INSTALLATION INSTRUCTIONS

AND

OPERATION MANUAL

FS-EP Series
Rolling Fire Door Operators

UL325-2010 Compliant

Restricted Duty Operators

SMART Control

10/16
This Product is Covered Under US Patents 5,605,185 5,673,514 & 5,893,234

IMPORTANT INSTALLATION INSTRUCTIONS

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

1. READ AND FOLLOW ALL INSTALLATION INSTRUCTIONS.

   WARNING! – Components under **extreme spring tension** can cause death or serious injury.

2. Install only on a properly operating and balanced door. A door that is operating improperly could cause death or serious injury. Trained door systems technicians make all necessary adjustments and repairs to the door before installing the operator.

   Note: Fire door spring tension must be adjusted per the manufacturer's installation instructions to allow for automatic closing during a drop test, fusible link/alarm activation and/or power failure (Power failure condition only applies to operators capable of fail-safe closing).

3. Remove all pull ropes.

4. Unless the door operator includes an internal lock sensing system, or external electrical interlocks are installed, remove or make all door locks inoperative, or secure locks in the unlocked position to prevent operation with the locks engaged.

5. 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.

6. Do not connect the door operator to the source of power until instructed to do so.

7. Locate the control station (open-close-stop push button, key station, or the like):
   a) within sight of the door
   b) at a minimum height of 5 feet above the floor so small children cannot reach it, and
   c) away from all moving parts of the door.

8. Install the Entrapment Warning Placard next to the control station in a prominent location.

9. 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.

10. Read and understand the wiring diagram of the operator and the control station and any other equipment to be connected to the operator.

11. Always disconnect power whenever installing or servicing the door operator or door.

12. All wiring must be permanent and comply with National Electrical Code (NEC) and local code requirements.

13. 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.

14. For products having a manual release, instruct the end user on the operation of the manual release.

SPECIFICATIONS

MOTOR	
Type:	Restricted cycle duty (30 cycles per hour)
Horsepower:	1/3 hp, 1/2 hp, 3/4 hp
Speed:	1700 RPM
Voltage:	115, 230 – 1 phase 208/230, 460, 575 – 3 phase 230 volt 3 phase motor is suitable for use with 208 volts *(see Wiring Diagrams and Appendix 5 for wiring change instructions)*
Current:	See motor nameplate
ELECTRICAL	
Transformer:	24VAC
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:	43:1 (1/3 hp & 1/2 hp), 57:1 (3/4 hp)
Output Shaft Speed:	39 RPM (1/3 hp &1/2 hp), 30 RPM (3/4 hp)
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.**	

Notes:

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.

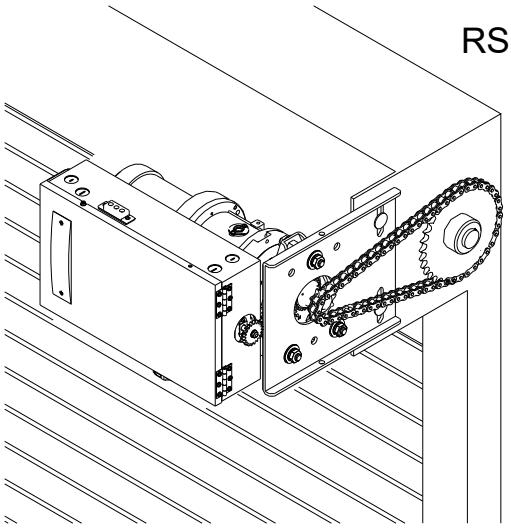
TYPES AND SIZES OF DOORS

Consult factory for details.

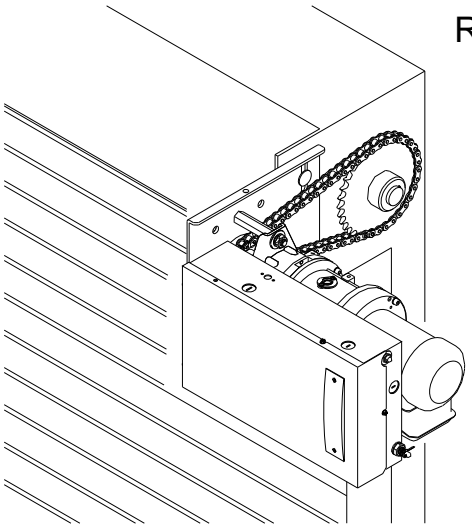
INSTALLATION INSTRUCTIONS

INSTALLATION POSITIONS (for 1/3 hp, 1/2 hp)

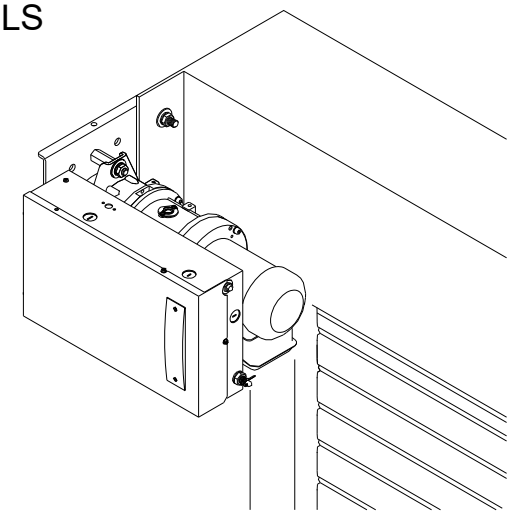
RS



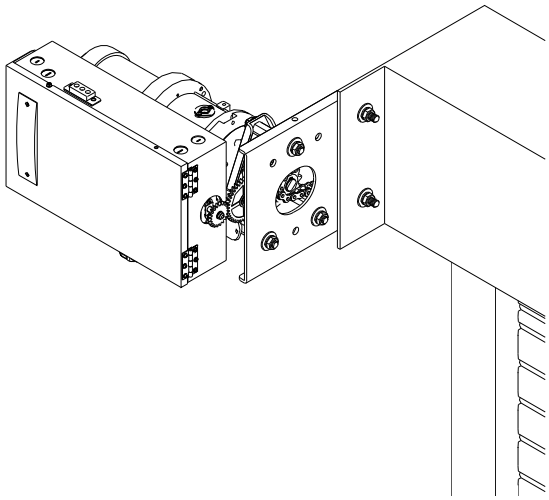
RA



LS



LA

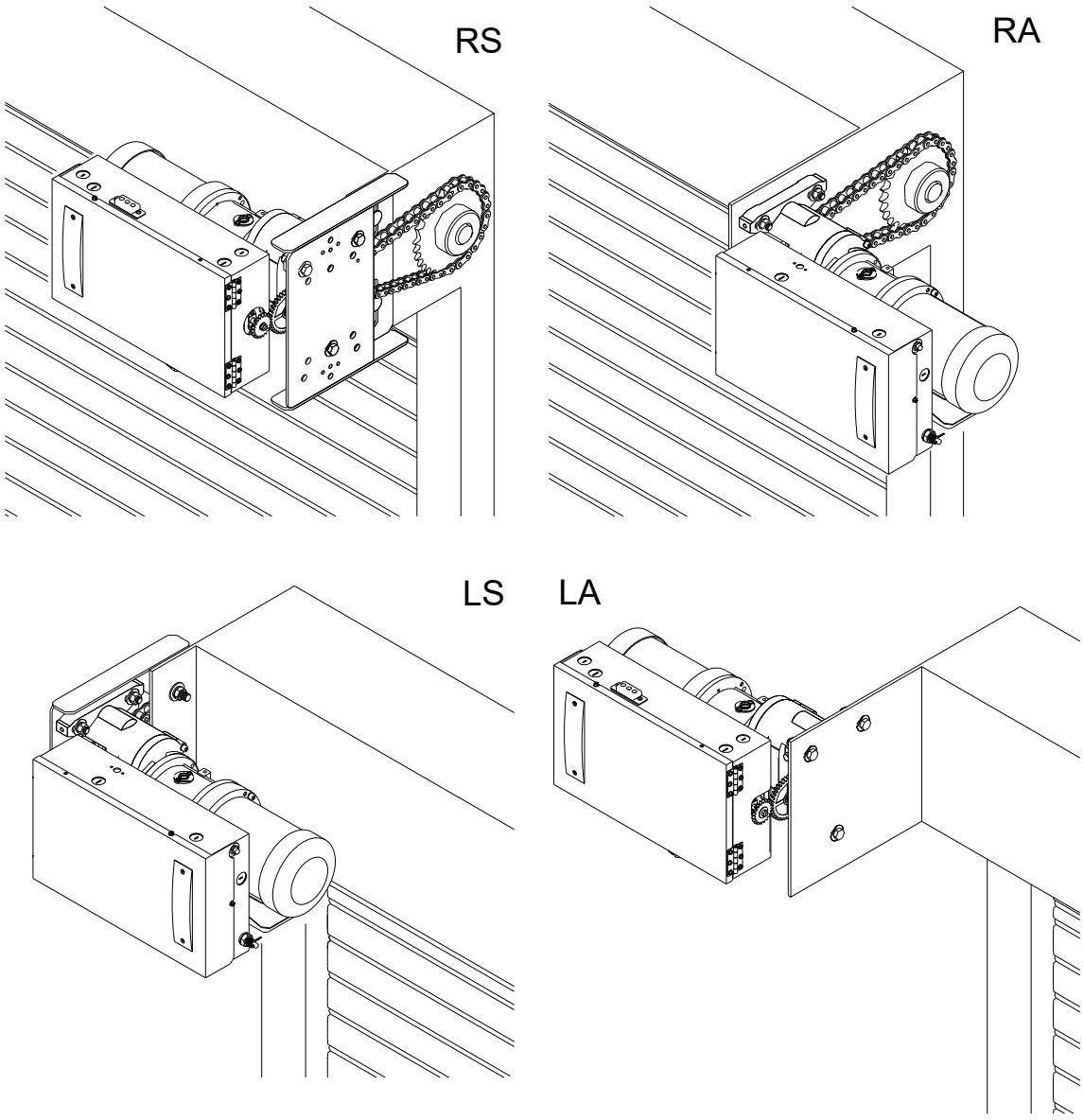


Consult factory for changes in installation positions.

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. (LS and RA mounting positions are LH operators, RS and LA positions are RH operators)

Operators mounted in alternate positions (LA, RA) require the long mounting legs in lieu of the standard short mounting legs.

INSTALLATION POSITIONS (for 3/4 hp)



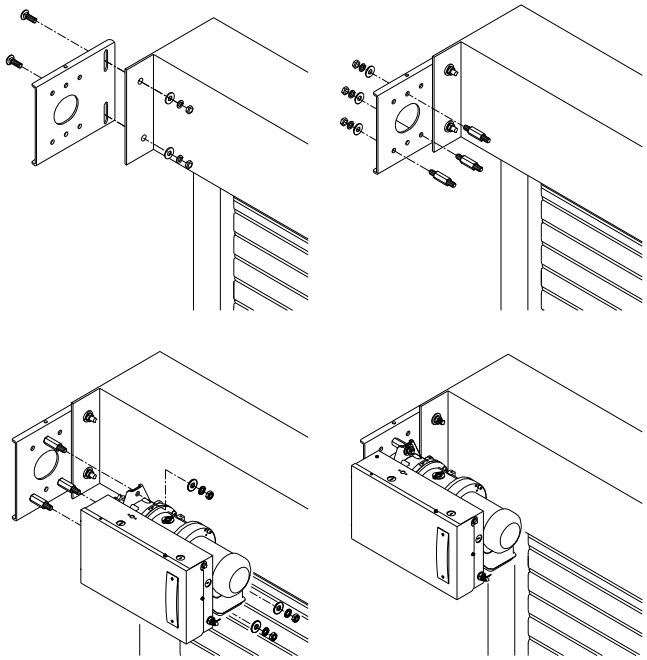
Consult factory for changes in installation positions.

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. (LS and RA mounting positions are LH operators, RS and LA positions are RH operators)

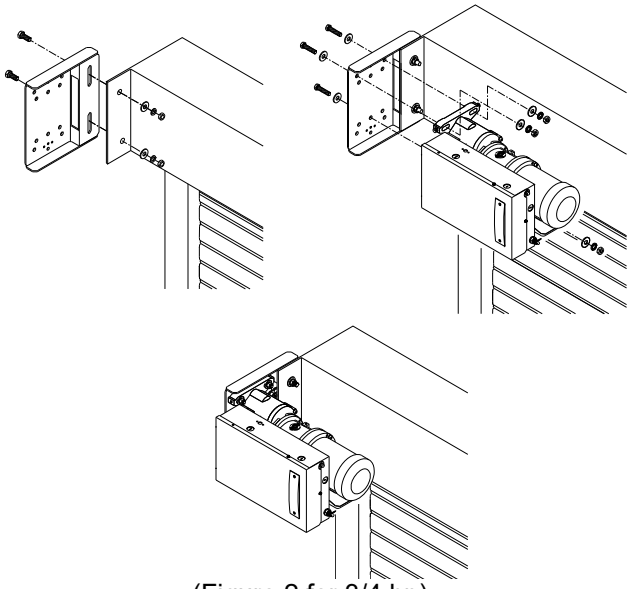
Operators mounted in alternate positions (LA, RA) require a straight mounting bracket in lieu of the standard off-set bracket.

OPERATOR MOUNTING

1. Before the operator is installed, verify that the door is properly operating and balanced.
2. Make sure the layout of the mounting holes on the bracket are correct.
3. Bolt the operator mounting plate to the door bracket plate.
4. Attach and tighten the three mounting legs to the mounting plate (for 1/3 and 1/2 hp only).
5. Mount the operator to the three legs and tighten (for 1/3 and 1/2 hp only). For 3/4 hp, mount the operator base to the mounting plate.



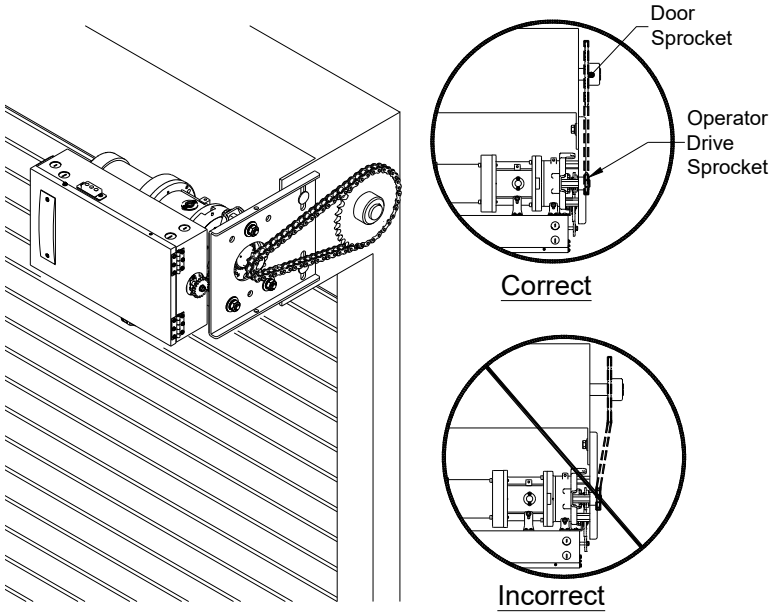
(Figure 1 for 1/3 hp and 1/2 hp)



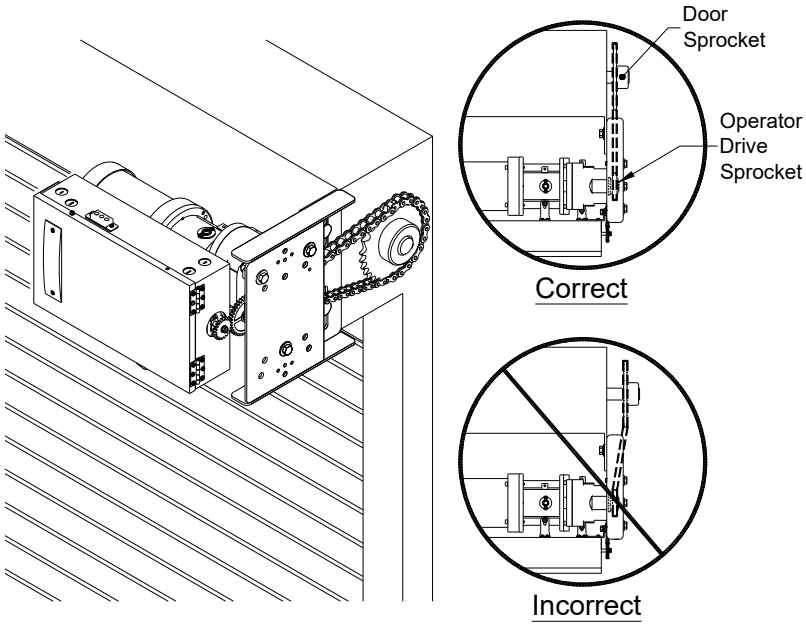
(Figure 2 for 3/4 hp)

6. When the operator assembly is attached to the door bracket, be sure the door driven sprocket is properly aligned with the operator drive sprocket before securing the driven sprocket to the shaft. (See Figure 1 for 1/3hp and 1/2hp; see Figure 2 for the 3/4hp)

7. The shelf or bracket must provide adequate support for the operator. Prevent play between the operator and the door shaft. The operator must be securely attached with the drive shaft parallel to the door shaft. It may be necessary to field brace the operator/bracket.



(Figure 1 for 1/3 hp and 1/2 hp)



(Figure 2 for 3/4 hp)

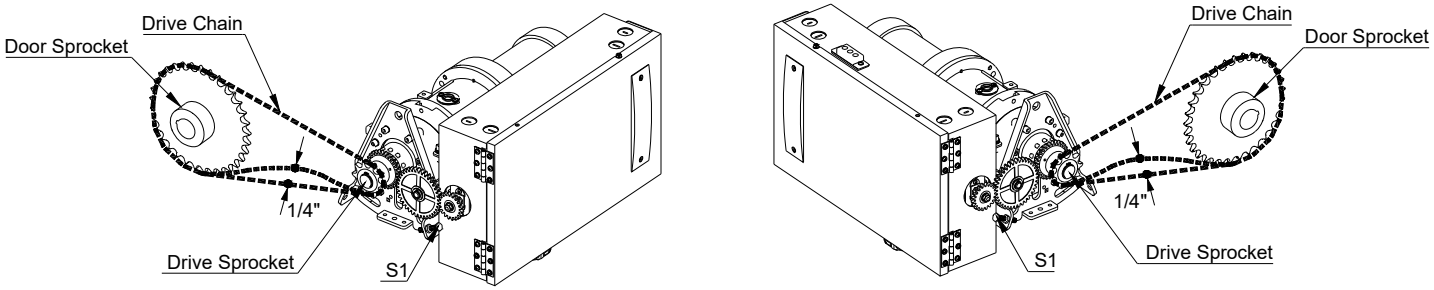
DRIVE CHAIN ADJUSTMENT

NOTE: Use correct type, size and proper length of roller chain.

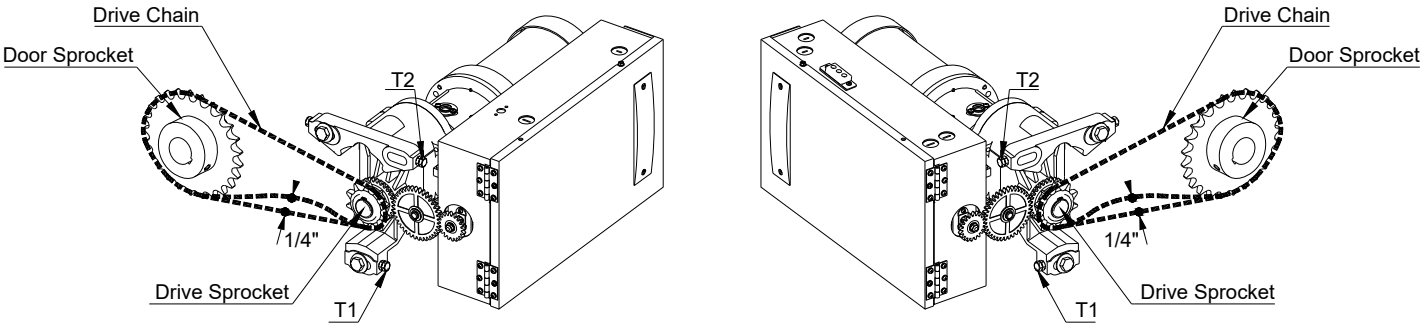
1. Adjust the drive chain by tilting or move the operator so that there is about 1/4” of slack when the chain is depressed.

Note: The set screw included in the operator may be used for adjustment. (See figure 1- S1 location for 1/3 hp and 1/2 hp), (See figure 2 - T1, T2 for 3/4 hp).

2. Once the drive chain has been tightened and the base leg screws have been set, and then tighten the operator screws.



(Figure 1 for 1/3 hp and 1/2 hp)



(Figure 2 for 3/4 hp)

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.

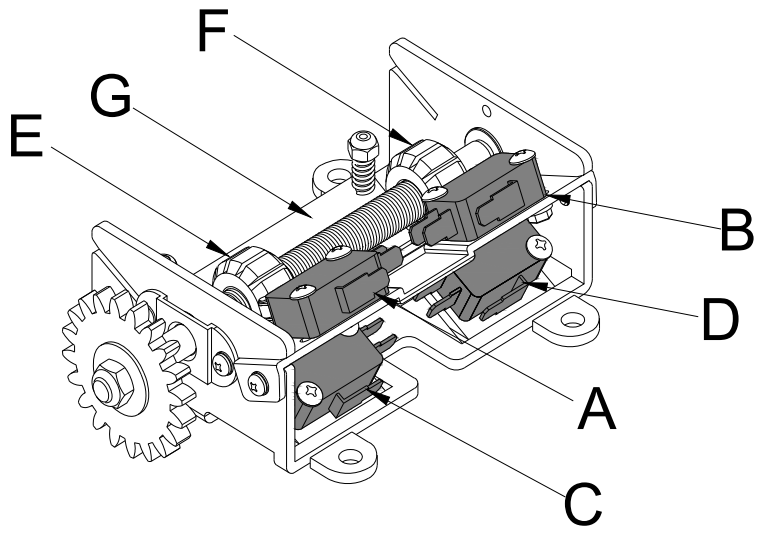
WARNING **Disconnect power before adjusting limit switch cams.**

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 direction. 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 fuse line 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.

WARNING

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

WARNING

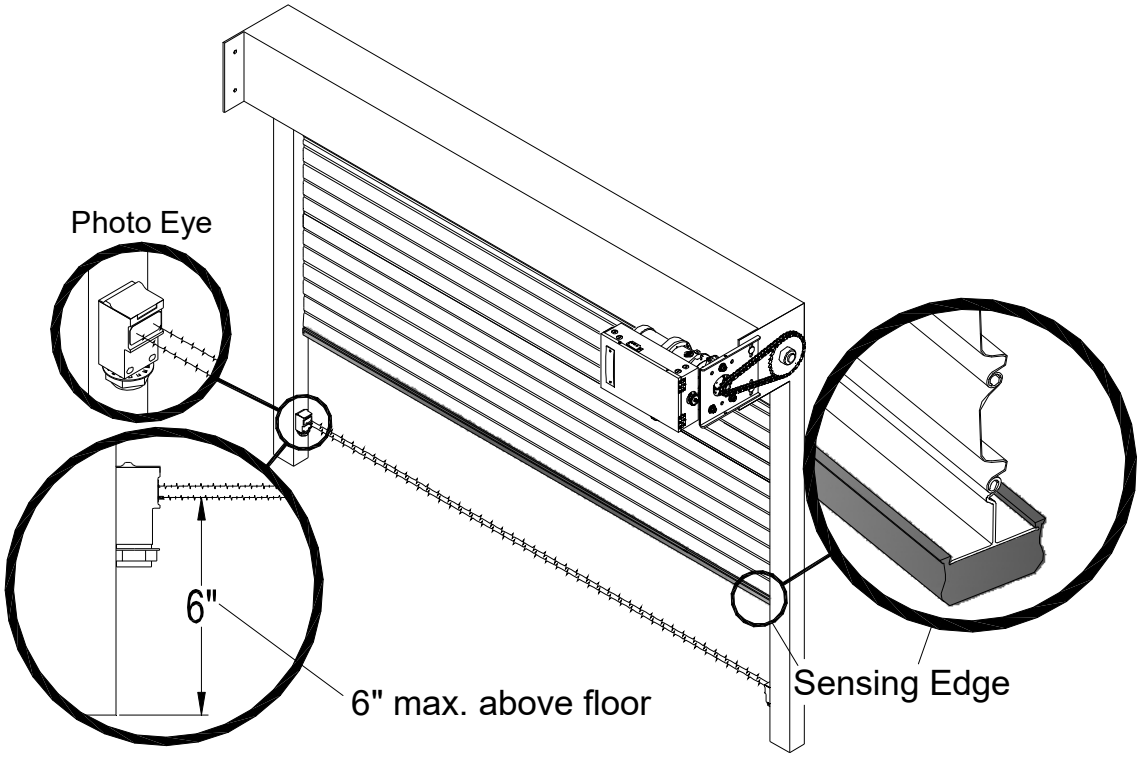
Unless the operator includes an internal lock sensing system, or external electrical interlocks are installed, remove or make all door locks inoperative, or secure locks in the unlocked position. Failure to disable the locks could result in damage to the door or operator.

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.



Entrapment Device Options:

Sensing Module	Device Manufacturer	Model
ELR 2-wire resistive sensing edge	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
	ASO	GE225, GE125, GE245, GE F45, GE F50, GE F56, GE F65, GE F85, GE F115
IR Monitored photo eye	FRABA Inc.	Optical Edge Sensors and Photo Eyes, Models OPTOEYE, OPTOEDGE; Part Nos. OSE-T, OSE-R, OSE-P, OPE. Reflective Photo Eye, Models Ray/RT -1004, -2004
	Martec Access Products Inc.	1266
	Miller Edge Inc.	IG2, MIRM, MLC-K36, MLC-K72

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.

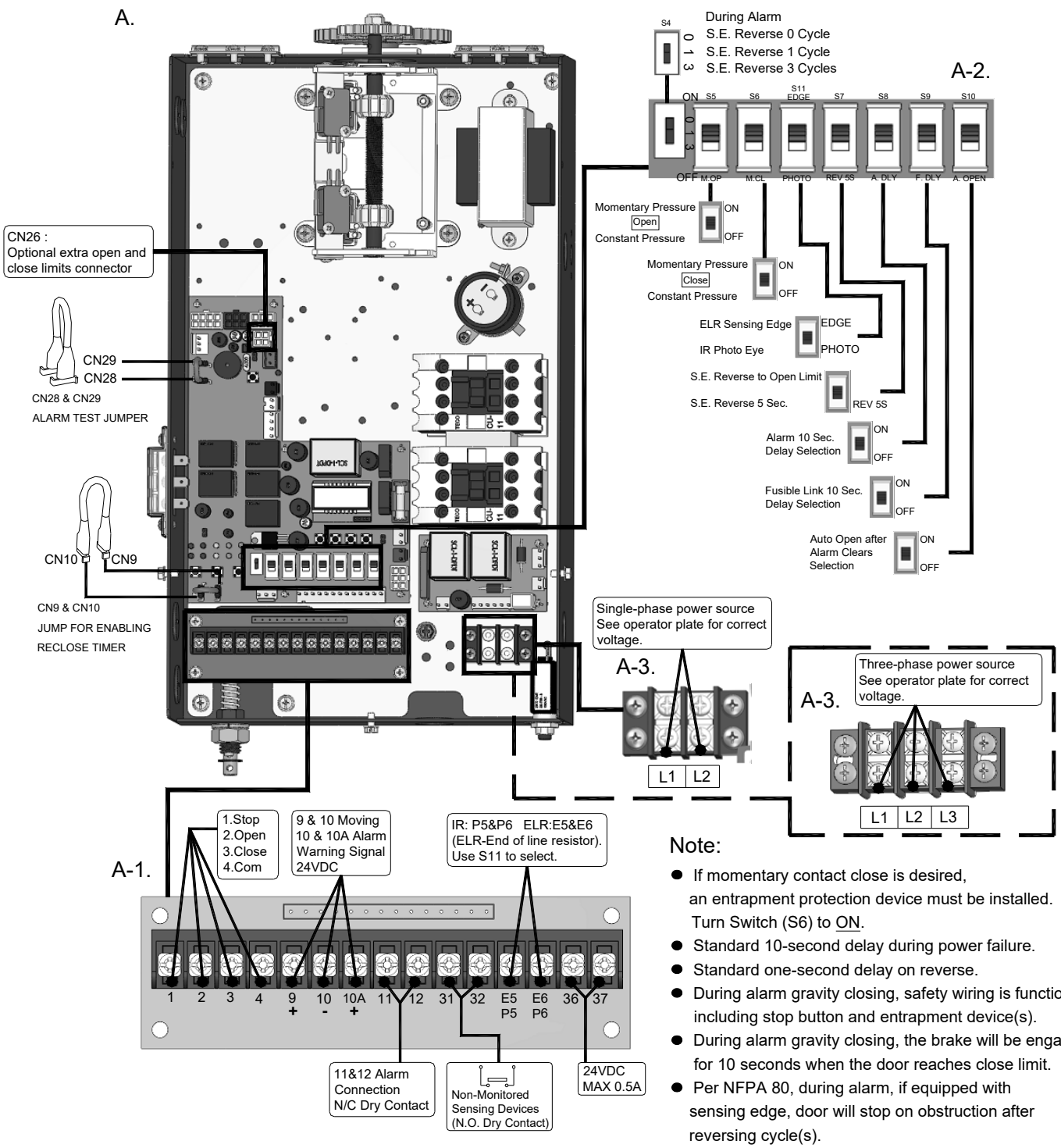
4. Any wire connected to the control panel must be protected by conduit or other means to ensure the safety and permanency of the wiring.

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 death or serious injury 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.

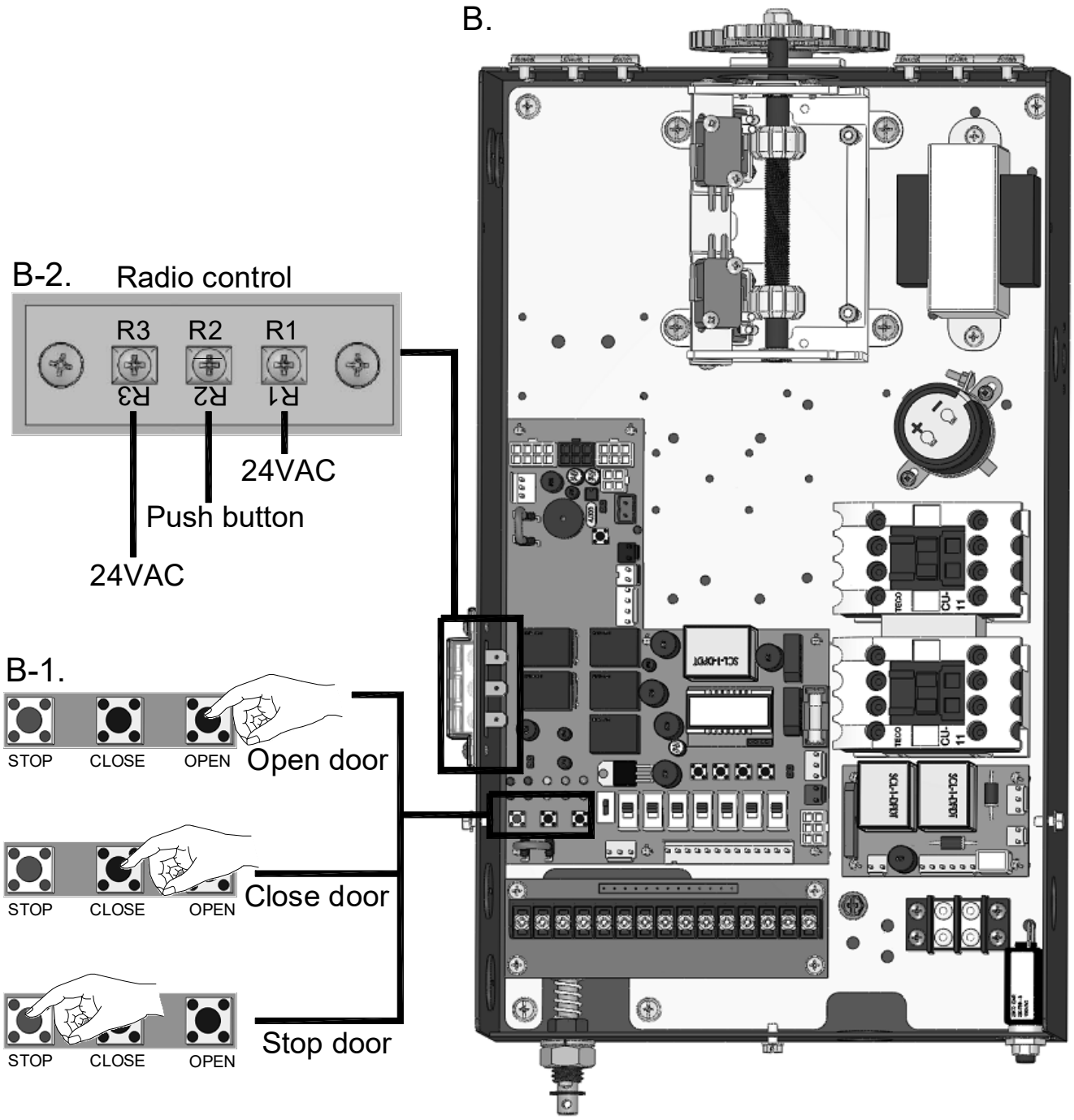
A. Control Function:



Note:

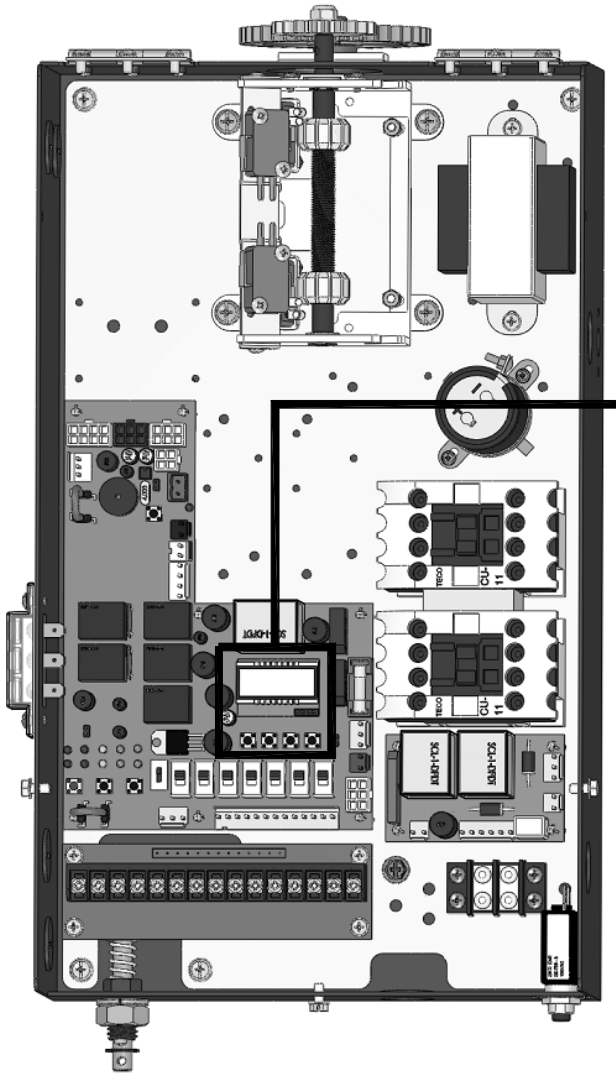
- If momentary contact close is desired, an entrapment protection device must be installed. Turn Switch (S6) to ON.
- Standard 10-second delay during power failure.
- Standard one-second delay on reverse.
- During alarm gravity closing, safety wiring is functional, including stop button and entrapment device(s).
- During alarm gravity closing, the brake will be engaged for 10 seconds when the door reaches close limit.
- Per NFPA 80, during alarm, if equipped with sensing edge, door will stop on obstruction after reversing cycle(s).

B. Auxiliary Function:

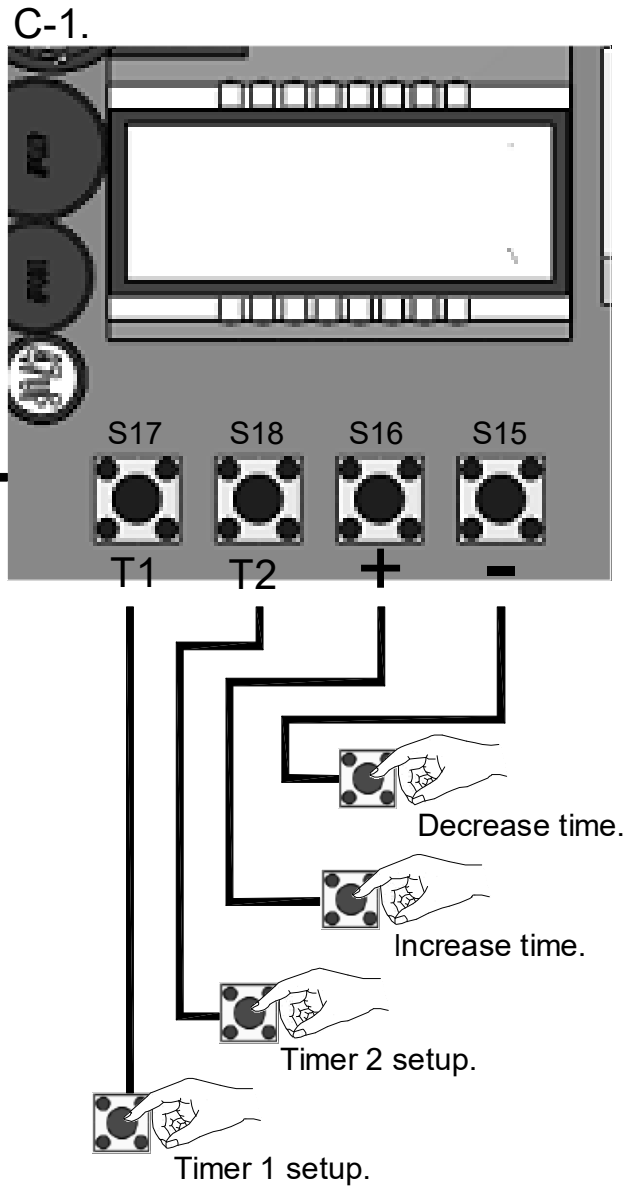


C. Timer Instruction:

C.



C-1.



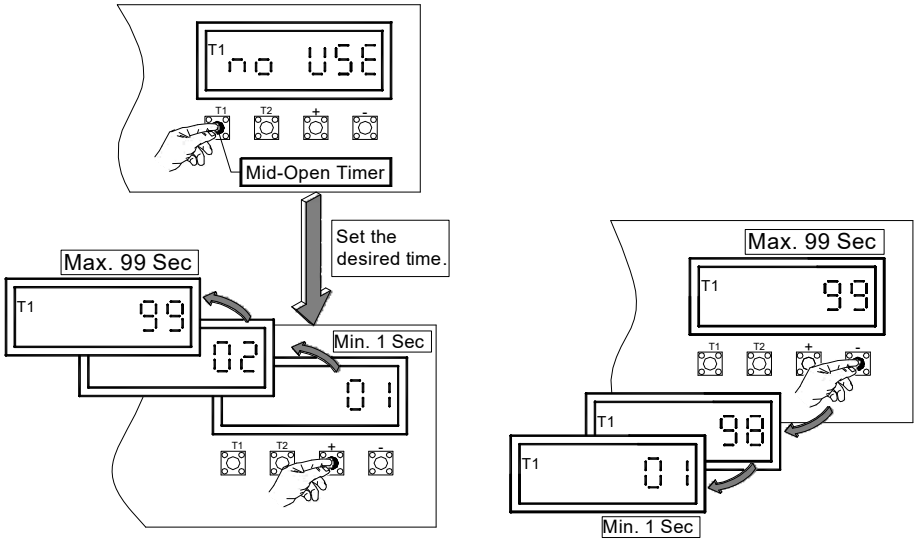
(1) Timer 1 – Mid-open timer: Timer starts counting when door leaves close limit. Door stops after opening for set time. Pressing open again at mid-open position will cause door to open limit.

Timer 2 – Close timer: Timer is active when door stops and is not at close limit.

(2) Standard Mode: Cycle counter

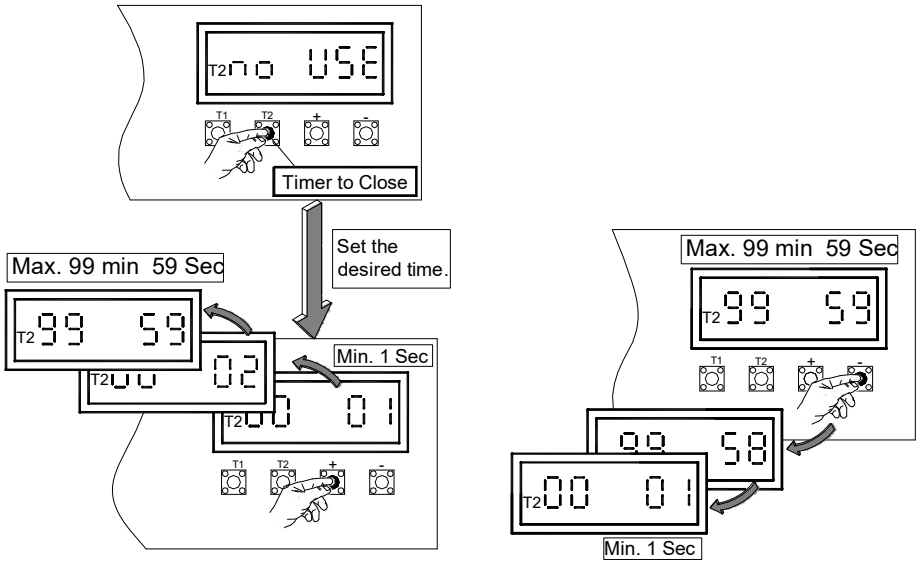
(3) To Set Timer 1 (Mid-open Timer):

- Press T1 and hold for 5 seconds. Display will flash.
- Use + or - to increase or to decrease time.
- Press T1 to save setting. Without pressing, no adjustment is saved.



(4) To Set Timer 2 (Reclose Timer):

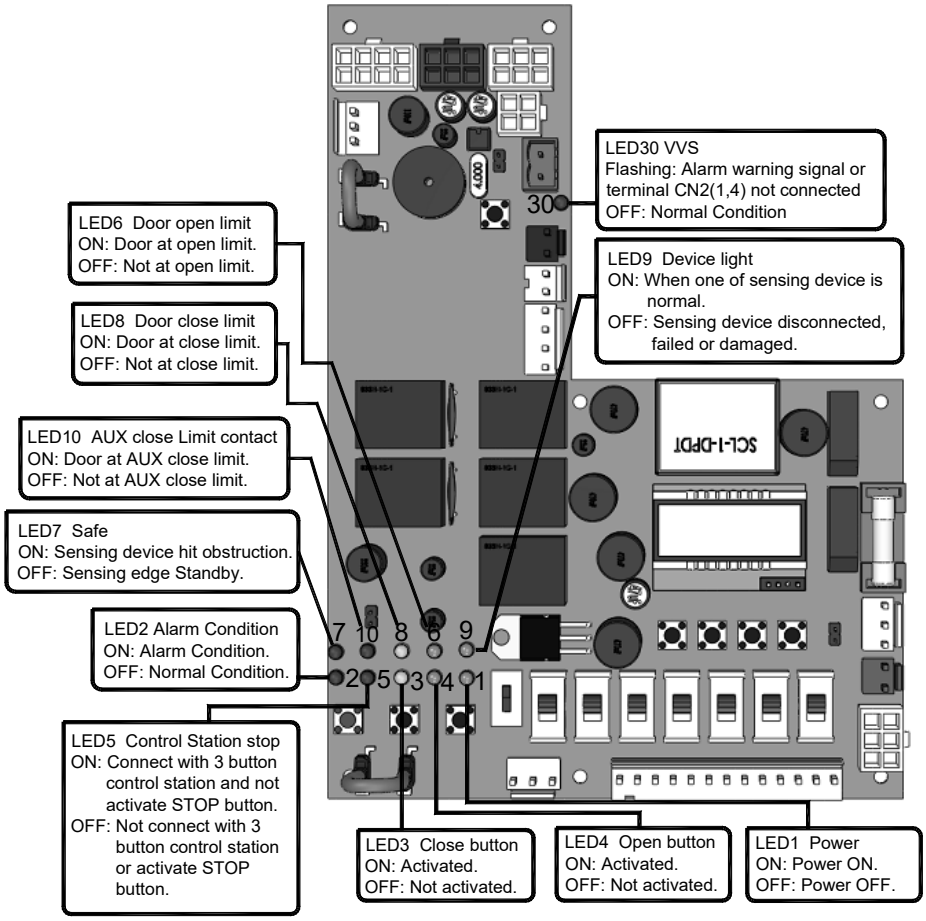
- Press T2 and hold for 5 seconds. Display will flash.
- Use + or - to increase or to decrease time.
- Press T2 to save setting. Without pressing, no adjustment is saved.



D. LCD Display Instruction:

Display	Status	Display	Status
T1 no USE	T1 setting	CLo	Door closing
T2 no USE	T2 setting	OPn	Door opening
SEt	T1 or T2 setting completed	ALA	Alarm condition

E. Light Indication:

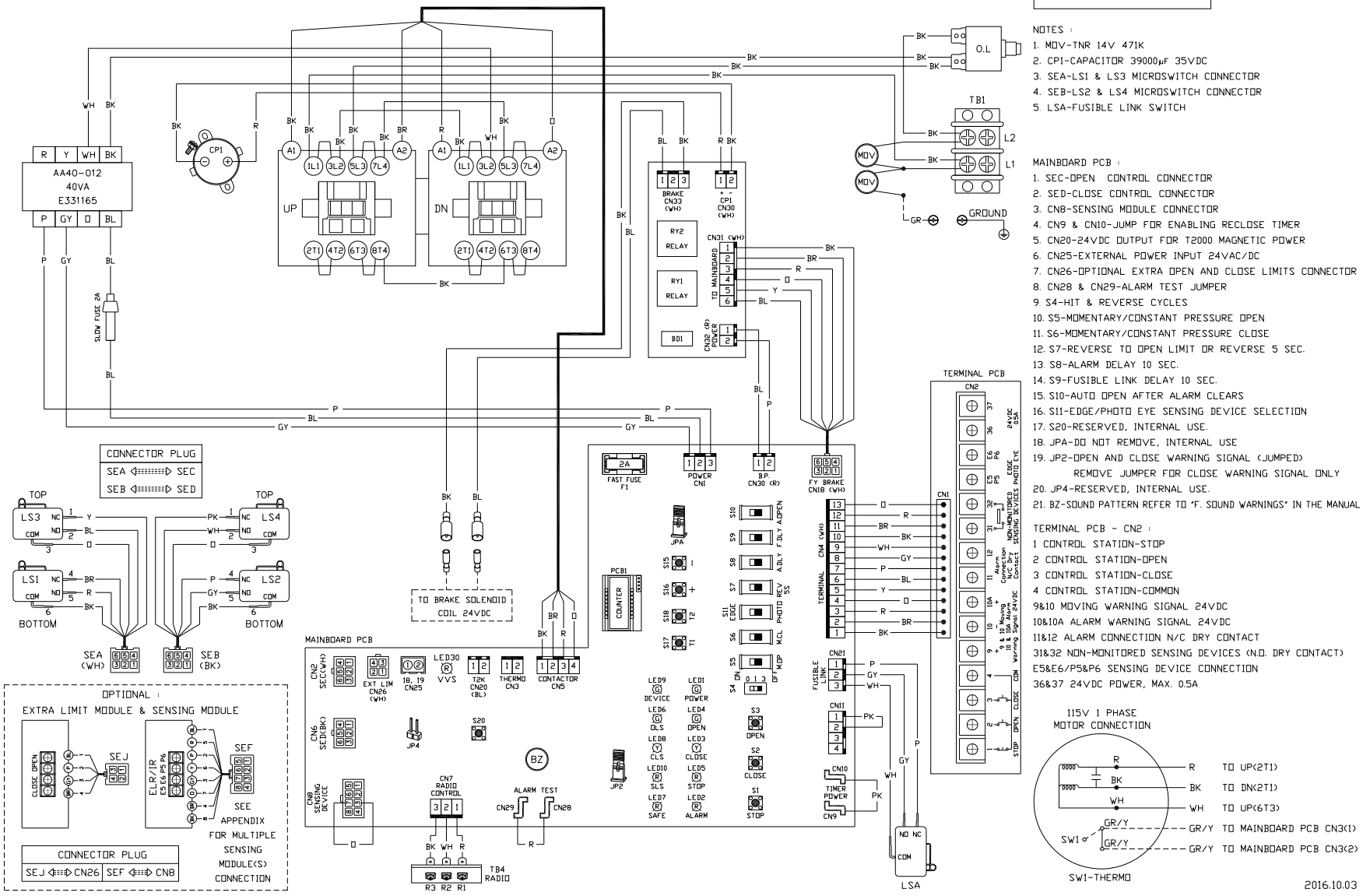


F. Sound Warnings:

Item	Description	Sound
A	Alarm warning signal	B_____ B_____ B_____ B_____ ……
B	Terminal CN2 (1,4) not connected	B.B.B.B. B.B.B.B. B.B.B.B. ….

FS-EP 115V 1 PHASE 50/60HZ LH (FSEP BOARD)
(FOR FS-31EP)

EB 108-31EP L
V3.08



NOTES :
1. MOV-TNR 14V 471K
2. CP1-CAPACITOR 39000μF 35VDC
3. SEA-LS1 & LS3 MICROSWITCH CONNECTOR
4. SEB-LS2 & LS4 MICROSWITCH CONNECTOR
5. LSA-FUSIBLE LINK SWITCH

MAINBOARD PCB :
1. SEC-OPEN CONTROL CONNECTOR
2. SED-CLOSE CONTROL CONNECTOR
3. CN8-SENSING MODULE CONNECTOR
4. CN9 & CN10-JUMP FOR ENABLING RECLOSE TIMER
5. CN20-24VDC OUTPUT FOR T2000 MAGNETIC POWER
6. CN25-EXTERNAL POWER INPUT 24VAC/DC
7. CN26-OPTIONAL EXTRA OPEN AND CLOSE LIMITS CONNECTOR
8. CN28 & CN29-ALARM TEST JUMPER
9 S4-HIT & REVERSE CYCLES
10. S5-MOMENTARY/CONSTANT PRESSURE OPEN
11. S6-MOMENTARY/CONSTANT PRESSURE CLOSE
12. S7-REVERSE TO OPEN LIMIT OR REVERSE 5 SEC.
13. S8-ALARM DELAY 10 SEC.
14. S9-FUSIBLE LINK DELAY 10 SEC.
15. S10-AUTO OPEN AFTER ALARM CLEARS
16. S11-EDGE/PHOTO EYE SENSING DEVICE SELECTION
17. S20-RESERVED, INTERNAL USE.
18. JPA-DO NOT REMOVE, INTERNAL USE
19. JP2-OPEN AND CLOSE WARNING SIGNAL (JUMPED)
REMOVE JUMPER FOR CLOSE WARNING SIGNAL ONLY
20. JP4-RESERVED, INTERNAL USE.
21. BZ-SOUND PATTERN REFER TO "F. SOUND WARNINGS" IN THE MANUAL

TERMINAL PCB - CN2 :
1 CONTROL STATION-STOP
2 CONTROL STATION-OPEN
3 CONTROL STATION-CLOSE
4 CONTROL STATION-COMMON
9&10 MOVING WARNING SIGNAL 24VDC
10&10A ALARM WARNING SIGNAL 24VDC
11&12 ALARM CONNECTION N/C DRY CONTACT
31&32 NON-MONITORED SENSING DEVICES (N.O. DRY CONTACT)
E5&E6/P5&P6 SENSING DEVICE CONNECTION
36&37 24VDC POWER, MAX. 0.5A

115V 1 PHASE
MOTOR CONNECTION

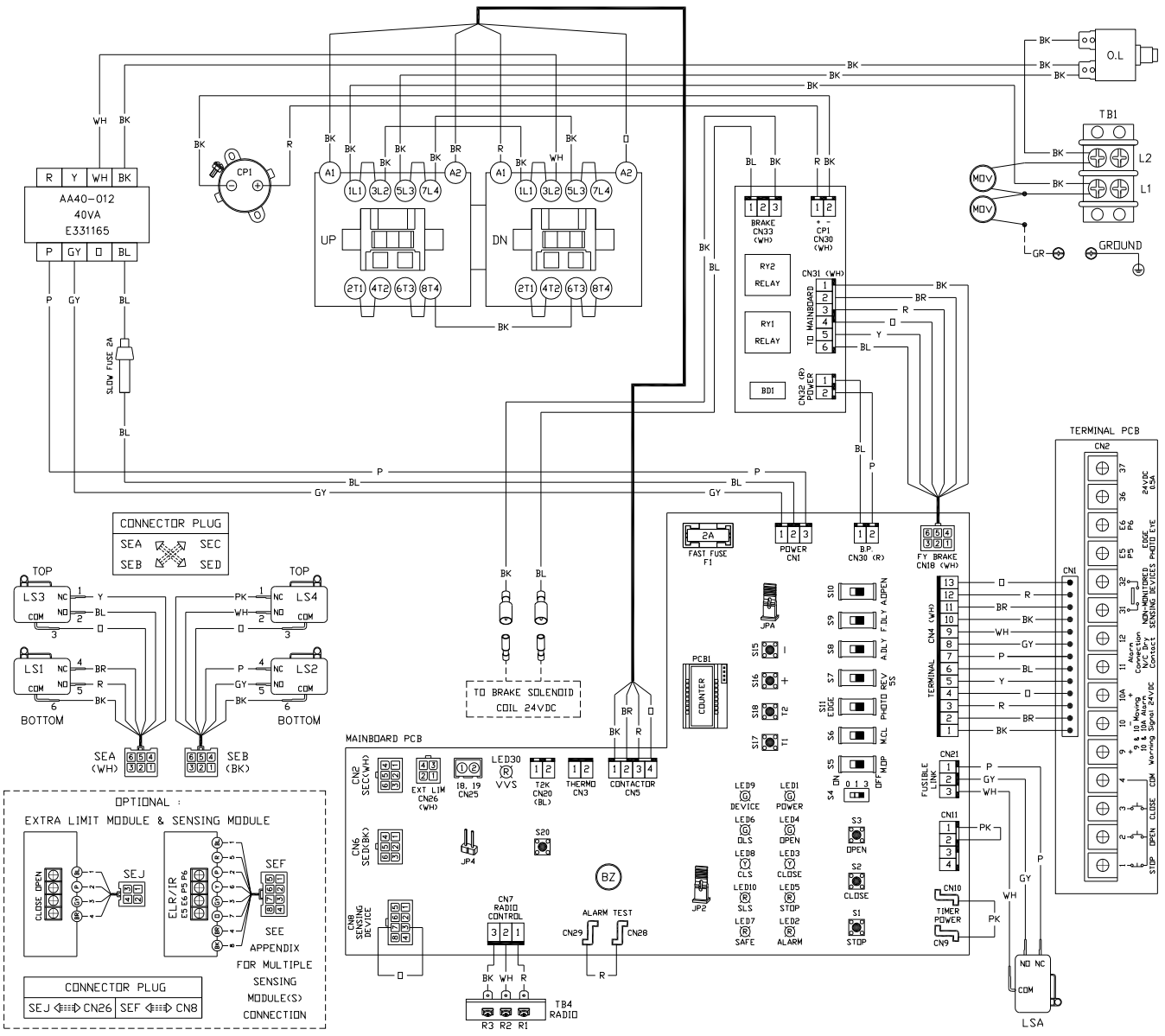
SW1-THERMO

2016.10.03

FS-EP 115V 1 PHASE 50/60HZ RH (FSEP BOARD)

(FOR FS-31EP)

EB 108-31EP R
V3.08

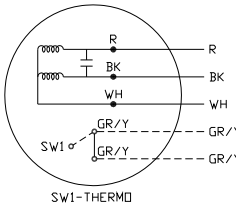


NOTES :
1. MOV-TNR 14V 471K
2. CP1-CAPACITOR 39000μF 35VDC
3. SEA-LS1 & LS3 MICROSWITCH CONNECTOR
4. SEB-LS2 & LS4 MICROSWITCH CONNECTOR
5. LSA-FUSIBLE LINK SWITCH

MAINBOARD PCB :
1. SEC-OPEN CONTROL CONNECTOR
2. SED-CLOSE CONTROL CONNECTOR
3. CN8-SENSING MODULE CONNECTOR
4. CN9 & CN10-JUMP FOR ENABLING RECLOSE TIMER
5. CN20-24VDC OUTPUT FOR T2000 MAGNETIC POWER
6. CN25-EXTERNAL POWER INPUT 24VAC/DC
7. CN26-OPTIONAL EXTRA OPEN AND CLOSE LIMITS CONNECTOR
8. CN28 & CN29-ALARM TEST JUMPER
9. S4-HIT & REVERSE CYCLES
10. S5-MOMENTARY/CONSTANT PRESSURE OPEN
11. S6-MOMENTARY/CONSTANT PRESSURE CLOSE
12. S7-REVERSE TO OPEN LIMIT OR REVERSE 5 SEC.
13. S8-ALARM DELAY 10 SEC.
14. S9-FUSIBLE LINK DELAY 10 SEC.
15. S10-AUTO OPEN AFTER ALARM CLEARS
16. S11-EDGE/PHOTO EYE SENSING DEVICE SELECTION
17. S20-RESERVED, INTERNAL USE.
18. JPA-DO NOT REMOVE, INTERNAL USE
19. JP2-OPEN AND CLOSE WARNING SIGNAL (JUMPED)
REMOVE JUMPER FOR CLOSE WARNING SIGNAL ONLY
20. JP4-RESERVED, INTERNAL USE.
21. BZ-SOUND PATTERN REFER TO "F. SOUND WARNINGS" IN THE MANUAL

TERMINAL PCB - CN2 :
1 CONTROL STATION-STOP
2 CONTROL STATION-OPEN
3 CONTROL STATION-CLOSE
4 CONTROL STATION-COMMON
9&10 MOVING WARNING SIGNAL 24VDC
10&10A ALARM WARNING SIGNAL 24VDC
11&12 ALARM CONNECTION N/C DRY CONTACT
31&32 NON-MONITORED SENSING DEVICES (N.O. DRY CONTACT)
E5&E6/P5&P6 SENSING DEVICE CONNECTION
36&37 24VDC POWER, MAX. 0.5A

115V 1 PHASE
MOTOR CONNECTION

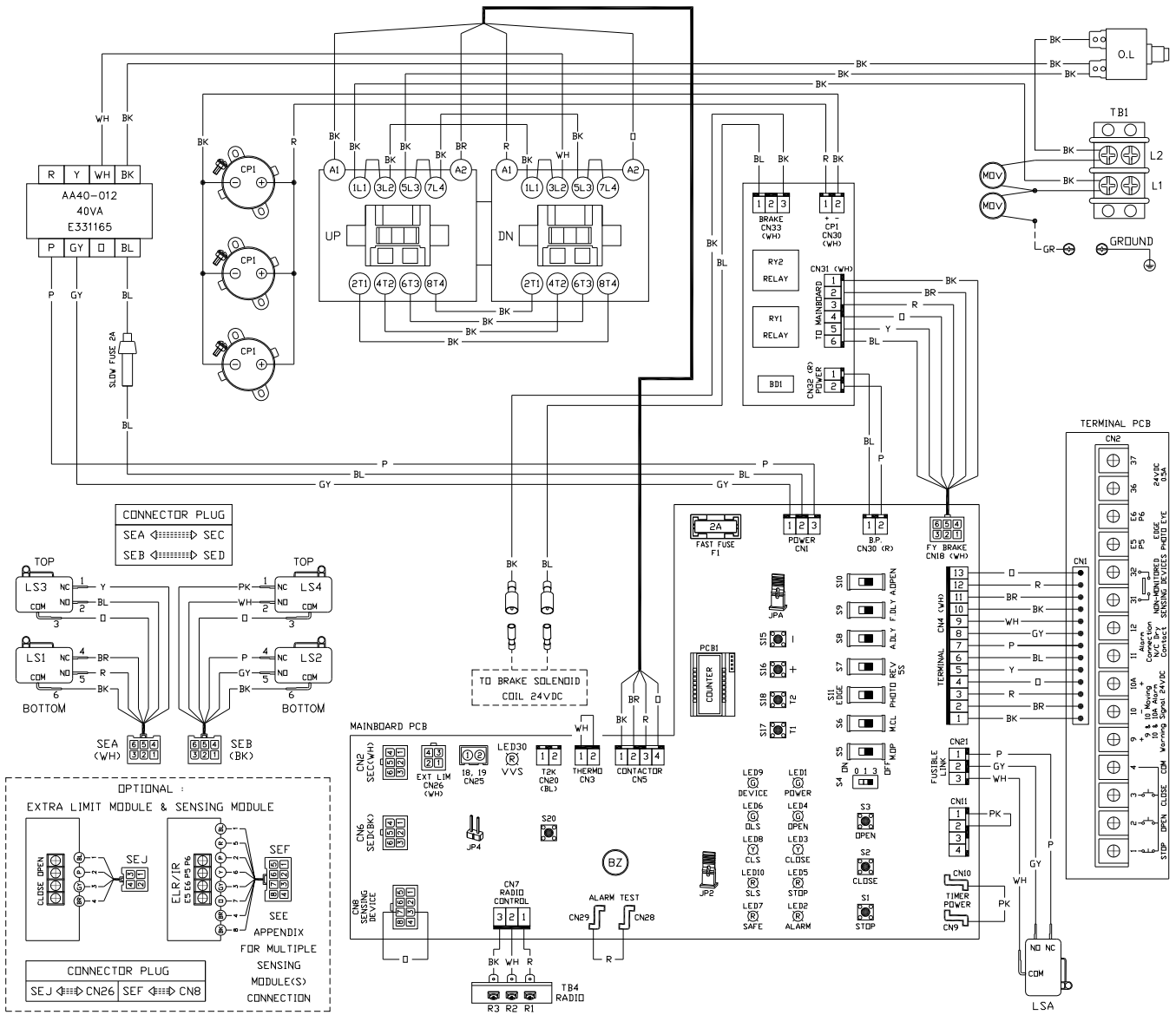


SW1-THERMO

2016.10.03

FS-EP 115V 1 PHASE 50/60HZ LH (FSEP BOARD)
(FOR FS-51EP, 71EP, 151EP)

EB 108EP L
V3.08

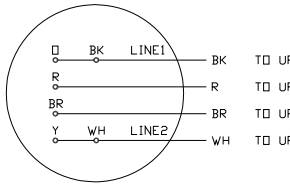


NOTES :
1. MOV-TNR 14V 471K
2. CP1*1-CAPACITOR 39000μF 35VDC (FOR FS-51EP)
3. CP1*2-CAPACITOR 39000μF 35VDC (FOR FS-71EP)
4. CP1*3-CAPACITOR 39000μF 35VDC (FOR FS-151EP)
5. SEA-LS1 & LS3 MICROSWITCH CONNECTOR
6. SEB-LS2 & LS4 MICROSWITCH CONNECTOR
7. LSA-FUSIBLE LINK SWITCH

MAINBOARD PCB :
1. SEC-OPEN CONTROL CONNECTOR
2. SED-CLOSE CONTROL CONNECTOR
3. CN8-SENSING MODULE CONNECTOR
4. CN9 & CN10-JUMP FOR ENABLING RECLOSE TIMER
5. CN20-24VDC OUTPUT FOR T2000 MAGNETIC POWER
6. CN25-EXTERNAL POWER INPUT 24VAC/DC
7. CN26-OPTIONAL EXTRA OPEN AND CLOSE LIMITS CONNECTOR
8. CN28 & CN29-ALARM TEST JUMPER
9. S4-HIT & REVERSE CYCLES
10. S5-MOMENTARY/CONSTANT PRESSURE OPEN
11. S6-MOMENTARY/CONSTANT PRESSURE CLOSE
12. S7-REVERSE TO OPEN LIMIT OR REVERSE 5 SEC.
13 S8-ALARM DELAY 10 SEC.
14. S9-FUSIBLE LINK DELAY 10 SEC.
15. S10-AUTO OPEN AFTER ALARM CLEARS
16. S11-EDGE/PHOTO EYE SENSING DEVICE SELECTION
17. S20-RESERVED, INTERNAL USE.
18. JPA-DO NOT REMOVE, INTERNAL USE
19. JP2-OPEN AND CLOSE WARNING SIGNAL (JUMPED)
REMOVE JUMPER FOR CLOSE WARNING SIGNAL ONLY
20. JP4-RESERVED, INTERNAL USE.
21. BZ-SOUND PATTERN REFER TO "F. SOUND WARNINGS" IN THE MANUAL

TERMINAL PCB - CN2 :
1 CONTROL STATION-STOP
2 CONTROL STATION-OPEN
3 CONTROL STATION-CLOSE
4 CONTROL STATION-COMMON
9&10 MOVING WARNING SIGNAL 24VDC
10&10A ALARM WARNING SIGNAL 24VDC
11&12 ALARM CONNECTION N/C DRY CONTACT
31&32 NON-MONITORED SENSING DEVICES (N.O. DRY CONTACT)
E5&E6/P5&P6 SENSING DEVICE CONNECTION
36&37 24VDC POWER, MAX. 0.5A

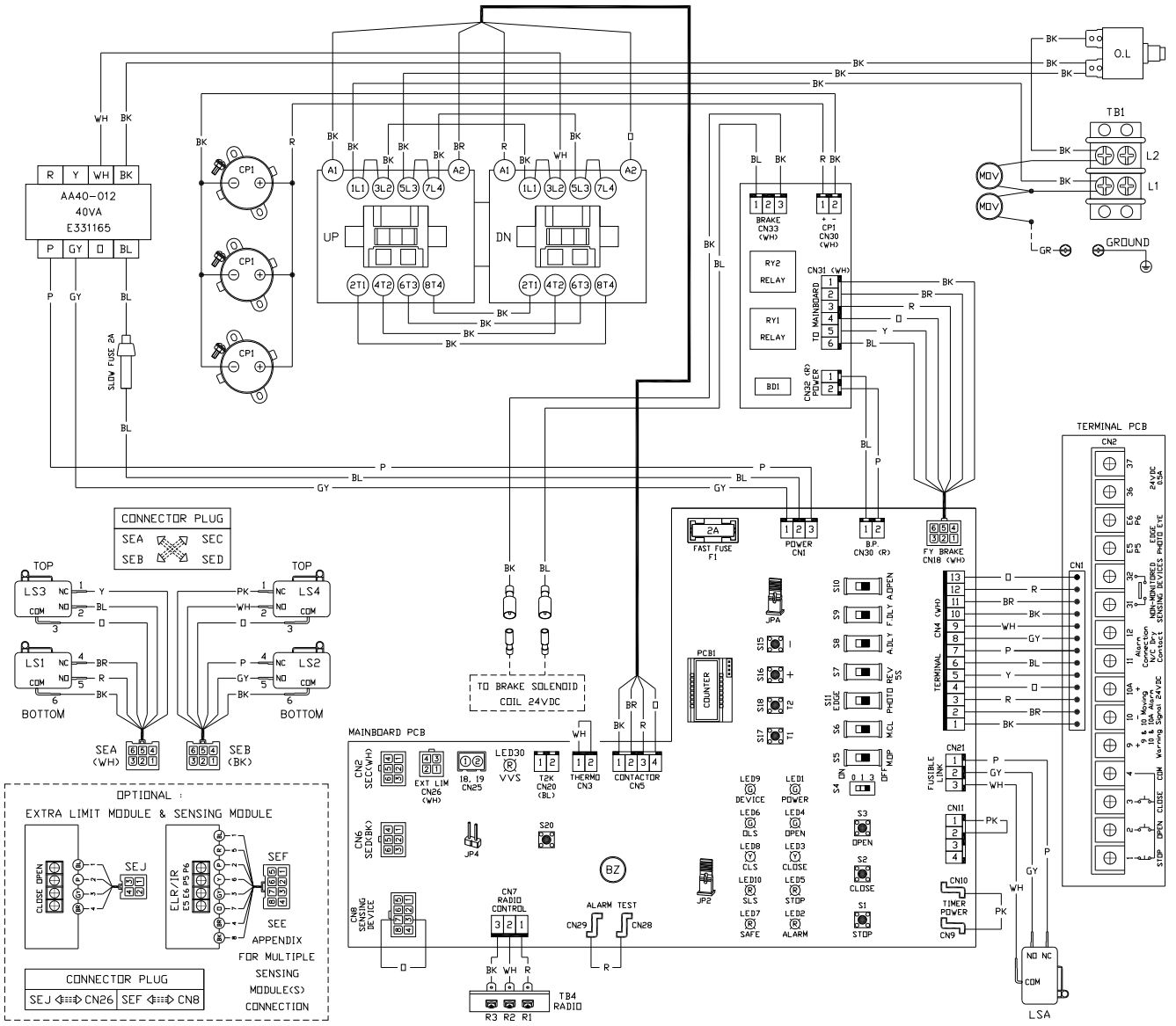
115V 1 PHASE
MOTOR CONNECTION



2016.10.03

FS-EP 115V 1 PHASE 50/60HZ RH (FSEP BOARD)
(FOR FS-51EP, 71EP, 151EP)

EB 108EP R
V3.08

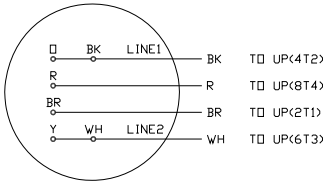


NOTES :
1. MOV-TNR 14V 471K
2. CP1*1-CAPACITOR 39000μF 35VDC (FOR FS-51EP)
3. CP1*2-CAPACITOR 39000μF 35VDC (FOR FS-71EP)
4. CP1*3-CAPACITOR 39000μF 35VDC (FOR FS-151EP)
5. SEA-LS1 & LS3 MICROSWITCH CONNECTOR
6. SEB-LS2 & LS4 MICROSWITCH CONNECTOR
7. LSA-FUSIBLE LINK SWITCH

MAINBOARD PCB :
1. SEC-OPEN CONTROL CONNECTOR
2. SED-CLOSE CONTROL CONNECTOR
3. CN8-SENSING MODULE CONNECTOR
4. CN9 & CN10-JUMP FOR ENABLING RECLOSE TIMER
5. CN20-24VDC OUTPUT FOR T2000 MAGNETIC POWER
6. CN25-EXTERNAL POWER INPUT 24VAC/DC
7. CN26-OPTIONAL EXTRA OPEN AND CLOSE LIMITS CONNECTOR
8. CN28 & CN29-ALARM TEST JUMPER
9. S4-HIT & REVERSE CYCLES
10. S5-MOMENTARY/CONSTANT PRESSURE OPEN
11. S6-MOMENTARY/CONSTANT PRESSURE CLOSE
12. S7-REVERSE TO OPEN LIMIT OR REVERSE 5 SEC.
13. S8-ALARM DELAY 10 SEC.
14. S9-FUSIBLE LINK DELAY 10 SEC.
15. S10-AUTO OPEN AFTER ALARM CLEARS
16. S11-EDGE/PHOTO EYE SENSING DEVICE SELECTION
17. S20-RESERVED, INTERNAL USE.
18. JPA-DO NOT REMOVE, INTERNAL USE
19. JP2-OPEN AND CLOSE WARNING SIGNAL (JUMPED)
    REMOVE JUMPER FOR CLOSE WARNING SIGNAL ONLY
20. JP4-RESERVED, INTERNAL USE.
21. BZ-SOUND PATTERN REFER TO "F. SOUND WARNINGS" IN THE MANUAL

TERMINAL PCB - CN2 :
1 CONTROL STATION-STOP
2 CONTROL STATION-OPEN
3 CONTROL STATION-CLOSE
4 CONTROL STATION-COMMON
9&10 MOVING WARNING SIGNAL 24VDC
10&10A ALARM WARNING SIGNAL 24VDC
11&12 ALARM CONNECTION N/C DRY CONTACT
31&32 NON-MONITORED SENSING DEVICES (N.O. DRY CONTACT)
E5&E6/P5&P6 SENSING DEVICE CONNECTION
36&37 24VDC POWER, MAX. 0.5A

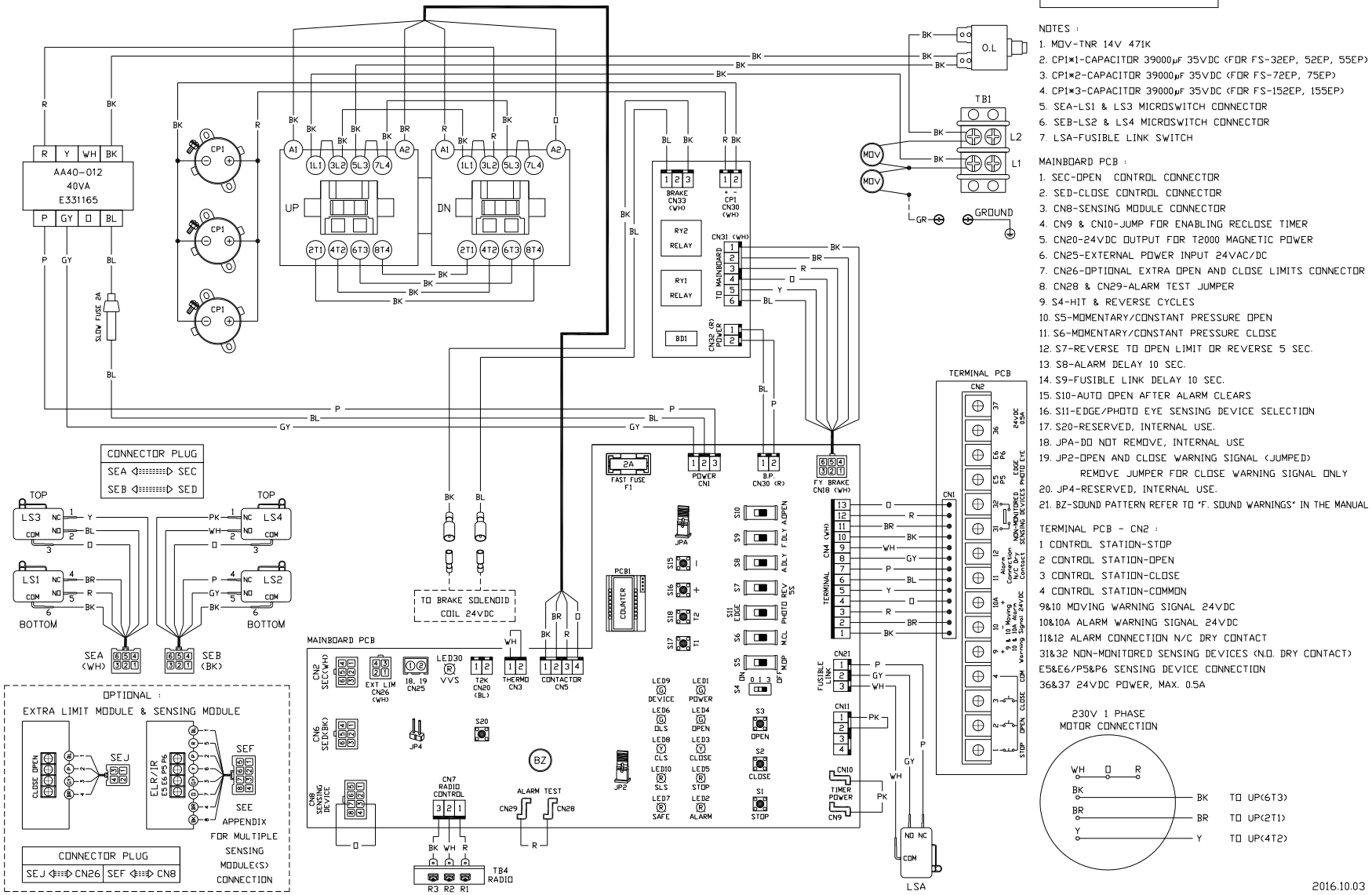
115V 1 PHASE
MOTOR CONNECTION



2016.10.03

FS-EP 230V 1 PHASE 50/60HZ LH (FSEP BOARD)
(60HZ FOR FS-32EP, 52EP, 72EP, 152EP)
(50HZ FOR FS-55EP, 75EP, 155EP)

EB 208EP L
V3.08



NOTES :
1. MOV-TNR 14V 471K
2. CP1*1-CAPACITOR 39000μF 35VDC (FOR FS-32EP, 52EP, 55EP)
3. CP1*2-CAPACITOR 39000μF 35VDC (FOR FS-72EP, 75EP)
4. CP1*3-CAPACITOR 39000μF 35VDC (FOR FS-152EP, 155EP)
5. SEA-LS1 & LS3 MICROSWITCH CONNECTOR
6. SEB-LS2 & LS4 MICROSWITCH CONNECTOR
7. LSA-FUSIBLE LINK SWITCH

MAINBOARD PCB :
1. SEC-OPEN CONTROL CONNECTOR
2. SED-CLOSE CONTROL CONNECTOR
3. CN8-SENSING MODULE CONNECTOR
4. CN9 & CN10-JUMP FOR ENABLING RECLOSE TIMER
5. CN20-24VDC OUTPUT FOR T2000 MAGNETIC POWER
6. CN25-EXTERNAL POWER INPUT 24VAC/DC
7. CN26-OPTIONAL EXTRA OPEN AND CLOSE LIMITS CONNECTOR
8. CN28 & CN29-ALARM TEST JUMPER
9. S4-HIT & REVERSE CYCLES
10. S5-MOMENTARY/CONSTANT PRESSURE OPEN
11. S6-MOMENTARY/CONSTANT PRESSURE CLOSE
12. S7-REVERSE TO OPEN LIMIT OR REVERSE 5 SEC.
13. S8-ALARM DELAY 10 SEC.
14. S9-FUSIBLE LINK DELAY 10 SEC.
15. S10-AUTO OPEN AFTER ALARM CLEARS
16. S11-EDGE/PHOTO EYE SENSING DEVICE SELECTION
17. S20-RESERVED, INTERNAL USE.
18. JPA-DO NOT REMOVE, INTERNAL USE
19. JP2-OPEN AND CLOSE WARNING SIGNAL (JUMPED)
REMOVE JUMPER FOR CLOSE WARNING SIGNAL ONLY
20. JP4-RESERVED, INTERNAL USE.
21. BZ-SOUND PATTERN REFER TO "F. SOUND WARNINGS" IN THE MANUAL

TERMINAL PCB - CN2 :
1 CONTROL STATION-STOP
2 CONTROL STATION-OPEN
3 CONTROL STATION-CLOSE
4 CONTROL STATION-COMMON
9&10 MOVING WARNING SIGNAL 24VDC
10&10A ALARM WARNING SIGNAL 24VDC
11&12 ALARM CONNECTION N/C DRY CONTACT
31&32 NON-MONITORED SENSING DEVICES (N.O. DRY CONTACT)
E5&E6/P5&P6 SENSING DEVICE CONNECTION
36&37 24VDC POWER, MAX. 0.5A

230V 1 PHASE
MOTOR CONNECTION

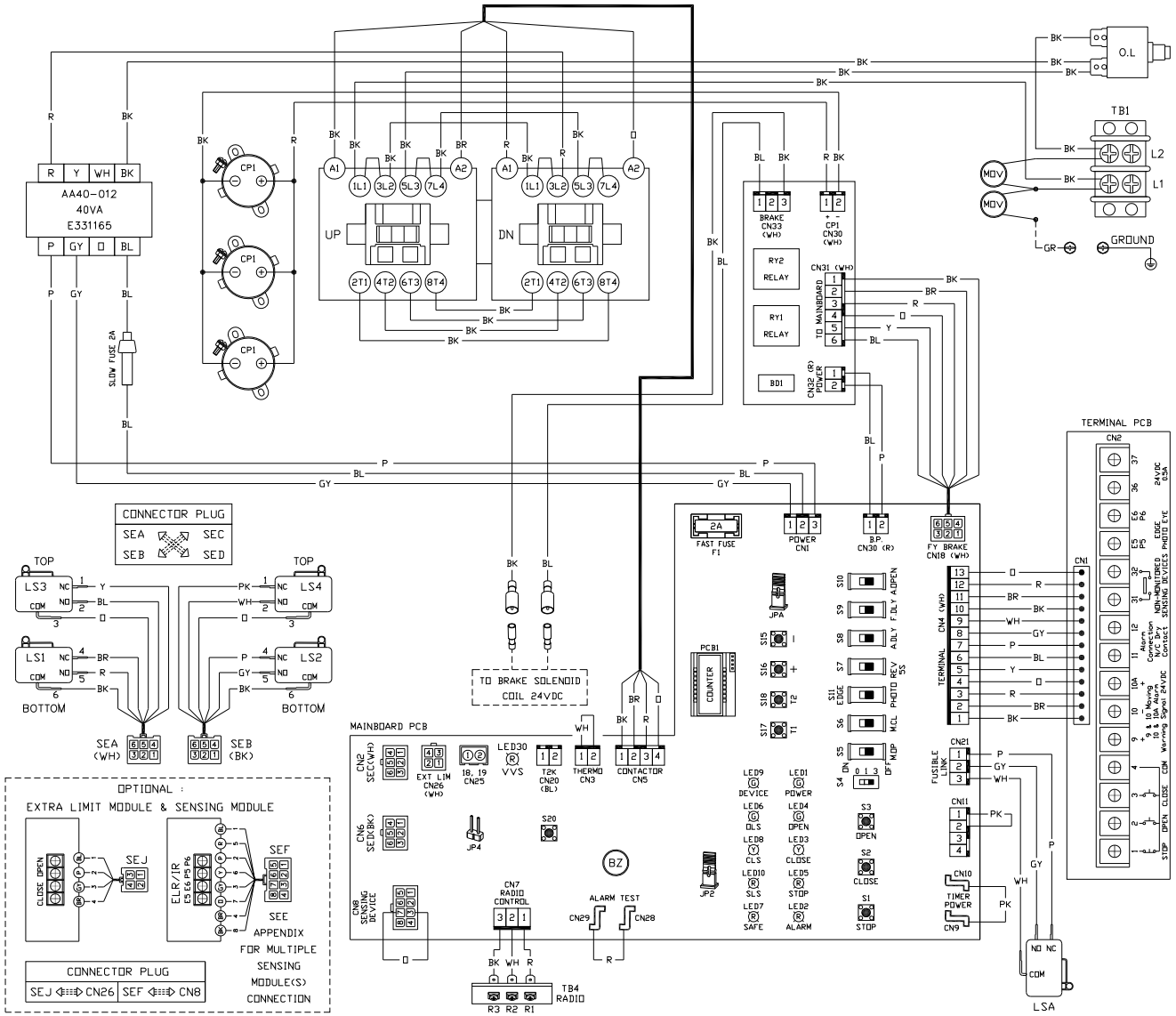
2016.10.03

FS-EP 230V 1 PHASE 50/60HZ RH (FSEP BOARD)

(60HZ FOR FS-32EP, 52EP, 72EP, 152EP)

(50HZ FOR FS-55EP, 75EP, 155EP)

EB 208EP R
V3.08



NOTES :

1. MOV-TNR 14V 471K
2. CP1*1-CAPACITOR 39000μF 35VDC (FOR FS-32EP, 52EP, 55EP)
3. CP1*2-CAPACITOR 39000μF 35VDC (FOR FS-72EP, 75EP)
4. CP1*3-CAPACITOR 39000μF 35VDC (FOR FS-152EP, 155EP)
5. SEA-LS1 & LS3 MICROSWITCH CONNECTOR
6. SEB-LS2 & LS4 MICROSWITCH CONNECTOR
7. LSA-FUSIBLE LINK SWITCH

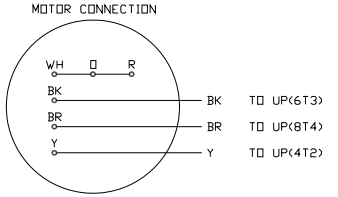
MAINBOARD PCB :

1. SEC-OPEN CONTROL CONNECTOR
2. SED-CLOSE CONTROL CONNECTOR
3. CN8-SENSING MODULE CONNECTOR
4. CN9 & CN10-JUMP FOR ENABLING RECLOSE TIMER
5. CN20-24VDC OUTPUT FOR T2000 MAGNETIC POWER
6. CN25-EXTERNAL POWER INPUT 24VAC/DC
7. CN26-OPTIONAL EXTRA OPEN AND CLOSE LIMITS CONNECTOR
8. CN28 & CN29-ALARM TEST JUMPER
9. S4-HIT & REVERSE CYCLES
10. S5-MOMENTARY/CONSTANT PRESSURE OPEN
11. S6-MOMENTARY/CONSTANT PRESSURE CLOSE
12. S7-REVERSE TO OPEN LIMIT OR REVERSE 5 SEC.
13. S8-ALARM DELAY 10 SEC.
14. S9-FUSIBLE LINK DELAY 10 SEC.
15. S10-AUTO OPEN AFTER ALARM CLEARS
16. S11-EDGE/PHOTO EYE SENSING DEVICE SELECTION
17. S20-RESERVED, INTERNAL USE.
18. JPA-DO NOT REMOVE, INTERNAL USE
19. JP2-OPEN AND CLOSE WARNING SIGNAL (JUMPED)
    REMOVE JUMPER FOR CLOSE WARNING SIGNAL ONLY
20. JP4-RESERVED, INTERNAL USE.
21. BZ-SOUND PATTERN REFER TO "F. SOUND WARNINGS" IN THE MANUAL

TERMINAL PCB - CN2 :

1 CONTROL STATION-STOP
2 CONTROL STATION-OPEN
3 CONTROL STATION-CLOSE
4 CONTROL STATION-COMMON
9&10 MOVING WARNING SIGNAL 24VDC
10&10A ALARM WARNING SIGNAL 24VDC
11&12 ALARM CONNECTION N/C DRY CONTACT
31&32 NON-MONITORED SENSING DEVICES (N.O. DRY CONTACT)
E5&E6/P5&P6 SENSING DEVICE CONNECTION
36&37 24VDC POWER, MAX. 0.5A

230V 1 PHASE
MOTOR CONNECTION



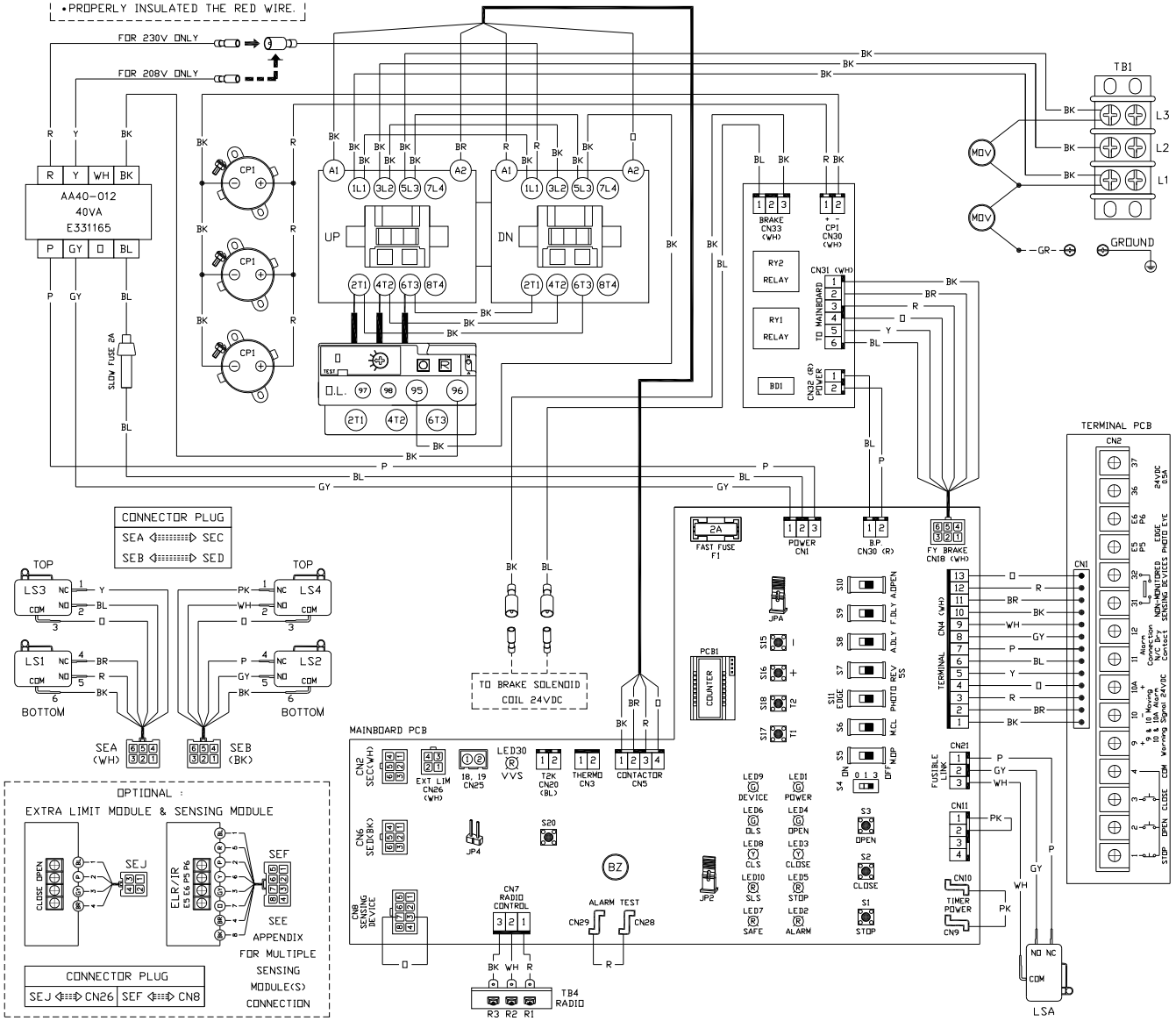
2016.10.03

FS-EP 208V/230V 3 PHASE 50/60HZ LH (FSEP BOARD)

(FOR FS-33EP, 53EP, 73EP, 153EP)

NOTE :
FOR 208V INPUT POWER
- REMOVE RED WIRE CONNECTOR AND THEN CONNECT TO YELLOW WIRE.
- PROPERLY INSULATED THE RED WIRE.

EB 408EP L
V3.08

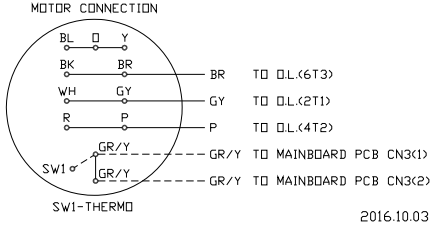


NOTES :
1. MOV-TNR 14V 471K
2. CP1*1-CAPACITOR 39000μF 35VDC (FOR FS-33EP, FS-53EP)
3. CP1*2-CAPACITOR 39000μF 35VDC (FOR FS-73EP)
4. CP1*3-CAPACITOR 39000μF 35VDC (FOR FS-153EP)
5. SEA-LS1 & LS3 MICROSWITCH CONNECTOR
6. SEB-LS2 & LS4 MICROSWITCH CONNECTOR
7. LSA-FUSIBLE LINK SWITCH

MAINBOARD PCB :
1. SEC-OPEN CONTROL CONNECTOR
2. SED-CLOSE CONTROL CONNECTOR
3. CN8-SENSING MODULE CONNECTOR
4. CN9 & CN10-JUMP FOR ENABLING RECLOSE TIMER
5. CN20-24VDC OUTPUT FOR T2000 MAGNETIC POWER
6. CN25-EXTERNAL POWER INPUT 24VAC/DC
7. CN26-OPTIONAL EXTRA OPEN AND CLOSE LIMITS CONNECTOR
8. CN28 & CN29-ALARM TEST JUMPER
9. S4-HIT & REVERSE CYCLES
10. S5-MOMENTARY/CONSTANT PRESSURE OPEN
11. S6-MOMENTARY/CONSTANT PRESSURE CLOSE
12. S7-REVERSE TO OPEN LIMIT OR REVERSE 5 SEC.
13. S8-ALARM DELAY 10 SEC.
14. S9-FUSIBLE LINK DELAY 10 SEC.
15. S10-AUTO OPEN AFTER ALARM CLEARS
16. S11-EDGE/PHOTO EYE SENSING DEVICE SELECTION
17. S20-RESERVED, INTERNAL USE.
18. JPA-DO NOT REMOVE, INTERNAL USE
19. JP2-OPEN AND CLOSE WARNING SIGNAL (JUMPED) REMOVE JUMPER FOR CLOSE WARNING SIGNAL ONLY
20. JP4-RESERVED, INTERNAL USE.
21. BZ-SOUND PATTERN REFER TO "F. SOUND WARNINGS" IN THE MANUAL

TERMINAL PCB - CN2 :
1 CONTROL STATION-STOP
2 CONTROL STATION-OPEN
3 CONTROL STATION-CLOSE
4 CONTROL STATION-COMMON
9&10 MOVING WARNING SIGNAL 24VDC
10&10A ALARM WARNING SIGNAL 24VDC
11&12 ALARM CONNECTION N/C DRY CONTACT
31&32 NON-MONITORED SENSING DEVICES (N.O. DRY CONTACT)
E5&E6/P5&P6 SENSING DEVICE CONNECTION
36&37 24VDC POWER, MAX. 0.5A

208V/230V 3 PHASE MOTOR CONNECTION

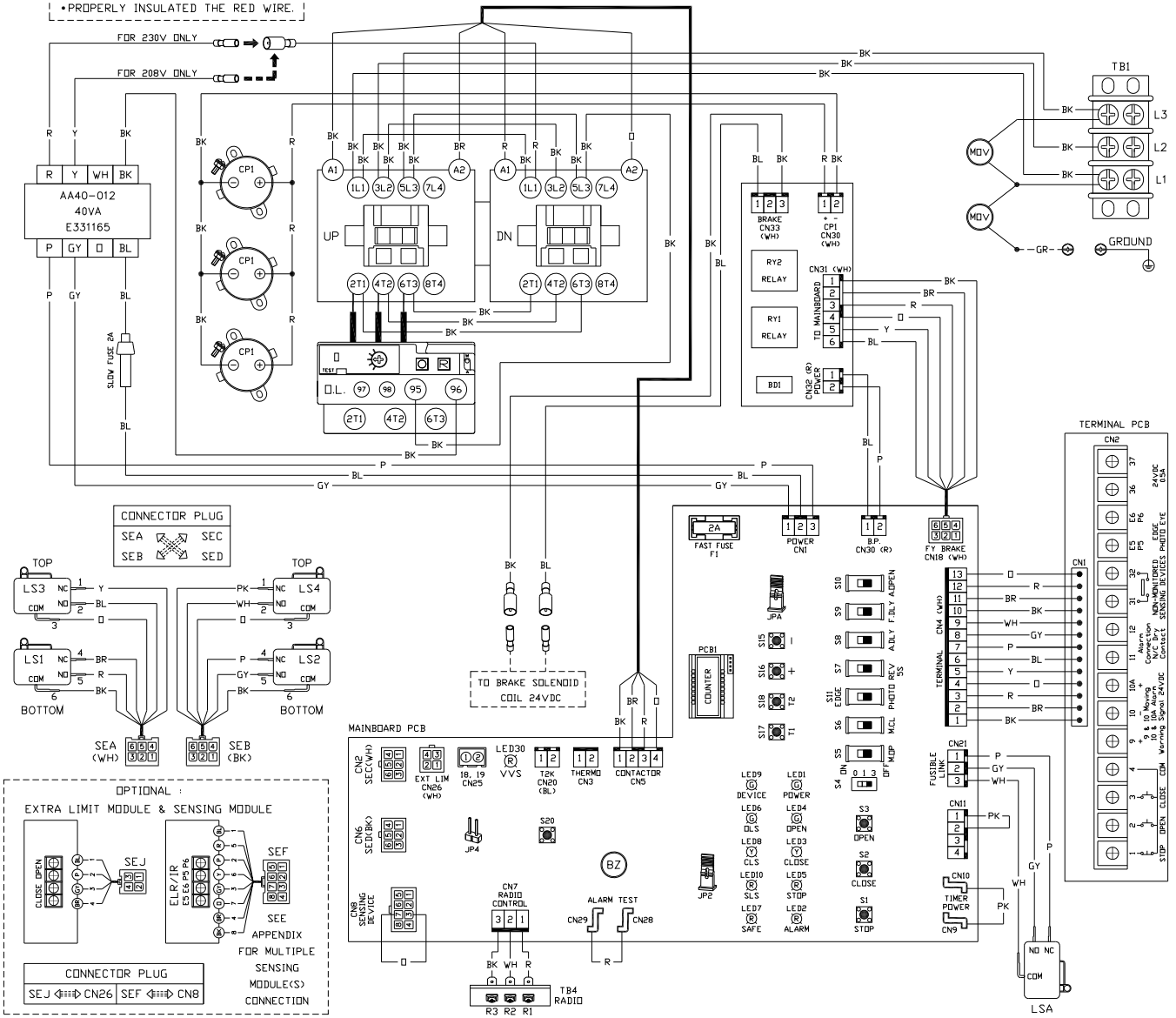


2016.10.03

FS-EP 208V/230V 3 PHASE 50/60HZ RH (FSEP BOARD)

(FOR FS-33EP, 53EP, 73EP, 153EP)

NOTE :
FOR 208V INPUT POWER
- REMOVE RED WIRE CONNECTOR AND THEN CONNECT TO YELLOW WIRE.
- PROPERLY INSULATED THE RED WIRE.



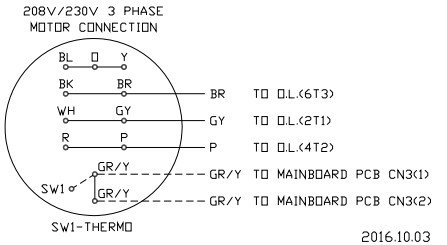
EB 408EP R
V3.08

NOTES :
1. MOV-TNR 14V 471K
2. CP1*1-CAPACITOR 39000μF 35VDC (FOR FS-33EP, FS-53EP)
3. CP1*2-CAPACITOR 39000μF 35VDC (FOR FS-73EP)
4. CP1*3-CAPACITOR 39000μF 35VDC (FOR FS-153EP)
5. SEA-LS1 & LS3 MICROSWITCH CONNECTOR
6. SEB-LS2 & LS4 MICROSWITCH CONNECTOR
7. LSA-FUSIBLE LINK SWITCH

MAINBOARD PCB :
1. SEC-OPEN CONTROL CONNECTOR
2. SED-CLOSE CONTROL CONNECTOR
3. CN8-SENSING MODULE CONNECTOR
4. CN9 & CN10-JUMP FOR ENABLING RECLOSE TIMER
5. CN20-24VDC OUTPUT FOR T2000 MAGNETIC POWER
6. CN25-EXTERNAL POWER INPUT 24VAC/DC
7. CN26-OPTIONAL EXTRA OPEN AND CLOSE LIMITS CONNECTOR
8. CN28 & CN29-ALARM TEST JUMPER
9. S4-HIT & REVERSE CYCLES
10. S5-MOMENTARY/CONSTANT PRESSURE OPEN
11. S6-MOMENTARY/CONSTANT PRESSURE CLOSE
12. S7-REVERSE TO OPEN LIMIT OR REVERSE 5 SEC.
13. S8-ALARM DELAY 10 SEC.
14. S9-FUSIBLE LINK DELAY 10 SEC.
15. S10-AUTO OPEN AFTER ALARM CLEARS
16. S11-EDGE/PHOTO EYE SENSING DEVICE SELECTION
17. S20-RESERVED, INTERNAL USE.
18. JPA-DO NOT REMOVE, INTERNAL USE
19. JP2-OPEN AND CLOSE WARNING SIGNAL (JUMPED)
    REMOVE JUMPER FOR CLOSE WARNING SIGNAL ONLY
20. JP4-RESERVED, INTERNAL USE.
21. BZ-SOUND PATTERN REFER TO "F. SOUND WARNINGS" IN THE MANUAL

TERMINAL PCB - CN2 :
1 CONTROL STATION-STOP
2 CONTROL STATION-OPEN
3 CONTROL STATION-CLOSE
4 CONTROL STATION-COMMON
9&10 MOVING WARNING SIGNAL 24VDC
10&10A ALARM WARNING SIGNAL 24VDC
11&12 ALARM CONNECTION N/C DRY CONTACT
31&32 NON-MONITORED SENSING DEVICES (N.O. DRY CONTACT)
E5&E6/P5&P6 SENSING DEVICE CONNECTION
36&37 24VDC POWER, MAX. 0.5A

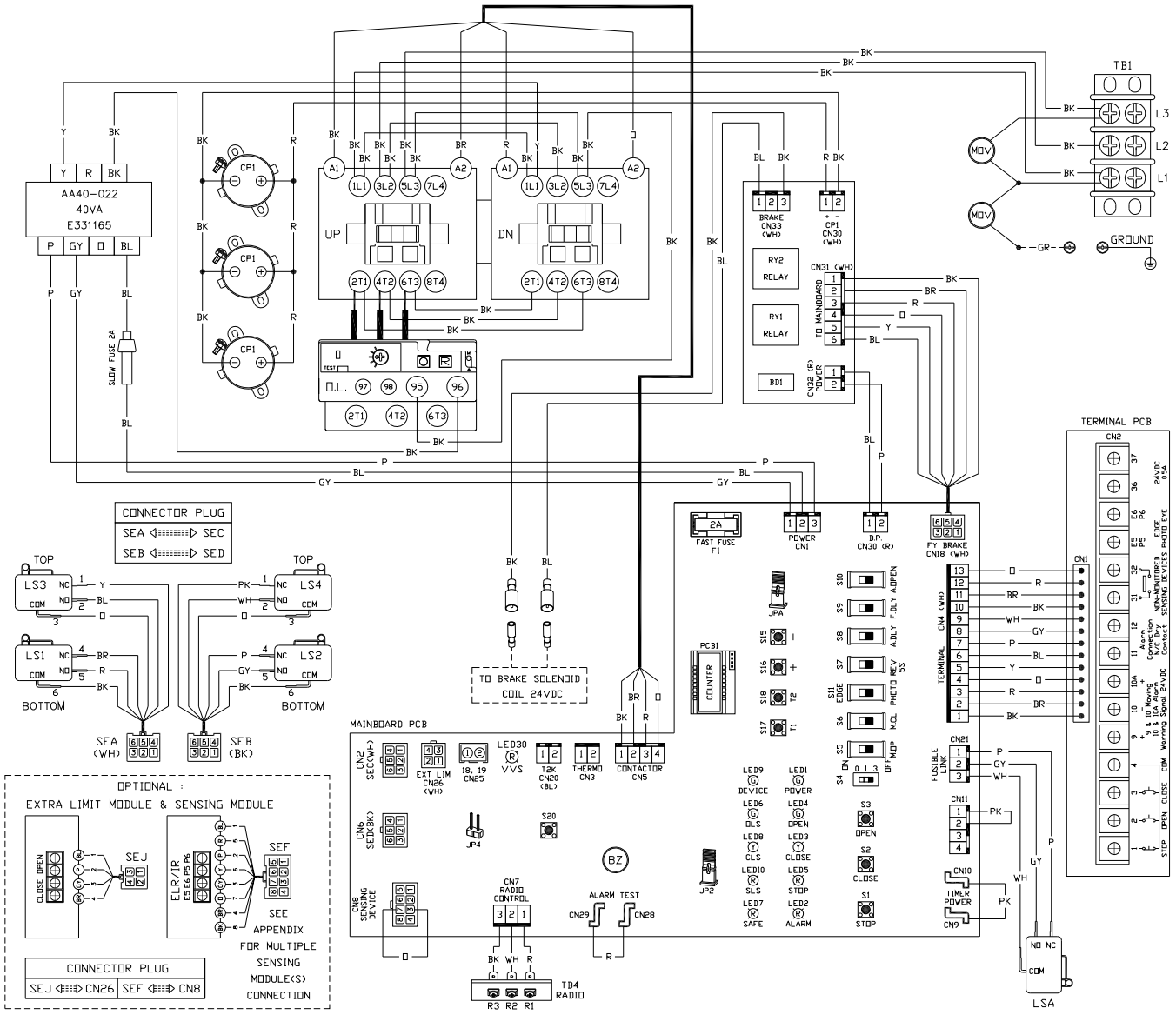
208V/230V 3 PHASE
MOTOR CONNECTION



2016.10.03

FS-EP 460V 3 PHASE 50/60HZ LH (FSEP BOARD)
(FOR FS-34EP, 54EP, 74EP, 154EP)

EB 508EP L
V3.08

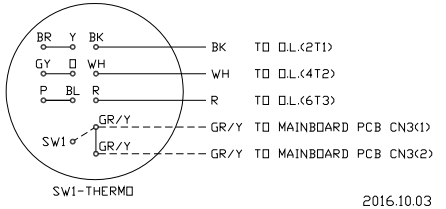


NOTES :
1. MOV-TNR 14V 102K or 15G 102K
2. CP1*1-CAPACITOR 39000μF 35VDC (FOR FS-34EP, FS-54EP)
3. CP1*2-CAPACITOR 39000μF 35VDC (FOR FS-74EP)
4. CP1*3-CAPACITOR 39000μF 35VDC (FOR FS-154EP)
5. SEA-LS1 & LS3 MICROSWITCH CONNECTOR
6. SEB-LS2 & LS4 MICROSWITCH CONNECTOR
7. LSA-FUSIBLE LINK SWITCH

MAINBOARD PCB :
1. SEC-OPEN CONTROL CONNECTOR
2. SED-CLOSE CONTROL CONNECTOR
3. CN8-SENSING MODULE CONNECTOR
4. CN9 & CN10-JUMP FOR ENABLING RECLOSE TIMER
5. CN20-24VDC OUTPUT FOR T2000 MAGNETIC POWER
6. CN25-EXTERNAL POWER INPUT 24VAC/DC
7. CN26-OPTIONAL EXTRA OPEN AND CLOSE LIMITS CONNECTOR
8. CN28 & CN29-ALARM TEST JUMPER
9. S4-HIT & REVERSE CYCLES
10. S5-MOMENTARY/CONSTANT PRESSURE OPEN
11. S6-MOMENTARY/CONSTANT PRESSURE CLOSE
12. S7-REVERSE TO OPEN LIMIT OR REVERSE 5 SEC.
13. S8-ALARM DELAY 10 SEC.
14. S9-FUSIBLE LINK DELAY 10 SEC.
15. S10-AUTO OPEN AFTER ALARM CLEARS
16. S11-EDGE/PHOTO EYE SENSING DEVICE SELECTION
17. S20-RESERVED, INTERNAL USE.
18. JPA-DO NOT REMOVE, INTERNAL USE
19. JP2-OPEN AND CLOSE WARNING SIGNAL (JUMPED)
    REMOVE JUMPER FOR CLOSE WARNING SIGNAL ONLY
20. JP4-RESERVED, INTERNAL USE.
21. BZ-SOUND PATTERN REFER TO "F. SOUND WARNINGS" IN THE MANUAL

TERMINAL PCB - CN2 :
1 CONTROL STATION-STOP
2 CONTROL STATION-OPEN
3 CONTROL STATION-CLOSE
4 CONTROL STATION-COMMON
9&10 MOVING WARNING SIGNAL 24VDC
10&10A ALARM WARNING SIGNAL 24VDC
11&12 ALARM CONNECTION N/C DRY CONTACT
31&32 NON-MONITORED SENSING DEVICES (N.O. DRY CONTACT)
E5&E6/P5&P6 SENSING DEVICE CONNECTION
36&37 24VDC POWER, MAX. 0.5A

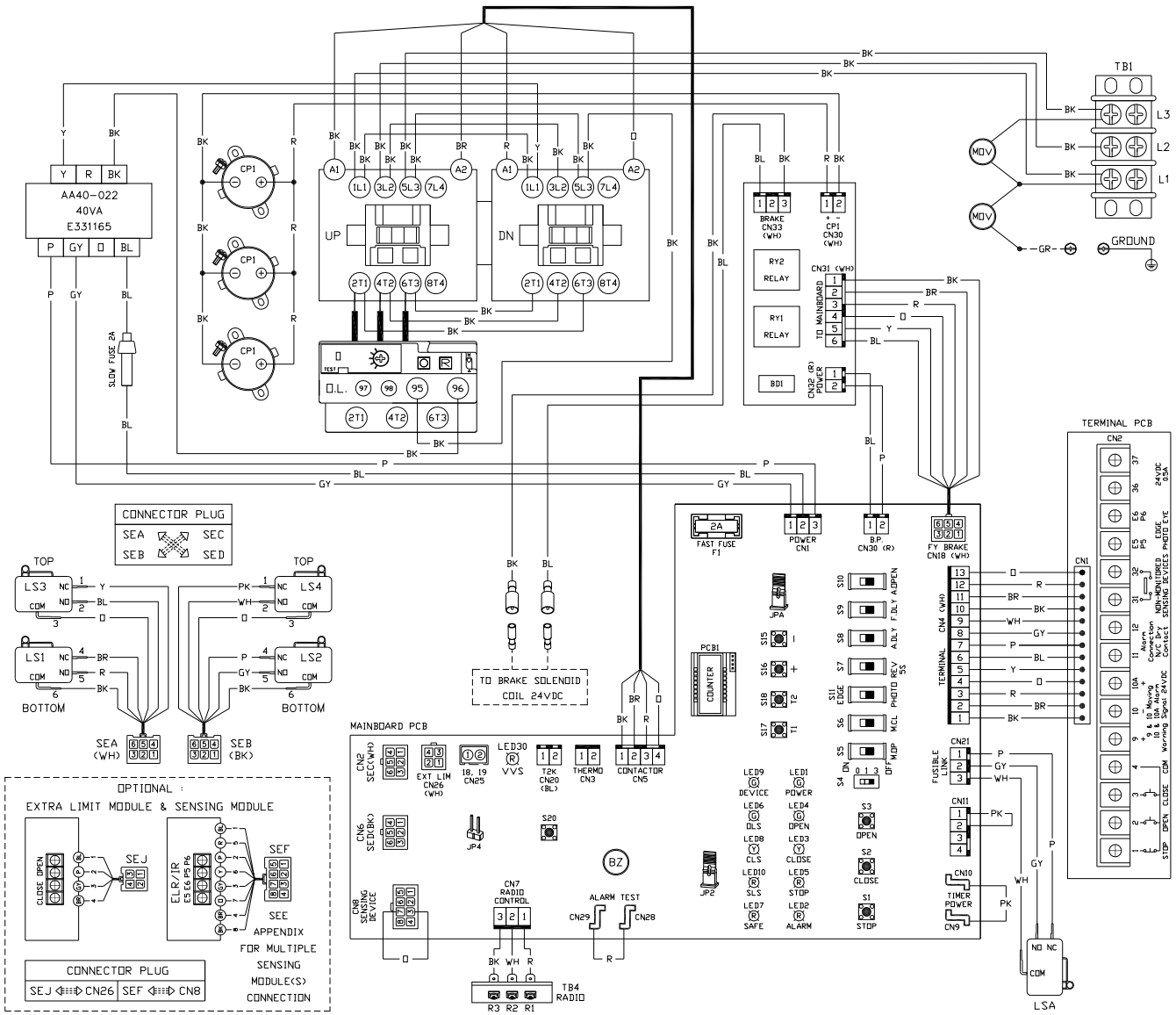
460V 3 PHASE
MOTOR CONNECTION



2016.10.03

FS-EP 460V 3 PHASE 50/60HZ RH (FSEP BOARD)
(FOR FS-34EP, 54EP, 74EP, 154EP)

EB 508EP R
V3.08

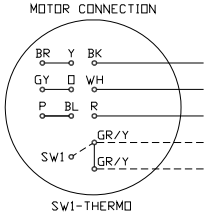


NOTES :
1. MOV-TNR 14V 102K or 15G 102K
2. CP1*1-CAPACITOR 39000μF 35VDC (FOR FS-34EP, FS-54EP)
3. CP1*2-CAPACITOR 39000μF 35VDC (FOR FS-74EP)
4. CP1*3-CAPACITOR 39000μF 35VDC (FOR FS-154EP)
5. SEA-LS1 & LS3 MICROSWITCH CONNECTOR
6. SEB-LS2 & LS4 MICROSWITCH CONNECTOR
7. LSA-FUSIBLE LINK SWITCH

MAINBOARD PCB :
1. SEC-OPEN CONTROL CONNECTOR
2. SED-CLOSE CONTROL CONNECTOR
3. CN8-SENSING MODULE CONNECTOR
4. CN9 & CN10-JUMP FOR ENABLING RECLOSE TIMER
5. CN20-24VDC OUTPUT FOR T2000 MAGNETIC POWER
6. CN25-EXTERNAL POWER INPUT 24VAC/DC
7. CN26-OPTIONAL EXTRA OPEN AND CLOSE LIMITS CONNECTOR
8. CN28 & CN29-ALARM TEST JUMPER
9. S4-HIT & REVERSE CYCLES
10. S5-MOMENTARY/CONSTANT PRESSURE OPEN
11. S6-MOMENTARY/CONSTANT PRESSURE CLOSE
12. S7-REVERSE TO OPEN LIMIT OR REVERSE 5 SEC.
13. S8-ALARM DELAY 10 SEC.
14. S9-FUSIBLE LINK DELAY 10 SEC.
15. S10-AUTO OPEN AFTER ALARM CLEARS
16. S11-EDGE/PHOTO EYE SENSING DEVICE SELECTION
17. S20-RESERVED, INTERNAL USE.
18. JPA-DO NOT REMOVE, INTERNAL USE
19. JP2-OPEN AND CLOSE WARNING SIGNAL (JUMPED)
REMOVE JUMPER FOR CLOSE WARNING SIGNAL ONLY
20. JP4-RESERVED, INTERNAL USE.
21. BZ-SOUND PATTERN REFER TO "F. SOUND WARNINGS" IN THE MANUAL

TERMINAL PCB - CN2 :
1 CONTROL STATION-STOP
2 CONTROL STATION-OPEN
3 CONTROL STATION-CLOSE
4 CONTROL STATION-COMMON
9&10 MOVING WARNING SIGNAL 24VDC
10&10A ALARM WARNING SIGNAL 24VDC
11&12 ALARM CONNECTION N/C DRY CONTACT
31&32 NON-MONITORED SENSING DEVICES (N.O. DRY CONTACT)
E5&E6/P5&P6 SENSING DEVICE CONNECTION
36&37 24VDC POWER, MAX. 0.5A

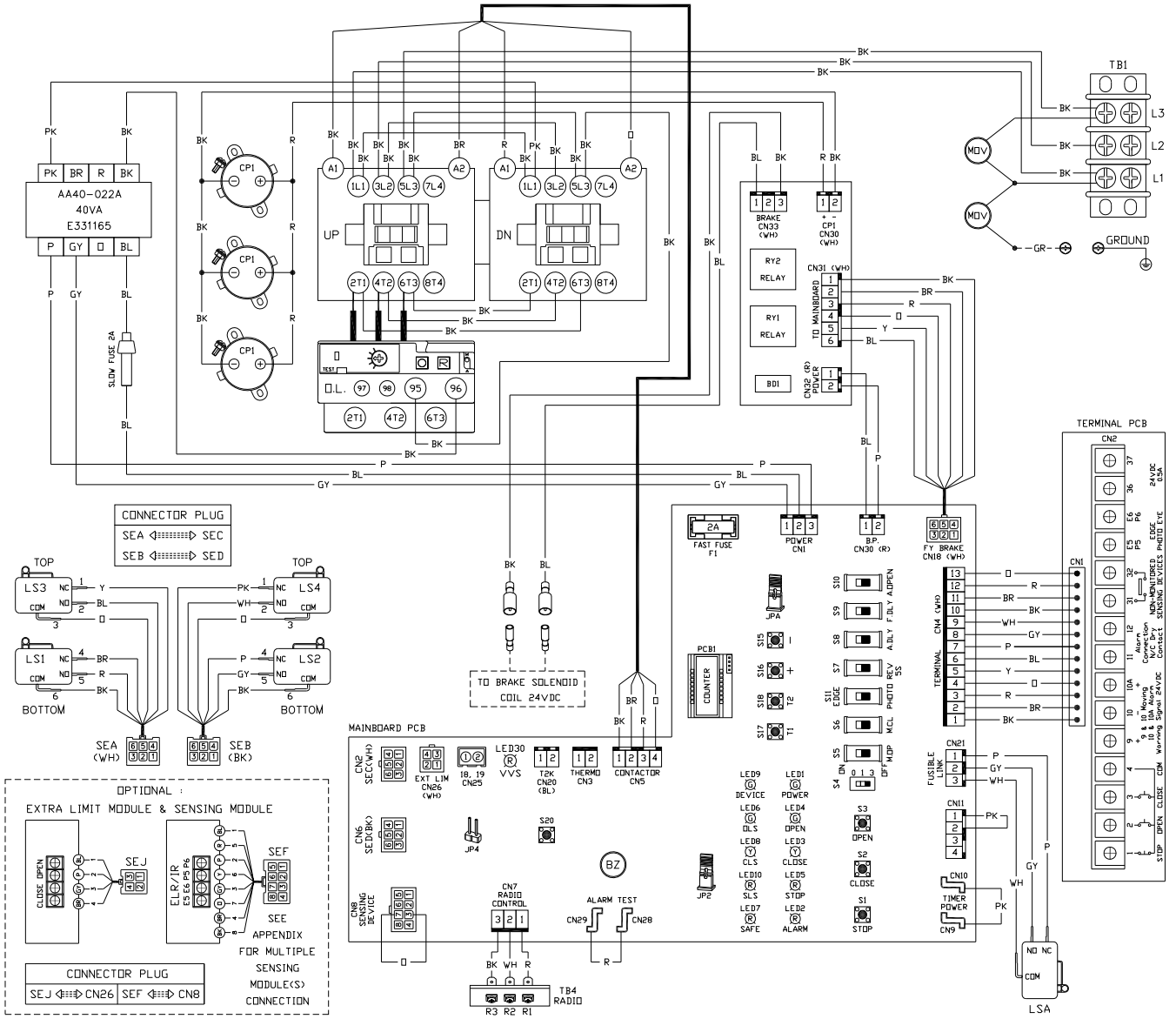
460V 3 PHASE
MOTOR CONNECTION



2016.10.03

FS-EP 575V 3 PHASE 60HZ LH (FSEP BOARD)
(FOR FS-38EP, 58EP, 78EP, 158EP)

EB 708EP L
V3.08

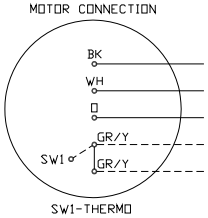


NOTES :
1. MOV-TNR 14V 122K or 15G 122K
2. CP1*1-CAPACITOR 39000μF 35VDC (FOR FS-38EP, FS-58EP)
3. CP1*2-CAPACITOR 39000μF 35VDC (FOR FS-78EP)
4. CP1*3-CAPACITOR 39000μF 35VDC (FOR FS-158EP)
5. SEA-LS1 & LS3 MICROSWITCH CONNECTOR
6. SEB-LS2 & LS4 MICROSWITCH CONNECTOR
7. LSA-FUSIBLE LINK SWITCH

MAINBOARD PCB :
1. SEC-OPEN CONTROL CONNECTOR
2. SED-CLOSE CONTROL CONNECTOR
3. CN8-SENSING MODULE CONNECTOR
4. CN9 & CN10-JUMP FOR ENABLING RECLOSE TIMER
5. CN20-24VDC OUTPUT FOR T2000 MAGNETIC POWER
6. CN25-EXTERNAL POWER INPUT 24VAC/DC
7. CN26-OPTIONAL EXTRA OPEN AND CLOSE LIMITS CONNECTOR
8. CN28 & CN29-ALARM TEST JUMPER
9. S4-HIT & REVERSE CYCLES
10. S5-MOMENTARY/CONSTANT PRESSURE OPEN
11. S6-MOMENTARY/CONSTANT PRESSURE CLOSE
12. S7-REVERSE TO OPEN LIMIT OR REVERSE 5 SEC.
13. S8-ALARM DELAY 10 SEC.
14. S9-FUSIBLE LINK DELAY 10 SEC.
15. S10-AUTO OPEN AFTER ALARM CLEARS
16. S11-EDGE/PHOTO EYE SENSING DEVICE SELECTION
17. S20-RESERVED, INTERNAL USE.
18. JPA-DO NOT REMOVE, INTERNAL USE
19. JP2-OPEN AND CLOSE WARNING SIGNAL (JUMPED)
REMOVE JUMPER FOR CLOSE WARNING SIGNAL ONLY
20. JP4-RESERVED, INTERNAL USE.
21. BZ-SOUND PATTERN REFER TO "F. SOUND WARNINGS" IN THE MANUAL

TERMINAL PCB - CN2 :
1 CONTROL STATION-STOP
2 CONTROL STATION-OPEN
3 CONTROL STATION-CLOSE
4 CONTROL STATION-COMMON
9&10 MOVING WARNING SIGNAL 24VDC
10&10A ALARM WARNING SIGNAL 24VDC
11&12 ALARM CONNECTION N/C DRY CONTACT
31&32 NON-MONITORED SENSING DEVICES (N.O. DRY CONTACT)
E5&E6/P5&P6 SENSING DEVICE CONNECTION
36&37 24VDC POWER, MAX. 0.5A

575V 3 PHASE
MOTOR CONNECTION

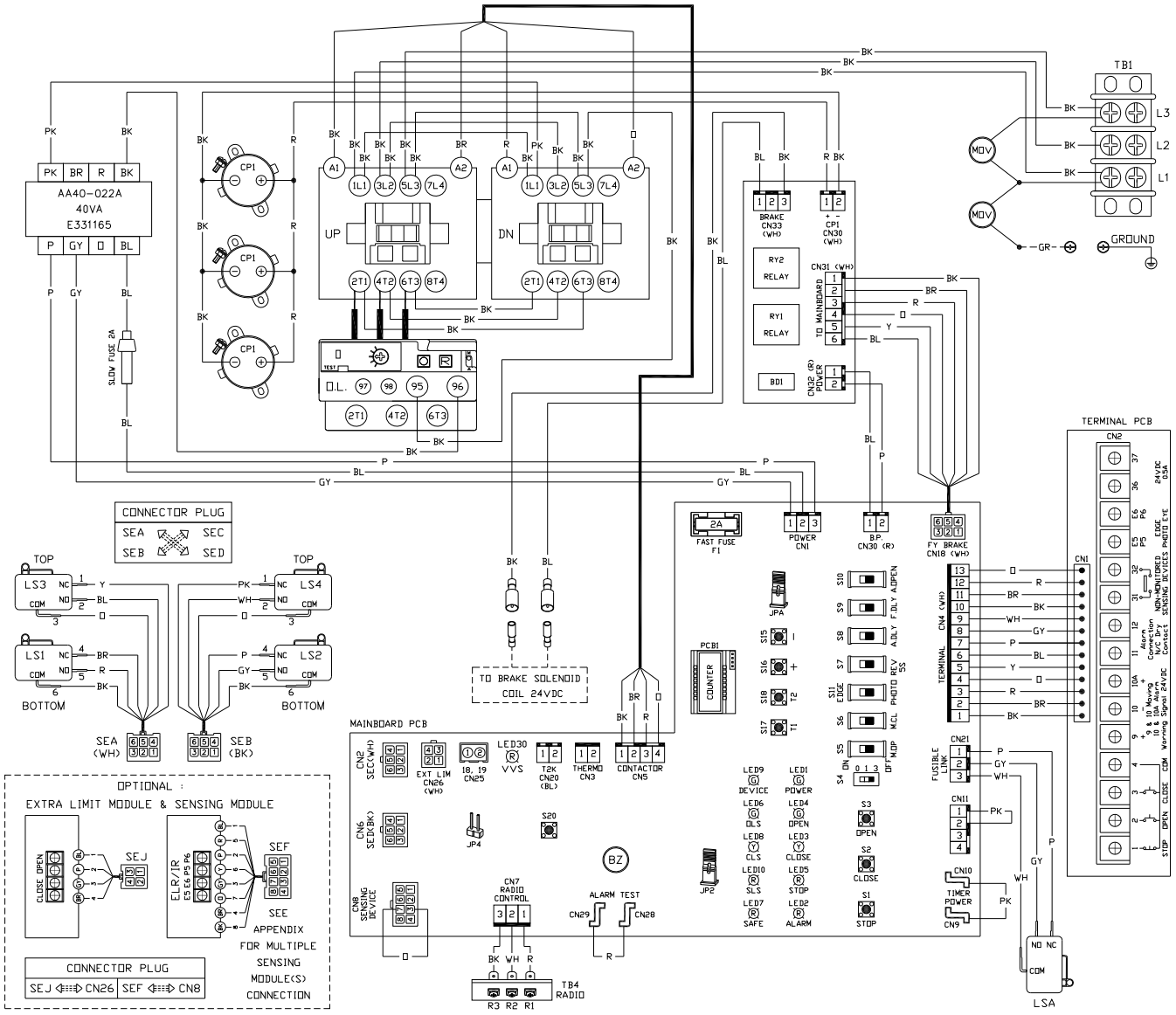


BK TO O.L.(2T1)
WH TO O.L.(4T2)
O TO O.L.(6T3)
GR/Y TO MAINBOARD PCB CN3(1)
GR/Y TO MAINBOARD PCB CN3(2)

2016.10.03

FS-EP 575V 3 PHASE 60HZ RH (FSEP BOARD)
(FOR FS-38EP, 58EP, 78EP, 158EP)

EB 708EP R
V3.08



NOTES :
1. MOV-TNR 14V 122K or 15G 122K
2. CP1*1-CAPACITOR 39000μF 35VDC (FOR FS-38EP, FS-58EP)
3. CP1*2-CAPACITOR 39000μF 35VDC (FOR FS-78EP)
4. CP1*3-CAPACITOR 39000μF 35VDC (FOR FS-158EP)
5. SEA-LS1 & LS3 MICROSWITCH CONNECTOR
6. SEB-LS2 & LS4 MICROSWITCH CONNECTOR
7. LSA-FUSIBLE LINK SWITCH

MAINBOARD PCB :
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2. SED-CLOSE CONTROL CONNECTOR
3. CN8-SENSING MODULE CONNECTOR
4. CN9 & CN10-JUMP FOR ENABLING RECLOSE TIMER
5. CN20-24VDC OUTPUT FOR T2000 MAGNETIC POWER
6. CN25-EXTERNAL POWER INPUT 24VAC/DC
7. CN26-OPTIONAL EXTRA OPEN AND CLOSE LIMITS CONNECTOR
8. CN28 & CN29-ALARM TEST JUMPER
9. S4-HIT & REVERSE CYCLES
10. S5-MOMENTARY/CONSTANT PRESSURE OPEN
11. S6-MOMENTARY/CONSTANT PRESSURE CLOSE
12. S7-REVERSE TO OPEN LIMIT OR REVERSE 5 SEC.
13. S8-ALARM DELAY 10 SEC.
14. S9-FUSIBLE LINK DELAY 10 SEC.
15. S10-AUTO OPEN AFTER ALARM CLEARS
16. S11-EDGE/PHOTO EYE SENSING DEVICE SELECTION
17. S20-RESERVED, INTERNAL USE.
18. JPA-DO NOT REMOVE, INTERNAL USE
19. JP2-OPEN AND CLOSE WARNING SIGNAL (JUMPED)
    REMOVE JUMPER FOR CLOSE WARNING SIGNAL ONLY
20. JP4-RESERVED, INTERNAL USE.
21. BZ-SOUND PATTERN REFER TO "F. SOUND WARNINGS" IN THE MANUAL

TERMINAL PCB - CN2 :
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2 CONTROL STATION-OPEN
3 CONTROL STATION-CLOSE
4 CONTROL STATION-COMMON
9&10 MOVING WARNING SIGNAL 24VDC
10&10A ALARM WARNING SIGNAL 24VDC
11&12 ALARM CONNECTION N/C DRY CONTACT
31&32 NON-MONITORED SENSING DEVICES (N.O. DRY CONTACT)
E5&E6/P5&P6 SENSING DEVICE CONNECTION
36&37 24VDC POWER, MAX. 0.5A

2016.10.03

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.

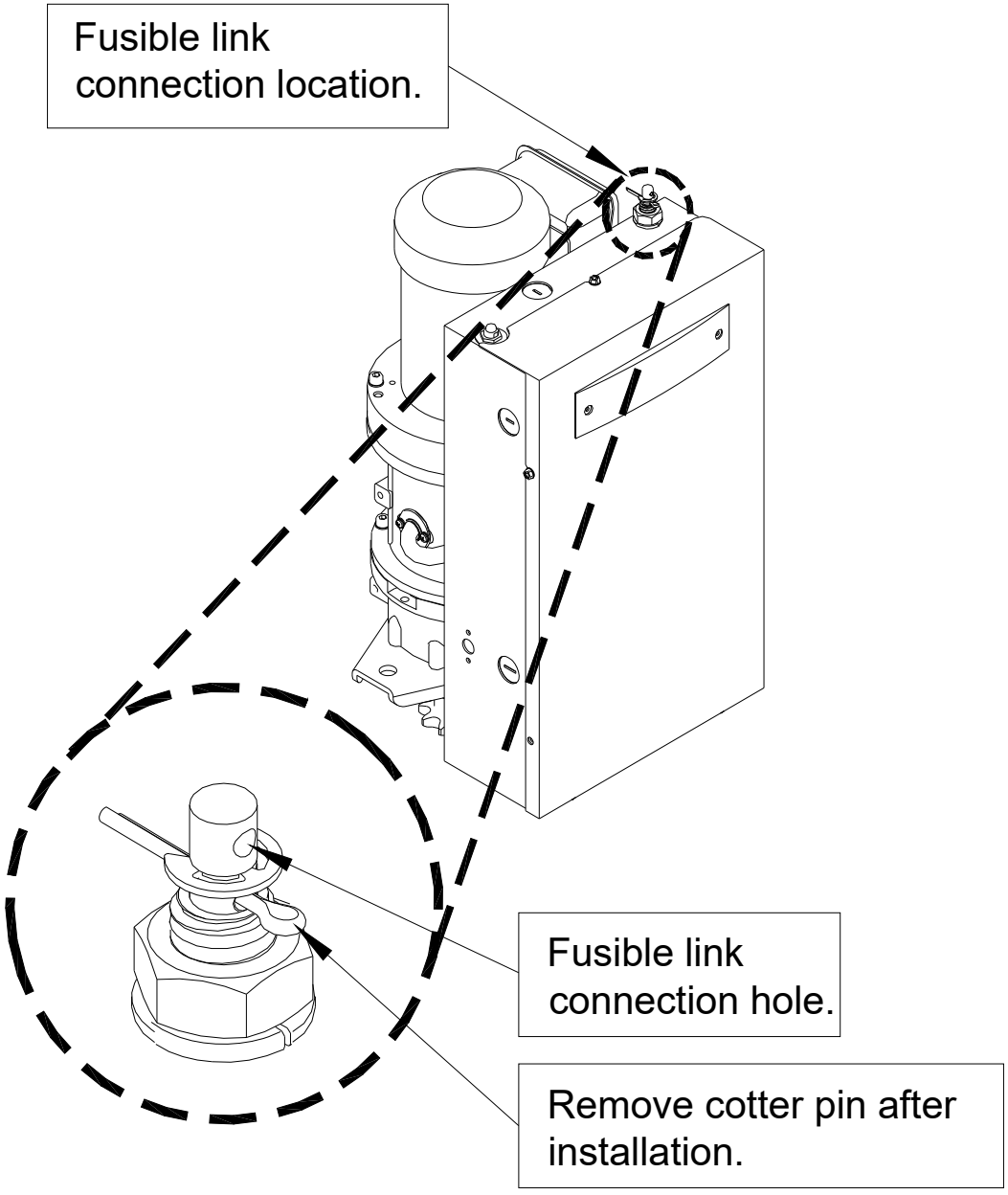
6. KEEP DOORS PROPERLY OPERATING AND BALANCED. See Door Manufacturer's Owner's Manual. An improperly operating or balanced door could cause severe injury or death. Have trained door systems technician make repairs to cables, spring assemblies, and other hardware.

7. SAVE THESE INSTRUCTIONS.

FUSIBLE LINK CONNECTIONS

- ***REMOVE COTTER PIN FROM RELEASE ASSEMBLY AFTER INSTALLATION IS COMPLETE.***

Refer to the fire door installation instructions for connection of the release assembly or consult NFPA-80 and the authority having jurisdiction for fusible link location(s) and method.



* Illustration only, not drawn to scale. See product for actual details.

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.

WARNING

If a sensing edge is not installed on the bottom of the door, and removing pressure from the “CLOSE” button or key switch position does not cause the door to stop, this condition must be corrected immediately. Improper operation could result in serious injury or death to person(s) trapped beneath the door.

3. Door may also be operated by remote devices.

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	●		
Drop-test	Inspect door, drop-test for proper operation and full closure per NFPA-80			●

- ❖ Do not lubricate motor. Motor bearings are rated for continuous operation.
- ❖ 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 obtained from the door manufacturer per NFPA-80.

WARNING

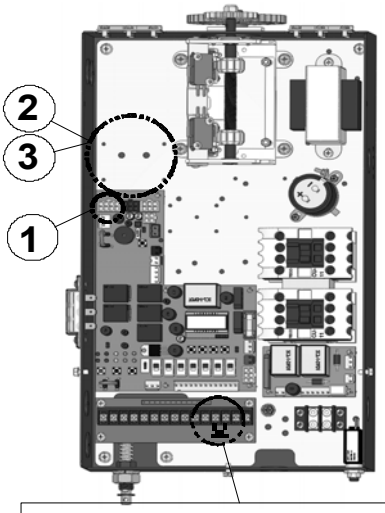
Do not place hands or tools in or near the operator when the power is connected or when testing control or sensing devices. Always disconnect power before servicing or adjusting the operator.

APPENDIX 1

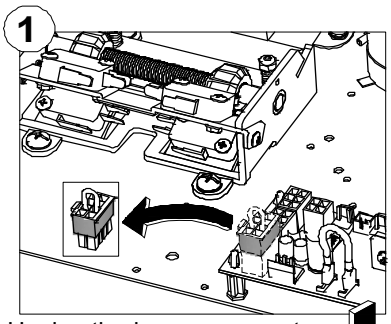
Multiple Sensing Devices Connection Instruction

Warning: Power OFF When Connecting.

QST-FS-EP-ADAPTER-5

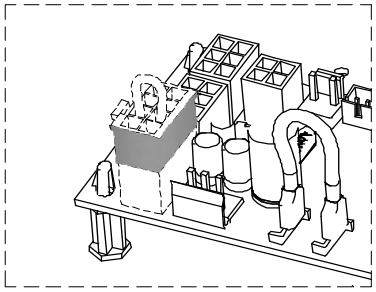


Primary Sensing Device Connection



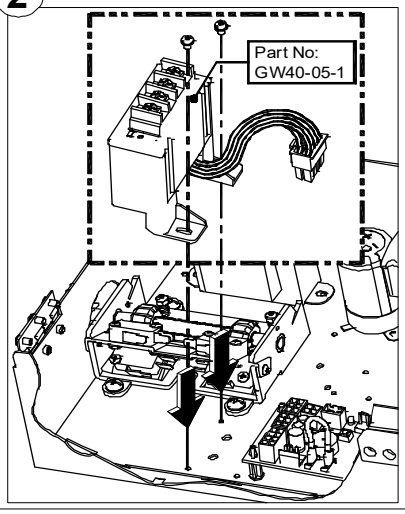
Unplug the jumper connector to add modules.

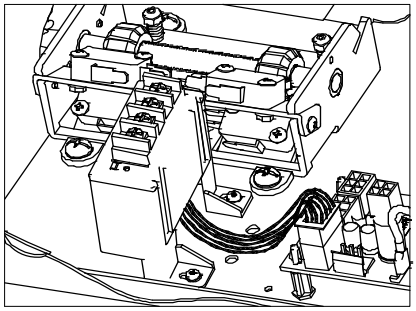
or

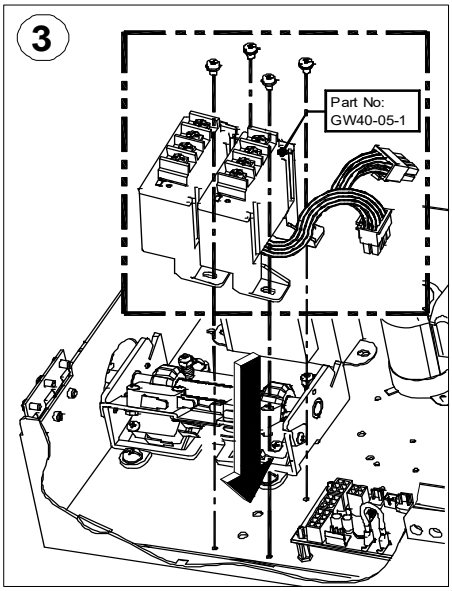


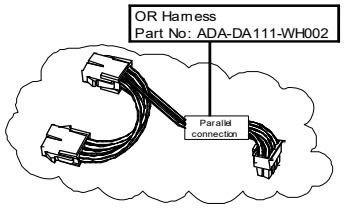
Plug back the jumper connector if no additional module is used.

Secondary sensing device connects on 1st sensing module.

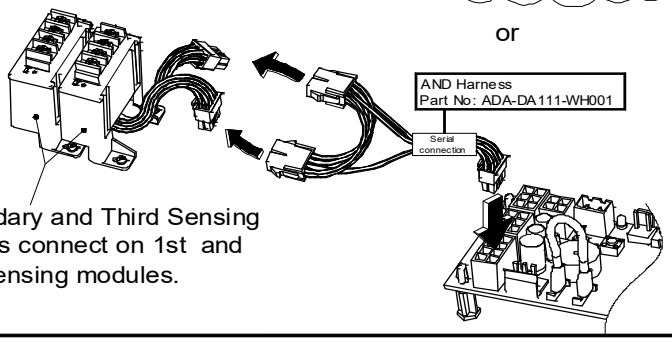




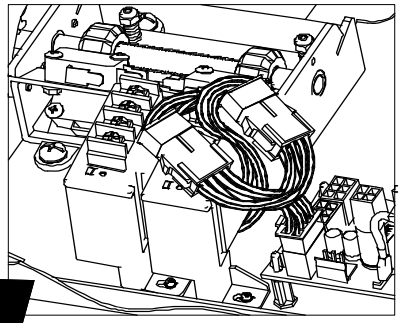




or



Secondary and Third Sensing Devices connect on 1st and 2nd sensing modules.

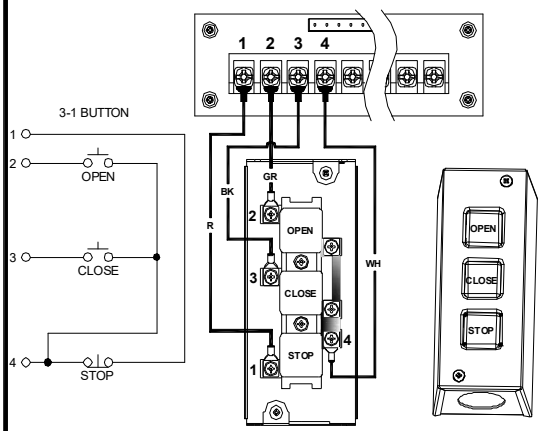


APPENDIX 2

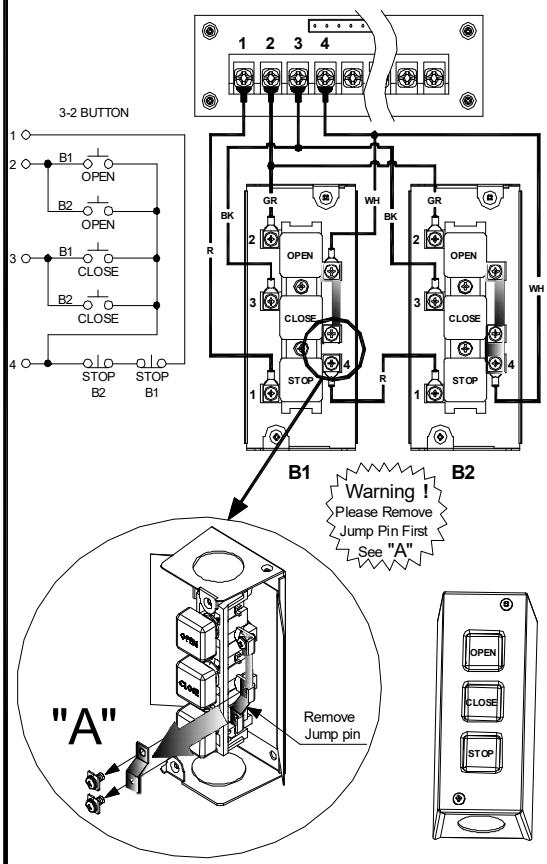
Control Connections Diagrams

Control Wiring for 3 Button Stations

1 Set of 3 Button Stations

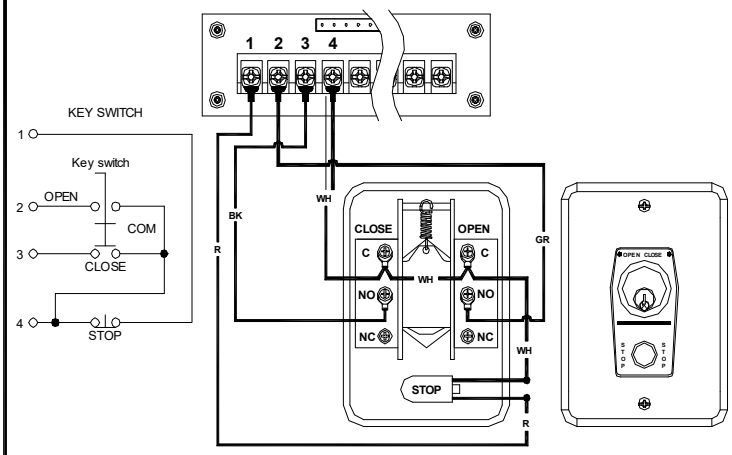


2 Sets of 3 Button Stations

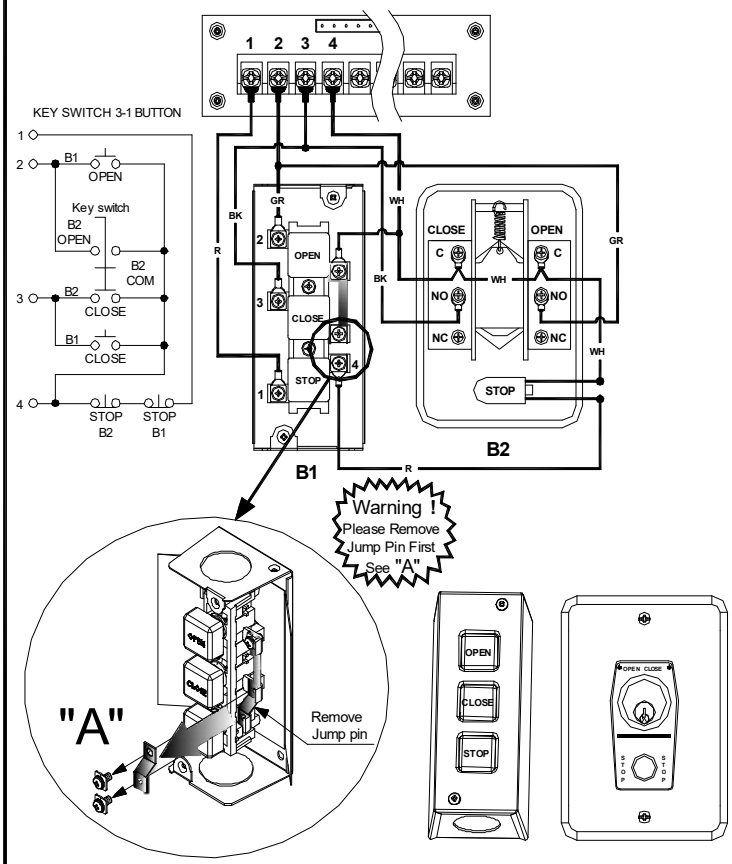


Control Wiring for Key Switch with Stop Button

Key Switch with Stop Button



Key Switch (with Stop Button) and 3 Button Stations

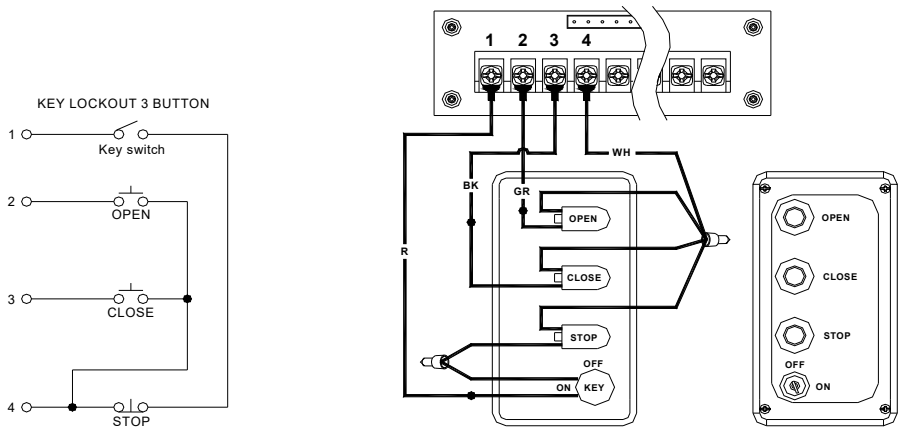


APPENDIX 3

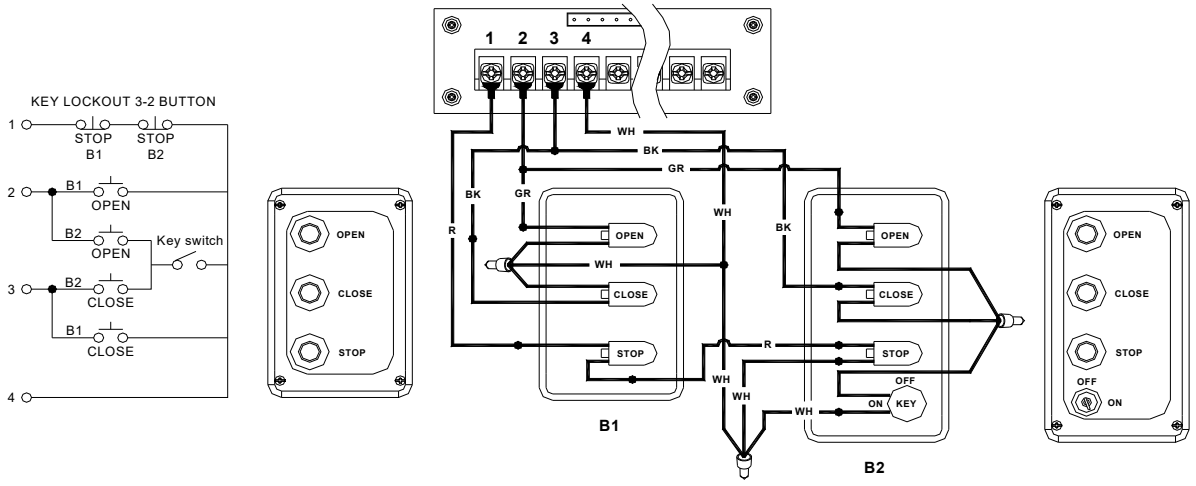
Control Connections Diagrams

Wiring 3 Button Stations With Key Lockout

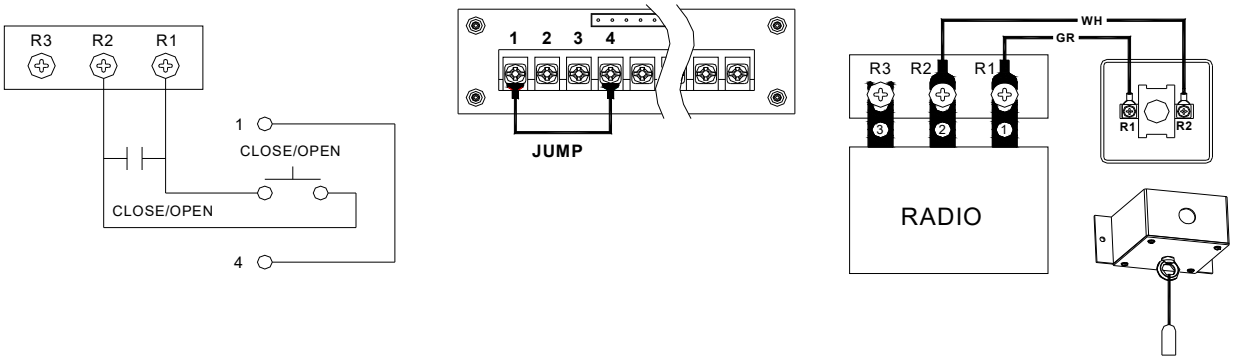
1 Set



With and without key lockout

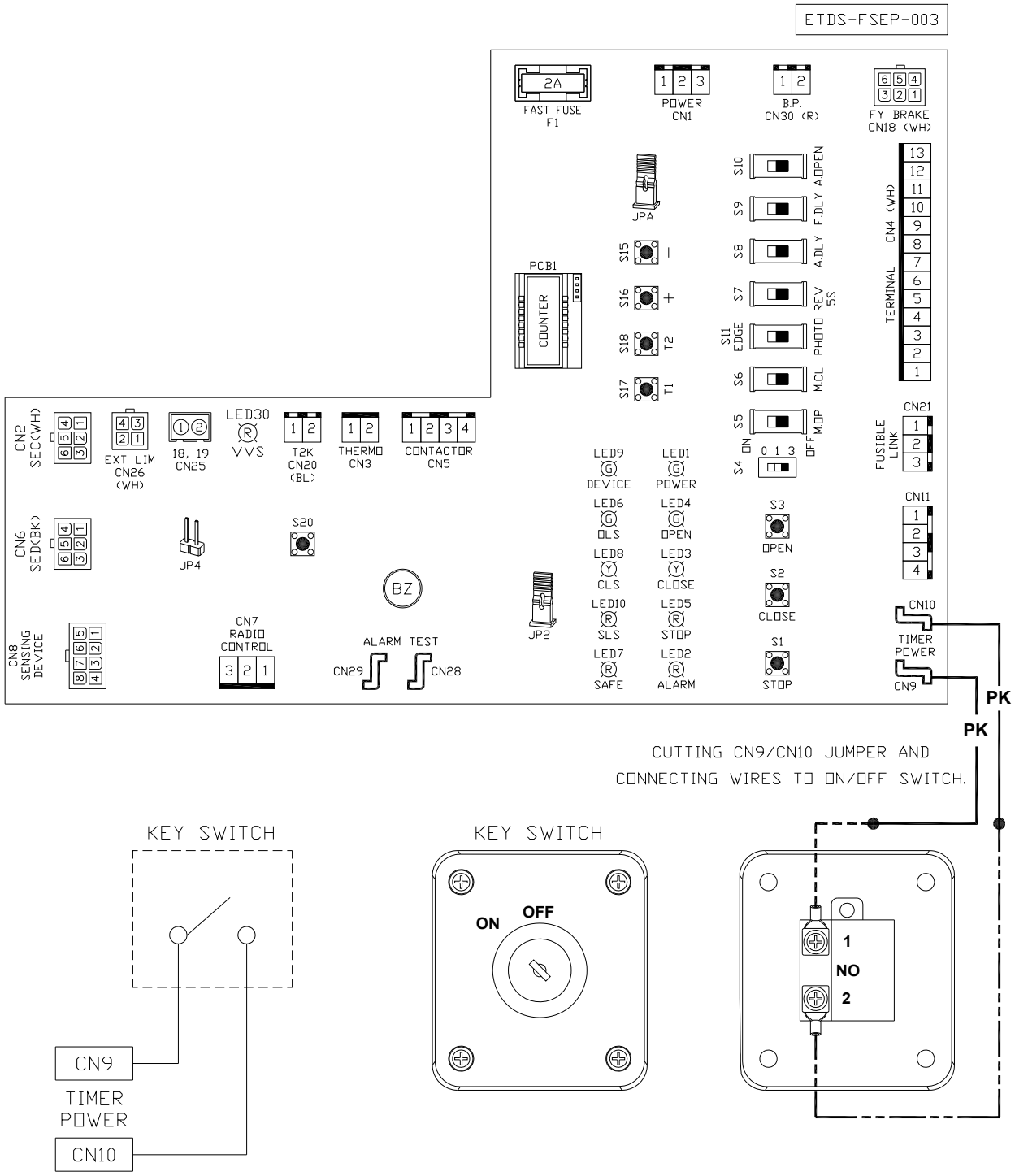


Ceiling Pull Switch Station



APPENDIX 4

EXTERNAL TIMER DEFEAT SWITCH CONNECTION-FSEP BOARD

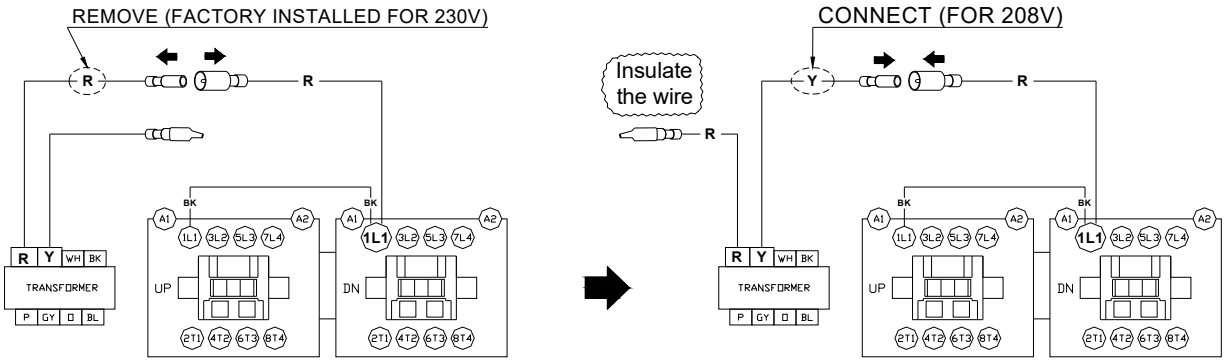


APPENDIX 5

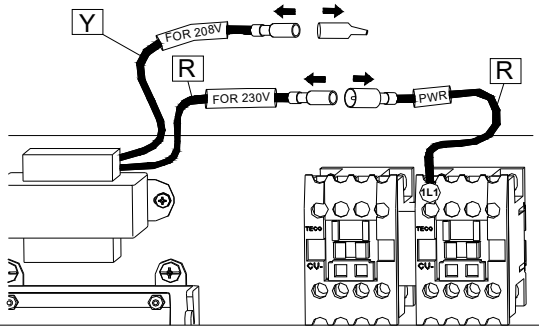
Wiring Change Instruction from 230V to 208V 3 Phase Operator

FS EP Series

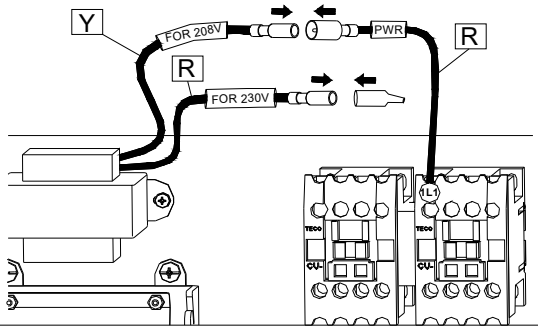
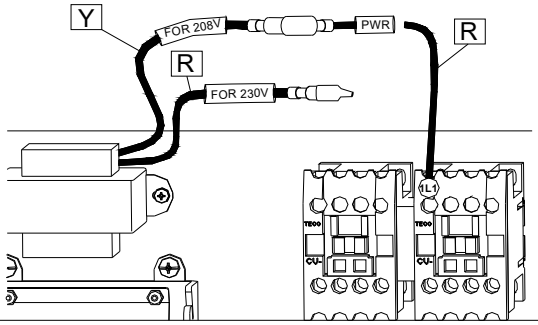
FS-EP-3P-V02



1. Unplug the red "230V" wire connector from the red "PWR" wire connector.
   Remove the insulating cap from the yellow "208V" wire connector.



2. Put the insulating cap on the red "230V" wire connector.
   Plug the yellow "208V" wire connector into the red "PWR" wire connector.



3. Completed.