

OPERATION MANUAL

(OM-A1000G-3BU) MODEL : USA-1000G
THREE-PHASE 200~220V·380~480V

This operation manual describes only matters related to the operator.
As for handling in a whole shutter system. Please refer to instructions given by the shutter manufacturer.

① ATTENTION OF SECURITY

There are "WARNING" and "CAUTION" to be separated by degree of harm and damage.

WARNING : If the system is wrongly set up or handled, death or serious injury may result.

- (1) In positioning the motor-driven operator properly, carefully read the catalogue.
- (2) The shutter operator is specifically designed for motor-driven shutters. Never use the shutter operator for any other applications.
- (3) Setting up the shutter operator includes works to be done by a well-skilled, qualified electrician. Only such qualified person shall install the shutter operator.
 - Otherwise the operator may not work normally, and the shutter may damage, then an injury may result.
- (4) Use angle brackets which have enough strength to support shutter weight and fix them in position on the structural members, referring to the shutter layout (installation drawing).
 - As the angle brackets bear all shutter weight, an injury may result by damaged shutter if it is not tightly fixed.
- (5) Fix the bed support in position on the structural members, referring to the shutter layout (installation drawing).
 - Otherwise the operator may not work normally, and an injury may result by damaged shutter as the case maybe.
- (6) Install the shutter operator in a place not exposed to rain and any other water.
 - Otherwise a fire or an electrical shock may result.
- (7) Be sure to ground the shutter operator.
 - Otherwise a fire or an electrical shock may result.
- (8) Do not disassemble nor temper with the shutter operator. Nor attach any extra components than our specified options.
 - Otherwise an injury may result by abnormal operation.
- (9) Before opening and closing the shutter, make sure there is nobody and no obstacle around.

Be sure to instruct the person in charge of the shutter operator to keep this in mind.

 - Otherwise an injury may result by being caught in the shutter.
- (10) Choose key-locked pushbutton switches.
 - Otherwise an injury may result by being caught in the shutter if any other person being not in charge, e.g. a child, operates.

CAUTION : If the system is wrongly set up or handled, personal injury or property damage may result.

- (1) Be sure to keep the supply voltage within the shutter operator's specified range.
 - Otherwise the operator may damage, and then it may cause a fire or an electrical shock.
- (2) Make sure the shutter's weight and size are below the door's applicable ratings.
 - Otherwise the operator may not work normally, and the shutter may damage, then an injury may result.
- (3) Before using the manual short-link handchain, make sure the shutter is not moving. Never use the push button switches.

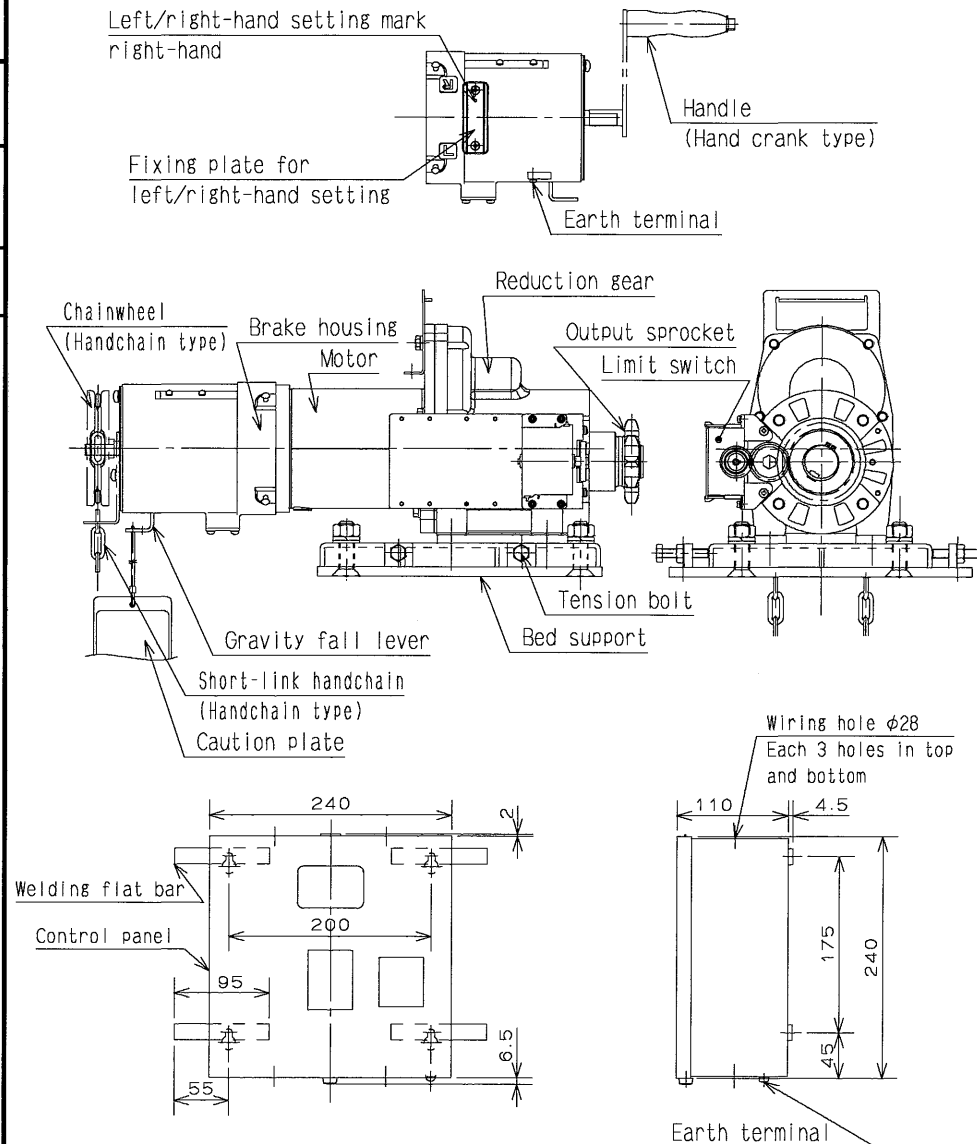
Be sure to instruct the person in charge of the shutter operator to keep this in mind.

 - Otherwise the manual short-link handchain will be pulled into the operator, then the operator may result in damage.
- (4) Before using the gravity fall lever, make sure the shutter is not moving. Never use the push button switches.

Be sure to instruct the person in charge of the shutter operator to keep this in mind.

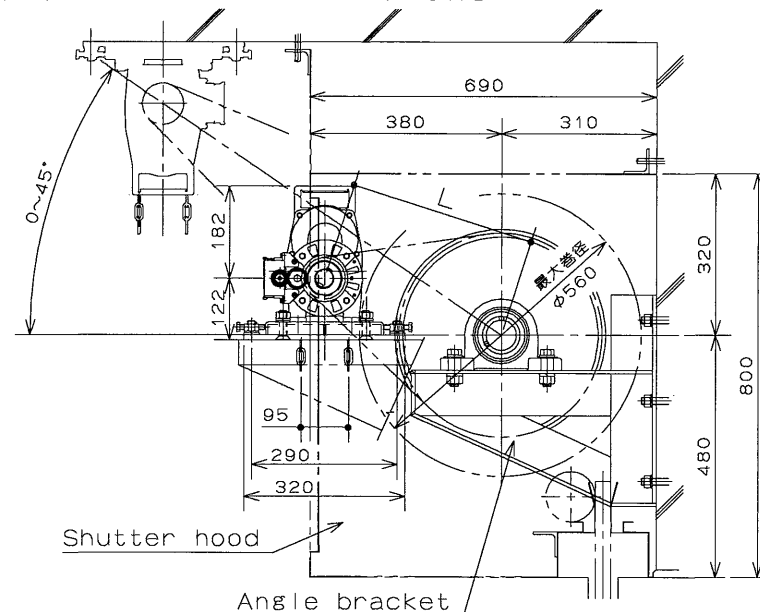
 - Otherwise the operator may not work normally, then the shutter may damage.
- (5) Make proper limit switch settings. And be sure to check the stop position.
- (6) Inspect the shutter operator periodically. If anything unusual is found, repair or replace. For periodic checks, keep the number of times or period for inspection given in the INSPECTION clause on this operation manual.

② PARTS DETAILS OF OPERATOR



③ REFERENCE OF INSTALLATION

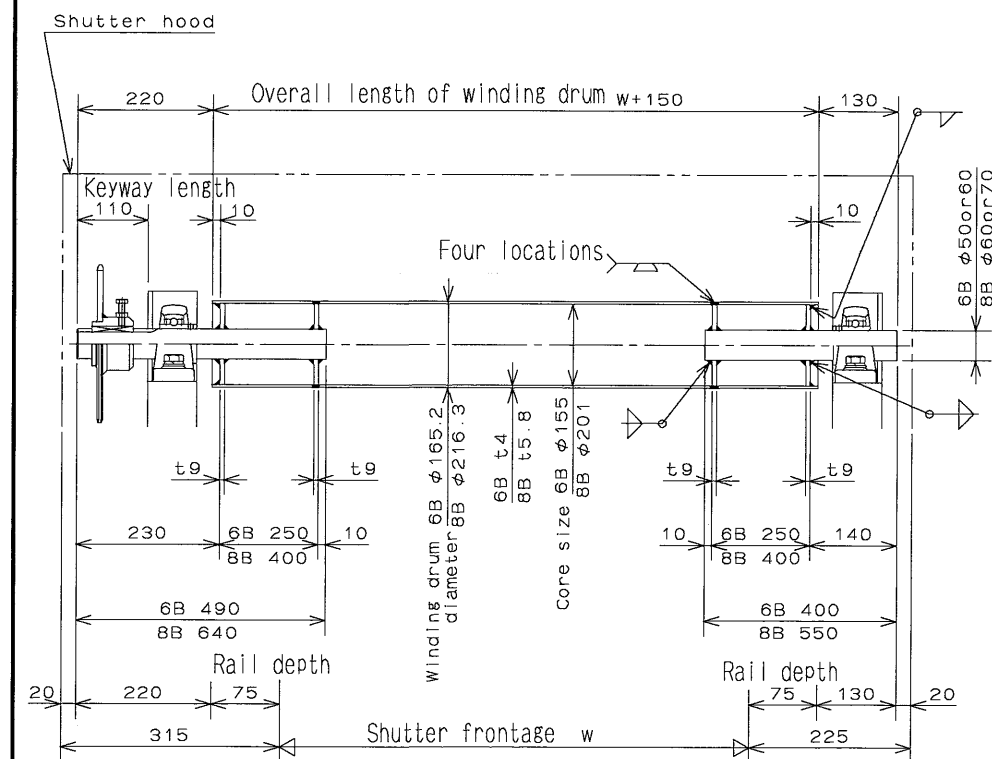
(1) Bracket dimensions



- *The shutter hood dimensions are for the maximum winding diameter of 560 mm.
- *The operator must be installed within the region of 45 degree from the central horizon in the winding drum.

(2) Winding drum dimensions

Manufacture the winding drum in accordance with the undermentioned drawing.
If the rail depth is not 75 mm, change the winding drum dimensions (W+150) in accordance with the rail depth.



④ PACKAGE CONTENTS

The details of operator package and sprocket package are shown below.
Be sure any damage did not occur in transit, or any shortage was not found in the package.

(1) Operator package

- Power operator (incl. gravity fall cord with caution plate Limit switch) . . . × 1
- Control panel (incl. grommets and welding flat bars) . . . × 1
- Roller chain (#80-91 links, 2.3 m long, with joint link and offset link) . . . × 1
- Operation manual . . . × 1
- [Handchain type]
- Handchain parts (short-link handchain, chainwheel, chain guide screw 2 psc., cotter pin, installation manual) . . . × 1
- [Handcrank type]
- Handle . . . × 1

(2) Sprocket package

- Drum sprocket (#80-T50) . . . × 1
- Parallel Key (In case of φ50: 16-10-71(Rounded at one end) . . . × 1
(In case of φ60: 18-11-70(Rounded at one end))

⑤ INSTALLATION OF POWER OPERATOR

(1) BEFORE INSTALLATION OF POWER OPERATOR

According to the shutter layout (installation drawing), weld our exclusive bracket on a sub-bracket, which has an equivalent or more strength to our specified one. And firmly fix them in suitable position on structural members.

▲WARNING

Brackets bear all shutter weight. If this installation is not strong, injury may result by damaged shutter.

Be sure to mount roller chain on teeth of drum sprocket before installing a winding drum.

▲CAUTION

It is unable to set roller chain after installing the winding drum because of its endless (without joint).

(2) SETTING FOR RIGHT/LEFT-HAND INSTALLATION

Operator is generally set for right-hand installation in our factory. Change the indication mark on fixing plate for right/left-hand installation to L.

▲WARNING

Rearrangement for left-hand installation shall be practiced before mounting operator on bracket.

If the fixing plate is removed from the brake housing under the condition that the operator is loaded, the shutter may fall by the gravity without effective braking, or an injury may result by the removed fixing plate.

(3) ADJUSTMENT OF BRAKE HOUSING

Loosen 4 screws fixing brake housing and turn brake housing so that gravity fall lever comes downwards, then retighten it up. At this moment fix it so that there is no gap between brake housing and motor. (Pull gravity fall lever when pressing brake housing, and it will be able to operate it lightly.)

▲WARNING

The angle of brake housing should be adjusted before the operator is set up. If it is adjusted under the condition that the operator is loaded, the brake housing may turn by the load, or an injury may result when the shutter falls by its gravity.

▲CAUTION

Make sure without fail there be no gap between the motor rear flange and the brake housing. If there be any gap, the brake performance may be decreased, then an injury may result when the shutter falls by its own gravity.

(4) INSTALLATION OF POWER OPERATOR

Install the power operator in the following procedure.

- Fix the power operator on bed support.
- Mount roller chain on output sprocket and drum sprocket.

Then adjust the operator position so that roller chain has approximately 2% slack on center-to-center distance (L). Tighten up the hexagon nuts with wrench on an average and securely.

- The operator is originally set up with handcrank type. If handchain type is required, replace with the handchain unit.
- *Please refer to attached sheet [Installation manual for handchain unit].

(5) CHECK

Make sure of the following matters after finally setting up operator.

- Roller chain is mounted on output sprocket and drum sprocket, and each center can be aligned.
- 4 hexagon nuts are securely tightened up to fix the operator.
- Put handcrank shaft in handcrank and rotate handcrank clockwise (in right-hand installation) or counterclockwise (in left-hand installation). At this time, winding drum can be rotated toward roll-up direction, but handcrank cannot be rotated toward the opposite direction.

In case of handchain operation, when short-link handchain being outside against slats is pulled, sprocket and winding drum can be rotated toward roll-up direction, but it cannot be rotated toward the opposite direction.

▲WARNING

Be sure to check the above matters after finally setting up operator and any abnormality should be corrected. If shutter is used without the above checking or with any abnormality, it may result in falling down and serious accident.

⑥ WIRING

▲WARNING

- At electric work, to avoid fire, electrical shock or abnormal operation, be sure to keep the following matters.
 - Only qualified person shall do electric work.
 - Electric work shall be done based on an internal wiring regulation of an electrical equipment engineering standard or the like in each region.
 - Disconnect power supply before electric work.
 - Ground leads from the earth terminal on the control panel.

(1) CONNECTION DIAGRAM

- Directly connect power supply to Safety circuit breaker
- Anti-phase relay is incorporated into the control panel. If the motor does not run, reverse any two of the three power leads.
- In case of the left-hand side set-up, replace Red and Blue(or Red and Black) of the motor wires and Orange and Black of the limit switch wires.
- When an emergency limit switch is not used, short-circuit with the attached lead between L1 and 1 on terminals.
- *Please refer to the connection daigram of control panel.

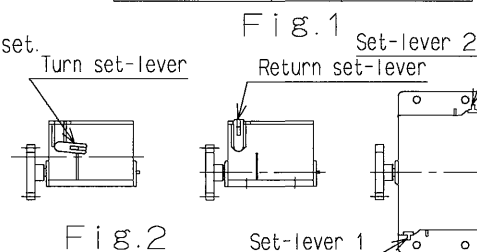
⑦ ADJUSTMENT OF LIMIT SWITCH

HOW TO SET THE LIMIT SWITCHES

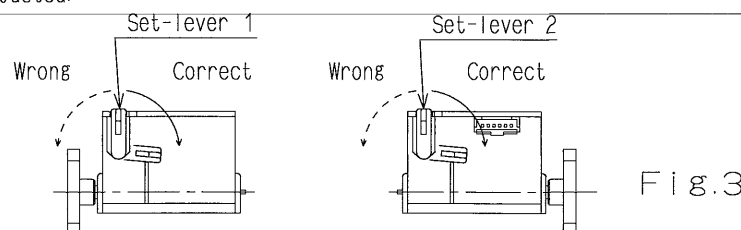
In case of right-hand installation, the upper limit is set by set-lever ① and the lower limit is set by set-lever ②. In case of left-hand installation, set-lever ① is contrarily replaced with set-lever ②. (Refer to Fig.1)

- Turn both set-levers ① and ② until they are locked (approx.90°).
- In case of right-hand installation, first run shutter up to the required upper limit position under the condition of (1), then return set-lever ① (to be as Fig.2), and the upper limit position is completely set. Second return set-lever ②, and the required lower limit position can be set.
- In case of left-hand installation, the lower limit position is set by set-lever ① and the upper limit position is set by set-lever ②.

設定レバー LEVER	右勝手 RIGHT-HAND	左勝手 LEFT-HAND	接点構成 CONTACT COMPONENT
①	上限 UPPER LIMIT	下限 LOWER LIMIT	茶 Brown 橙 Orange
②	下限 LOWER LIMIT	上限 UPPER LIMIT	黒 Black



- Be sure Set-lever is turned 90° to the arrow of direction (inside). (Refer to Fig.3) Please never turn Set-levers outside. If Set-lever is turned outside, the operator dose not operate and limit switch cannot be adjusted.



⑧ OPERATION

▲WARNING

Be sure there is no obstacle on the closing line, in advance of operation. Do not enter on the closing line during shutter is running. Do not be away from the push button switch until open/close operation finishes. Be sure the shutter finally stops, because moving shutter can injure people.

(1) POWER OPERATION (WITH PUSH BUTTON SWITCHES)

For opening shutter, press 'OPEN' (or '開') button and for closing shutter, press 'CLOSE' (or '閉') button until the shutter begins to move. The shutter automatically stops at the fully opening/closing position. For stopping shutter at a desired position, press 'STOP' (or '停') button, and it stops at the position. For reversing a moving shutter, once press 'STOP' (or '停') button, before pressing 'OPEN' (or '開') button or 'CLOSE' (or '閉') button. Reverse operation is rejected while shutter is moving.

(2) MANUAL OPERATION

This operation is used for opening shutter in the case of power failure or the like. [In case of handchain operation] Open the inspection hole in shutter hood, hang short-link handchain and slowly pull short-link handchain being outside against slats, and shutter will be opened in proportion to a grade to be pulled.

(Required force for operation is approximately 120N. The shutter goes up approx. 5~15mm by short-link handchain operation for 1m (It is based on the diameter conversion of a winding volume.)

[In case of handcrank operation]

Open the inspection hole in shutter hood and put the attached handcrank on handcrank shaft to rotated it clockwise (in right-hand installation) or counterclockwise (in left-hand installation), and shutter will be opened in proportion to a grade to be rotated.

(Required force for operation is approximately 60N. The shutter goes up approx. 2~4mm by handcrank for one rotation. (It is based on the diameter conversion of a winding volume.)

(3) GRAVITY FALL OPERATION

This operation is used for closing shutter in the case of power failure or the like. Open shutter hood and pull the gravity fall cord, and shutter will close by its own gravity. For stopping shutter, release the gravity fall cord.

(Required force for operation is approximately 50N. The shutter speed falling via gravity is approximately 1.5 times of the closing speed with power, because rate of descent is controlled by a speed governor.)

⑨ CONFIRMATION

Confirm the next items after the installation is completed.

- A shutter should open and close by the operation of the push button switch.
- A counter should count once per one operation for closing shutter.
- A shutter should stop at each positions of the upper and lower limit where it was set up with a limit switch.
- A shutter should stop by hauling the handchain or turning the crankhandle.
- A shutter shouldn't work with the powered motor during the operation of the emergency switch.
- A shutter should move down when the gravity fall cord is pulled.

⑩ INSPECTION

The inspection must be carried out at the time when the operator reached to either the following number of times or period.

- 1000 OPEN/CLOSE
- 6 MONTHS

Carry out inspection after you confirm the numbers of operation of opening and closing by using the push-button switch with the counter.

If you have any question, please contact the shutter manufacturer.

FOR CONTACT