



INSTALLATION INSTRUCTIONS

AND

OPERATION MANUAL

SDT-5045

UL325-2010 Compliant

Commercial and Industrial Door Operator

Logic Control

Duty Cycle – 10 Cycles per Hour

IMPORTANT INSTALLATION INSTRUCTIONS

WARNING – To reduce the risk of severe injury or death to persons:

1. READ AND FOLLOW ALL INSTALLATION INSTRUCTIONS.
2. Install only on a properly operating and balanced door. A door that is operating improperly could cause severe injury. Have qualified service personnel make repairs to cables, spring assemblies, and other hardware before installing the operator.
3. Remove all pull ropes and remove, or make inoperative, all locks (unless mechanically and/or electrically interlocked to the power unit) that are connected to the door before installing the operator.
4. Install the door operator at least 8 feet or more above the floor if the operator has exposed moving parts. If the operator must be mounted less 8 ft (2.44 m) above the floor, then exposed moving parts must be protected by covers or guarding. Contact the manufacturer.
5. Locate the control station: (a) within sight of the door, and (b) at a minimum height of 5 feet above floors, landings, steps, or any other adjacent walking surface and (c) away from all moving parts of the door.
6. Install the Entrapment Warning Placard next to the control station in a prominent location.
7. Make sure the available power supply to be connected to the operator is of the same voltage, frequency, phase and wattage as indicated on the nameplate of the operator.
8. Read and understand the wiring diagram of the operator and the control station (open-close-stop push button), and any other equipment to be connected to the operator.
9. To avoid damage to the door and operator, make all door locks inoperative. Secure locks in the unlocked position, or install external electrical interlocks to prevent operation with the locks engaged.
10. Always disconnect power whenever installing or servicing the door operator or door.
11. All wiring must be permanent and comply with National Electrical Code (NEC) and local code requirements.
12. Any change in mounting position may result in a change of operator rotation and consequently in a change of control functions. Consult factory for any changes.
13. If the operator is provided with an auxiliary chain operator, the hand chain should be kept inside the chain bag when operating electrically.

SPECIFICATIONS

MOTOR				
Duty Cycle:	10 Cycles per hour			
Horsepower:	1/2 hp			
Speed:	1700 RPM			
Voltage:	24VDC			
Current:	See motor nameplate			
ELECTRICAL				
Transformer:	Power 21VAC 530VA, Control 25VAC 120VA			
Wiring Type:	Momentary pressure open, stop, constant pressure close (provided standard), with provision for momentary pressure close*			
Limit Adjustment:	Linear driven, fully adjustable screw type cams.			
MECHANICAL				
Drive Reduction:	SDT6-5045 60:1	SDT8-5045 88:1	SDT13-5045 113:1	SDT44-5045 144:1
Output Shaft Speed:	28 RPM	19 RPM	15 RPM	12 RPM
Door Speed:	6 - 8" per sec. average (typical)			
Brake:	Solenoid actuated brake			
ENTRAPMENT PROTECTION				
Sensing Edge*:	(Optional) Sensing device attached to the bottom edge of the door.			
Non-Contact Device*:	(Optional) Photo eye device.			
* Per the requirements of UL Standard 325, the door operator is setup for constant pressure to close the door. As an alternative, the door may be provided with a monitored entrapment protection device that will reverse the door upon contact with or detection of an obstruction during closing. Adding an entrapment device would enable momentary close operation.				

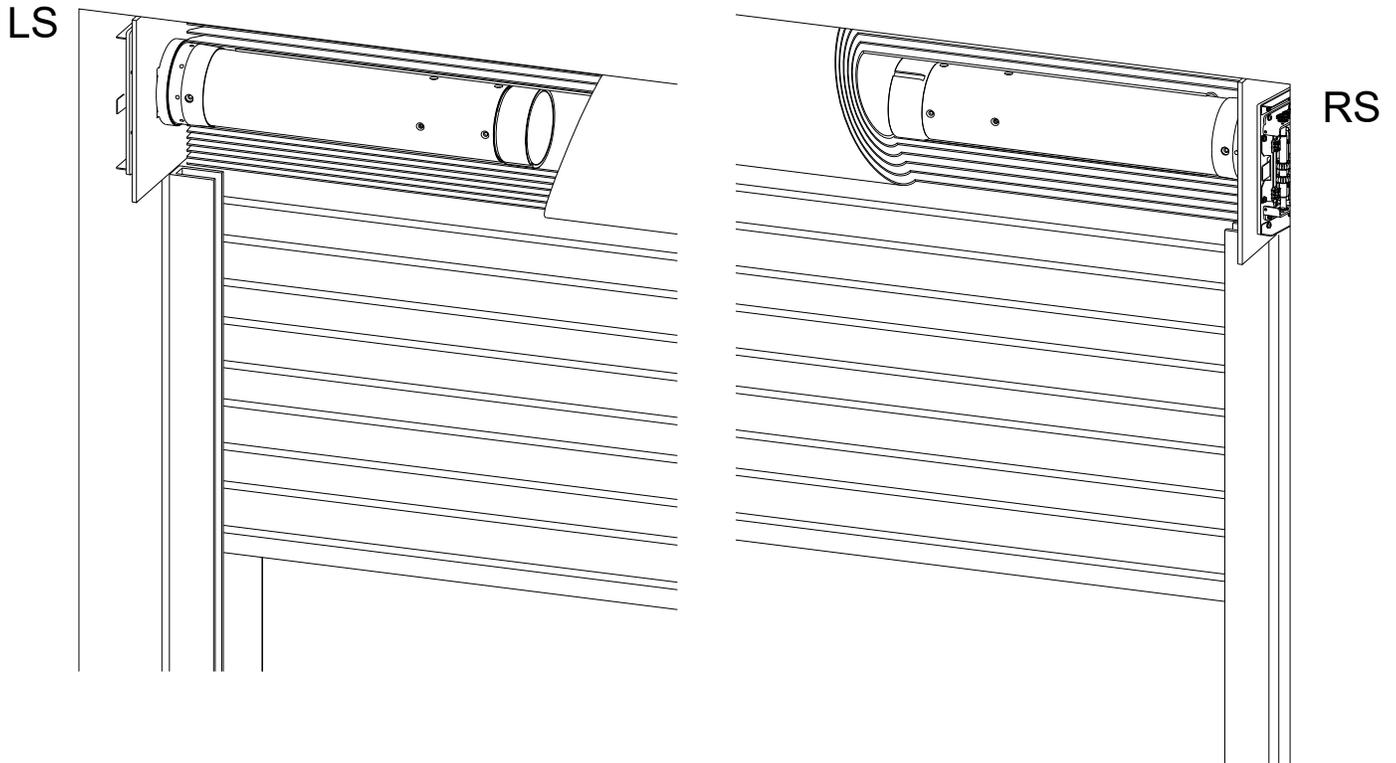
***Note:**

1. Non-contact device (photo eye) can be used on doors up to 45 ft. wide (or maximum rated range of device if less than 45 ft.). Use a sensing edge to provide entrapment protection on doors over 45 ft. wide.
2. Sensing edge can be used on all doors.

INSTALLATION INSTRUCTIONS

Consult door manufacturer for install details.

INSTALLATION POSITIONS



Illustrations only, consult door manufacturer for install details.

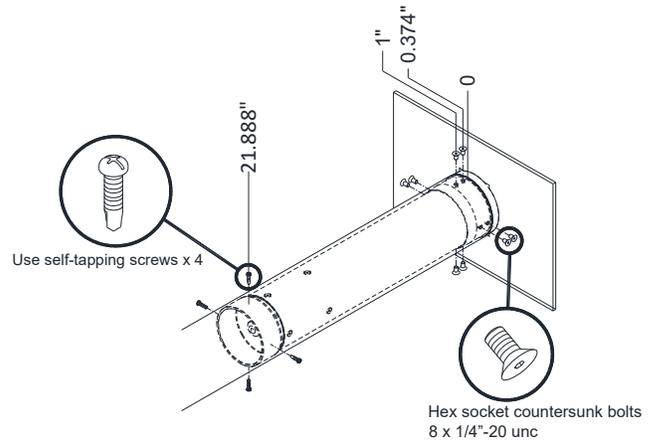
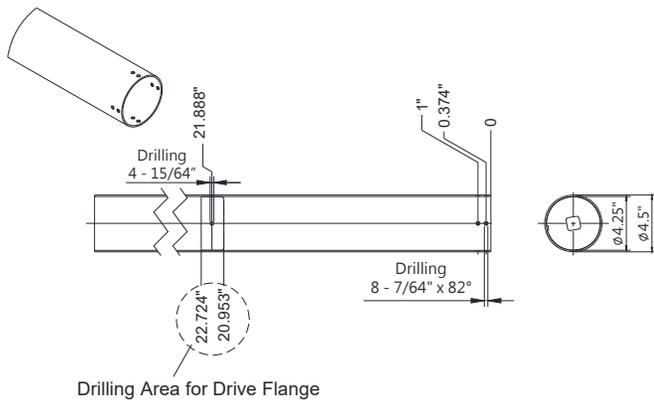
NOTE: Any change in mounting position may result in a change of operator rotation and consequently in a change of control functions. Consult factory for any changes. (LH=LS, RH=RS)

Please see page 9 for Left and Right Switch.

OPERATOR MOUNTING

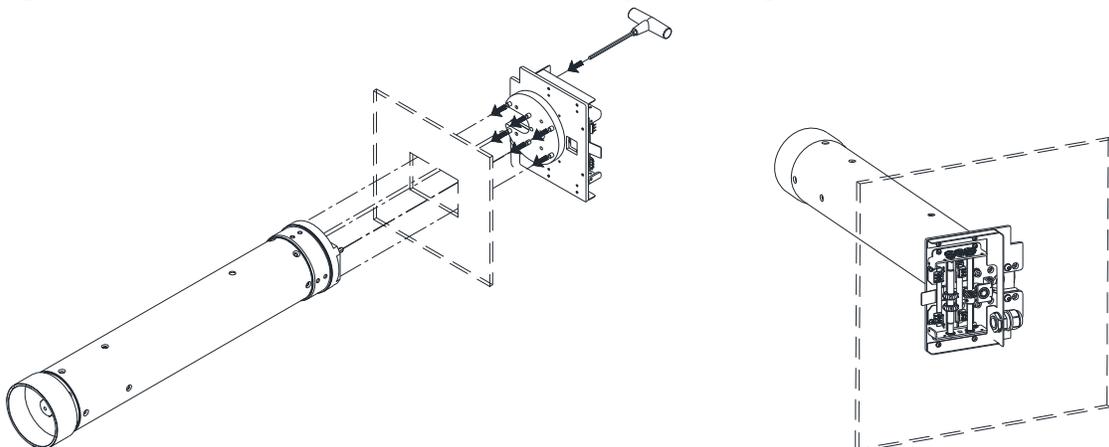
MOTOR MOUNTING TO DOOR PIPE

1. Door pipe and mounting holes preparation.
(Pipe is not provided with the operator.)
2. Pipe end mounting and drive flange mounting illustration.



MOTOR MOUNTING TO BRACKET

1. Dismantle the limit switch mechanism before mounting on the bracket if required.
2. Make sure the layout of the mounting holes on the bracket is correct.
3. Mount the operator to the mounting plate.
4. Mounting the limit switch mechanism on operator by fastening screws x 6.



Illustrations only, consult door manufacturer for install details.

LIMIT SWITCH ADJUSTMENT

Make sure the limit cams are positioned between the limit switch actuators before proceeding with adjustments.

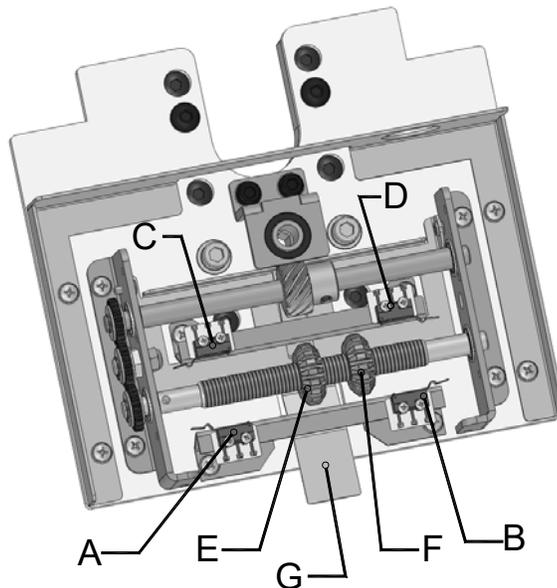
1. Open / Remove the control panel cover.
2. Open or close door to determine the moving direction of the limit switch cams.
3. Open or close door to the desired position.



WARNING

Disconnect power before adjusting limit switch cams.

4. While pressing the spring-loaded lever (G), which holds the limit switch cams in place, adjust the limit switch cam (E or F) until the micro switch (C or D) clicking sound is heard.
5. If the limit switch cam cannot be rotated to its desired position, release the lever and move the door away from the desired position, then adjust the limit switch cam to its desired position. It may be necessary to repeat this step until the exact position has been reached.
6. Repeat step 3 and 4 for the opposite position. Adjust close limit cams so that actuator is engaged as door fully seats at the floor.
7. Micro switch (A or B) can be adjusted to accommodate sensing edge cut-off position.



NOTE: “C” is usually the opening side and “D” is usually the closing side.

WIRING INSTRUCTIONS



Disconnect power at the fuse box before proceeding with any wiring.

WARNING

1. Do not install any wiring or attempt to run this operator without checking the wiring diagram located on the inside of the control box cover.
2. Do not turn on power until you have finished making all power and control wiring connections.
3. Do not run power and control wiring in the same conduit.
4. Any wire connected to the control panel must be protected by conduit or other means to ensure the safety and permanency of the wiring.
5. Use copper wire inside the control panel.
6. A separate circuit of adequate capacity is needed for the operator.
7. The operator must be properly grounded. The ground screw, painted green, is located inside the control panel.
8. For an operator, system, or external device requiring field installed wiring between a Class 2 output of an operator and an external device, the type of wiring shall be R/C (AVLV2/8), AWM, min. 22 AWG, rated 60°C, with VW-1/FT2.



Failure to properly ground the operator could result in electric shock and serious injury or death.

WARNING



To avoid damage to door and operator, make all door locks inoperative. Secure lock(s) in the unlocked position, or install electrical interlocks to prevent operation with the lock engaged.

WARNING

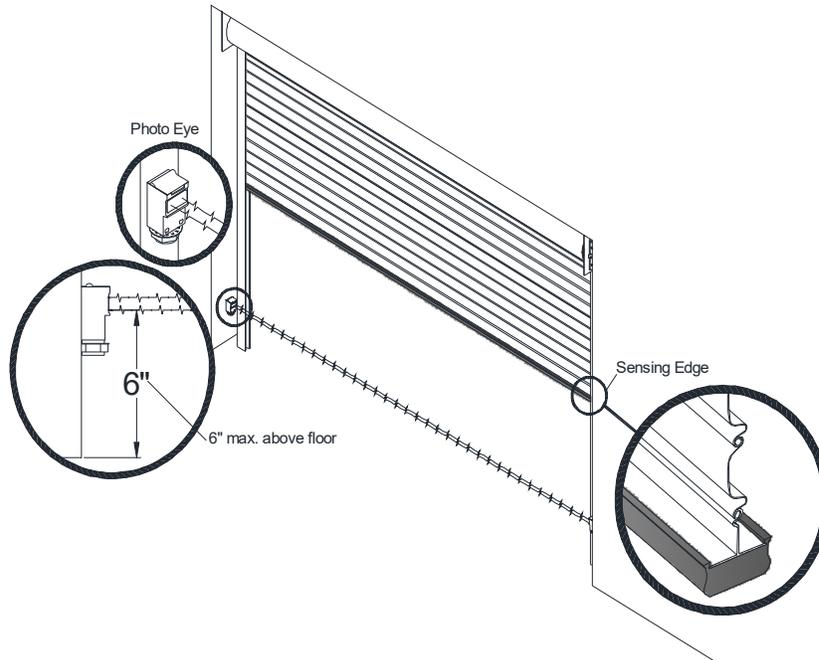
CONTROL WIRING



WARNING

If the door is not visible from the control station, or if any device other than the control station is used to activate the door, an entrapment protection device must be installed on the door. Failure to install an entrapment protection device may result in serious injury or death to person(s) trapped beneath the door.

1. Complete limit switch adjustments before making any sensing edge/non-contact device wiring connections to the operator.



Illustrations only, consult door manufacturer for install details.

Entrapment Device Options:

Sensing Module	Device Manufacturer	Model
ELR 2-wire resistive sensing edge (TB3 <u>9</u> & <u>10</u>)	Miller Edge Inc. * End of Line resistor type edge must have model number with Suffix T2.	ME110*, ME111*, ME120*, ME123*, ME112*, ME113*, ME116*, ME117*
		MT21*, MU21*, MT22*, MU22*, MC22*, MU33*, MC271*, CPT223*
		MEL-TXYY, MEL-RXYY
		RB-G-K10
	ASO	GE225, GE125, GE245, GE F45, GE F50, GE F56, GE F65, GE F85, GE F115
IR Monitored photo eye (TB3 <u>7</u> & <u>8</u>)	FRABA Inc.	Optical Edge Sensors and Photo Eyes, Models OPTOEDGE, OPTOEYE, OSE, OPE, OSE-P, OSE-R, OSE-T, RAY-N Reflective Photo Eye, Models Ray/RT -1004, -2004
	Martec Access Products Inc.	1266
	Miller Edge Inc.	IG2, MIRM
		RB-D-K10

Note: Please refer to sensing device manufacturer for specific installation and maintenance requirements.



WARNING

Disconnect power at the fuse box before proceeding with any wiring.

2. Locate the control station where the user can clearly see the operation of the door. Mount the enclosed placard adjacent or near the door.



WARNING

Controls shall be far enough from the door, or positioned such that the user is prevented from coming in contact with door while operating the controls.

3. Do not run control wiring in the same conduit as power wiring.
4. Any wire connected to the control panel must be protected by conduit or other means to ensure the safety and permanency of the wiring.



WARNING

Do not use radio controls with your operator unless some type of entrapment protection device has been installed. Failure to do so may result in serious injury or death to person(s) trapped beneath the door.

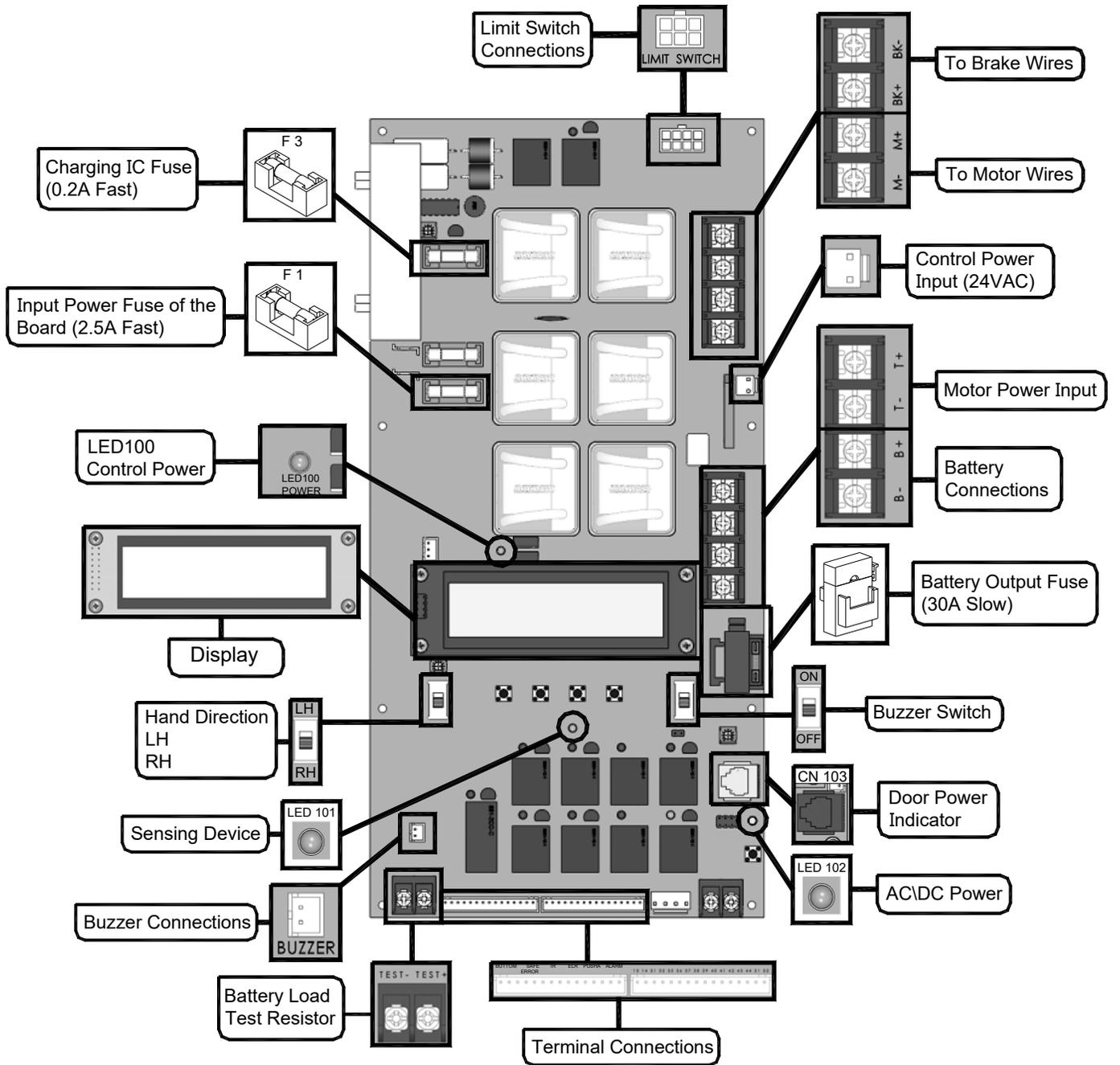


WARNING

Changing from left hand to right hand or vice versa could result in change of control wiring. Consult factory for details.

5. After installation, be sure that the operator, controls, and sensing edge or other entrapment protection devices have been tested and function properly.

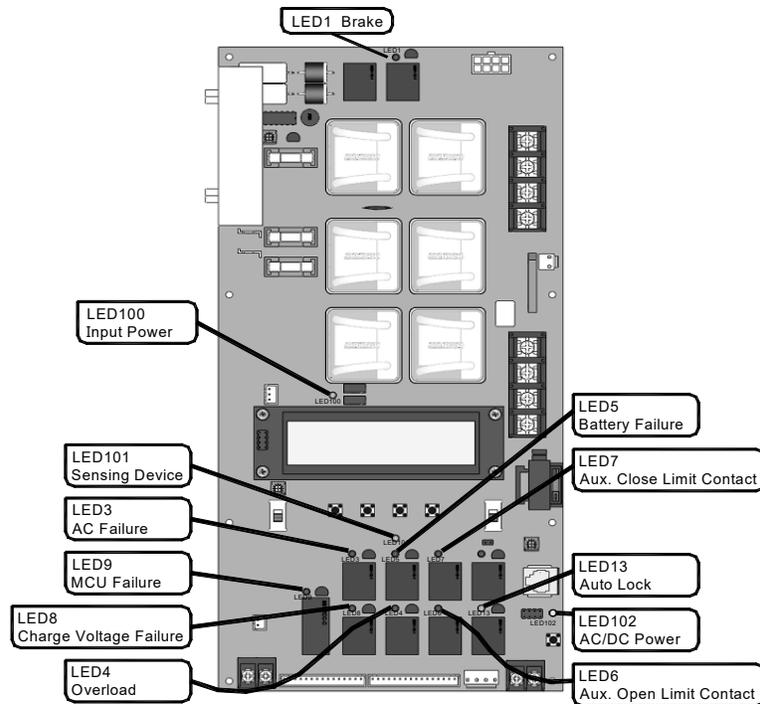
CONTROL OVERVIEW



Switches Indication

	<p>Hand Direction "LH": Left hand "RH": Right hand</p>		<p>Buzzer Switch "ON": Audio alarm on. "OFF": Audio alarm off.</p>
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Lights Indication

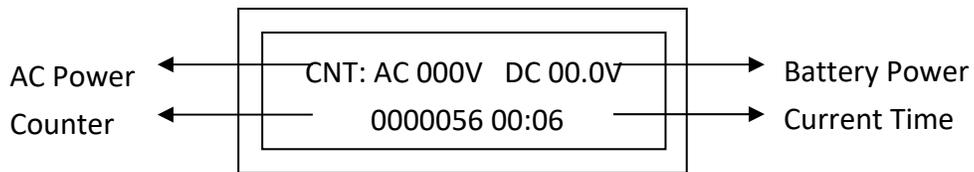


Light	Function	Color	ON	OFF
(R) LED1	Brake	Red	Activated	Not Activated
(R) LED3	AC Failure	Red	Normal	Abnormal
(R) LED4	Overload	Red	Normal	Abnormal
(R) LED5	Battery Failure	Red	Normal	Abnormal
(R) LED6	Aux. Open Limit Contact	Red	Not at open limit	Door reached open (T41&42 output)
(R) LED7	Aux. Close Limit Contact	Red	Not at close limit	Door reached close (T43&44 output)
(R) LED8	Charge Voltage Failure	Red	Normal	Abnormal
(R) LED9	MCU Failure	Red	Normal	Abnormal
(R) LED13	Auto Lock	Red	Lock	Unlock
(R) LED102	AC/DC Power	Red	Abnormal (Flashing)	Normal
(G) LED101	Sensing Device	Green	Normal	Abnormal
(G) LED100	Input Power	Green	Normal	Abnormal

Sound Warnings

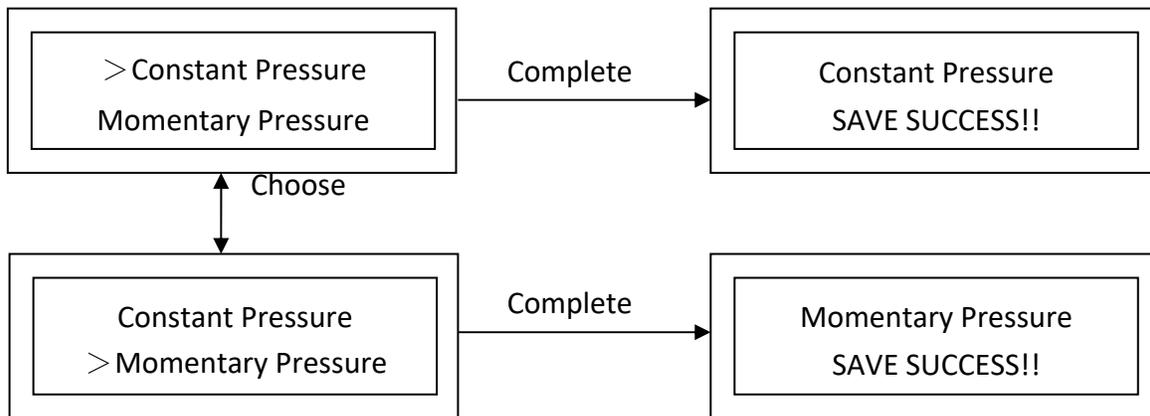
Description	Sound
Battery failure warning signal	B ___ B.B.B. B ___ B.B.B. B ___ B.B.B.
AC power loss warning signal	B ___ B.B. B ___ B.B. B ___ B.B.
Overload warning signal	B ___ B. B ___ B. B ___ B.
Stop key press warning signal	B.B.B.B. B.B.B.B. B.B.B.B.

FIELD PROGRAMMING



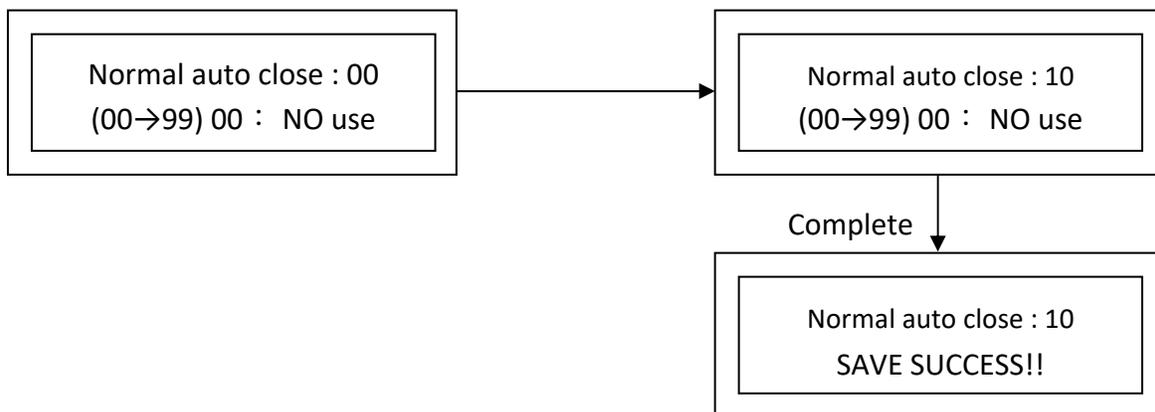
(1) Constant/Momentary pressure setting of OPEN/CLOSE Button

- Press "SET" for three seconds to enter setting mode. Use "SELECT" to choose "Constant Pressure". Use "+" and "-" to Constant Pressure or Momentary Pressure. Press "SET" again to save setting. "SAVE SUCCESS" will appear if setting is complete.



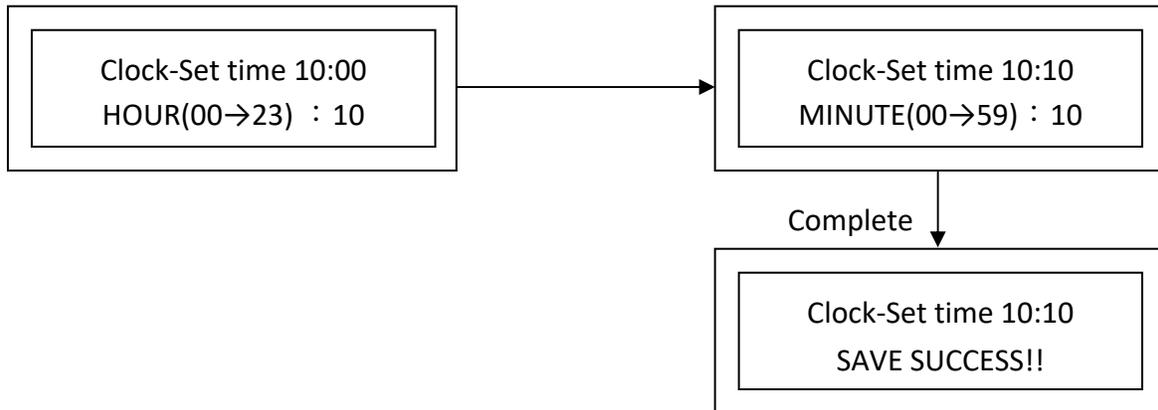
(2) Normal auto close (Timer to close)

- Press "SET" for three seconds to enter setting mode. Use "SELECT" to choose "Normal auto close". Use "+" and "-" to set second. (00~99 seconds)
- Press "SET" to save setting. "SAVE SUCCESS" will appear if setting is complete.



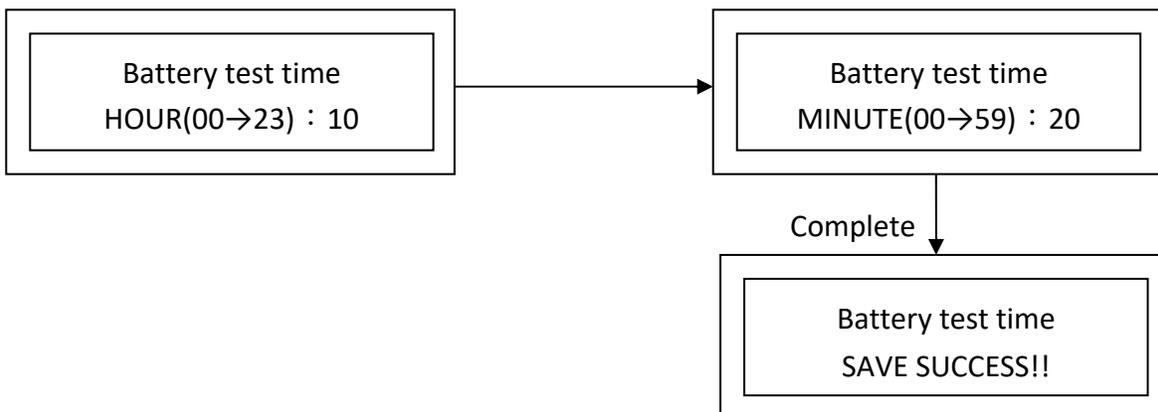
(3) Clock

- Press "SET" for three seconds to enter setting mode. Use "SELECT" to choose "Clock-Set time". Use "+" and "-" to set hour. (00~24 hours)
- Press "SELECT" again to set minute. Use "+" and "-" to set minute. (00~59 minutes)
- Press "SET" again to save setting. "SAVE SUCCESS" will appear if setting is complete.



(4) Battery load test time and setting: (Every 24 hours and 10 seconds of load test.)

- Press "SET" for three seconds to enter setting. Use "SELECT" to choose "Battery test time". Use "+" and "-" to set hour. (00~23 Hours)
- Press "SELECT" again to set minute. Use "+" and "-" to set minute. (00~59 Minutes)
- Press "SELECT" again to set condition. Use "+" and "-" to enable or disable battery load test.
- Press "SET" again to save setting. "SAVE SUCCESS" will appear if setting is complete.



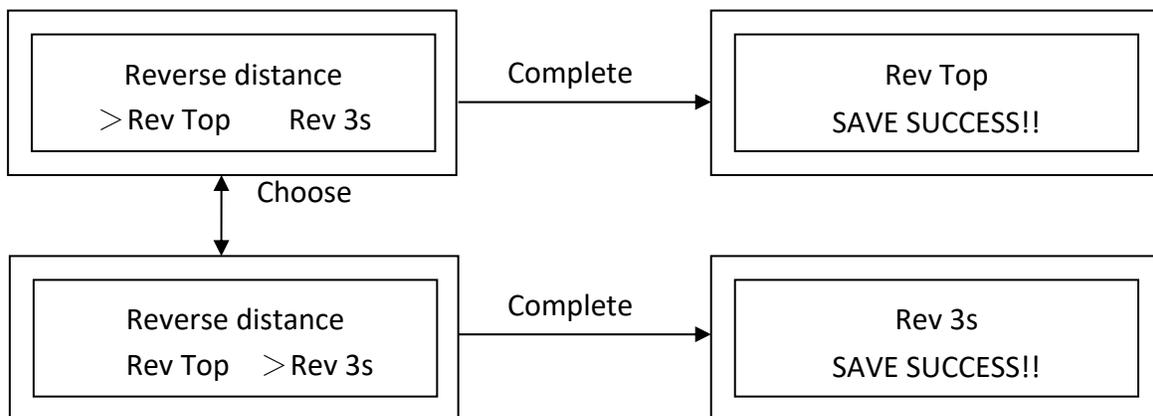
(5) Battery low auto OPEN

Press "SET" for three seconds to enter setting mode. Use "SELECT" to choose "Auto OPEN". Use "+" and "-" to Yes or No. "SET" again to save setting. "SAVE SUCCESS" will appear if setting is complete.



(6) Reverse distance

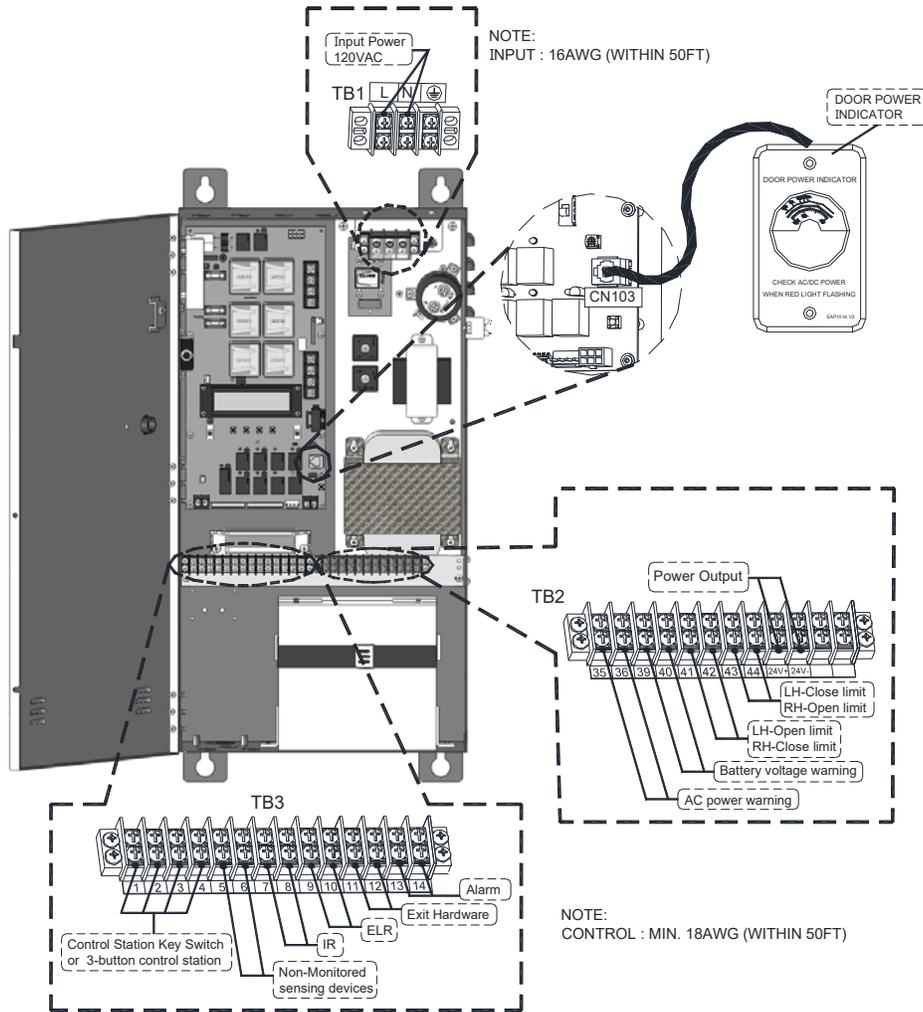
- Press "SET" for three seconds to enter setting mode. Use "SELECT" to choose "Reverse distance". Use "+" and "-" to Rev Top or Rev 3s. Press "SET" again to save setting. "SAVE SUCCESS" will appear if setting is complete.



TERMINAL CONNECTIONS

SDT-5045 Terminal Connections

WARNING : DISCONNECT ALL POWER BEFORE WORKING ON CONTROLS



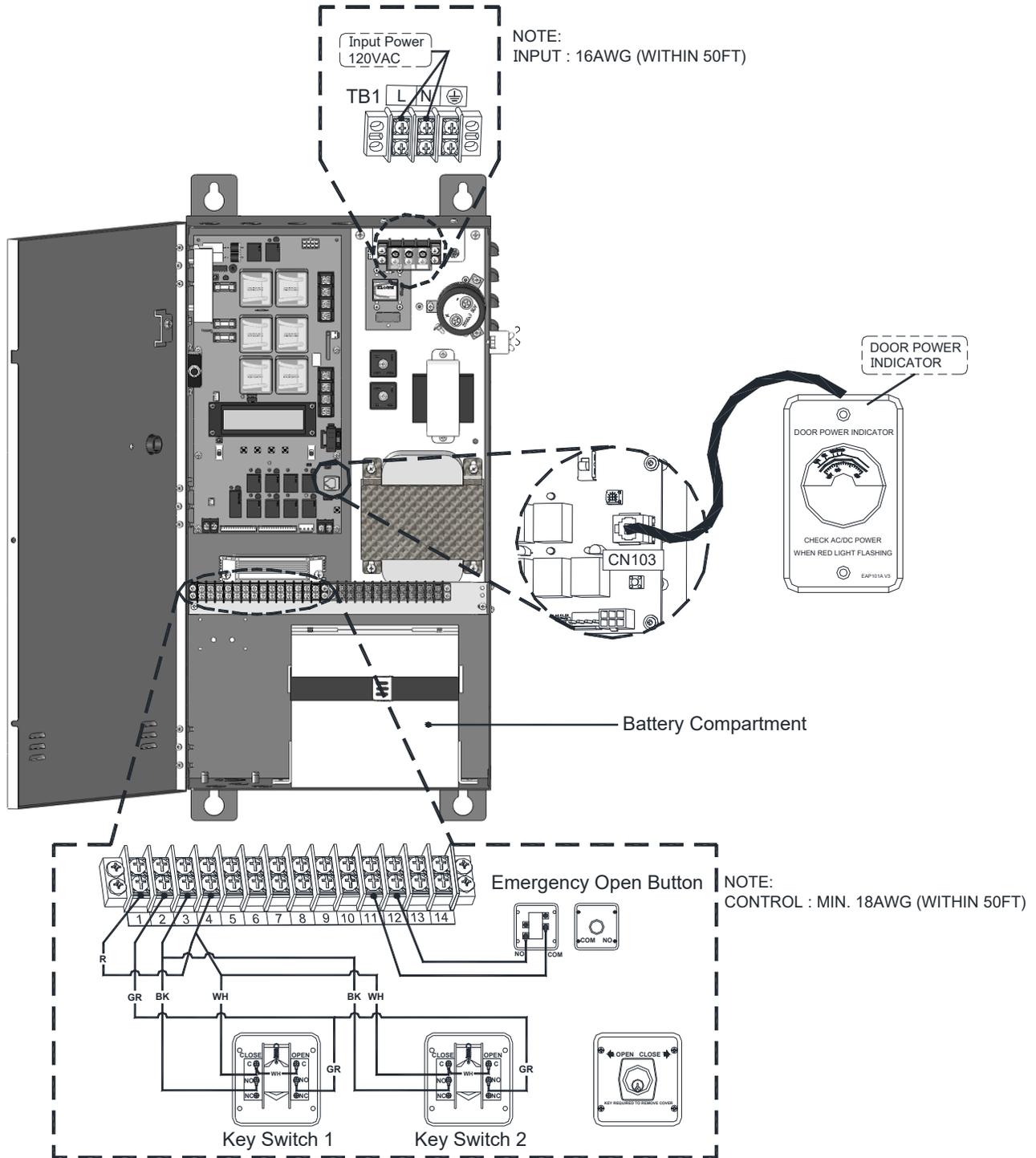
TB3													
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Control Station Key Switch or 3-button control station				Sensing edge connection N/O.		IR Photo Eyes		Sensing edge - ELR		EXIT Hardware Emergency open		Alarm connection dry contact	
Stop	Open	Close	Com										

TB2									
35	36	39	40	41	42	43	44	24V+	24V-
AC power warning dry contact, 24VAC/DC, 0.5A Max. Contact open when abnormal.		Battery voltage warning dry contact, 24VAC/DC, 0.5A Max. Contact open when abnormal.		LH-Open limit RH-Close limit dry contact, 24VAC/DC, 0.5A Max. Contact open when door reaches limit.		LH-Close limit RH-Open limit dry contact, 24VAC/DC, 0.5A Max. Contact open when door reaches limit.		Power Output 24VDC/1A Max.	

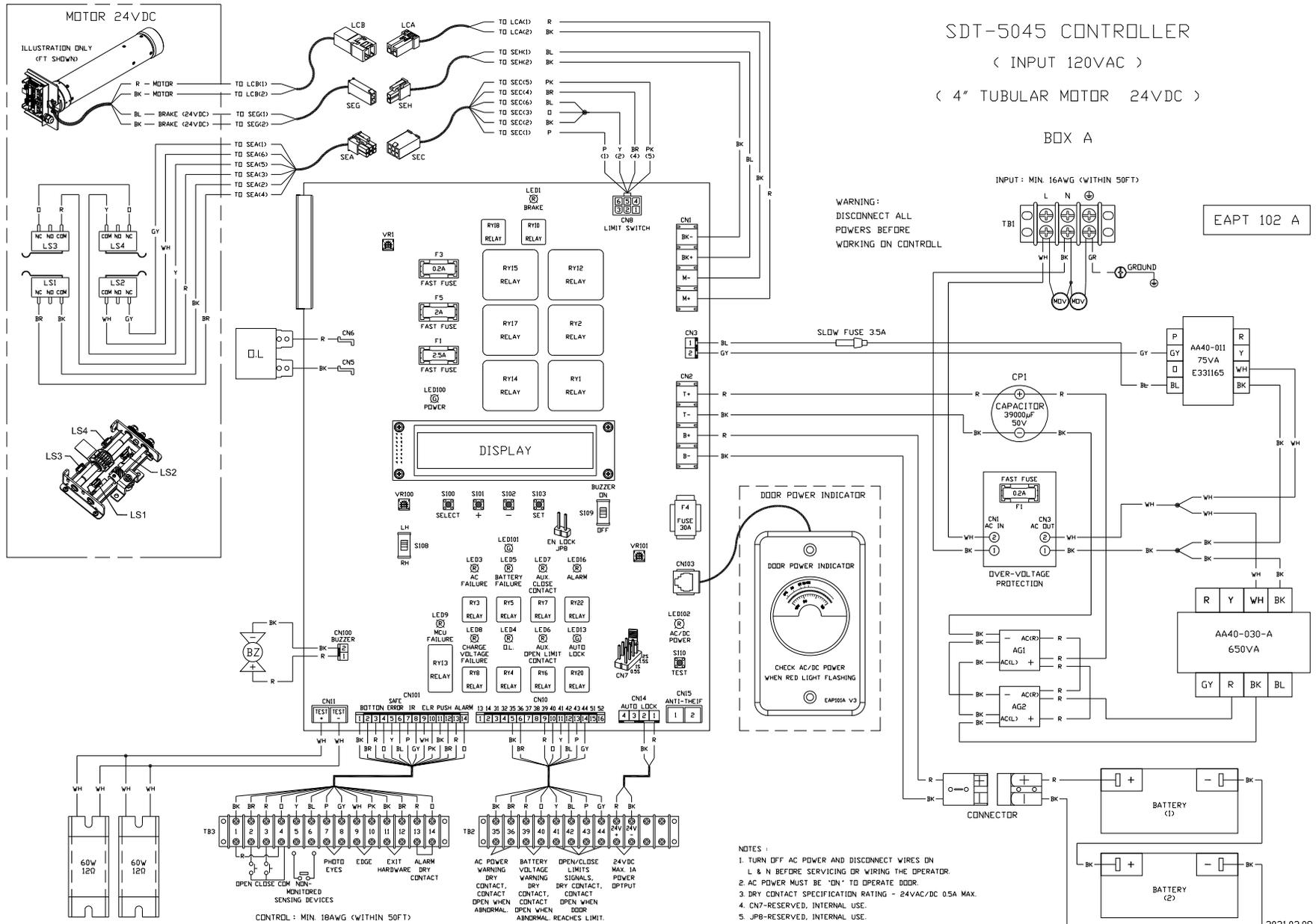
WIRING CONNECTIONS

SDT-5045 Wiring Connections

WARNING : DISCONNECT ALL POWER BEFORE WORKING ON CONTROLS



WIRING DIAGRAM



BATTERY SPECIFICATION

Type	Battery Rating
Lead Acid Rechargeable Battery	12VDC, Max. 17.2Ah

IMPORTANT SAFETY INSTRUCTIONS

WARNING –To reduce the risk of severe injury or death:

1. **READ AND FOLLOW ALL INSTRUCTIONS.**
2. Never let children operate or play with door controls. Keep the remote control (where provided) away from children.
3. Personnel should keep away from a door in motion and keep the moving door in sight until it is completely closed or opened. **NO ONE SHOULD CROSS THE PATH OF A MOVING DOOR.**
4. Test the door's safety features at least once a month. After adjusting either the force or the limit of travel, retest the door operator's safety features. Failure to adjust the operator properly may cause severe injury or death.
5. For products having a manual release, if possible, use the manual release only when the door is closed. Use caution when using this release when the door is open. Weak or broken springs may cause the door to fall rapidly, causing severe injury or death.
6. **KEEP DOORS PROPERLY OPERATING AND BALANCED.** See Door Manufacturer's Owner's Manual. An improperly operating or balanced door could cause severe injury or death. Have trained door systems technician make repairs to cables, spring assemblies, and other hardware.
7. **SAVE THESE INSTRUCTIONS.**

OPERATING INSTRUCTIONS

1. If a 3-button control station is used to operate the door, push the “OPEN” button to open the door, push the “CLOSE” button to close the door, push the “STOP” button to stop movement of the door while opening or closing. Removing pressure from the “CLOSE” button will cause the door to stop.
2. If a key switch control station is used to operate the door, turn the key to the “OPEN” position to open the door, turn the key to the “CLOSE” position to close the door, push the “STOP” button to stop movement of the door while opening or closing. Removing pressure from the “CLOSE” key position will cause the door to stop.
3. Door may also be operated by remote devices.

EMERGENCY MANUAL OPERATION

This operator has provisions for manually operating the door in case of emergency or power failure. This operator is equipped with an auxiliary hoist.

To operate the hoist:

1. Remove the hand chain from the chain bag.
2. Pull the hand chain to operate the door in the desired direction. (No clutch to engage)

Put the hand chain back into the chain bag, before operating the door again electrically.



WARNING

Turn off power to the operator before manually operating the door.



WARNING

Hand chain must be kept inside chain bag when operating electrically.

MAINTENANCE INSTRUCTIONS

The brake is a self-adjusting brake. It is maintenance free. The brake assembly requires no additional adjustments for its lifetime.

If an entrapment protection device is used, i.e. sensing edge or photoelectric sensors, please consult the manufacturer for maintenance instruction.



WARNING

Disconnect power supply to the operator before servicing.

Check the following items at the intervals listed:

CHECK LIST	DESCRIPTION	EVERY 3 MONTHS	EVERY 6 MONTHS	EVERY 12 MONTHS
Drive Chain	Check for excessive slack. Check & adjust as required Lubricate.	●		
Sprockets	Check set screw tightness	●		
Fasteners	Check & tighten as required		●	
Bearings & Shafts	Check for wear & lubricate	●		

- ❖ Do not lubricate motor. Lubrication could cause damage.
- ❖ Inspect and service whenever a malfunction either door or operator is observed or suspected.
- ❖ Before servicing, always disconnect power supply to the operator.
- ❖ Replace fuses only with those of the same type and rating.
- ❖ All replacement parts must be compatible with those originally provided. Consult manufacturer for replacement parts.



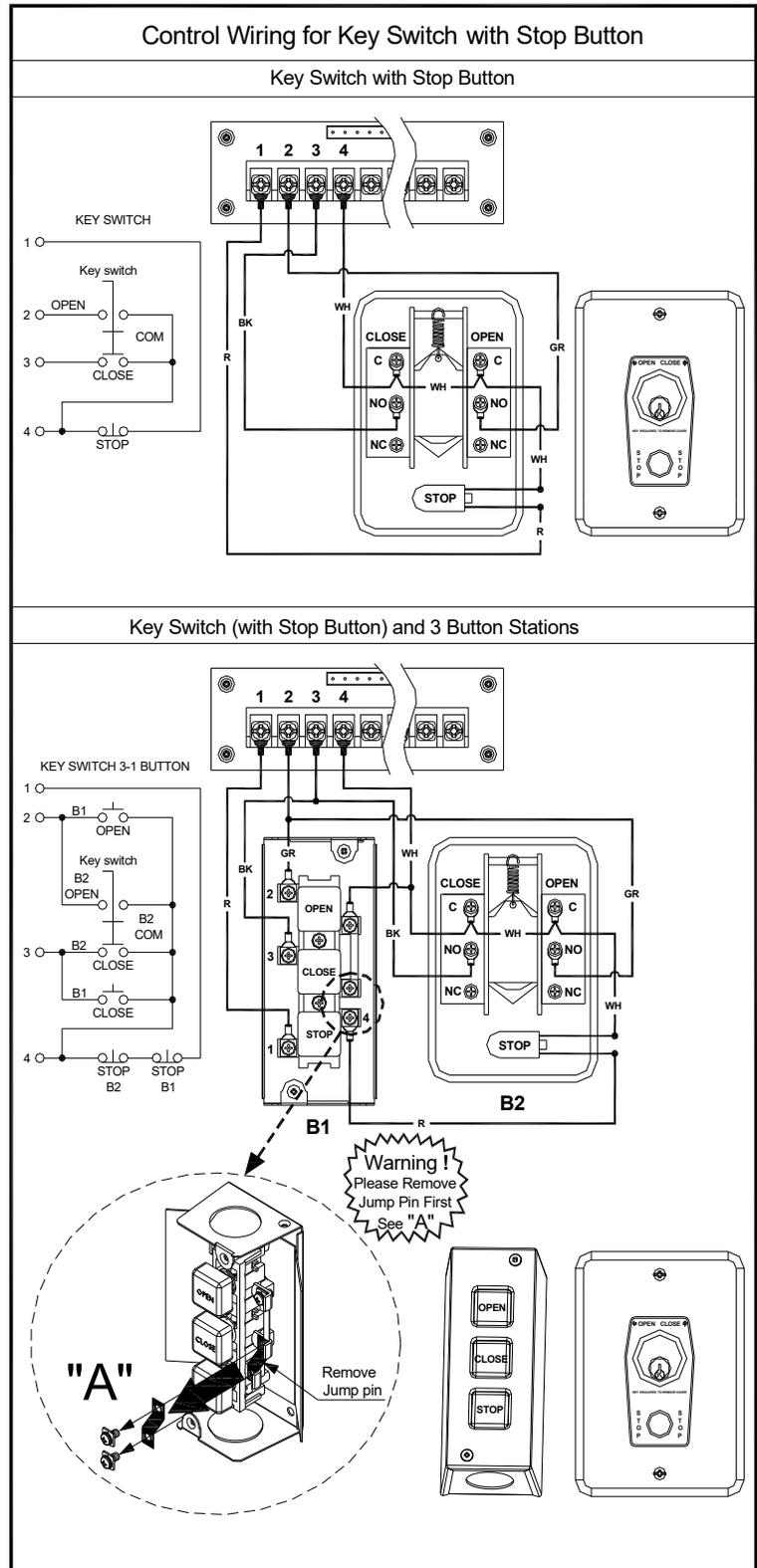
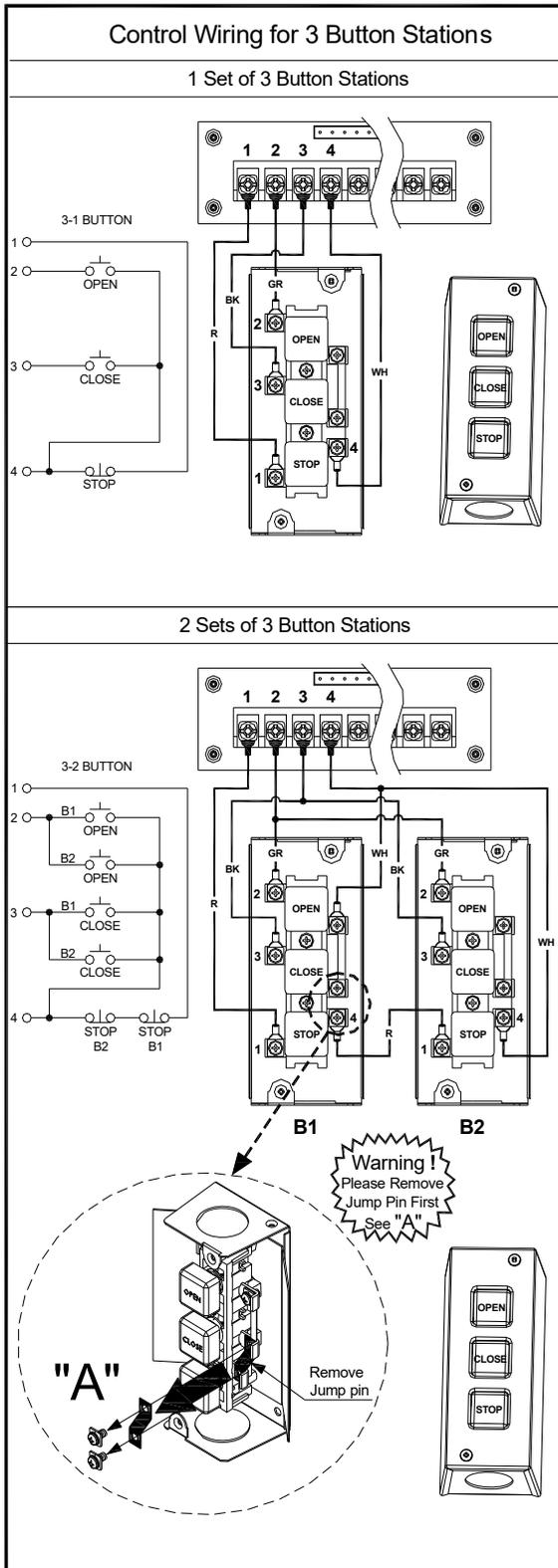
WARNING

Do not place hands or tools in or near the operator when the power is connected or when testing control or sensing devices. Always disconnect power before servicing or adjusting the operator.

APPENDIX 1

Control Connections Diagrams

CCD-PCB-A01



APPENDIX 2

Control Connections Diagrams

CCD-PCB-B02

