

TOSO

CURTAIN MOTORS

POWERFUL 3L·3L-HM·3L-HL 220V
POWERFUL 4P·4P-HM·4P-HL 220V

C-11012503

INSTRUCTION MANUAL (FOR INSTALLATION CONTRACTORS)

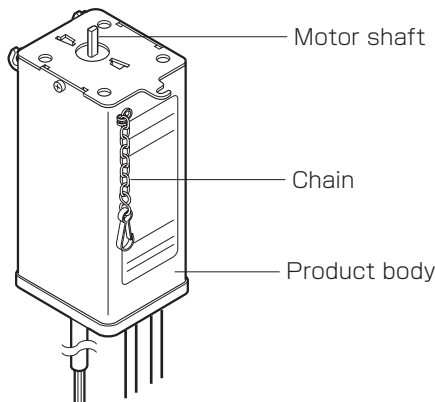
Please read carefully before installation.

! PRECAUTIONS

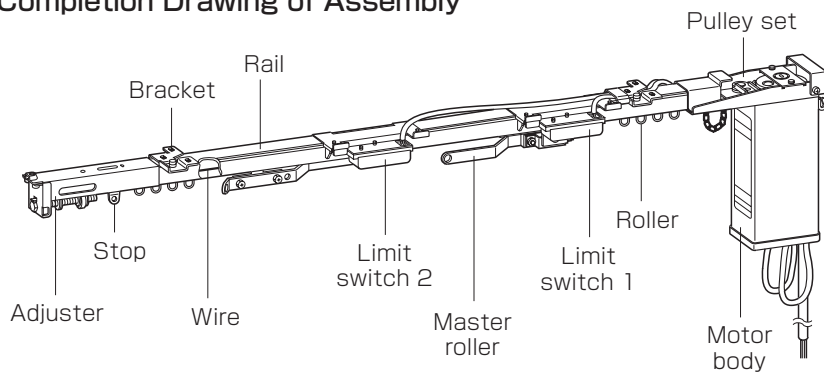
- 1 A series of these motors is used for indoor operations, and not used for outdoors.
- 2 These motors are designed for open/close operation of curtains. If these motors are used for any other purposes than open/close operations of curtains, be sure to contact our business office.
- 3 Don't disassemble any of these products.
- 4 **WARNING:** Important safety instructions. Follow all instructions, since incorrect installation can lead to severe injury.
- 5 Before installing the motor, remove any unnecessary cords and disable any equipment not required for powered operation.
- 6 The characteristics of the driven part must be compatible with the rated torque and rated operating time.

GENERAL DRAWING OF PRODUCTS AND NAME OF PARTS

■ Product Body



■ Completion Drawing of Assembly



P.1

POWERFUL 3L·3L-HM·3L-HL 220V, POWERFUL 4P·4P-HM·4P-HL 220V

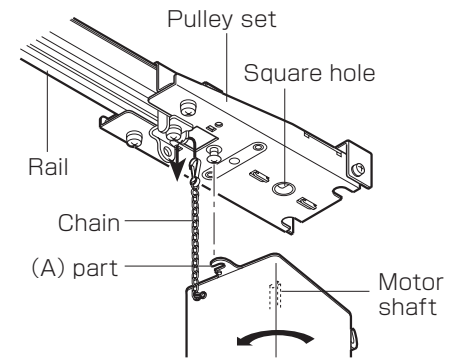
INSTALLATION PROCEDURES

! PRECAUTIONS

- 1 When fixing curtain rails, never do damage to the power line of the limit switch with an attaching screw or the like. Otherwise, it will cause a short circuit.
- 2 Set the motor to the firmly attached curtain rail.

■ Setting the motor

- 1 Align the motor shaft to the square hole of the pulley set. Then, insert the shaft into the hole in a vertical condition.
- 2 Turn the motor on the motor shaft, and give a firm fixation to (A) part with a screw.
- 3 Hang the chain onto the hole of the pulley set as shown in the drawing.

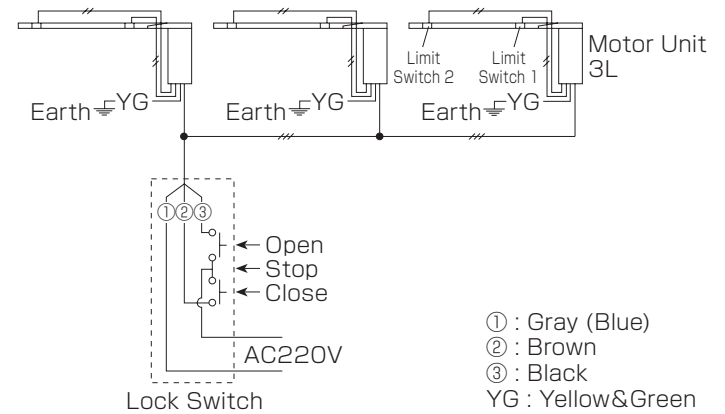


CONNECTION PROCEDURES

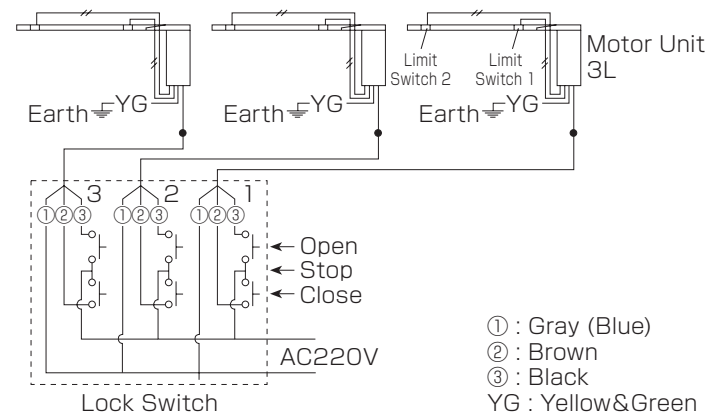
For the power lines and operating lines, negotiations should be sufficiently made with one of our staff members in charge and an electric worker.

■ POWERFUL 3L·3L-HM·3L-HL 220V

< For Simultaneous open/close Control >



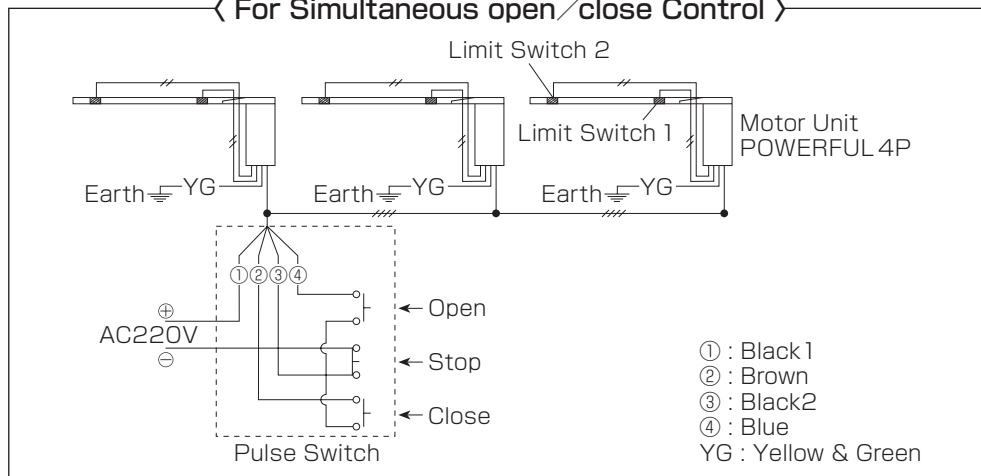
< For Selective open/close Control >



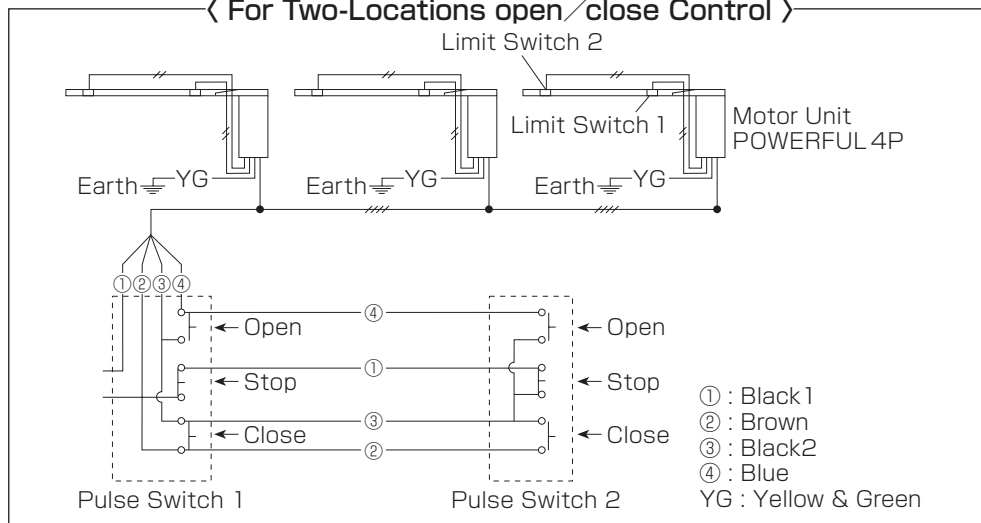
P.2

POWERFUL4P, POWERFUL4P-HM·4P-HL 220V

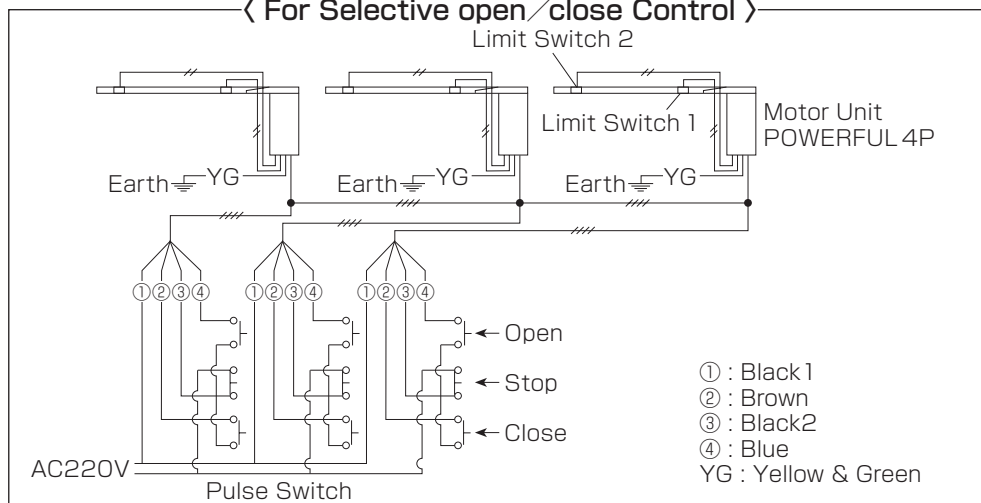
〈 For Simultaneous open/close Control 〉



〈 For Two-Locations open/close Control 〉



〈 For Selective open/close Control 〉



CONFIRMATION OF OPERATION

- 1 Make sure that there is no erroneous connection.
- 2 Power ON
- 3 Use the switch to make sure of the open/close operation of master rollers.

If the open/close operation is not made in a normal condition, refer to **TROUBLE SHOOTING**.

- 4 Make sure whether or not the operation is being made in a normal condition to install curtains.
- 5 Install the curtain to reconfirm whether or not the operation is correctly being made.

TROUBLE SHOOTING

TROUBLE	CHECK POINT
No operation at all.	Check power supply. Confirm plugs for Limit Switches are certainly plugged-in receptacle "1" and "2" on motor.
Operates only open or close.	Check plugs for Limit Switches. Confirm designated plug are properly located in receptacle "1" and "2" on motor.
Operates either open or close and stops at Limit Switch but no reverse movement. Inside motor box buzzes when one of push-button-switch being pressed.	Reconnect Blue-or Black2-colored wire instead of Black 1 wire in the terminal or in the switch. Holding down buzzerly noise may defect magnet relay in motor.
Opposing operation to selected push-button-switch.	Reconnect Brown-and Blue-colored wire passing each other in the terminal or in the switch.
Repeating movement between the Master Roller and Limit Switch.	<u>At closing end</u> (in the middle of rail) Width of curtain is shorter than distance of the Master Roller traverse way. Relocate Limit Switch to bring motor box closer <u>At opening end</u> (beside motor) Check distance shortage of the rollers store. Also check repulsive force from gathered pleats of thick curtain, when used. Relocate Limit Switch to keep motor away.
No movement of Master Roller while motor and Pulley Set are rotating.	Check tension of wire for Master Rollers. Retight tension at wire fixing, right hand of Master Roller, or readjust tension adjuster. Confirm wire is correctly on the Pulley.
No opening when making shock noises.	Check locking of curtain hooks on arms of Master Rollers at right-and-left crossing point. Reform curtain hooks to escape from locking.
Motor dose not stop when Master Roller pressing Limit Switch and anomalous noise in motor.	Check plugs "1" and "2" for Limit Switches and receptacles "1" and "2" on motor. Put plugs in the receptacles correctly.
Motor dose not rotate after repeating a long time running.	Wait 5 to 10 minutes. Motor equipped a thermal protection.
Roller travel is not smoothly or involves noise.	Check wire. Confirm neither wires are being crossed, nor catching Pulley Set, Roller or stopper of Adjuster. Rearrange wire and reset Rollers.
Dragging noise while open or close operation.	Check high tensioning of wire. Readjust tension by relaxing screw on Adjuster or loosening wire-fixing screw of Master Roller (R) .

PRODUCT SPECIFICATIONS

Item		Powerful 4P/3L	Powerful 4P-HM/3L-HM	Powerful 4P-HL/3L-HL	
Power source voltage	V	AC220	AC220	AC220	
Frequency	Hz	50	50	50	
Power source current	A	0.4	0.4	0.4	
Power consumption	W	80	80	80	
Operating voltage	V	same as power source	same as power source	same as power source	
Operating current	mA				
Rated torque	N·cm	1.8	3.6	7.3	
Rotation speed	r.p.m	104	52	26	
Brake torque	N·cm	—	0.6	0.6	
Time rating	min.	5	5	5	
Overheating protection operating temperature	℃	120±10	120±10	120±10	
Opening and closing time	New Delac rail Supertrac Theatrac	sec/m	5	9	18
			5	9	18
			3	6	12
Maximum curtain weight	New Delac rail Supertrac Theatrac	kg	30	—	—
			80	80	80
			80	100	120
Maximum rail length	New Delac rail Supertrac Theatrac	m	10	—	—
			20	10	10
			20	20	10

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