THE INSTRUCTION MANUAL

(For Workers' Use)

for

SHUTTER OPERATOR

WITH

BUILT-IN SENSING MECHANISM

USA-400GSCR (RADIO RECEIVER BUILT-IN TYPE)

USA-400GSC (RECEIVER-LESS SPECIFICATION)

[A REQUEST]

Be sure to check the contents in this instruction manual
in advance of the installation.

BX Shinsei Seiki Co., Ltd.

A Table of Contents

①Cares for Safety

Our company thinks it important to give priority to safety all the time in regard to shutter systems to which our operator is applied as well as the operator.
We ask you please to take ample measures and cares toward the shutter system and the environment around it so that danger may be avoided not only when the shutter operates but also even should the shutter not work normally.
Shown below are "warning" and "caution" in selecting and using the operator as well as its peripheral equipment, and so never fail to follow them.

⚠ WARNING	Shows that if there is anything wrong with installation work and handling of the product, you are likely to suffer death or serious injury.

Please abide by the following matters so that danger may be prevented.

- ●In designing and installing a motor-driven shutter, read the catalog and the instruction manual carefully to use it properly.
- ●This operator is the one used exclusively for motor-driven shutters.
  Never use it for other applications.
- ●Since the installing work of this operator includes work and skill requiring the qualification of an electrician, let the shutter electrician do installing work.
  ・If this is not followed, the operator does not work properly or the shutter breaks down, thus sometimes resulting in a vital accident.
- ●As for the bracket, use the one designated by our company.
  ・The operator does not function normally or as the case may be the shutter breaks down, thus sometimes leading to a vital accident.
- ●Use angle brackets which have enough strength to support shutter weight and firmly set them in a correct position on structural members, refering to the shutter layout (installation drawing).
  ・The bracket is saddled with the total weight of the shutter.
  Unless it is mounted firmly, the shutter breaks down, thus sometimes resulting in a vital accident.
- ●Install the operator where it is not exposed to water or rain.
  ・If this is not followed, it may sometimes cause a fire or electric shock.
- ●Never fail to do grounding work for the operator.
  ・If this is not followed, it may sometimes cause a fire or electric shock.
- ●The operator should not be dismantled or modified.
  And any other parts should not be mounted than the option parts designated by our company.
  ・There occurs a malfunction, which may sometimes cause injury.
- ●In opening and closing the shutter, ensure that there are no human access or obstacles.
  Never fail to show this warning to the caretaker of the shutter.
  ・If one is sandwiched, it may sometimes cause injury.
- ●For a pushbutton switch, select a keyed type.
  ・If the shutter is operated by other person(a child etc.) than the caretaker, it sometimes causes one to be sandwiched and injured.
- ●Never fail to use the commercial power source.
  Let the supply voltage be within the designated voltage of the operator.
  ・The operator breaks down, thus sometimes resulting in a fire or electric shock.

⚠ CAUTION	Shows that if there is anything wrong with installation work or handling of the product, you are likely to suffer slight injury or physical damage.

Please abide by the following matters to prevent an accident.

- ●Be sure to keep the power supply within the range of specified voltage in the operator.
  ・Otherwise the operator may be damaged, and then it may cause a fire or electrical shock.
- ●The size and weight of the shutter should fall within the application scope of the operator.
  ・It is possible that the operator does not work properly or , as the case may be, breaks down, thus resulting in injury.
- ●In operating the short link handchain, ensure that the shutter stops, and never operate the pushbutton switch.
  Never fail to show this caution explicitly to the caretaker of the shutter.
  ・The short link handchain gets pulled in, whereby the operator may sometimes break down.
- ●When you operate the gravity fall lever, ensure that the shutter stops, and never operate the pushbutton switch.
  Never fail to show this caution explicitly to the caretaker of the shutter.
  ・There occurs a malfunction, thereby the operator may sometimes break down.
- ●Set the limit switch properly, and after it is set never fail to check on the motion and stop position of the shutter.
- ●Inspect the operator periodically, and if there is anything wrong, make repair or replacement.
  Make periodic checks according to the opening & closing frequency or within the period of use stated in the 「㉑ Inspection on p.17」 of this Instruction Manual.
- ●There is a case in which even if the power source is shut off (the breaker is dropped etc.) while the shutter is descending.
  At this time, the shutter stops at the lower limit.

②Characteristics

(1) Safety and Security - Ensuring Design

Sensing an obstacle prevents an accident from happening in case of an emergency.
(Obstacle sensing function)
As soon as the device senses an obstacle, it stops immediately and comes into reversal ascent.
The load sensitivity is adjustable with 10 levels.

(2) Low Energy Specification

Upon descent of the shutter, the electric energy (regenerated power) generated by the motor is recovered while it is descending, thereby low power consumption has been realized during descent (less than 1W upon rated load descent).

(3) Quiet Sound Design

Since speed is controlled (slow start / slow stop) upon the start / stop of motion, better ability of calm sound has been realized than conventional products.

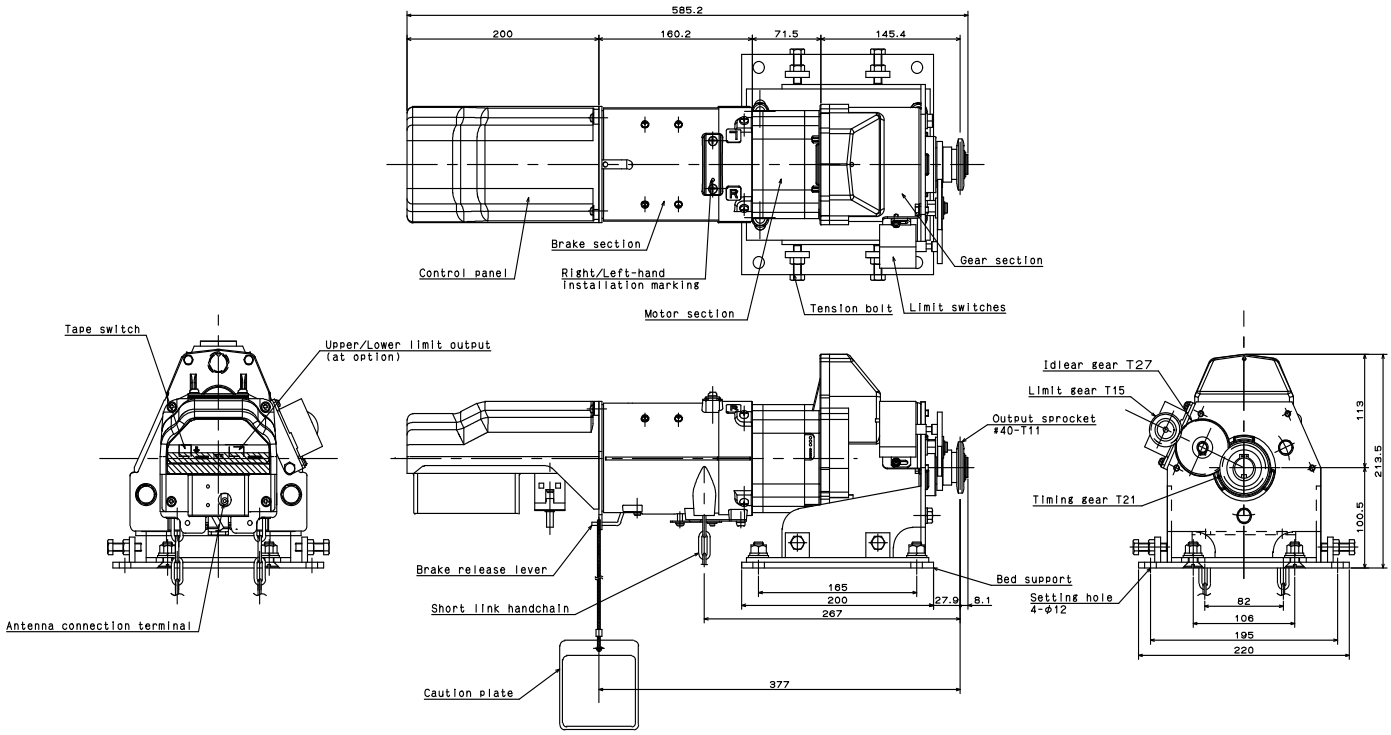
(4) High Precision Digital Control

A stable rotation control has been realized by adopting the high precision digital control system of a DC brushless motor. The shutter goes up and down at the same speed regardless of power source frequency.

(5) Motor Rated Time

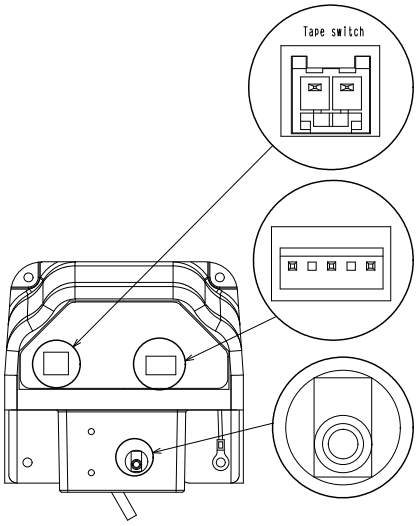
The rated time of the motor is 10 minutes.
For the purpose of protecting the motor, when its motion time exceeds 10 minutes, the power supply from the control panel to the motor is stopped automatically.
In this case cooling time is needed for a short while.
It gets reset after a certain time automatically.
Consider the opening & closing frequency for using the motor.

③Appearance of Operator



USA-400GSC
(Handchain manual type sketch drawing)

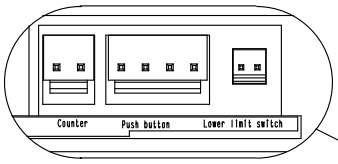
④Appearance of Control Panel



Details of tape switch connection part
For the connection of tape switch, see ⑭(3) on page 9.

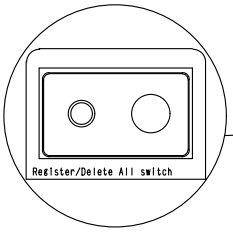
Details of upper & lower limit output connection part
(for upper & lower limit output specification only)
See ⑪ on page 6 for Upper-& lower-limit output changeover and ⑭(4) on page 9 for the connection.

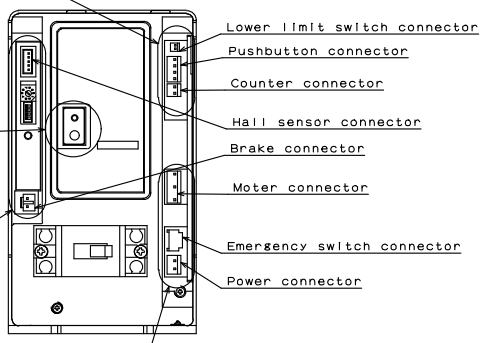
Details of antenna connection part
(for radio receiver built-in type only)
See ⑮ on page 9 for installing outer antenna.

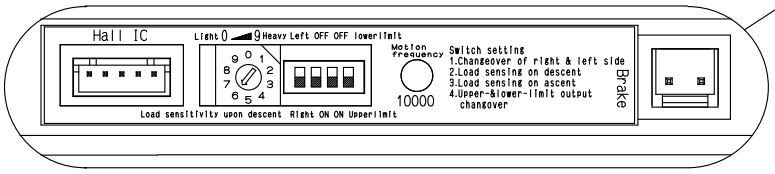


Details of pushbutton switch/counter connection part
See ⑭(1) on page 8 for connection of pushbutton switch and counter.

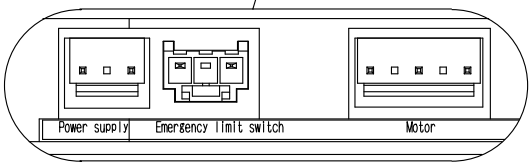
Details of entry & deleting switch part
(for radio receiver built-in type only)
See ⑱ on page 15 for transmitter entry in the operator's receiver and ⑲ on page 16 for transmitter deleting from receiver.







Details of operation part
See ⑧on page 5 for right/left setting changeover,
⑨ on page 6 for obstacle sensing function upon descent,
⑩ on page 6 for obstacle sensing function upon ascent,
⑪ on page 6 for upper-& lower-limit output changeover,
⑫ on page 6 for motion frequency display, and page 18 for ㉒ abnormality code list respectively.

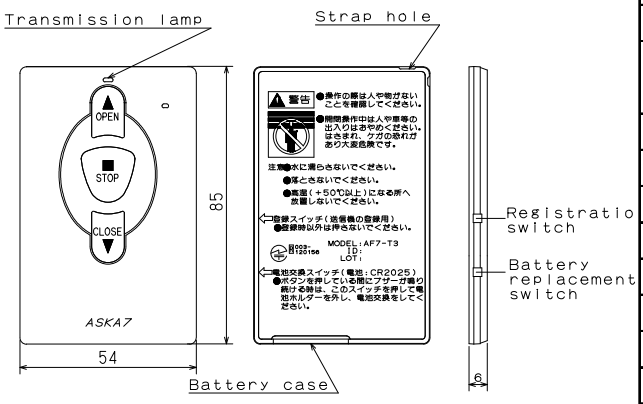


Details of power source connection part
See ⑭(2) on page 9 for connection of emergency switch(auxiliary limit switch).

⑤Specification of Operator

Model			USA-400GSC	
Voltage			Single-phase 220-230V (50/60Hz)	
			220V	230V
Operator's full load current		(A)	2.3	2.2
Output Shaft	Torque	(N·m)	70.0	
	Min. descent torque	(N·m)	2.3	
	Rotation speed	(r.p.m)	24.3/19.4(ascent / descent)	
Motor	Output	(kW)	0.2	
	Rotation speed	(r.p.m)	1500/1200 (ascent / descent)	
	Full load current	(A)	1.5	1.5
	Rated time	(min)	10 (program control system)	
Control	Control mode		Microcomputer control	
	Stop position control		Upper limit・・・・・・・・ position control mode by pulse detection Lower limit・・・・・・・・ signal detection mode by counter limit	
	Operation input		3-point pushbutton switch(2a1b) radio remote controller (can be used together)	
	Obstacle sensing mechanism		Pulse detection mode	

⑥Specification of Transmitter (for radio receiver built-in type only)



Item	Specification
	Transmitter
Type	AF7-T3
Rated voltage	DC3V (Coin-type lithium battery CR2025)
Battery life	About a year(in case of 10 times of use in a day)
Operating temp.range	0～50℃
Operational humidity range	Up to 85%RH (without condensation)
Code setting	16,777,216 types (set in manufacture)
Transmitting power	Not more than 1mW
Operational distance	10 to 50m appprox. (varying with surrounding environment)
Communication frequency	426.075 MHz
Modulation mode	F1D modulation
Antenna	Resonance method (with built-in printed board)

※The receiver is housed in the control panel.

⑦Particulars of Packed Parts

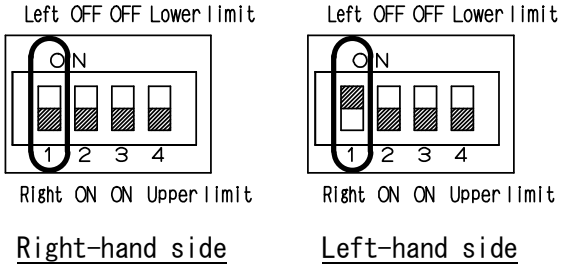
OPERATOR PACKAGE		
Model	USA-400GSC	USA-400GSCR (Radio receiver built-in type)
Specification	Standard type / Optional type with Upper-Lower Limit output	
Bolt sets	Hexagon head bolt (for tension) (M8 x 30) … 4 pcs Hexagon nut M8 … 4 pcs	
Operator body	1 unit(incl. control panel, limit switch, gravity fall cord w/ caution plate)	
Pushbutton harness	1 pce	
Counter harness	1 pce	
Upper & lower limit output harness	Excluded in standard type / 1 pc: Included in optional type	
Transmitter(AF7-T3)	—	1 pce
Transmitter strap	—	1 pce
Antenna	—	1 pce
Antenna stand	—	1 pce
Antenna cable (with ferrite core)	—	1 pce
Cross recessed tapping screw(M4x6)	—	2 pcs
Safety circuit breaker	Built in operator	
Instruction manual	1 copy	

⑧Changeover between Right-hand and Left-hand Side Settings

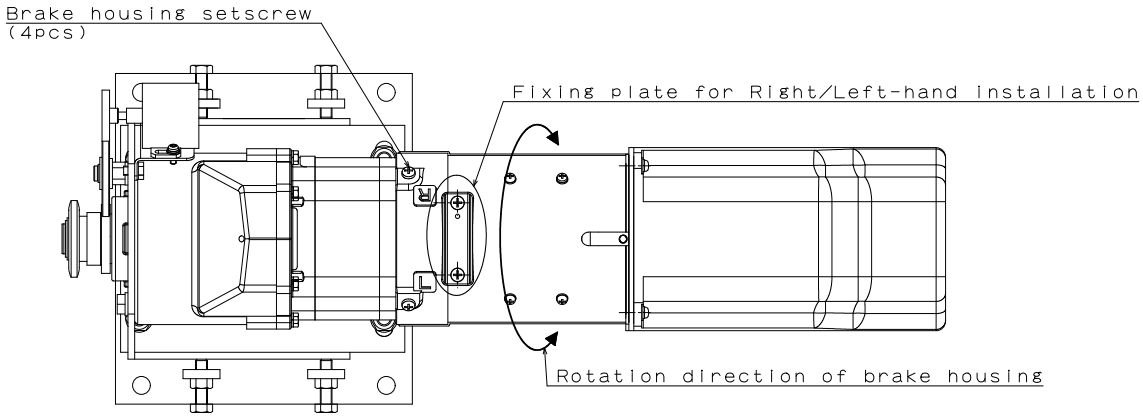
The operator is shipped in the exclusive installation for the right-hand side or the left-hand side. If you want the changeover on the installation side between the right-hand and the left-hand, follow the procedures described below.
After making checks on the right-hand and the left-hand at the installation site, you should make changeover between opposite sides in a proper manner.

⚠ WARNING	Prior to installing the operator onto the bracket, you should reassemble the right-left fixing plate. ・If you detach the right-left fixing plate from the brake case in a state of load being applied, the brake does not work, and so the shutter may sometimes fall with its gravity or you may undergo injury with the fixing plate coming off.

(1) Change over the dip switch on the control panel.
When you change the side to the left-hand,
adjust the side changeover to "Left".
(2) Take off the screws with which the brake case and the right-left fixing plate are mounted.
(3) Change the direction of the right-left fixing plate.
In case of changing over to the left-hand side,
see to it that the side display mark (round mark)
comes to the left side display mark side.
(4) Mount the right-left fixing plate onto the brake case with screws.
(5) Loosen 4 screws to turn brake housing.
When turning the brake housing, position it in order to enable the short-link handchain to be hauled downward.
Press brake release lever when turning brake housing, and it makes work easier.
(6) Screw the brake housing in a desired position to fix.
At this moment, tighten it up so that there be no gap between brake housing and motor when pressing brake release lever.
And also tighten up 2 fixing screws along each diagonal line in order.



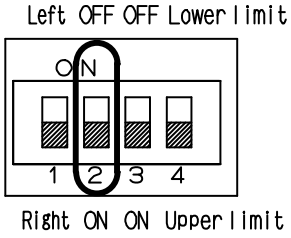
⚠ WARNING	・The angle adjustment of brake housing should be executed before an operator is installed. If the fixing plate for Right/Left-hand installation is removed under loading condition, shutter may happen to fall by its gravity, or an injury may result by the removed fixing plate. Make sure without fail that there be no gap between brake housing and motor. If there be a gap, the brake performance may lower and shutter may injure someone by falling with gravity.



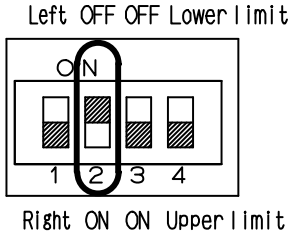
⑨Obstacle Sensing Function upon Descent

The obstacle sensing function upon descent is set up by the dip switch.
In case of not needing the function, change the sensing power over to "OFF".
Upon shipping the sensing power is set up to "ON".

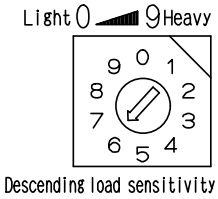
Sensing power "ON"



Sensing power "OFF"



When the sensing power upon descent is set up to "ON", you can adjust the descending load sensitivity with the rotary switch.



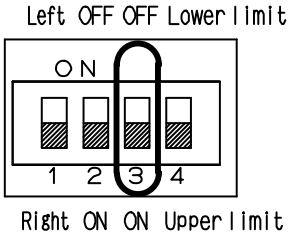
Load sensitivity setting	0	1	2	3	4	5	6	7	8	9
Descending load sensitivity	Light ◢ Heavy									

Descending load sensitivity is set up to "6" at the time of shipping.
Adjust the sensitivity according to the situation of site where the shutter is installed.

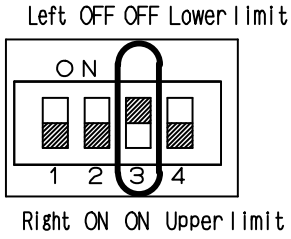
⑩Obstacle Sensing Function upon Ascent

The obstacle sensing function upon ascent is set up by the dip switch.
In case of not needing the function, change the sensing power over to "OFF".
Upon shipping the sensing power is set up to "ON".
The load sensitivity upon ascent is a fixed value.

Sensing power "ON"



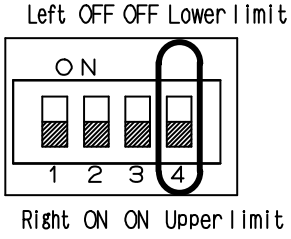
Sensing power "OFF"



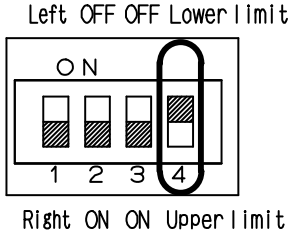
⑪Upper- and Lower- Limit Output Changeover (for only specification accompanying upper- and lower-limit output)

When upper limit output is needed, change setting over to "Upper limit".
When lower limit output is needed, change setting over to "Lower limit".
Setting is adjusted to "Upper limit" at the time of delivery regardless of the specification of upper- or lower-limit output.

Upper limit output



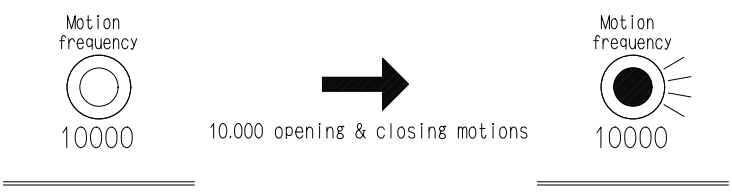
Lower limit output



⑫Motion Frequency Display

This LED shows the motion frequency of the operator.
The LED lights up when the motion frequency exceeds 10,000 times in opening & closing.

Motion frequency display LED



⑬Installation of Operator

(1) A request before installing:

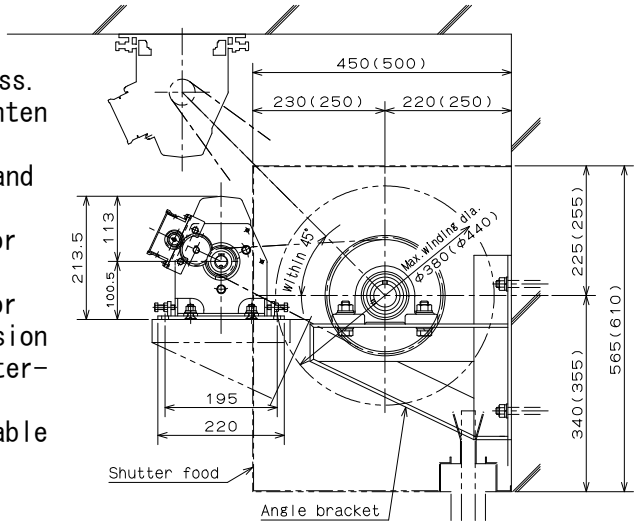
Use angle brackets which have enough strength to support shutter weight and firmly set them in a correct position on structural members.
Set drum sprocket in a correct position, refering to the shutter layout (installation drawing).
Set bed support in a correct position on strucural members, refering to the shutter layout (installation drawing).

⚠ WARNING	The angle bracket is saddled with the total weight of the shutter. Unless it is installed firmly, the shutter may sometimes break down, thus leading to a critical accident.

(2) Installation of Operator

Install the operator according to the following process.

1. Mount the operator on bed support and slightly tighten up 4 hexagon nuts.
2. Mount roller chain on output sprocket of operator and drum sprocket.
   Cut off an extra roller chain with a chain cutter or the like.
   At the time, adjust the setting position of operator With the attached hexagon head bolt(M8 x 30) for tension so that roller chain has approximately 2% slack on center-to-center distance.
3. Remove the wire from bound short-link handchain to enable manual operation.

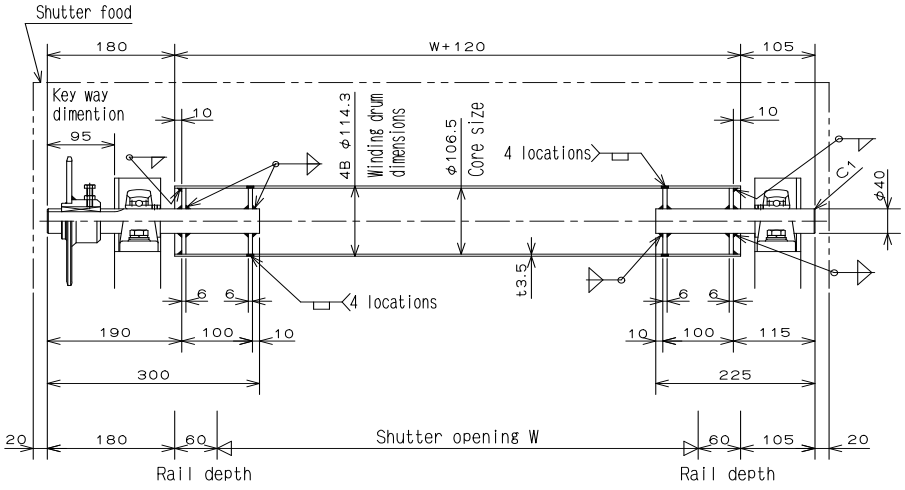


Installation drawing for reference
Install operator in range of 45 degrees from horizontal line of winding drum center.

(3) Confirmation

After installing the operator, confirm the following items.

- That the roller chain becomes mounted on output shaft sprocket and drum sprocket.
- Nuts are securely tightened up with tension bolt and with bolts in bed support respectively.
- When you pull the short link handchain on opposite side from sprocket, the sprocket and the wind-up drum rotate in a wind-up direction. It cannot be rotated in a reverse direction.



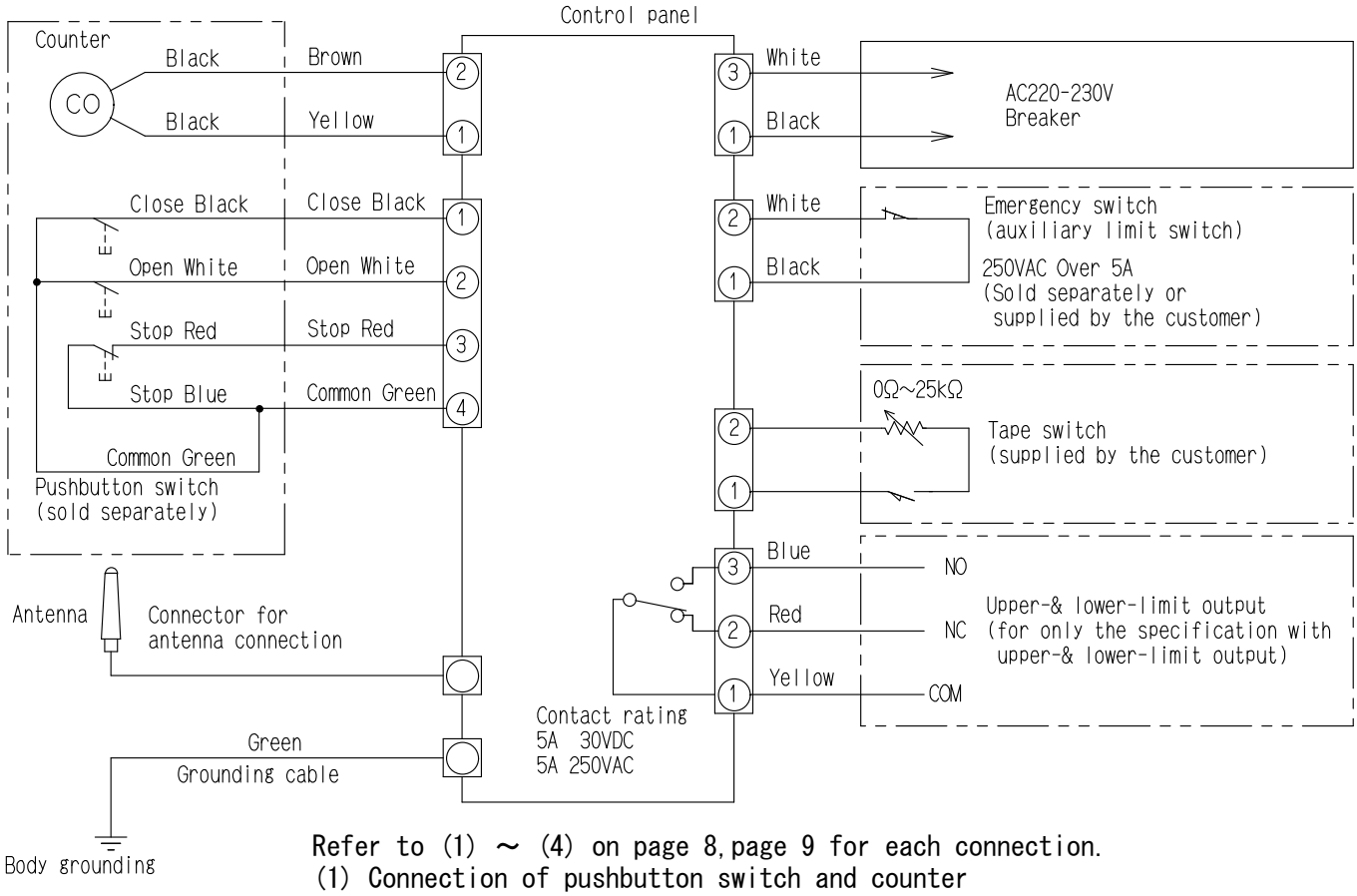
Make winding drum in accordance with the above drawing.
If guide rail depth is not 60mm, amend the dimension of winding drum (W+120) to meet your guide rail depth.

⚠ WARNING	After installing the operator, never fail to make checks on confirmation items, and if there is anything wrong with it, stop it. When you refrain from making checks or use it without coping with abnormality, the shutter may sometimes drop, thus resulting in a critical accident.

⑭Connection

⚠ WARNING	In doing electric work, never fail to keep to the following to prevent a fire, an electric shock, and an abnormal motion. ・Let a qualified electrician do electric work. ・Do electric work in conformity to the electric installation standards and the connection regulations. ・Use the device at voltage in accord with its specification. ・Never fail to differentiate the voltage side of power source from the grounding side to do connection work. ・Never do electric work with the power turned on. ・After electric cable is connected using crimp-style terminals, ensure that that has been insulated. ・Provide the device with grounding work using the grounding terminal beneath the brake case.

Make connection according to the following.



Refer to (1) ～ (4) on page 8,page 9 for each connection.
(1) Connection of pushbutton switch and counter
(2) Connection of emergency switch (auxiliary limit switch)
(3) Connection of tape switch
(4) Connection of upper- & lower-limit output
(for only the specification with upper- & lower- limit output)

(1) Connection of Pushbutton Switch and Counter

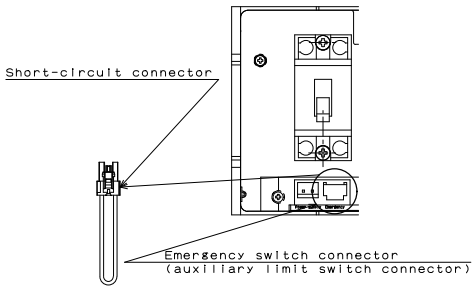
Please make pushbutton switches available yourself or use our company-made ones (sold separately). When no counter is built in the pushbutton switch, get a counter for DC12V, 650mW ready yourself. When you use the pushbutton switch with counter built-in made by our company, any other counter is not necessary.

※ The connection diagram on page 8 shows a case in which use is made of counter built-in pushbutton switches (PBW-31C / PBW-41C / PB-31B1C, sold separately) produced by our company.
※ Never fail to install pushbutton switches.
※ Connect the pushbutton switch and the counter using the pushbutton switch harness and counter harness packed together with them.

(2) Connection of Emergency Switch (Auxiliary Limit Switch)

As for the emergency switch, please either get it ready yourself or use the company-made one LMS-208A (sold separately).

※ For safety precautions, install the emergency switch (auxiliary limit switch).



Upon delivery a short-circuit connector is connected.
In installing the emergency switch (auxiliary limit switch), cut the cable of the short-circuit connector and connect it to the switch.

(3) Connection of Tape Switch

Please make a tape switch ready yourself.
When you use a tape switch, use the company-made(sold separately) for connection.
Remove the blue and transparent protection film from the connective part for tape switch.
Turn over the splash-proof seal until the connective part for tape switch is visible.

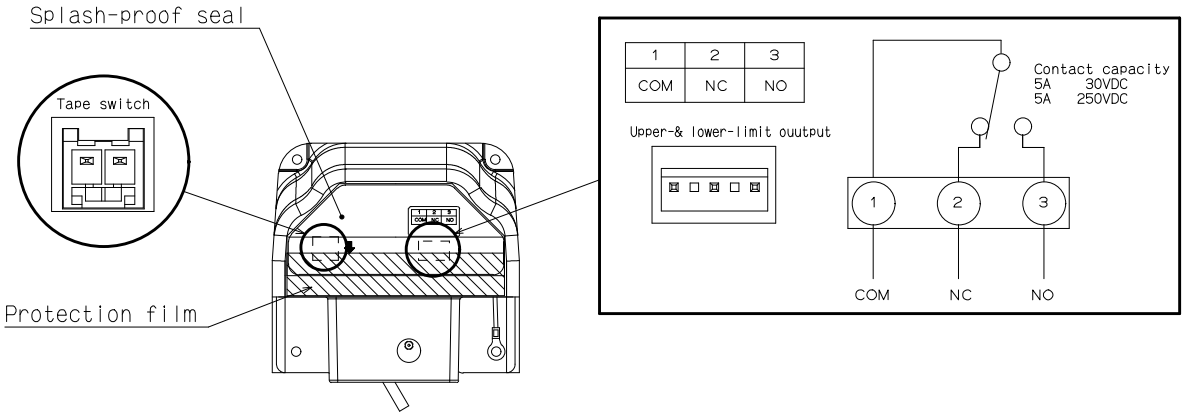
※After connection finished, never fail to put back the splash-proof seal, otherwise a troule may be caused by moisture, dust, or such.

(4) Connection of Upper-& Lower- Limit Output (for only the specification with upper-& lower-limit output)

Take off the blue and transparent protection film from the connective part for upper-& lower- limit output, and turn over the splash-proof seal until the connective part for upper-& lower- limit output is visible.
Attach upper-& lower-limit ouutput harness packed together to upper-& lower-limit output connector, and link an equipment used to the connector.
(Refer to the following figure for the structure of upper-& lower-limit output.)

※For changeover between upper limit output and lower limit output, see “Changeover between Upper-& Lower Limit Outputs” in ⑪ on page 6.

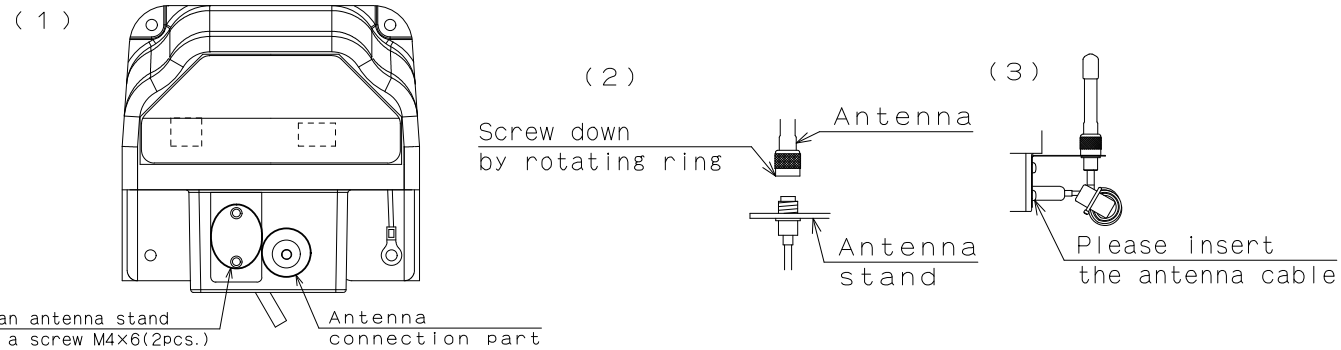
※After connection finished, never fail to put back the splash-proof seal,otherwise a troule may be caused by moisture, dust, or such.



⑮Installation of Antenna

An antenna is a gateway to radio signals.
Operational distance may sometimes shorten according to installation conditions.
Install it according to the following procedure.

(1)Fix an antenna stand to the control panel with a screw.
(2)Fix an antenna cable and an antenna to the antenna stand.
(3)Insert the plug of the antenna cable in an antenna plug mouth surely.



⑯Setting of Upper- and Lower Limit

There are 3 methods for setting of upper-and lower-limit as follows.
As for upper-and lower-limit setting, its method differs between a case in which upper-and lower-limit has not been set yet and a case in which it is reset.
Please select the proper way depending on the situation.

(1) In case of no setting of the upper-and lower-limits.
When the operator is in a state of initiation (at shipment from factory).

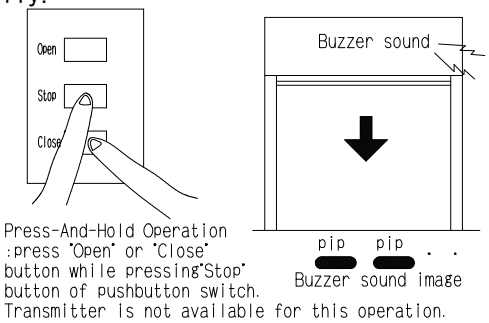
(2) Resetting of upper limit
A limit setting method when you want to change upper limit only.
Lower limit remains unchanged.

(3) Resetting of lower limit
A limit setting method when you want to change lower limit only.
It is unable to change lower limit only. (Never fail to reset upper limit too.)

(1) In case of no setting of the upper-and lower-limits.

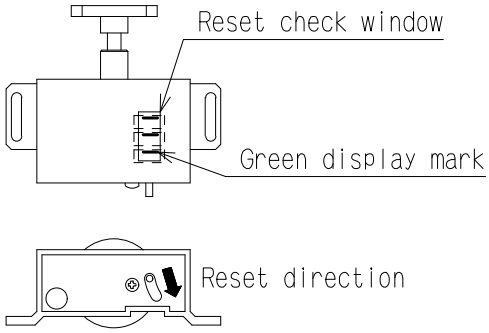
In this case, follow the procedure shown below to do setting of lower- and upper- limit.

①When the operator is energized, the limit setting mode gets started automatically and the buzzer sounds.
Through its gravity descent, the operation by handchain, pushbutton switch, or transmitter, let the shutter come down to the position at which lower limit is set. When the shutter won't descend to the position, let it descend with Press-And-Hold Operation of the pushbutton switch.
※When Press-And-Hold Operation is made by the pushbutton switch, fine adjustment may be made easily.

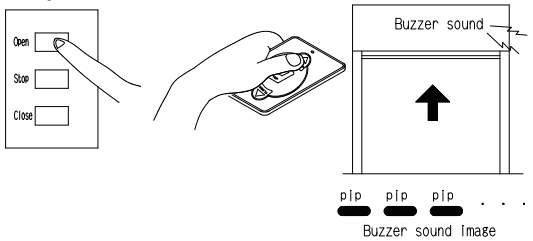


Press-And-Hold Operation
:press "Open" or "Close" button while pressing"Stop" button of pushbutton switch.
Transmitter is not available for this operation.

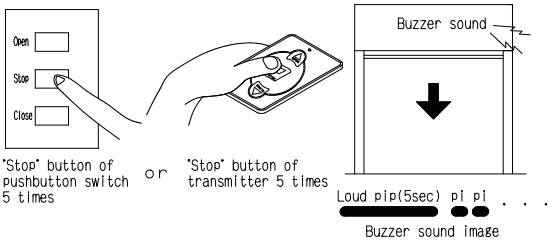
②Depress the reset lever of the limit switch in an arrow mark direction at a position to which lower limit is set. Green display marks all appear on the reset check window, thereby lower limit is set.



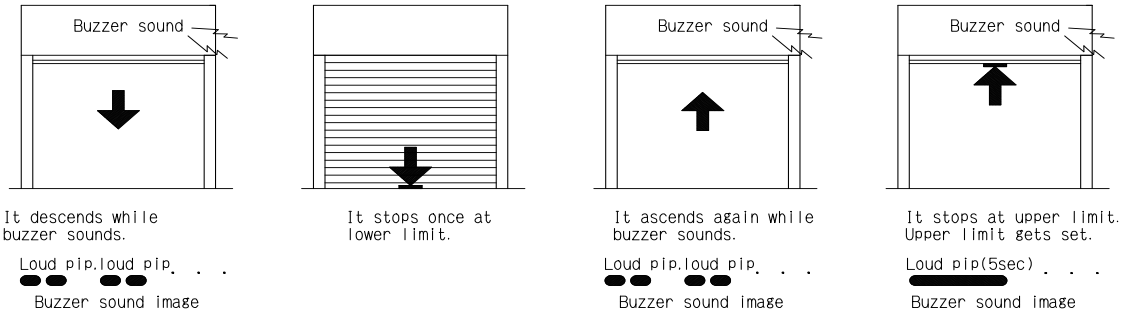
③Let the shutter go up with the operation of push-button switch or transmitter, and let it stop at a position to which upper limit is set.
※When Press-And-Hold Operation is made by the pushbutton switch, fine adjustment may be made easily.



④When pressing "Stop" button of push-button switch or "Stop" button of transmitter 5 times, then the buzzer sounds for 5 seconds, thus upper limit being set. Thereafter, the shutter begins to descend while sounding the buzzer.



⑤The shutter stops at lower limit automatically, and thereafter it ascends automatically and stops at upper limit. The buzzer sounds for 5 seconds, thus upper-and lower-limit setting being finished. After that the present mode shifts to motion mode automatically.



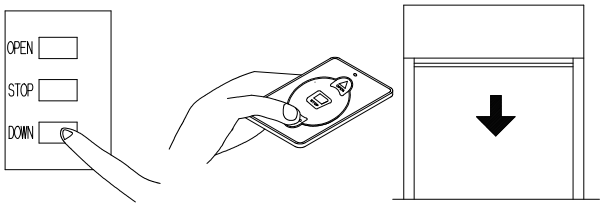
CAUTION When "Stop" button is pressed during motion of ⑤, no limit is set up properly. If you pressed "Stop" button etc, do over again from operation of ③ on.

After limit setting is finished, never fail to check on the motion of the shutter by opening and closing it. When you set limit again from the start, do so from operation of ②.
No upper limit nor lower limit is set up until the motion of ⑤ is made perfectly.

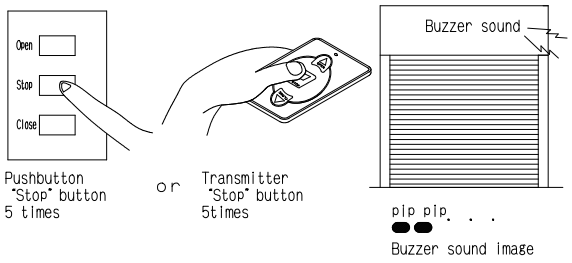
(2) Resetting of Upper Limit

When you want to change the position of upper limit, reset upper limit by following the procedure shown below.

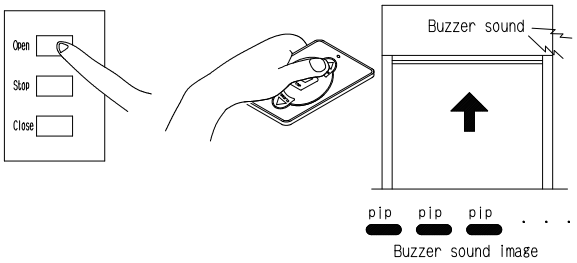
①With the operation of pushbutton switch or transmitter, let the shutter descend to the position of lower limit.



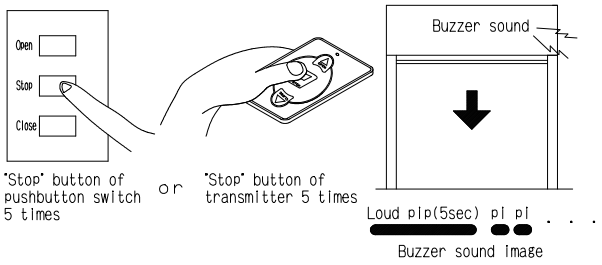
②When pressing "Stop" button of push-button switch or "Stop" button of transmitter 5 times, then limit setting mode is effected.
The buzzer sounds during limit setting mode.



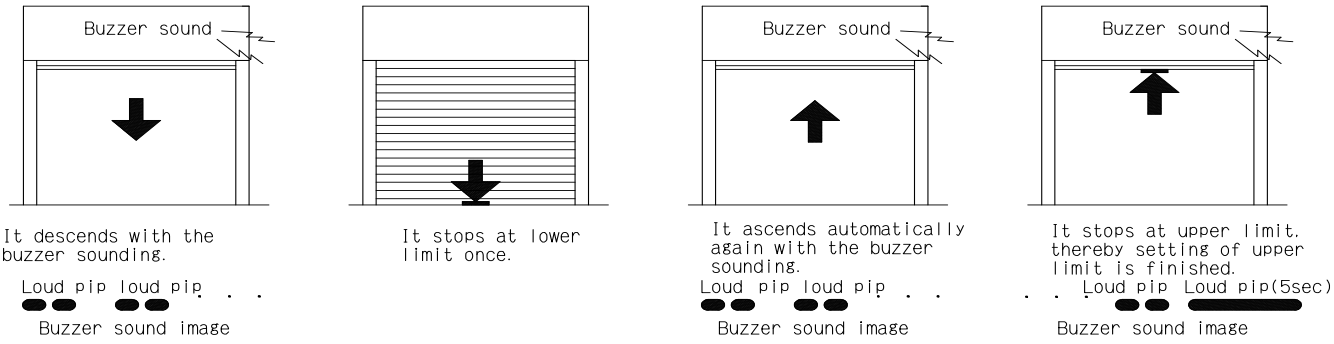
③With the operation of pushbutton switch or transmitter, let the shutter ascend and stop it at the position to which upper limit is reset.
※When Press-And-Hold Operation is made with push-button switch, fine adjustment may be made easily.



④When pressing "Stop" button of push-button switch or "Stop" button of transmitter 5 times, the buzzer sounds for 5 seconds, thus upper limit being set. Thereafter, the shutter begins to descend automatically while sounding the buzzer.



⑤The shutter stops at lower limit automatically, thereafter it ascends automatically and stops at upper limit. The buzzer sounds for 5 seconds, thereby resetting of upper limit is finished. After that the present mode shifts to motion mode automatically.



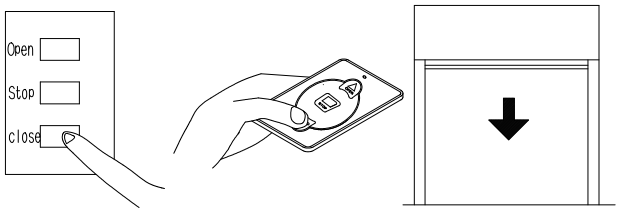
CAUTION	When "Stop" button is pressed during motion of ⑤, no limit is set up properly. If you pressed "Stop" button etc, do over again from operation of ③ on.

After limit setting is finished, never fail to check on the motion of the shutter by opening and closing it. When you set limit again from the start, do so from operation of ③.
※During the operation of ② and ③, if there is no input for 15 seconds from pushbutton switch or transmitter, limit setting mode shifts to motion mode automatically.
At this time, let the shutter descend to lower limit once again and make operation from ② onward.
※When you perform operation of ④, finish upper limit setting assuredly.

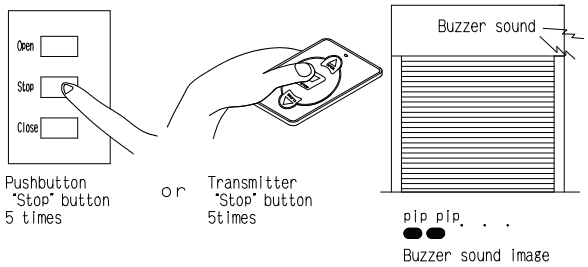
(3) Resetting of Lower Limit

When you want to change the position of lower limit, reset upper- and lower- limit by following the procedure shown below.

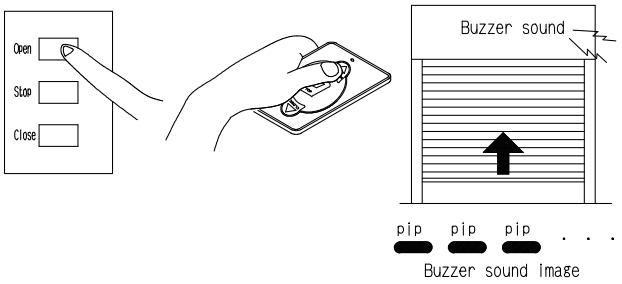
①Let the shutter descend to the position of lower limit which has already been set with the operation of pushbutton switch or transmitter.

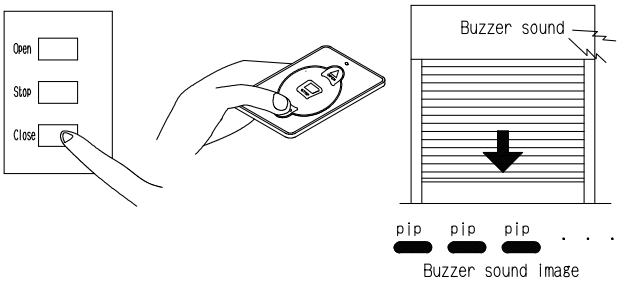


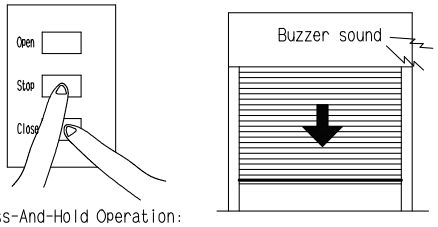
②When you press “Stop” button of push-button switch or “Stop” button of transmitter 5 times, limit setting mode is effected.
The buzzer sounds during limit setting mode.



③With the operation of pushbutton switch or transmitter, let the shutter ascend or descend to the lower limit you desire to change. When lower limit you want to reset is lower than lower limit set at present, let the shutter descend with the operation of Press-And-Hold Operation.
※ When you make Press-And-Hold Operation with pushbutton switch, fine adjustment may be made easily.

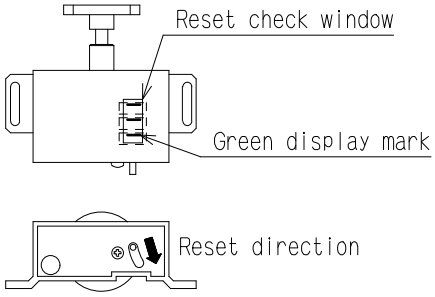






Transmitter is not available for this operation.

④At the position where you change over to lower limit, depress reset lever of limit switch in an arrow direction. Green display marks all appear on reset check window, thus lower limit being reset.



⑤After this operation, never fail to make operation from ③ on in “(2) Resetting of Upper Limit” to reset upper limit once again, thereby let limit setting be finished.

⑰Method of Operation

⚠ WARNING	Prior to opening and closing the shutter, ensure that there is no obstacle on its track. While the shutter is in motion, don't enter on the shutter's track. When you operate the shutter with pushbutton switch, don't stay away from nearby the shutter until its opening and closing is finished, thus confirming that its opening and closing has been finished. When you operate transmitter, stand by at a position which enables you to confirm the shutter's motion, thus ensuring that the shutter has finished its opening and closing.

(1) Pushbutton Switch Operation

When you want to let the shutter ascend or descend, press the pushbutton switch corresponding to each.
When the shutter gets fully opened or closed, it stops automatically.
When you want to stop the shutter at an optional position, press "Stop" button of pushbutton switch.
When you want to let the shutter descend while it ascends, after pressing "Stop" button of pushbutton switch once, press "Close" button.
When you want to let the shutter ascend while it descends, after pressing "Stop" button of pushbutton switch once, press "Open" button.

(2) Transmitter Operation

When you want to let the shutter ascend or descend, press transmitter's button corresponding to each.
When the shutter gets fully opened or closed it stops automatically.
When you want to stop the shutter at an optional position, press "Stop" button of transmitter.
When you want to let the shutter descend while it ascends, after pressing "Stop" button of transmitter once, press "Close" button.
When you want to let the shutter ascend while it descends, after pressing "Stop" button of transmitter once, press "Open" button.

(3) Manual Opening

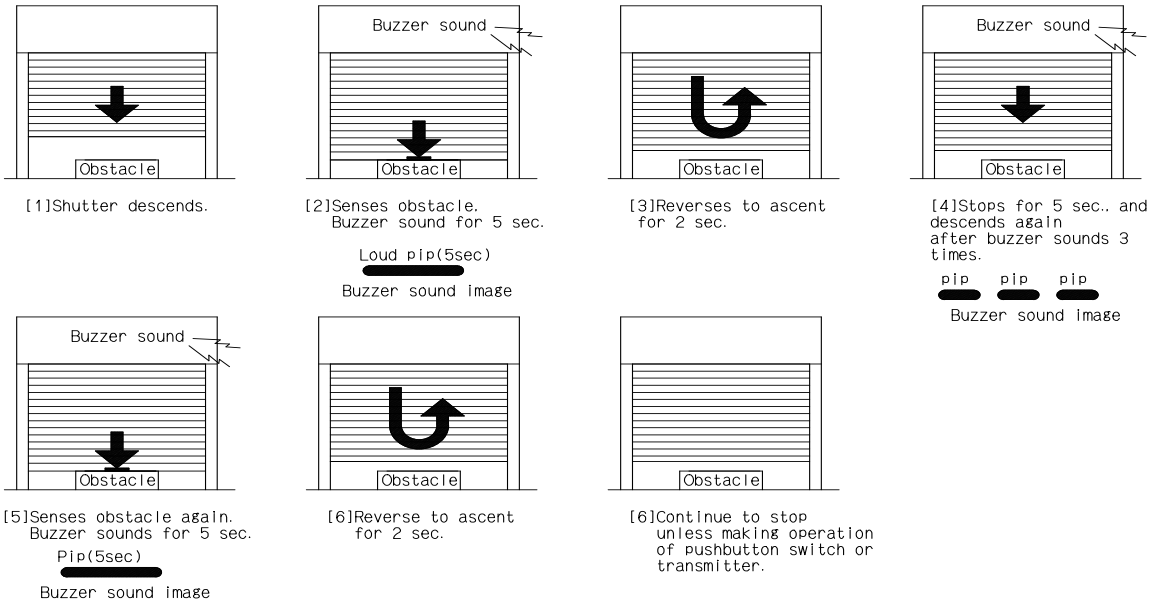
This is used when you want to let the shutter ascend manually in case of power failure etc.
Open the inspection hole of the shutter hood when the handchain is in the shutter hood.
Let the handchain hang, and pull slowly the handchain farther from slat, the shutter becomes released depending on the amount of pull.
※ When manual opening is made upon power failure, let the shutter move to lower limit after power failure gets restored. Refer to (6) Operation after Power Failure Restoration.

(4) Gravity Descent

This is operated when you want to close the shutter upon power failure etc.
Open the inspection hole of shutter hood and pull the gravity descent string, and the shutter descends with its gravity.
When you release the string, it stops.
When you want to let the shutter descend with its gravity by pulling the gravity descent string at the time of power failure, let the shutter move to lower limit after power failure gets restored.
※ Refer to (6) Operation after Power Failure Restoration

(5) Obstacle Sensing Function

When the shutter senses an obstacle while it ascends, it stops.
Thereafter you can operate it as usual.
For the motion when it senses an obstacle while it descends, refer to the following.

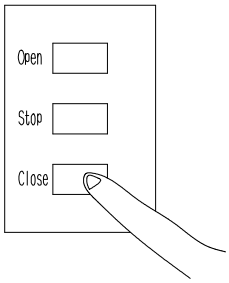


When the shutter senses an obstacle twice, it continues to stop unless you operate pushbutton switch or transmitter. In that case, after ensuring that there is no obstacle on its track, press either "Stop" button of pushbutton switch or "Stop" button of transmitter or press "Open" button of pushbutton switch or "Open" button of transmitter to release the interlock, thus moving the shutter to lower limit.

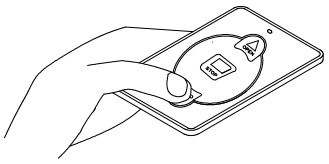
(6) Operation after Power Failure Restoration

CAUTION	When a power failure has recovered and shutter stops at the position except for a lower limit point, power failure restoration mode will start. Descend shutter with care by push button switch/transmitter until lower limit.

Only descending shutter is operationable in power failure restoration mode. And buzzer sounds when Shutter is closing.
Buzzer finishes sounding when shutter reaches the lower limit.
Afterwards shutter can be operated as normal operation.



(pushbutton switch)


(transmitter)

(A loud pip loud pip ・・・)


(Buzzer sound image)

Press 'CLOSE' of a push button switch/transmitter, and descend shutter to a lower limit position after a power failure restores,

CAUTION	Obstacle perception doesn't work in power failure restoration mode. When you move the shutter after power failure gets restored, never fail to confirm that there is no person / thing on the shutter's track and to move it to lower limit.

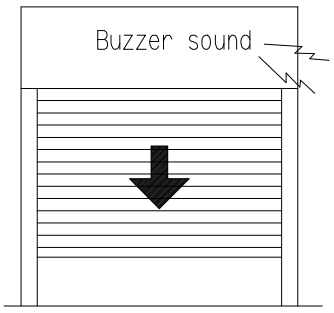
After power failure gets restored, let the shutter move in a direction toward lower limit.

①When power failure occurs at lower limit
When power failure gets restored at lower limit, after that it moves as usual.
The buzzer does not sound at the time of its movement.

②When the shutter stops at a position higher than lower limit
press "Close" button of pushbutton switch or "Close" button of transmitter, thus letting it descend to a position of lower limit. (Buzzer sounds while operating.)
The shutter stops at lower limit automatically, and the buzzer ceases to sound.

③When the shutter stops at a position lower than lower limit
Take out the haul-chain from an access of shutter hood. And haul the chain which is hanging farther side from shutter curtain slowly until shutter ascends at the position higher than lower limit.
Then press 'CLOSE' of a push button switch/transmitter, and descend shutter to a lower limit position.
The shutter stops at lower limit automatically, and the buzzer ceases to sound.
(Buzzer sounds while operating.)

※ When you performed manual release, and gravity descent upon power failure, never fail to move the shutter to lower limit.



Always move it to lower limit after failure restoration.

A loud pip loud pip . . .


Buzzer sound image

⑱Registration of transmitter to receiver of the shutter opener

Each transmitter of card remote controller ASKA7 (AF7-T3) has unique ID code.
The receiver receives the radio signal from registered transmitter only and accordingly it operates.
Register the transmitter to be used according to the following steps.

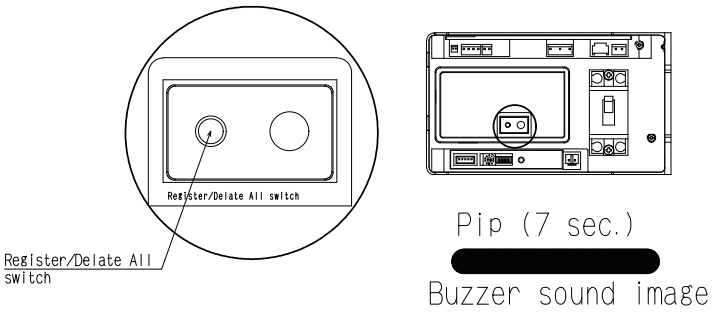
> **CAUTION** The transmitter supplied together with the shutter opener is already registered
> You do not need to register it again.

You can choose either of two methods for registration of transmitter.
Choose the registration method suitable for application and register the transmitter according to the steps described below.

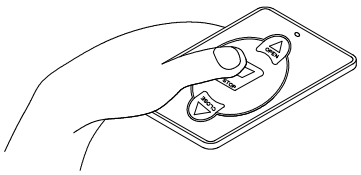
Registration method 1: Direct registration (direct operation of registration switch of the receiver)
Registration method 2: Remote registration (additional registration of transmitter remotely)

(1) Registration method 1 (direct registration)

① Press Register/Delete All switch on the control panel with fine-tipped rod three times.
The receiver turns from normal mode to registration mode. Throughout the registration mode, the buzzer of receiver sounds continuously. After 60 seconds elapse or once the Register/Delete All switch is pressed, the receiver turns to normal mode, and the buzzer stops sounding.



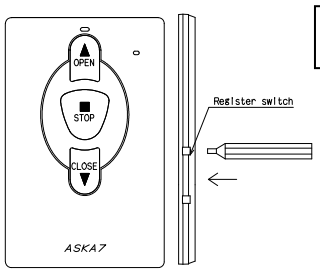
② While the buzzer sounds (in registration mode), press "STOP" button of the transmitter to be registered.
The buzzer stops sounding and it sounds for one second again, and the transmitter is registered. After then, the buzzer continues sounding and the receiver remains in registration mode.
If you continue the registration, press "STOP" button of other transmitter to be registered.



③When the registration is completed,
press Register/Delete All switch on the control panel once. The buzzer stops sounding and the receiver turns to normal mode.
When the registration is completed, carry out operation check with new transmitter.

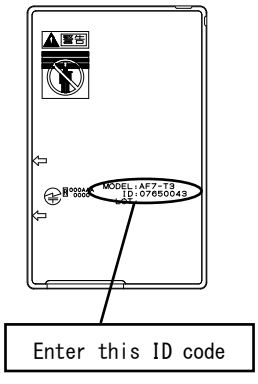
(2) Registration method 2 (remote registration)

① Press Register switch on the side of registered transmitter with fine-tipped rod three times.
The buzzer sounds for one second and transmitter LED blinks. Then the transmitter turns from normal mode to registration mode (while LED of transmitter blinks, the transmitter is in registration mode).
After 60 seconds elapse, the buzzer sounds three times and the transmitter automatically turns to normal mode. Then the LED of transmitter goes off.



② While the LED blinks (registration mode), enter the ID code of transmitter to be registered as follows

Ex) In case new transmitter's ID code to be registered is "07650043"



ID code	Button operation
0	Press nothing.
↓	Press STOP once.
7	Press OPEN 7 times.
↓	Press STOP once.
6	Press OPEN 6 times.
↓	Press STOP once.
5	Press OPEN 5 times
↓	Press STOP once.
0	Press nothing.
↓	Press STOP once.
0	Press nothing.
↓	Press STOP once.
4	Press OPEN 4 times.
↓	Press STOP once.
3	Press OPEN 3 times.
	Press STOP once.

If you fail the times of entry, press "CLOSE" button and enter the ID code from the beginning. If you want to abort the entry, do not operate the transmitter for one minute (after one minute, registration mode is released and the transmitter automatically turns to normal mode.)

③ Press Register switch of registered transmitter once. The buzzer of transmitter sounds for one second. Then the buzzer of receiver sounds and registration is completed.
When registration is completed, carry out operation check with new transmitter.

⑲Deletion of transmitter by receiver

You can choose either of two methods for deletion of transmitter.
Choose the deletion method suitable for application and delete the transmitter according to the steps described below.

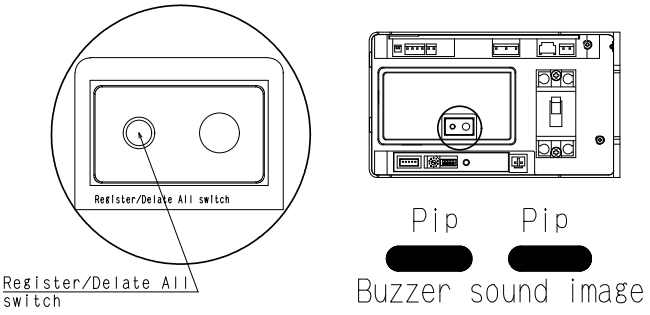
Deletion method 1: Direct deletion (direct operation of deletion switch of the receiver and deletion of all registered transmitters)

Deletion method 2: Remote deletion (deletion of separate transmitter remotely)

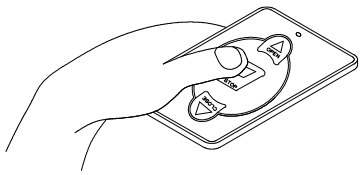
⚠ CAUTION	If you press Register/Delete All switch on the control panel for a while, all transmitters are deleted. Be careful.

(1) Deletion method 1 (Delete All)

① Press Register/Delete All switch on the control panel with fine-tipped rod for more than three seconds. The receiver turns from normal mode to deletion mode. During deletion mode, the buzzer of receiver sounds intermittently (sounding for 0.2 second and pausing for 0.2 second) After 60 seconds elapse or once Register/Delete All switch is pressed, the receiver turns to normal mode and the buzzer stops sounding.



② While the buzzer sounds (deletion mode), press " STOP" button of registered transmitter. The buzzer stops sounding and it sounds for about two seconds again. **Then all transmitters will be deleted except for operated one.**

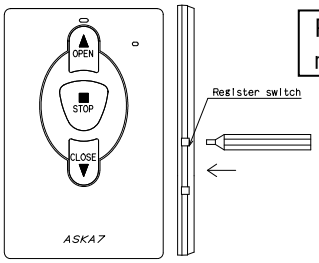


⚠ CAUTION	**The operated transmitter will not be deleted. To delete it, delete its ID by remote deletion.**

③ When the deletion is completed, the buzzer stops sounding and the receiver automatically turns to normal mode.
After completion, make sure that the receiver cannot operate by the transmitter with deleted ID code.

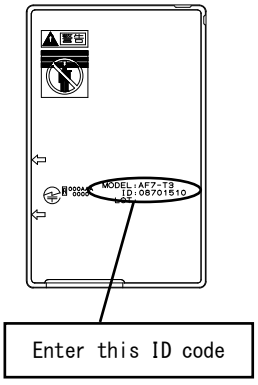
(2) Deletion method 2 (Separate deletion)

① Press Register switch on the side of registered transmitter with fine-tipped rod for more than three seconds. The buzzer sounds for one second and LED of transmitter blinks. Then the transmitter turns from normal mode to deletion mode (while LED of transmitter blinks, the transmitter is in deletion mode).
After 60 seconds elapse, the buzzer sounds three times and the transmitter automatically turns to normal mode. After turning to normal mode, the LED of transmitter goes off.



② While the LED blinks (deletion mode), enter the ID code of transmitter to be deleted as follows.

Ex) In case the ID code of transmitter to be deleted is "08701510"



ID code	Button operation
0	Press nothing.
↓	Press STOP once.
8	Press OPEN 8 times.
↓	Press STOP once.
7	Press OPEN 7 times.
↓	Press STOP once.
0	Press nothing.
↓	Press STOP once.
1	Press OPEN once.
↓	Press STOP once.
5	Press OPEN 5 times.
↓	Press STOP once.
1	Press OPEN once.
↓	Press STOP once.
0	Press nothing.
	Press STOP once.

If you fail the times of entry, press "CLOSE" button and enter the ID code from the beginning. If you want to abort the entry, do not operate the transmitter for one minute (after one minute, registration mode is released and the transmitter automatically turns to normal mode.)

③ Press Register switch of registered transmitter once. The buzzer of transmitter sounds for one second. Then the buzzer of receiver sounds and deletion is completed.
After completion, make sure that the receiver cannot operate by the transmitter with deleted ID code.

⑳Handling of transmitter

(Replacement of battery)

・If the battery level of transmitter is low, the transmitter continuously beeps while pressing the button. In such case, replace the battery with new one.

・The battery is coin type lithium battery (CR2025) 3V. Buy it in electric appliance shop, etc.

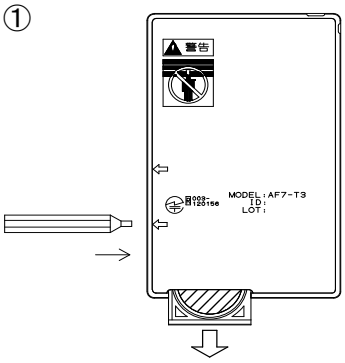
・Battery life is about one year under average operating conditions (10 operations/day), but it may be shortened depending on storage environment or operating conditions.

・When replacing the battery, pay attention to its polarity and put it into the transmitter correctly (see below).

・After replacement of battery, be sure to carry out operation check.

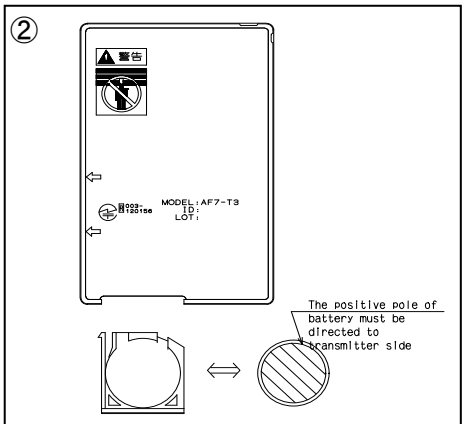
・If you do not use the transmitter for long time (more than one month), take out the battery and keep the transmitter.

①



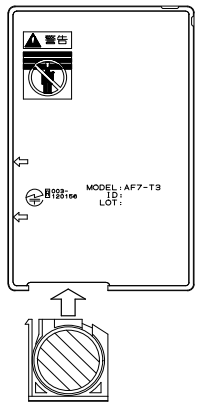
If you press battery replacement switch on the side of transmitter with the tip of ball-point pen or the like, the battery case slides.
Pull out the battery case from the transmitter.

②



Replace with new battery.
The positive pole of battery shall be at the side of transmitter button.
Ensure that the polarity of ＋ and －is correct.

③



Put the battery case back.
Insert the battery case until you hear “click” sound.

CAUTION

・This product is precision equipment. Handle it with great care.
・Do not subject the transmitter to strong impact (drop on rigid floor) or impact. Otherwise, it may cause breakage and/or malfunction.
・Do not store in humid location and do not operate with wet hand. Otherwise, it may cause malfunction.
・Do not store the transmitter in location exposed to high temperature (not less than 50℃ Otherwise, it may cause breakage and/or malfunction.
・Do not vandalize the transmitter. In certain environments, the receiver may operate even of it is more than 50m away from it.
・Do not press the operating part forcibly or with your claws on it. The button of transmitter may be broken.

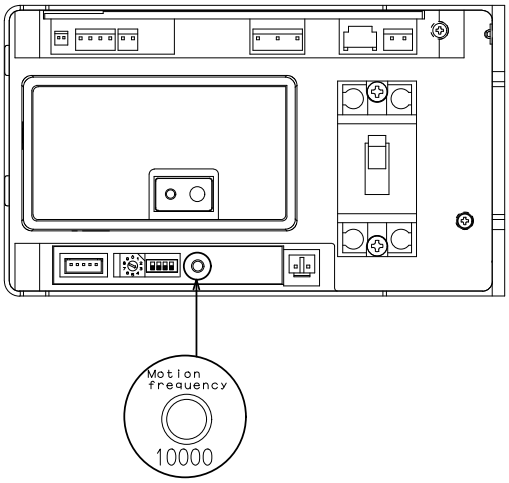
㉑Regular check

Regular check is required for safe use.
Carry out regular check when either of the following is reached.

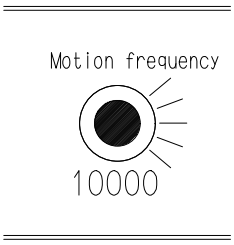
・Number of cycles of open/close: 1,000 cycles
・Period of use: Six months

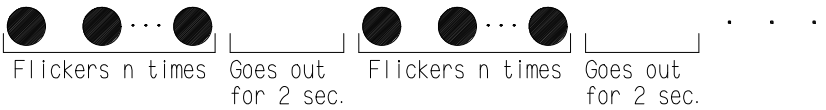
㉒ Abnormality Code List

Motion when abnormality of operator is detected:
The motion frequency LED flickers in the same frequency as abnormality code No.
(The control panel buzzer sounds for 30 seconds interlocking with LED after abnormality is detected.
LED flickers up until abnormality becomes restored.)



Motion frequency display LED





LED Flickering image
When the abnormality code No. is n,
It is repeated to flicker n times and to go out for 2 sec..

Detailed Description of Operator Abnormality

Code No.	Description	Items confirmed
1	Motor lock abnormal	Abnormality concerning motor. Check on whether motor connector has come off. Since brakes are deemed unusual, check on whether they work properly.
2	Motor cable breaking abnormal	
3	Motor hall sensor Abnormal	Abnormality concerning hall IC. Check on whether hall IC connector has come off or not.
4	Motor hall sensor U phase abnormal	
5	Motor hall sensor V phase abnormal	
6	Motor hall sensor W phase abnormal	
7	AC voltage abnormal	Check on source voltage. Use the product within the scope of AC220-230V±10%.
8	Motor source voltage drop	
9	Motor source voltage excess	Shutter weight is too heavy. Check on frontage, effective height, slat thickness etc. of shutter.
10	IPM abnormal	Since brakes are deemed unusual, check on whether they work properly.
11	Motor drive circuit over-current abnormal	When you often open & close shutter at a hot time, there is a case in which IPM is abnormal.
12	Motor revolving speed abnormal	Failure has occurred in motor, brakes, and hall IC. Please contact the supplier.
13	Motor reverse revolution abnormal	
14	EEPROM abnormal	Failure has occurred in control panel. Contact the supplier.

※In case the operator has become restored when you operate pushbutton switch or transmitter, abnormality display is cancelled automatically.
Unless the operator gets restored normally because of the above abnormality, contact the supplier.

bleshooting Method

Item	Possible cause	Method of action	Page for reference
Buzzer sounds on end when power is supplied.	Wrong wiring of pushbutton	Check on whether wiring is proper. When a signal enters from any of “Open,” “Stop,” and “Close” upon power supply, buzzer sounds on end. In that case, after putting off power once and correcting wiring of pushbutton switch, provide power.	P.8: ⑭Connection (1) Connection of pushbutton switch&counter
	Upper-& lower-limit not set yet	Set upper- & lower-limit. Unsetting is a state upon delivery from works and normal.	P.10: ⑯Setting of upper-& lower limit
Operator cannot be operated with pushbutton (transmitter)	Poor contact of pushbutton wire connecting connector	Check on whether the connecting connector of pushbutton wire is linked to operator’s control panel properly.	P.8: ⑭Connection
	Wrong connecting of pushbutton wire	Ensure that wiring is all right. “Black-Close,” “White-Open,”“Red-Stop,” “Green- Common”	P.8: ⑭Connection Connection(1) Connection of pushbutton switch&counter
	Broken pushbutton wire	Check on whether pushbutton lead wire is not broken.	
	Motor protection function works.	If operator is operated many times in a brief time, motor protection function may sometimes work. Let motor remain as it is for a while to cool it.	P.2: ②Characteristics (5) Motor rated Time
	Different voltage has been applied.	Check on if any other voltage except the rating has been applied to the operator source voltage. If an other voltage except the rated voltage has been applied to the operator, replace it by a new one.	Contact the supplier.
	Parts destroyed by thunder	Replace the device by a new one.	
Up and down directions are reverse.	Wrong connecting of pushbutton wire	Check on whether wiring is right.	P.8: ⑭Connection
	Wrong setting of right-hand side or left-hand side	Check on whether right-hand or left-hand side setting of dip switch is correct.	P.5: ⑧Changeover between right-hand & left-hand side settings
The operator works with pushbutton but not with transmitter.	ID code is not entered.	Enter a transmitter.	P.15 ⑱Entry of transmitter in operator’s receiver
	Broken antenna	Replace it by a new one.	Contact the supplier.
	Wrong antenna position	Change installing place of antenna to make checks.	P.9: ⑮Installation of Antenna
	The plug of antenna has come off.	Insert the plug of antenna cable surely into the receiver of control panel.	P.9: ⑮Installation of Antenna
	Antenna cable is laid nearby power source cable.	Lay antenna cable away from power source cable.	P.9: ⑮Installation of Antenna
	The battery of transmitter has run out.	Replace the battery of transmitter by a new one.	P.17: ⑳Handling of transmitter
Press-And-Hold motion comes	Different type of pushbutton	If the device works when you press “Open” or “Close” button while pressing “Stop” button, 3a type of pushbutton is used. Change it over to 2a1b type one.	P.8: ⑭Connection
Entry of Transmitter is unable.	Entry operation is made with entered transmitter.	Make entry operation with not entered transmitter. entered transmitter cannot be entered again.	P.15: ⑱Entry of transmitter in operator’s receiver
Limit setting mode does not start up.	The shutter is not at lower limit.	Check on whether the shutter is at lower limit. Let the it come down to lower limit. Press-And-Hold	P.10: ⑯Setting of upper- & lower-limit
The shutter stops even without obstacle.	Deformed guide rail, deformed slat,drift of slat,deformed lintel and the like. Insufficient adju-stment of load sensitivity upon descending.	When stopping the shutter as it descends, let it descend with Press-And-Hold motion by pressing “Close” button while pressing “Stop” button. Thereafter when stopping shutter again during descent, let descent load sensitivity be heavier (larger in figure). When stopping it as it ascends, let it ascend with Press-And-Hold motion by pressing “Open” button while pressing “Stop” button from lower limit to upper limit. ※ When guide rail etc. are deformed heavily, which may cause the shutter to be wound reversely, never make descend motion. After repairing guide rail, slat drift, etc., set limit once again.	P.6: ⑨Obstacle sensing function upon descent P.14: ⑰Method of Operation(6) Operation after power failure restoration
Buzzer sounds while descending.(Unable to ascend.)	Power failure at other spot than lower limit.	Let the shutter descend to lower limit. When it reaches lower limit once, buzzer ceases to sound. This is not unusual. ※When it stops at other spot than lower limit upon power supply, present mode shifts to power failure restoration mode, and buzzer sounds when the shutter moves.	P.14: ⑰Method of Operation (6) Operation after power failure restoration
Obstacle sensing function does not work.	Obstacle sensing function is featured by “OFF” upon ascent.	Set the dip switch for obstacle sensing function upon ascent to “ON.”	P.6: ⑩Obstacle sensing function upon ascent
	Obstacle sensing function is featured by “OFF” upon descent.	Set the dip switch for obstacle sensing function upon descent to “ON.”	P.6: ⑨Obstacle sensing function upon descent
	Limit setting mode has started up.	Set upper- & lower-limit.	P.10: ⑯Setting of Upper- & lower-Limit. Limit.