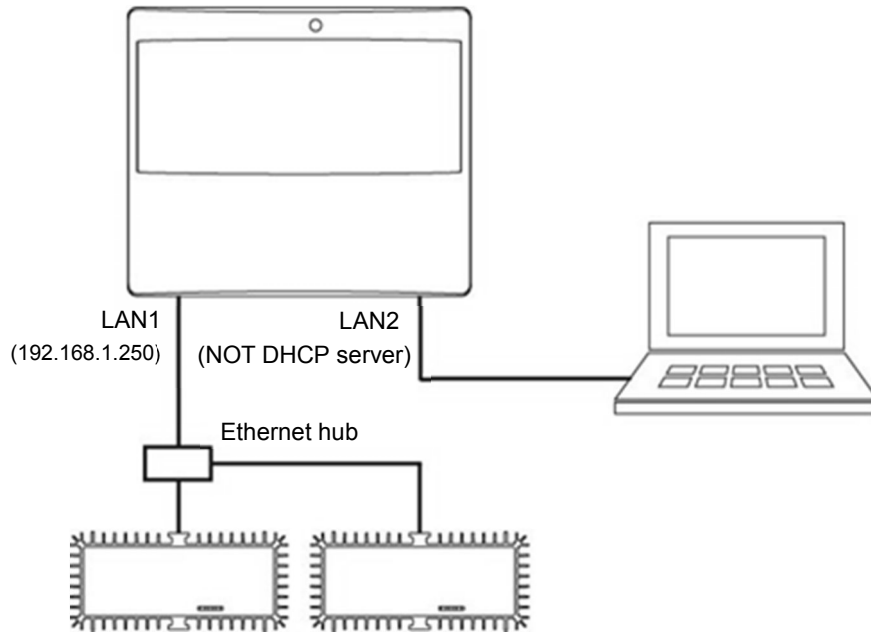
If LAN2 is a DHCP client, do not serve network address "192.168.1.250/24" to LAN2.

If A3001S is connected to LAN2, the DHCP server should be active.

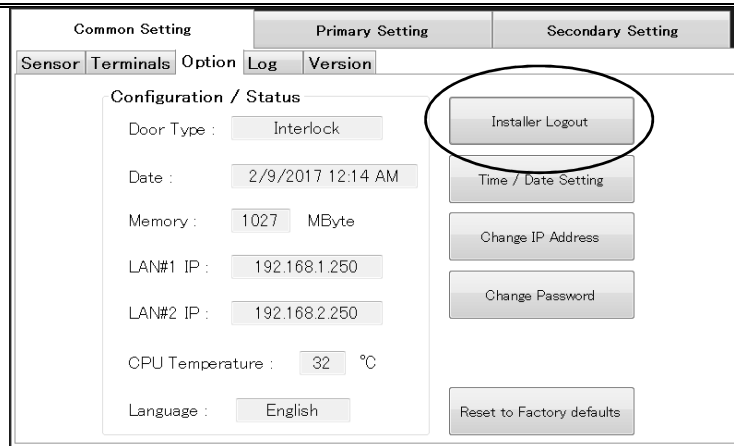
If IP address is forgotten, connect to LAN1 and set new address to LAN2.

<Notes>

When use two units of TOF Sensors and LAN2's DHCP server is NOT active, the connection can be as shown in the figure on the below.



## ◆ Installer logout



The screenshot displays the OPTEX web interface with the following elements:

- Navigation tabs: Common Setting, Primary Setting, Secondary Setting (selected).
- Sub-navigation tabs: Sensor, Terminals, Option, Log, Version.
- Section: Configuration / Status
- Configuration items (left):
  - Door Type : Interlock
  - Date : 2/9/2017 12:14 AM
  - Memory : 1027 MByte
  - LAN#1 IP : 192.168.1.250
  - LAN#2 IP : 192.168.2.250
  - CPU Temperature : 32 °C
  - Language : English
- Action buttons (right):
  - Installer Logout (circled in red)
  - Time / Date Setting
  - Change IP Address
  - Change Password
  - Reset to Factory defaults

When finish all settings, click the button of "Installer Logout".  
After logged out, and the background of the screen becomes gray, and the three buttons will be disappeared.

### 3-5 Operation checking

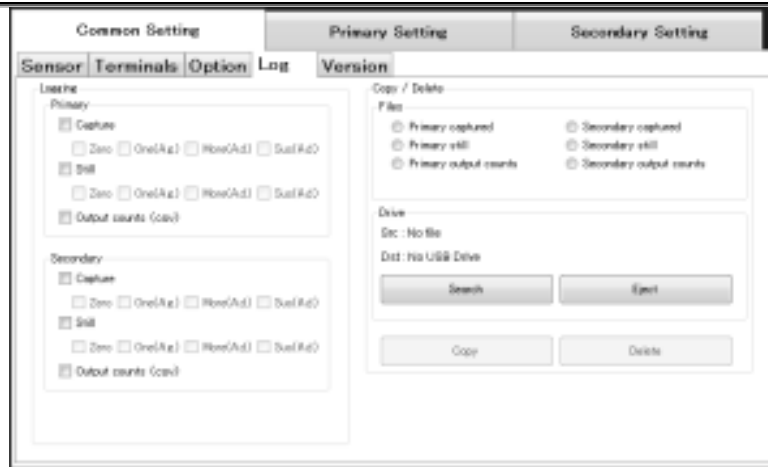
---

After mounting and setting have been made, check the operations as described in below table.  
Check the output seeing Indicator LED.

Output	Condition	Indicator LED	
		Control Box (A3001CB)	TOF Sensor (A3001S)
Ready	Interlock is vacant. Interlock doors are closed.	Green continuously	Green continuously
Access denied	Interlock is vacant when door is closed.	Blue 0.2 sec	Blue 0.2 sec
Access granted	One person is in the interlock when door is closed.	Blue 2 sec	Blue 2 sec
Access denied	Two or more persons in interlock when door is closed.	Red 2 sec	Red 2 sec
Access denied	Masking against TOF Sensor until door is closed.	Blue & Red 2 sec	Blue & Red 2 sec
NO Ready	Something or someone in interlock, when door is closed.	Green Blink at 2 Hz	Green Blink at 2 Hz



## 3-6 Event log recording function



This product records capture data when the function is enable. The data is used to investigate why false rejection or miss detection happens.

### ◆Logging

Select 'Capture' or 'Still' both for PRIMARY and SECONDARY, and select the output result "Zero" "One" "More" "Sus"(suspicious) to be recorded. The recording starts when Control Box receives Activation signal. When Access granted/denied starts, the recording stops



When wishing to record the number of outputs, select 'Output counts (csv.)'.

#### <Notes>

- The logging is stopped automatically when;
  - The memory of SSD is full.
  - The temperature of Control Box becomes high.
- As capturing video is heavy load do not set it unless necessary.

### ◆Copy/Delete

Files which have captured data can be copied to external storage via USB port on Control Box. The files are selectable. When file are copied to the storage, it should be mounted.

#### • File

Select files which are copied or deleted.

#### • Search button

After connecting USB storage to Control Box, click this button to mount the storage.



· **Eject button**

---

Click this button when the USB storage is removed.

· **Copy button**

---

When Control Box mounts the USB storage, this button is enabled. Click this button to copy selected files to the USB storage.

· **Delete button**

---

Click this button to delete selected files.

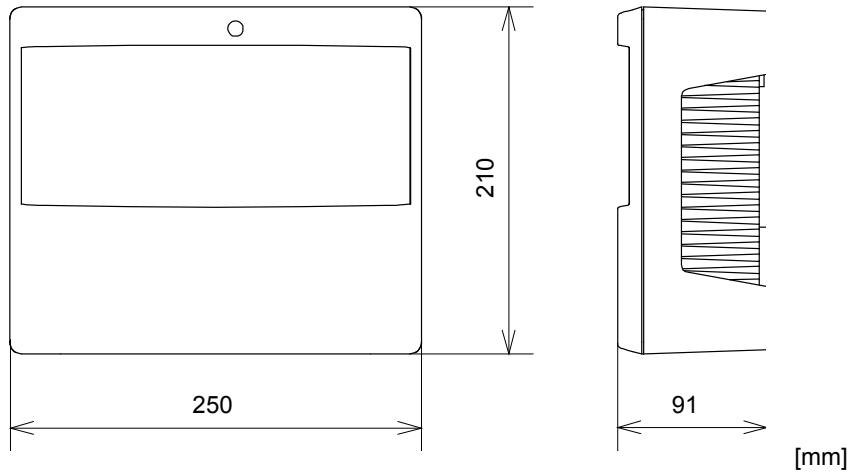
<Notes>

Capture should be disabled when copy/delete files.

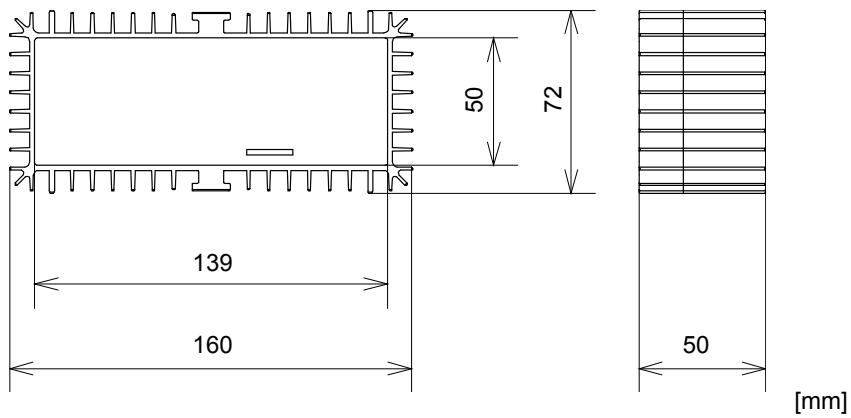
## 4 Appendix

### 4-1 Outer dimensions

➤ Control Box A3001CB



➤ TOF Sensor A3001S



## 4-2 Specifications

### ◆Control Box

Items	Specifications	Remarks		
Model No.	A3001CB			
Power input	24±10% VDC			
Current draw	840 mA max. (24 VDC)	Excluding TOF Sensor		
	2520 mA max. (24 VDC)	Including two units of TOF Sensors		
Operating temperature	-10℃ to +50℃			
Operating humidity	0% to 80%	No condensation		
Installation location	Indoor			
Applicable door	Outward opening interlock door			
Basic system	Embedded PC			
Operating system	Embedded Windows Standard 7			
Start-up time	60 to 120 sec			
ROM	CFast 8G Byte			
SSD	120 GB	For data storage		
LAN 1 (192.168.1.250)	Ethernet(Gigabit) RJ-45	Fixed IP with DHCP Server		
LAN 2		<ul style="list-style-type: none"> <li>● IP changeable</li> <li>● DHCP Server</li> </ul>		
USB	USB 2.0 4ch	only with special password		
Real-time clock	Provided	*1		
Indicators	Power: green Output: ( green, red, blue ) x 2			
Input terminals	1	Primary	Activation	<ul style="list-style-type: none"> <li>● Inputs for dry contacts.</li> <li>● 24 VDC preconnected photo coupler.</li> <li>● Terminal 1 to 9, Normally Open/Close selectable.</li> </ul>
	2		-	
	3		Authorization	
	4		-	
	5	Secondary	Activation	
	6		-	
	7		Authorization	
	8		-	
	9	Common	Other sensor	
	10		Shutdown	

Output terminals	1	Primary	Access granted	N.O.	<ul style="list-style-type: none"> <li>● 30 VDC 0.2 A max.</li> <li>● Resistibility Load.</li> </ul>
	2			N.C.	
	3		Access denied	N.O.	
	4			N.C.	
	5		-	N.O.	
	6			N.C.	
	7	Secondary	Access granted	N.O.	
	8			N.C.	
	9		Access denied	N.O.	
	10			N.C.	
	11		-	N.O.	
	12			N.C.	
	13	Common	Ready	N.O.	
	14			N.C.	
	15		Trouble	N.O.	
	16			N.C.	
Tamper				N.C.	Tamper model only
Dimensions	210×250×91 mm (H×W×D)			Excluding cables	
Weight	1,800 g			Excluding cables	

<\*1>Life expectancy of battery (CR2032) to be considered as weaken batteries may cause initialization of date and time setting.

<Notes>  
Specifications and design are subject to change without prior notice.

**◆ ToF Sensor**

Items	Specifications	Remarks
Model No.	A3001S	
Power input	24 VDC	Supplied from Control Box
Current draw	840 mA max. (24 VDC)	
Operating temperature	-10°C to +50°C	
Operating humidity	0% to 80%	No condensation
Installation location	Indoor	
Applicable door	Outward opening interlock door	
Detection method	Time Of Flight	
Light source	IR LED	
Image pixels	176(H) 132(V)	
Angle of view	Horizontal: Approx. 70° Vertical: Approx. 55°	
Mounting height	2.3 to 2.9 m	
Maximum detection height of person	2.05 m	Depends on installation height and location
LAN	Ethernet(100BASE-TX) RJ-45	
Indicators	Power: green Output: green, red, blue	
Dimensions	160×72×50 mm (H×W×D)	Excluding cables
Weight	600 g	Excluding cables

**<Notes>**

Specifications and design are subject to change without prior notice.

### 4-3 Troubleshooting

Problem	Check if...	Corrective action
Does not operate	Power indicator (green LED) of Control Box and TOF Sensor is on.	Check the wiring between TOF Sensor and Control Box. See "Wiring" Check the switch of Control Box is turned on. Check the switch of door system is turned on. Check the wiring between Control Box and door system. When use one unit of TOF Sensor, use PRIMARY side only.
Door suddenly stops	Transmission rate of Ethernet Hub is more than 1G bps. Ethernet Hub is removed.	Use Ethernet Hub with 1G bps or higher. Remove Ethernet Hub and connect LAN cable directly to Control Box and TOF Sensor.
<b>Problem relating to initial settings</b>		
No Remote Desktop Connection	ACCURACE-3D A3001CB application screen is appeared.	Check the wiring between Control Box and PC. See "Wiring between Control Box and PC" Check the switch of Control Box is turned on. Check the setting of PC. See page 29 and .31
No image on the screen	The power indicator (green LED) of TOF Sensor is on. Red and Blue LED of the TOF Sensor are Simultaneously blinking.	Check the wiring between TOF Sensor and Control Box.
<b>Wrong detection</b>		
false rejection	TOF sensor mounting direction	Mount the TOF sensor with a correct direction.
Someone can hide a authorized person from TOF camera	TOF sensor position is the center of the interlock and 300 to 500 mm away from Entry door.	Mount the TOF sensor with a correct position
Many False rejection	Front side of TOF Sensor is clean. (No dust, no scratch)	Wipe the front side of TOF Sensor with a damp cloth. Change TOF Sensor.
	Door Setting is set correctly	Check the setting of Door setting. See page 40.

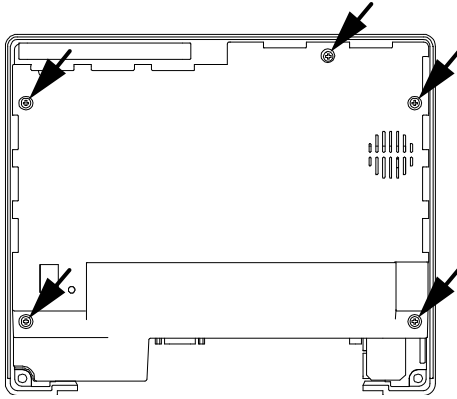
Problem relating to Log		
Cannot record Log / no logged file saved	SSD is set Logging is set  The memory of SSD is full	Check the connection of SSD. Check the setting of Logging See "Output Log / Delete Log" Delete existing log files.
Cannot copy Log files	External memory device is set	Check the connection of external memory device. Check the capacity of external memory device is enough for output log files.



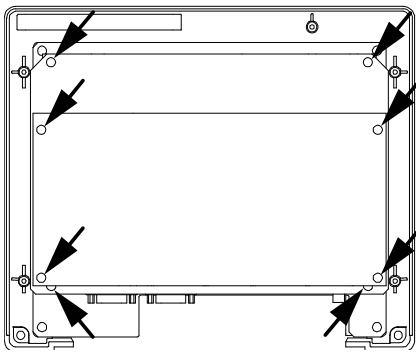
## 4-4 How to remove battery safely

Control Box has a button-type battery on inside material. When you replace and/or dispose the battery, please see below;

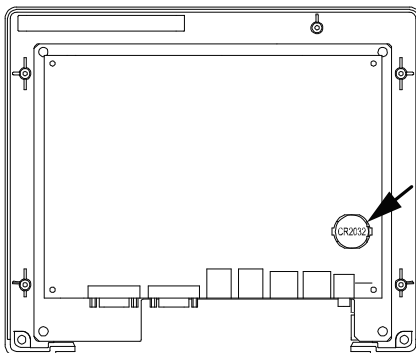
And, make sure turn off the power of the Control Box and disassemble wirings.



- 1 Disassemble 5 screws as shown in the figure on the left.  
And take out the cover.



- 2 Next, disassemble 8 screws as shown in the figure on the left.



- 3 Replace and/or dispose the battery (CR2032) on the material as shown in the figure on the left.  
When dispose the old battery, please according to the local law.



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