Revision 0.4

LOBOS TRACTION CONTROLLER MANUAL

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Symbols Used in This Manual:

DANGER: Symbol indicates if direction(s) and/or warning(s) are not followed correctly there will be an increase in the probability of personal injury and/or damage to equipment(s).

CAUTION: Symbol indicates if direction(s) and/or warning(s) are not followed correctly there will be an increase in the probability of damage to the equipment(s).

NOTE: Symbol indicates beneficial information and/or procedures.

Limited Warranty:

Alpha Elevator Control's default warranty covers up to 24 months from the date the controller was shipped from the factory and 12 months from the date the small parts were shipped from factory. Warranty is waived if the product is misused, abused, or damaged due to environmental disaster. Alpha Elevator Control does not offer repairs for its products. A replacement will be provided if the product is covered under warranty.

Alpha Elevator Control will need to determine if the product is defective and approved for a warranty. A warranty will not be granted if Alpha Elevator Control has not determined whether the product is eligible for warranty. Purchasers' rights under this warranty shall consist exclusively of requiring, in Alpha's sole discretion, to replace free of charge F.O.B. factory with any defective items received at the factory within 24 months and determined by Alpha to be defective. The giving of, or failure to give, any advice or recommendation by Alpha shall not constitute any warranty by or imposing any liability upon the manufacturer. In no event will Alpha be liable for special or consequential damages for delays in performance of this warranty. Any warranty claim after 24 months from the ship date of the product will be determined that the failed product was caused by ordinary wear and tears.

To claim a warranty, please contact technical support at (916) 957-5900. The representative will provide a case number if the warranty is approved. A Return Material Authorization (RMA) will be provided with the replacement product, and the customer will be responsible for covering all shipping expenses when returning the defective product.

Limitations of Liability:

Under no circumstances will Alpha Elevator Control be liable for damages of any kind, loss of profits arising from out of warranty components, breach of contract, or tort (including negligence). Neglecting to comprehend the elevator control system/equipment could result in danger to people and the control system.

Safety Precautions/Code Compliance:

Alpha Elevator controllers are designed and certified to comply with ASME A17.1/CSA B44. The controllers should only be installed by a licensed and qualified elevator contractor. It is the responsibility of the contractor to be compliant with the state, federal, and National Electrical Codes. It is also the responsibility of the contractor to make sure the final installation of the controller is installed in a safe manner and complies with all local codes.

 *Proper grounding to the control equipment is crucial for a secured, lucrative, and reliable operation. See the National Electrical Code or local electrical code for proper grounding and ground wire sizing requirements to prevent electrical shock, equipment damage, and help reduce noise-induced issues. See next page for proper grounding requirements for an Alpha Elevator controller.*

Technical Support:

For technical assistance on an Alpha Elevator controller, please contact our technical support.

Phone Number: 916-957-5900 EXT. 1
Website Link: www.alphaelevatorcontrol.com

General Wiring Requirements:

Proper routing of signal and power wires for the controller and dispatcher are fundamental to noise related issues for microprocessor equipment. Low voltage and high voltage wiring cannot be in the same conduit, duct, or tray.

Main Line Wiring:

1. Main AC power supply wire sizing to the controller must be determined by the electrical contractor. Proper motor branch circuit protection must be provided according to applicable electrical code in the form of a fused disconnect or circuit breaker.

Motor Wiring:

Incorrect motor branch circuit protection may create a hazardous condition.

2. Recommended motor wire size is on page 3 of the schematic.

Ground Wiring:

3. Grounding wire should be sized per the applicable electrical code for the elevator system. Proper grounding is fundamental to provide reliable and safe operation to the controller. A proper ground is described as a connection directly to EARTH GROUND. An electrical contractor should provide and certify the electrical ground. When a good earth ground has been determined and connected with the proper wire size applicable to the electrical code, wire it to the ground terminal inside the controller cabinet labeled “PE” (See controller drawing for connection).

   Grounding examples:

   - Earth ground from a water pipe, but the water pipe must be connected to a continuous city water source and not a free-flowing earth water source.
   - Good structural steel of the building.

4. Grounding can be branched or daisy chained from controller cabinet to controller cabinet, but the wire must terminate at the last controller and not loop back.

Table of Contents

GENERAL INFORMATION

The controller will come equipped with job prints, controller manual (this document), and individual component documents that will help with the installation, adjusting, troubleshooting, and maintenance of the Lobos traction controller. It is mandatory to go over the job prints and equipment installation manual before installing and adjusting the controller.

SPECIFICATION

LOBOS TRACTION CONTROLLER SPECIFICATIONS

Maximum Car Speed	UP TO 1500 FPM
Configuration	SIMPLEX AND GROUP
Landings	UP TO 128 FLOORS
Motor Control	AC DRIVES
Landing System	KUBLER ANTS LES02
Dispatching	UP TO 8 CARS IN A GROUP
Environment	NEMA 1, NEMA 4/4X, NEMA 12
Standard Enclosure	34” W x 44” H x 15” D (864 x 1117 x 381 mm)
Input Voltage	208-600 VAC, 50/60 HZ, 3 PHASE

OVERVIEW OF LOBOS CONTROLLER

MACHINE ROOM CONTROLLER

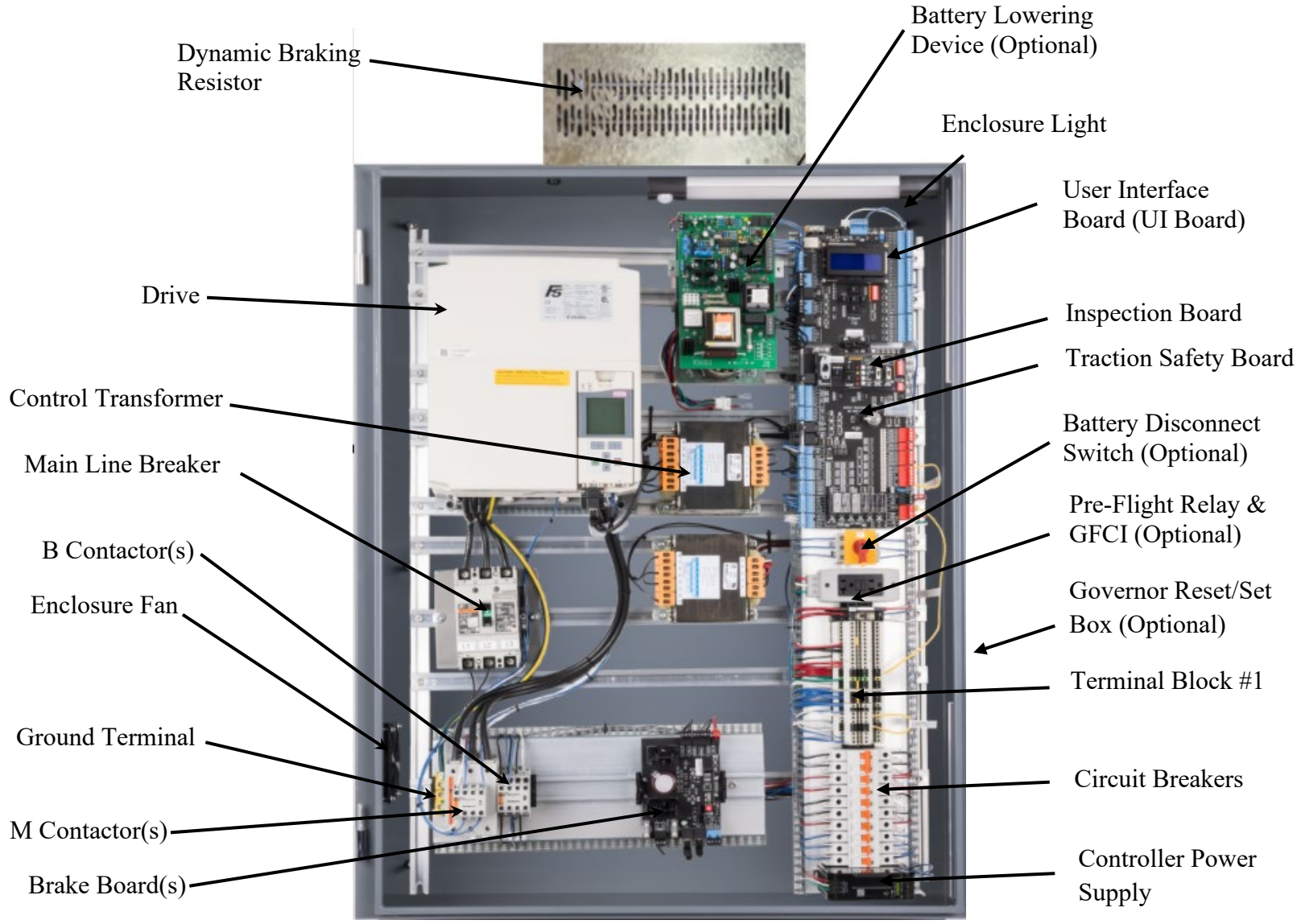


Figure 1: Machine Room Controller Overview

- The standard components to every machine room controller includes: controller power supply, circuit breakers, terminal block #1, traction safety board, UI board, enclosure light, pre-flight relay, terminal block #2, enclosure fan, control transformer, main line/ground terminals, brake board(s), b contactor(s), m contactor and drive.

CAR TOP (CT) CONTROLLER AND INSPECTION STATION

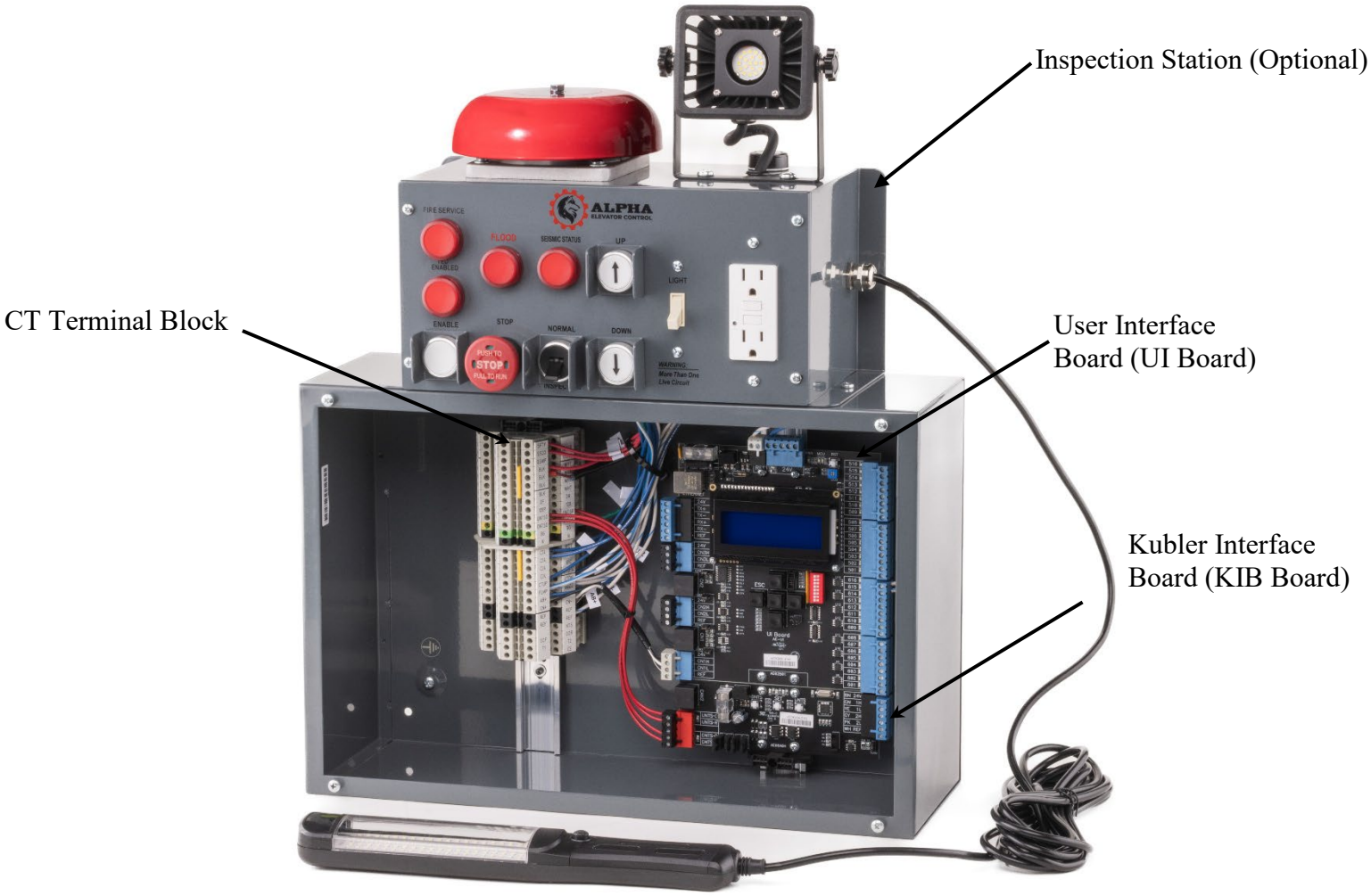


Figure 2: Prewired CT Box and Inspection Station With Drop Light Overview

- Inspection station with drop light is optional upon request. When requesting for a CT inspection station, the inspection station will come wired and mounted on top of the car top controller.

UI BOARD

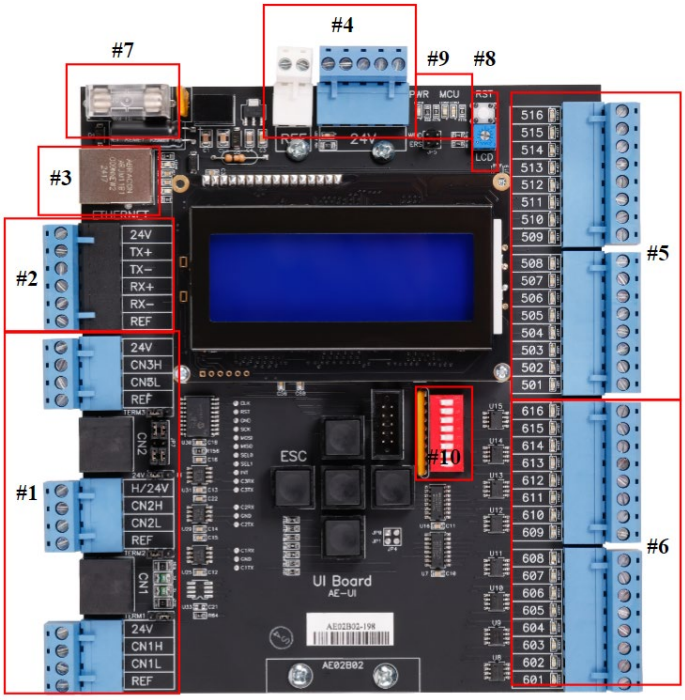


Figure 3: UI Board Overview

#1 – CAN Communication and Termination Jumpers

- Each CAN communication and termination jumpers on the UI Board is used differently to communicate to another board/device. Please refer to the job specific schematics to verify connections to the CAN communication terminal blocks and how the termination jumpers are set on each UI Board.

#2 – RS422 Communication

- RS422 communication is used to connect external devices that require RS422 communication.

#3 – Ethernet Port

- Ethernet port is used on the MR UI Board to connect to the group controller (if applicable).

#4 – 24VDC Board Supply (LED17)

#5 – 16 x 24VDC Programmable Inputs (LED1-LED16)

#6 – 16 x 24VDC Programmable Outputs (LED33-LED48)

#7 – 750 mA Fuse

#8 – Master reset button and LCD screen brightness potentiometer

#9 – LEDs

LED18/PWR – Monitors Fuse & On-Board Regulators are Running	LED52 – Heartbeat of MCU Processer	LED53 – MCU Processor Registered a Fault

#10 – DIP Switch Functionalities on UI Board

DIP 1 – CPU Stop Switch	DIP 2 – N/A	DIP 3 – Door Disable (MR UI Only)	DIP 4 – Acceptance Test
DIP 5 – N/A	DIP 6 – Pop-Up blocker	DIP 7 – Identification of UI BOARD (Used with DIP 8 to assign board as MR, CT, or COP)	DIP 8 - Identification of UI BOARD (Used with DIP 7 to assign board as MR, CT, or COP)

SAFETY BOARD

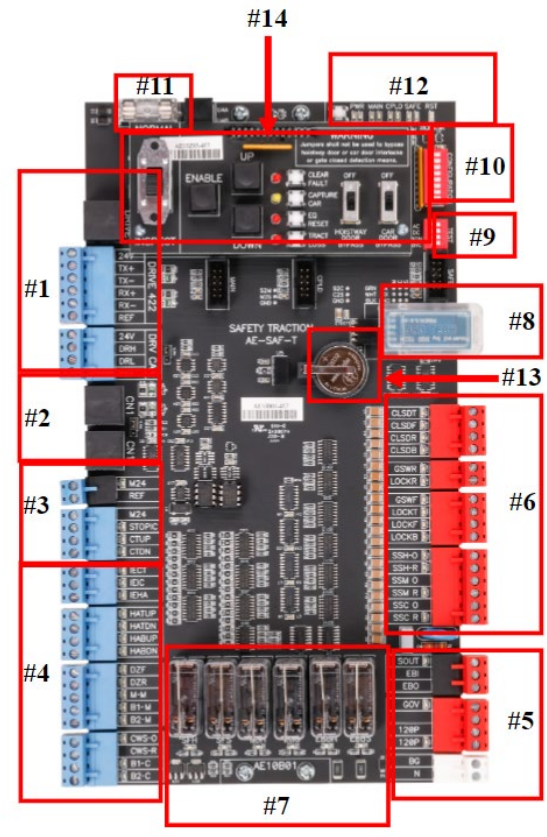


Figure 4: Traction Safety Board Overview

#1 – Drive CAN communication:

- Drive 422 Terminal connects to Drive TB2 terminals 9-14 for Magnetek use only.

#2 – CAN communication:

- One of the CN1 port connects to CN1 port of the brake board.
- One of the CN1 port connects to CN1 port of the UI Board.

For Items #3-#6, see Table for terminal definitions

#3. CT CONTROL / 24 BUS	
M24	24VDC
REF	REFERENCE
STOPIC	IN CAR STOP SWITCH
CTUP	CAR TOP UP
CTDN	CAR TOP DOWN
#4. INSPECTION MODE AND OPERATION	
IECT	INSPECTION CAR TOP
IEIC	INSPECTION IN CAR
IEHA	INSPECTION HOISTWAY ACCESS
HATUP	HOISTWAY ACCESS TOP UP
HATDN	HOISTWAY ACCESS TOP DOWN
HADBUP	HOISTWAY ACCESS BOTTOM UP
HABDN	HOISTWAY ACCESS BOTTOM DOWN
DZF	DOOR ZONE FRONT
DZR	DOOR ZONE REAR
M-M	M CONTACTOR MONITORING
B1-M	B1 CONTACTOR MONITORING
B2-M	B2 CONTACTOR MONITORING
CWS-O	COUNTERWEIGHT SENSOR OUT
CWS-R	COUNTERWEIGHT SENSOR RETURN
B1-C	B1 CONTACTOR CONTROL
B2-C	B2 CONTACTOR CONTROL

#5. EMERGENCY CONTROL	
SOUT	SAFE TO RUN
EBI	EMERGENCY BRAKE IN
EBO	EMERGENCY BRAKE OUT
GOV	GOVERNOR
120P	120VAC
BG	BONDING GROUND
N	NEUTRAL
#6 HOISTWAY SWITCHES / DOOR LOCKS	
CLSDT	CLOSED TOP
CLSDF	CLOSED FRONT
CLSDR	CLOSED REAR
CLSDB	CLOSED BOTTOM
GSWR	GATE SWITCH REAR
LOCKR	LOCK REAR
GSWF	GATE SWITCH FRONT
LOCKT	LOCK TOP
LOCKF	LOCK FRONT
LOCKB	LOCK BOTTOM
SSH-O	HOISTWAY SAFETY DEVICE OUTPUT
SSH-R	HOISTWAY SAFETY DEVICE RETURN
SSM-O	MACHINE ROOM SAFETY DEVICE OUTPUT
SSM-R	MACHINE ROOM SAFETY DEVICE RETURN
SSC-O	CAR SAFETY DEVICE OUTPUT
SSC-R	CAR SAFETY DEVICE RETURN

#3 – CT Control/24VDC Bus

#4 – Inspection Mode and Operation – 24VDC

#5 – Emergency Control

- Safety Board 120VAC Input/Output Power

#6 – Safety String/Hoistway Switches (120VAC) / Door Lock Contacts (120VAC)

- Hall Locks
  - LOCKT (Top), LOCKF (Intermediate), LOCKB (Bottom), LOCKR (Rear if applicable)
- Manual Hall Doors (Closed Contacts)
  - CLSDT (Top), CLSDF (Intermediate), CLSDB (Bottom), CLSDR (Rear if applicable)
- Car Gate
  - GSWF (Gate Switch Front), GSWR (Gate Switch Rear)

#7 – Safety/Emergency Relays

- SFH, SFS, EBH, EBS, EBBH, EBBS

#8 – Bluetooth Module

- Connecting Alpha Phone App to the controller via bluetooth

#9 – TEST DIP Switch Functionalities on Safety Board

DIP 1 – N/A	DIP 2 – N/A	DIP 3 – N/A	DIP 4 – N/A
DIP 5 – N/A	DIP 6 – Swing Door Enable	DIP 7 – In Car (IC) Inspection Enable	DIP 8 – Rear Door Enable

#10 – CONFIGURATION DIP Switch Functionalities on Safety Board

DIP 1 – AC Input Redundancy Cutout	DIP 2 – DC Input Redundancy Cutout	DIP 3 – CPLD to SAFE MCU Comm Cutout	DIP 4 – CPLD Program Enable

#11 – 750 mA Fuse

#12 – LEDs

LED8 - Monitors Fuse & On-Board Regulators are Running	LED44 – Heartbeat of Main MCU Processor	LED45 – Main MCU Processor Registered a Fault	LED40 – Heartbeat of CPLD Processor	LED41 – CPLD Processer Registered a Fault
LED42 –Heartbeat of Safety MCU Processor	LED43 – Safety MCU Processor Registered a Fault	LED38 – Board Resetting		

#13 – Battery

#14 – Inspection Board (Removable/Replaceable)

- Controls for Machine Room Inspection Operation
- Capture Car Button

    - Yellow LED activates while button is pressed
    - Used to keep doors from cycling open and close
    - While car is captured, it will not accept hall calls
- Clear Fault Button
    - Red LED activates while button is pressed
    - Used to clear latching safety fault(s) on the MAIN, SAFE & CPLD processors
- EQ Reset Button
    - Red LED activates while counterweight derailment is activated.
    - Used to clear earthquake fault.
- Traction Loss Button
    - RED LED activates while traction loss is detected.
    - Used to clear traction loss fault.
- Hoistway Door Bypass
    - Only works on IC Inspection and CT Inspection
    - Used to bypass status of hall locks to run on IC Inspection and CT Inspection
- Car Door Bypass
    - Only works on IC Inspection and CT Inspection
    - Used to bypass status of car doors to run on IC Inspection and CT Inspection

FEATURE/FUNCTIONALITY/MENU SYSTEM

NAVIGATING THE LCD SCREEN – HOME SCREEN

To access the different menus on the UI board, use the buttons to move between screens.

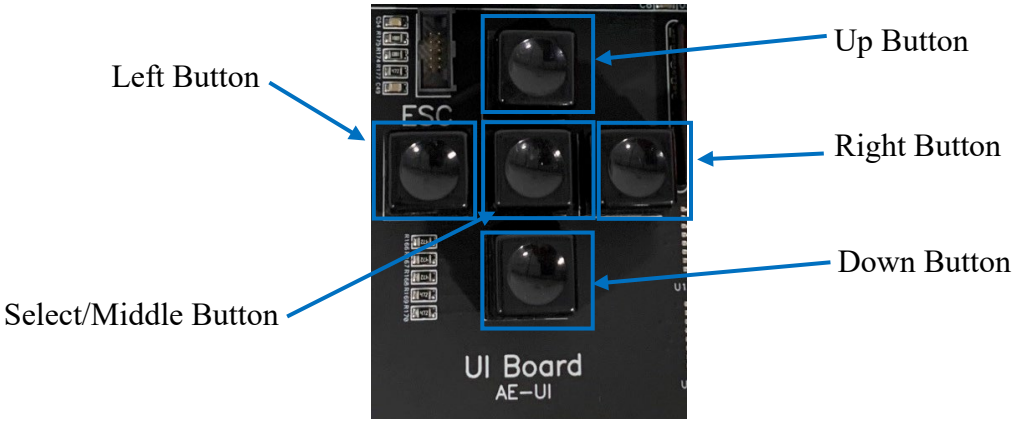


Figure 5: UI Board Buttons

Home Screen – Elevator Overview:

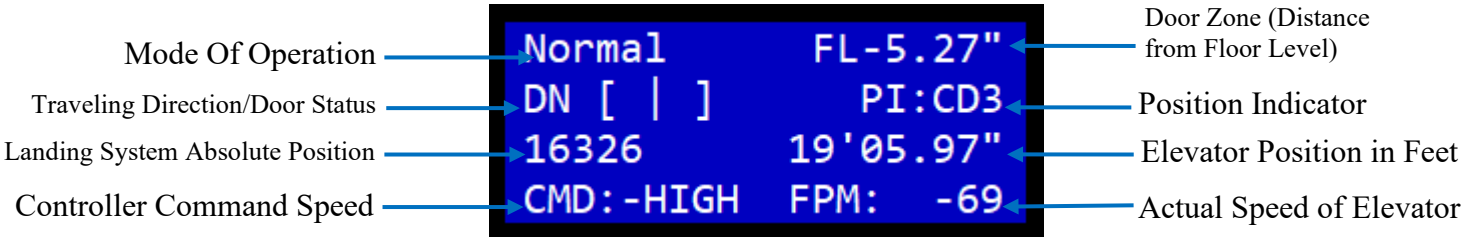


Figure 6: Home Screen – Elevator Overview

The home screen is the first thing seen when accessing the controller and where menu navigation begins. To navigate to the home screen from another screen, keep pressing the left button of the UI board buttons until the home screen is shown. User can toggle through the displays below with the up and down buttons.

The home screen displays the following:

- Mode of elevator operation
- Door zone and dead zone
- Front and rear door (if applicable) status
- Position Indicator that elevator is on
- The controller count reference
- The height the of the elevator
- Controller command speed
- The speed the elevator is traveling at
- Front door data
- Rear door data (if applicable)
- Hall door data

Home Screen – Front Door Data:

The front door data has a total of 4 rows of information to show what door signals are currently active. Pressing the down button from this screen will reveal the 4th row.

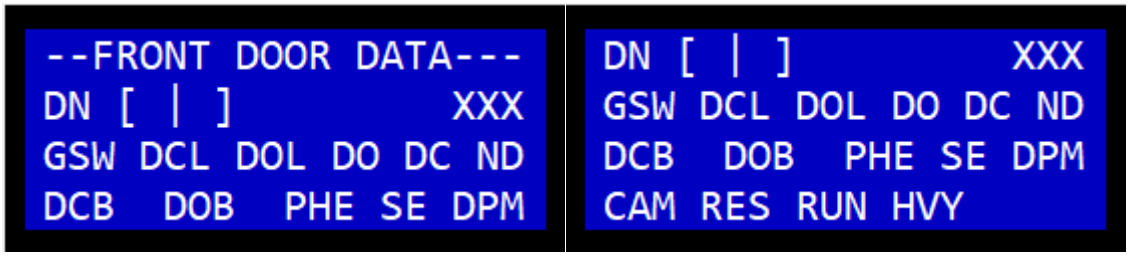


Figure 7: Home Screen – Front Door Data

This screen also displays the status of the door position. Only the signals that are active are displayed on this screen, the non-active will not be displayed. (Pressing the enter button on this screen will display all possible door signals)

Door Definition:

Abbreviation	Definition
GSW	Gate Switch
DCL	Door Close Limit
DOL	Door Open Limit
DO	Door Open
DC	Door Close
ND	Nudge
DCB	Door Close Button
DOB	Door Open Button

Abbreviation	Definition
PHE	Photo Eye
SE	Safety Edge
DPM	Door Position Monitor
CAM	Cam
RES	Restrictor
RUN	Run
HVY	Heavy

Home Screen – Rear Door Data (if applicable):

If the controller is configured for rear doors, the same set of data is available identical to the front door data.

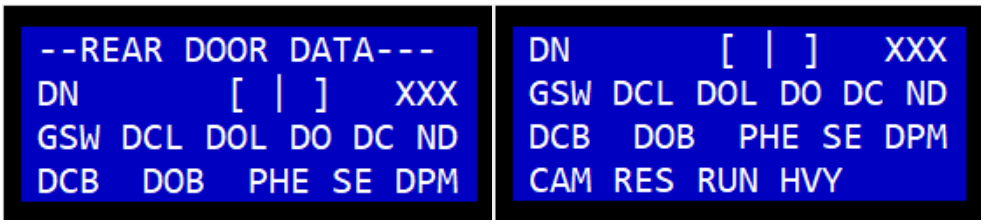


Figure 8: Home Screen – Rear Door Data

Signals that should be seen when the car door(s) are fully closed:

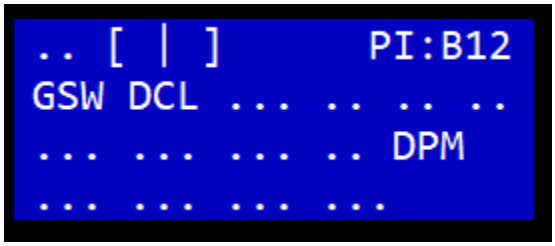


Figure 9: Home Screen – Closed Door Signal

Signals that should be seen when the car door(s) are fully open:

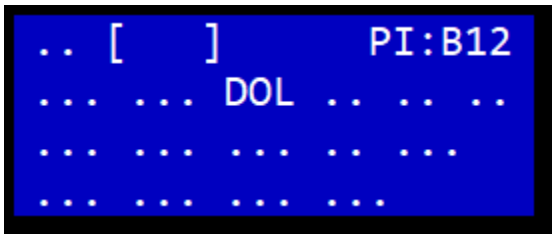


Figure 10: Home Screen – Opened Door Signal

Home Screen – Hall Door Data:

At the very bottom of the home screen is the hall door data.

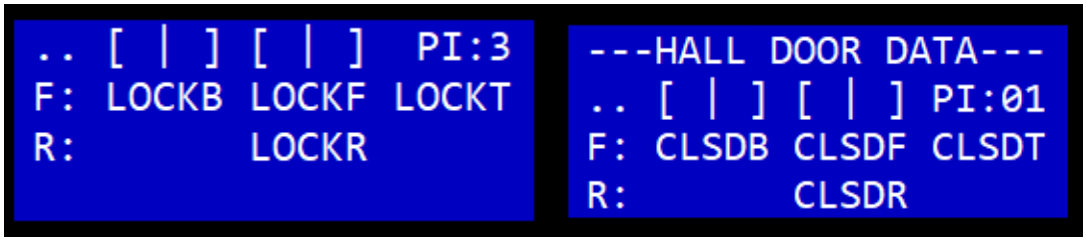


Figure 11: Home Screen – Hall Door Data

The hall door data will show the current state of the hall lock inputs for both front (F) and rear (R) if the job has rear. It will also show the current state of the closed contact inputs of the manual hall doors (if applicable).

Abbreviation of the lock signal (these signals will only display when the contacts are made):

LOCKB = Hall Lock Bottom
LOCKF = Hall Lock Front
LOCKT = Hall Lock Top
LOCKR = Hall Lock Rear
CLSDB = Hall Closed Lock Bottom
CLSDF = Hall Closed Lock Front
CLSDT = Hall Closed Lock Top
CLSDR = Hall Closed Lock Rear

CONSTRUCTION MODE

 *Verify the main line disconnect is off prior to wiring the main line into the controller.*

 *Construction mode wiring can be found on the job schematic. There is a factory jumper (yellow or orange wire) from the* ***SSH-O terminal on the safety board to the SSC-R terminal on the safety board, 120P terminal to GOV terminal on the safety board, and REF terminal to NTS terminal on the terminal blocks****. Remove these jumpers when the elevator has learned the floors and the NTS.*

Main Line and Motor Wiring:

- Connect fan and light disconnect building power wires black and white to the terminals BLK and WHT on the DIN rail.
- Connect the 3-phase mainline power to the terminal block labeled L1, L2, and L3.
- Connect the earth ground to the ground terminal block (green) labeled PE.
- Connect the motor leads to the bottom of the M contactor labeled T1, T2, and T3.

Brake(s)/Rope Gripper Wiring:

- Connect the brake(s) to the following terminals:
    - One side of the main brake to B1- on the DIN rail and the other side of the main brake to B1+.
    - (If secondary brake is applicable) One side of the secondary brake to B2- on the DIN rail and the other side of the secondary brake to B2+.
    - (If rope gripper is applicable)
        - If using a Hollister Whitney rope gripper, wire RG1 of the rope gripper to EBO terminal of the safety board, wire RG2 of the rope gripper to N terminal on the terminal block, and wire GRD of the rope griper to BG terminal on the terminal block.
        - If using a Draka rope gripper, wire RB1 of the rope gripper to EBO terminal of the safety board, wire RB2 of the rope gripper to N terminal on the terminal block, and wire ⏚ of the rope griper to BG terminal on the terminal block.

Required Parameters:

- Go to **MAIN MENU → SETUP → INSPECTION/ACCESS → BYPASS DIRECTIONALS**, set it to **TRUE**, and save the parameter. (This is usually set up to TRUE by default from the factory)

Incremental Common Encoder Wiring:

For specific encoder wiring diagram, reach out to your encoder manufactures.

FUNCTION	KEB F5 TERMINAL	MAGNETEK HPV900 TERMINAL	IH950 INDUSTRIAL	IMPERIAL (35 FT)	IMPERIAL (50 FT/75 FT)	ACCUCODER
0V	8	18	WHITE	BLACK	BLACK	BLACK
+V	7	17	BROWN	RED	WHITE	WHITE
A	1	1	GREEN	WHITE	PURPLE	BROWN
A-	2	2	PINK	WHITE/BLACK	GRAY	YELLOW
B	3	3	YELLOW	BLUE	GREEN	RED
B-	4	4	BLUE	RED/BLACK	BLUE	GREEN

Construction Mode Methods:

Option #1: If using a temporary run box (CT Inspection Mode):

- Connect the following to the safety board:
  - Stop switch to M24 and STOP-IC
  - Up button to CTUP
  - Down button to CTDN
- Turn both the car door and hall door bypass switches from OFF to the BYPASS position.

Elevator is now ready to run on construction mode with the temporary run box.

Option #2: If not using a temporary run box (MR Inspection Mode):

- Make the following connections on the safety board:
  - IECT to M24
  - IEIC to M24 (if applicable)
  - IEHA to M24
  - STOPIC to M24
  - GSWF to 120P
  - LOCKT to 120P
  - LOCKF to 120P
  - LOCKB to 120P
  - GSWR (if rear doors applicable) to 120P
  - LOCKR (if rear doors applicable) to 120P
- Turn the inspection switch on the safety board from NORMAL to the INSPECT position.

Elevator is now ready to run on construction mode with the MR inspection board.

Magnetek HPV900

Figure 12: Magnetek HPV900 Drive

Encoder Wiring:

- If using an induction motor, connect the encoder to the TB1 terminal block on the control board inside the Magnetek drive. (There will be no Endat Board inside the drive if the motor is an induction motor)
- If using a gearless motor, connect the encoder to the TB2 terminal block of the **endat** board inside the Magnetek drive.

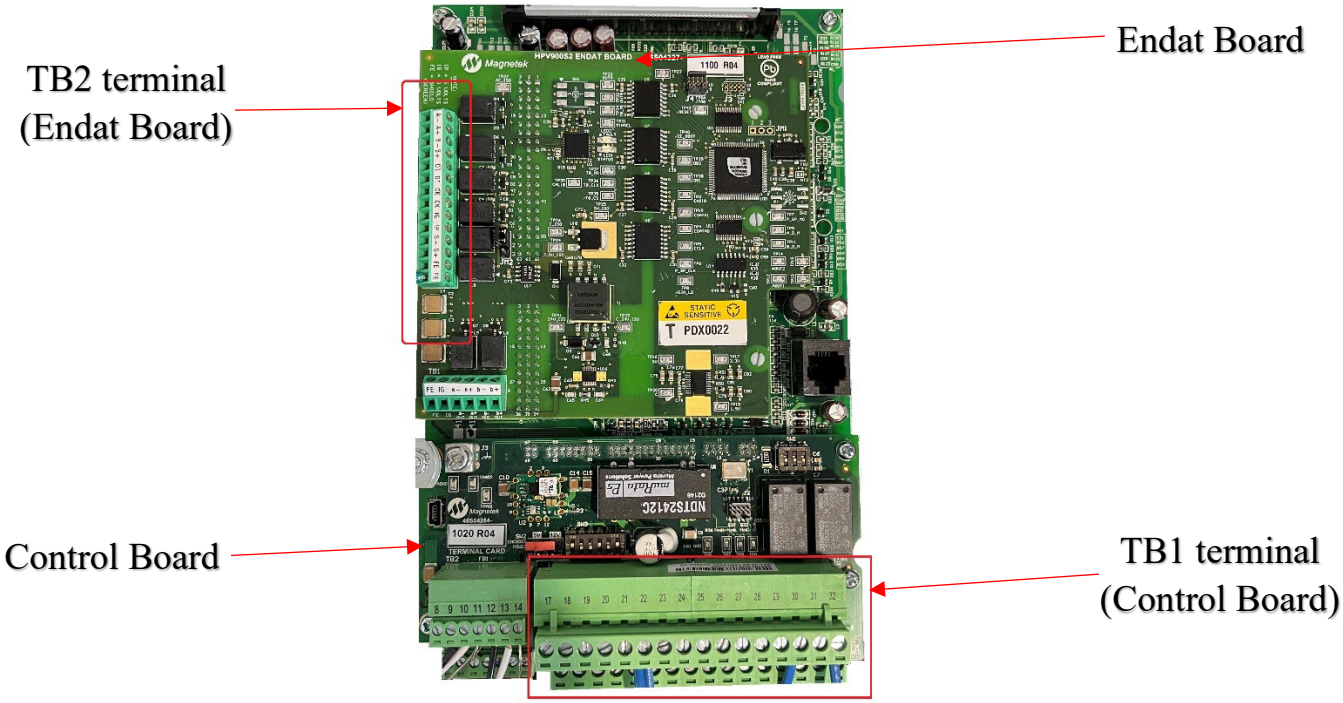


Figure 13: Magnetek Control Board & Endat Board

Autotune Drive Methods:

Magnetek HPV 900 (required only for a PM motor)

 *Refer to the Magnetek Manual if any fault occurs during the drive autotuning method.*

Motor Alignment

1) In the HPV900 drive, go to Utility – U0, scroll down until and select the AUTOTUNE SEL U12 menu, change it from NO to YES, but do not press the enter button until step 3.
2) Press and hold the M contactor in.
3) Press the enter button on the Magnetek drive to start the autotune. The drive should display that the autotune is successful.

Encoder Alignment

4) In the HPV900 drive, go to Utility – U0, scroll down and select the ROTOR ALIGN U10 menu.
5) Go to ALIGNMENT METHOD and change it to HF INJECT and press the enter button.
6) Go to ALIGNMENT and change it from DISABLE to ENABLE.
7) Go to BEGIN ALIGNMENT and change it from NO to YES, but do not press the enter button yet.
8) Press and hold the M contactor in.
9) Press the enter button on the Magnetek drive to start the alignment. The drive should display that the alignment is successful.

KEB F5

Figure 14: KEB F5 Drive

Encoder Wiring:

- If using an induction motor, connect the encoder to the X3A terminal block on the encoder board in the KEB Drive per Figure 15.
- If using a PM motor, connect the encoder to the X3A SUBD 15 HD plug per Figure 16.

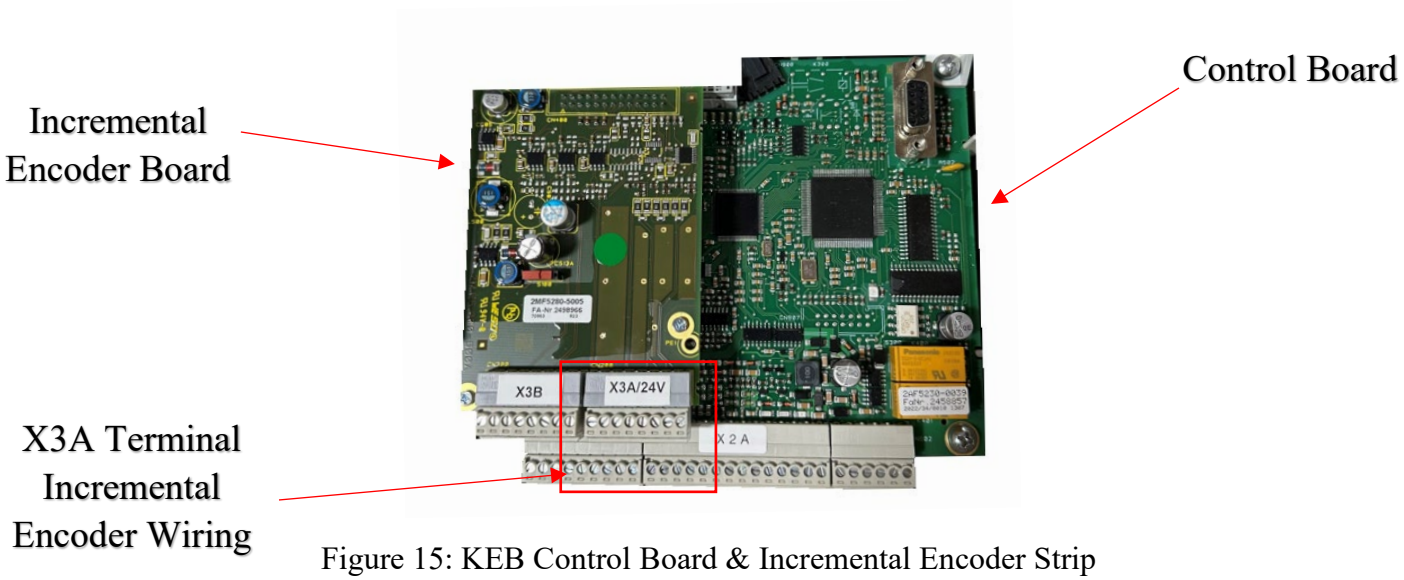


Figure 15: KEB Control Board & Incremental Encoder Strip

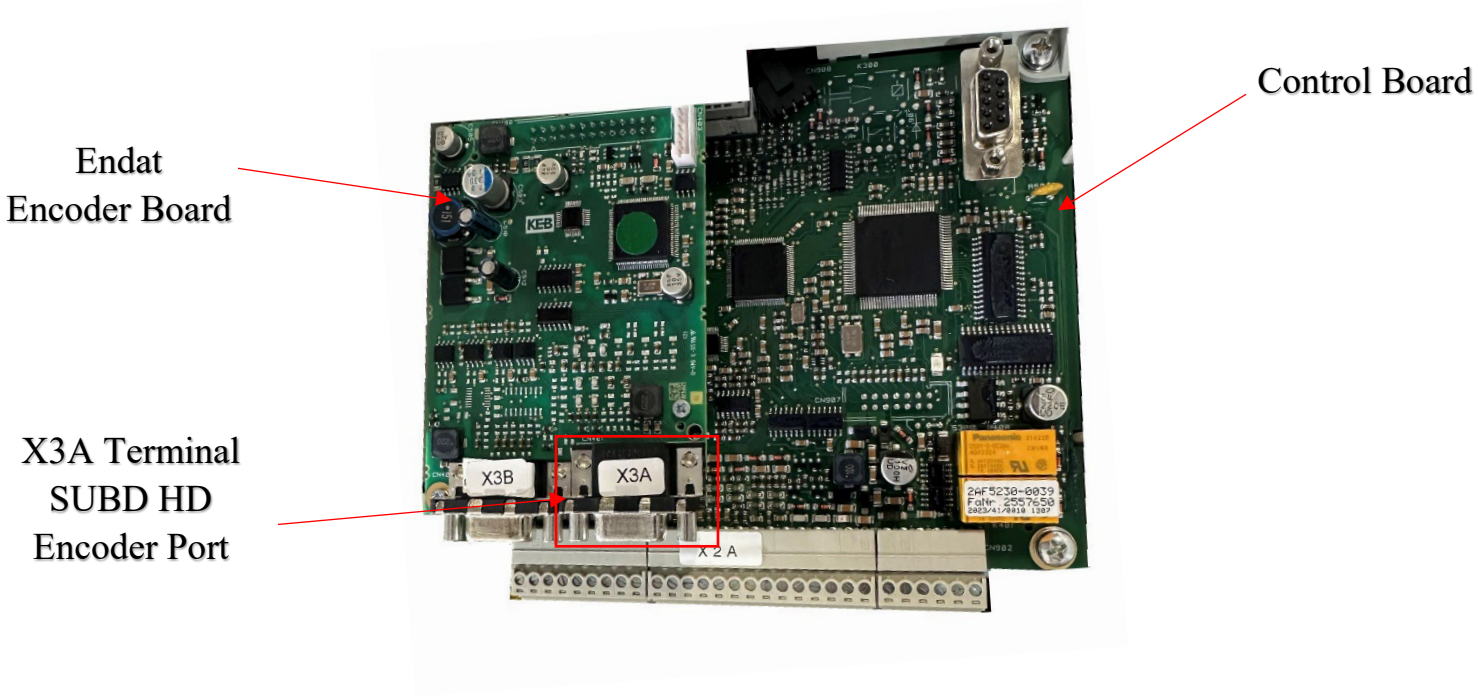


Figure 16: KEB Control Board & Endat SUBD 15 HD

Autotune Drive Methods:

KEB F5 (required for induction and pm motors)

Refer to the KEB Manual if any fault occurs during the drive autotuning method.

Motor Alignment

1) In the KEB F5 drive, from the home screen go to PROG → TUNE PARAMETERS, select LI01 MOTOR TUNING, and change it to START.
2) Turn off the BR1 breaker. If BR2 breaker is applicable, turn off BR2 breaker.
3) Go to MAIN MENU → SETUP → GENERAL SETUP → CAR SPEEDS → INSPECTION SPEED, record the value and set it to 0 FPM.
4) On the MR inspection board, press ENABLE + UP until the KEB keypad advised the tune is complete.
5) Turn on the BR1 breaker. If the BR2 breaker is applicable, turn on BR2 breaker.
6) Go to MAIN MENU → SETUP → GENERAL SETUP → CAR SPEEDS → INSPECTION SPEED, set the value back that was recorded in step 3.

Encoder Alignment (if PM motor)

1) In the KEB F5 drive, from the home screen go to PROG → TUNE PARAMETERS, select LL05 SPI, and change it to START.
2) Turn off the BR1 breaker. If BR2 breaker is applicable, turn off BR2 breaker.
3) Go to MAIN MENU → SETUP → GENERAL SETUP → CAR SPEEDS → INSPECTION SPEED, record the value and set it to 0 FPM.
4) On the MR inspection board, press ENABLE + UP until the KEB keypad advised the tune is complete.
5) Turn on the BR1 breaker. If the BR2 breaker is applicable, turn on BR2 breaker.
6) Go to MAIN MENU → SETUP → GENERAL SETUP → CAR SPEEDS → INSPECTION SPEED, set the value back that was recorded in step 3.

BRAKE BOARD

Brake board settings are configured to how the job was ordered

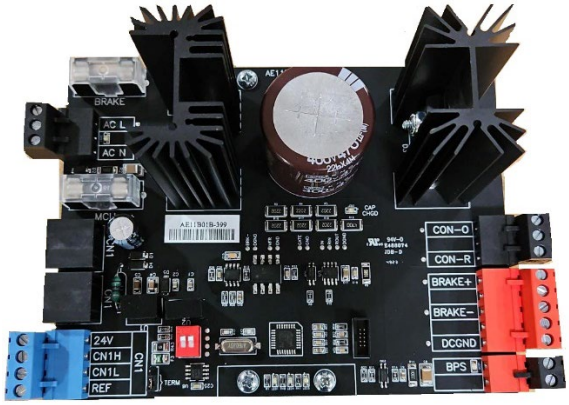


Figure 17: Brake Board

Adjusting Main Brake Board:

1. Go to any of the UI Boards and scroll to MAIN MENU → SETUP → BRAKE SETUP → MAIN BRAKE, and adjust below setting accordingly.

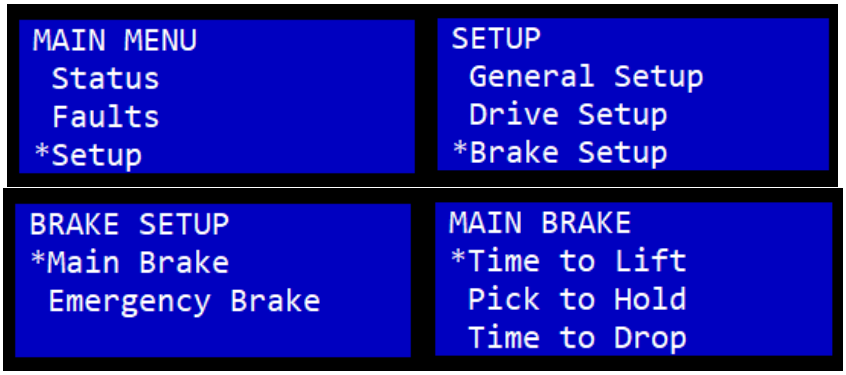


Figure 18: Menu Screen for Adjusting Main Brake Voltage

A. **Time to lift**: Set the amount of time after the controller gets a command to run for the main brake to lift.
B. **Pick to hold**: Set the amount of time the brake will be asserted the PICK voltage before switching over to the HOLD voltage.
C. **Time to drop**: Set the amount of time after the controller stops commanding a speed for the main brake to drop.

D. **PWM – Pick**: *This PWM setting is not equal to the voltage of the brake. To get the correct voltage of the pick voltage out of the brake board*:
   1. Put elevator on MR inspection. Go to MAIN MENU → SETUP → GENERAL SETUP → CAR SPEEDS → INSPECTION SPEED, record value and set the speed to 0 and click save.
   2. Put your meter on B1+ and B1- (measure in DC voltage), and command elevator to run up. The first voltage reading is the output pick voltage by the brake board. Adjust the PWM – PICK setting until measured value is the desired voltage.
   3. Set inspection speed back to the recorded value.

E. **PWM – Hold**: *This PWM setting is not equal to the voltage of the brake. To get the correct voltage of the hold voltage out of the brake board*:
   1. Put elevator on MR inspection. Go to MAIN MENU → SETUP → GENERAL SETUP → CAR SPEEDS → INSPECTION SPEED, record value and set the speed to 0 and click save.
   2. Put your meter on B1+ and B1- (measure in DC voltage), and command elevator to run up. The second voltage reading is the output hold voltage by the brake board. Adjust the PWM – HOLD setting until measured value is the desired voltage.
   3. Set inspection speed back to the recorded value.

F. **Brake Pick Switch**: This setting can be adjusted to make brake pick normally open or normally closed as well as for the controller to monitor the brake pick switch or not.

<u>Option #1: Adjusting Secondary Brake Board (If secondary brake board is applicable and no rope gripper):</u>

1. Go to any of the UI Boards and scroll to MAIN MENU → SETUP → BRAKE SETUP → EMERGENCY BRAKE, and adjust below setting accordingly.

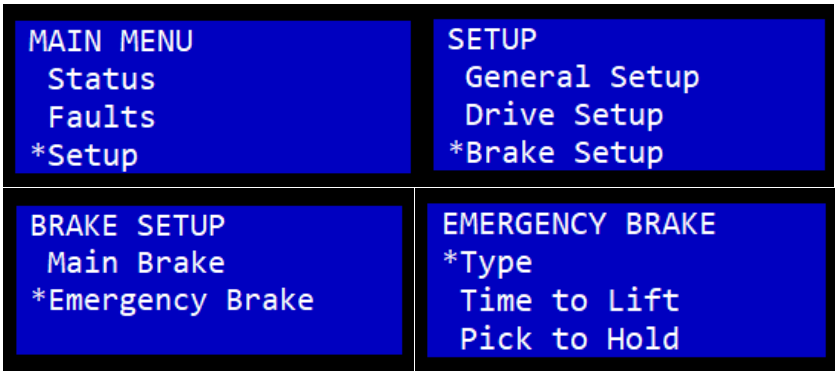


Figure 19: Menu Screen for Adjusting Emergency Brake Voltage

A. **Type**: Set it to 2nd Machine Brake.

B. **Time to lift**: Set the amount of time after the controller gets a command to run for the main brake to lift.
C. **Pick to hold**: Set the amount of time the brake will be asserted the PICK voltage before switching over to the HOLD voltage.
D. **Time to drop**: Set the amount of time after the controller stops commanding a speed for the main brake to drop.
E. **PWM – Pick**: *This PWM setting is not equal to the voltage of the brake. To get the correct voltage of the pick voltage out of the brake board*:
    1. Put elevator on MR inspection. Go to MAIN MENU → SETUP → GENERAL SETUP → CAR SPEEDS → INSPECTION SPEED, record value and set the speed to 0 and click save.
    2. Put your meter on B2+ and B2- (measure in DC voltage), and command elevator to run up. The first voltage reading is the output pick voltage by the brake board. Adjust the PWM – PICK setting until measured value is the desired voltage.
    3. Set inspection speed back to the recorded value.
F. **PWM – Hold**: *This PWM setting is not equal to the voltage of the brake. To get the correct voltage of the hold voltage out of the brake board*:
    1. Put elevator on MR inspection. Go to MAIN MENU → SETUP → GENERAL SETUP → CAR SPEEDS → INSPECTION SPEED, record value and set the speed to 0 and click save.
    2. Put your meter on B2+ and B2- (measure in DC voltage), and command elevator to run up. The second voltage reading is the output hold voltage by the brake board. Adjust the PWM – HOLD setting until measured value is the desired voltage.
    3. Set inspection speed back to the recorded value.
G. **Brake Pick Switch**: This setting can be adjusted to make brake pick normally open or normally closed as well as for the controller to monitor the brake pick switch or not.

<u>Option #2: Changing Emergency Brake to Rope Gripper:</u>

1. Go to any of the UI Boards and scroll to MAIN MENU → SETUP → BRAKE SETUP → EMERGENCY BRAKE → TYPE, and set it to ROPE GRIPPER.

<u>Option #2: Changing Emergency Brake to Sheave Clamp:</u>

1. Go to any of the UI Boards and scroll to MAIN MENU → SETUP → BRAKE SETUP → EMERGENCY BRAKE → TYPE, and set it to SHEAVE CLAMP.

KUBLER LANDING SYSTEM INSTALLATION

What's Included:

- **Top Rail Assembly:**
  - 1x Rail Fastening Plate
  - 2x Clamping Plate
  - 2x Hexagon Head Screw (YL 8.8)
  - 2x Large Diameter Washer
  - 2x Retaining Ring
  - 2x Hexagon Nut (S 1101)
  - 1x Carabiner
- **Tape Break Switch Assembly**
  - 1x Tape Break Switch Rail Fastening Plate
  - 2x Clamping Plate
  - 2x Hexagon Head Screw (YL 8.8)
  - 2x Large Diameter Washer
  - 2x Retaining Ring
  - 2x Hexagon Nut (S 1101)
  - 2x Wire Rope Cable Clamp
  - 1x Pre-Cut 1/16th in. Galvanized Vinyl Coated Steel Wire Rope
  - 1x Tape Break Switch
  - 1x Tape Break Switch Key
  - 2x TBS Long Screw
  - 2x TBS Long Screw Washer
  - 2x TBS Long Screw Nut
- **Bottom Rail Assembly:**
  - 1x Rail Fastening Plate
  - 2x Clamping Plate
  - 2x Hexagon Head Screw (YL 8.8)
  - 2x Large Diameter Washer
  - 2x Retaining Ring
  - 2x Hexagon Nut (S 1101)
  - 2x Carabiner
  - 1x Tension Spring
- **Sensor Assembly**
  - 1x Sensor
  - 1x Sensor Mounting Plate
  - 1x Sensor Fastening Screw
  - 1x Sensor Fastening Washer
  - 3x 2ft Slotted Unistrut
  - 6x Crosshead Hexagon Head Screw (307A JH)
  - 14x Crosshead Hexagon Washer
  - 6x Retaining Ring
  - 6x Hexagon Nut (S 1101)
  - 2x Sensor Plate Screw (307A JG)
  - 2x Sensor Plate Washer (Small)
  - Horizontal Movement Bracket
  - 2x Sensor Plate Nut (LWFC)
  - 1x Coded Stainless-Steel Tape

Installation:

1. Assemble both Rail Fastening Plates using: 4x Hexagon Head Screws, 4x Hexagon Nuts, 4x Large Diameter Washers, 4x Retaining Rings and 4x Clamping Plates loosely. Each rail fastening plate will use 2 of each item listed above. See Figure 20

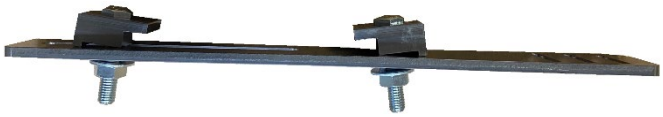


Figure 20: Assembled Rail Fastening Plate

Left Side Orientation

2. Attach one of the assembled Rail Fastening Plates to the top of the guide rail in the hoistway overhead. Fastening plate may be oriented on either side of the guide rail. See Figure 21

Right Side Orientation

Figure 21: Top Rail Fastening Plate Installation

3. Attach the Coded Stainless-Steel Tape to the Rail Fastening Plate.
    a. Loop a Carabiner through a round hole close to the top of the tape.
    b. Attach the Carabiner and tape to the Rail Fastening Plate by putting the Carabiner through the outermost slot if possible.
        i. If using a different slot, make note of which slot the carabiner is on; the same slot will be used when installing the tape on the bottom rail fastening plate.
    c. Ensure the tape is correctly oriented with the square holes on the right side of the tape. See Figure 22

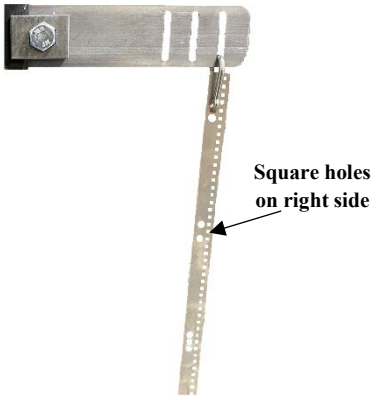


Figure 22: Top Rail Fastening Plate with Carabiner and Tape

4. Move the car down on inspection, unrolling the Coded Stainless-Steel Tape as the elevator moves. As the elevator reaches the bottom, drop the remaining tape into the pit.
5. In the pit, install the other assembled Rail Fastening Plate near the bottom of the guide rail following the same orientation as in step 2.

6. Connect one Carabiner to the top of the Tension Spring and one to the bottom of the tension spring.
7. Connect the spring's top carabiner to a round hole on the tape. This will be where the tape ends.
    a. Choose a hole such that the distance between the bottom of the spring's bottom carabiner and the top of the Rail Fastening Plate is between 2.0 – 3.0 inches when the spring is hanging and unstretched. See Figure 23
8. Connect the spring's bottom carabiner to the bottom Rail Fastening Plate using the same slot that was used at the top of the hoistway from step 3.

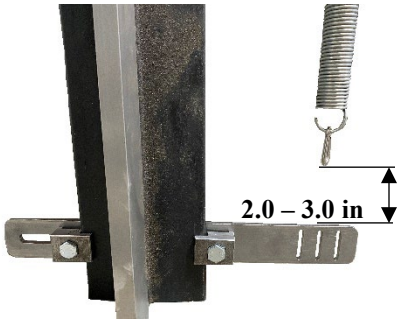


Figure 23: Distance from Bottom Carabiner of Tension Spring to Top of the Bottom Rail Fastening Plate

9. Cut the tape between ~0.2 – 0.6 inches down from the center of the hole that the bottom carabiner will go through. See Figure 24

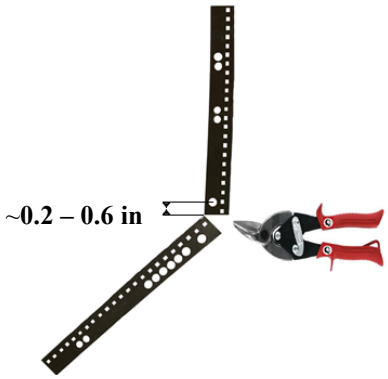


Figure 24: Excess Tape Cutoff

10. Install the Tape Break Switch Fastening Plate to the guide rail 2 – 3 feet above the bottom Rail Fastening Plate.
11. Connect the tape break switch to the plate with the key pointing downward; the key location can be adjusted on the tape break switch. The tape break switch must be parallel to the tape with some distance between. See Figure 25

Figure 25: Tape Break Switch

12. Connect the supplied wire rope, from the pull tab key to the top of the tension spring using the supplied wire clamp. Leave some slack to allow key to be pulled. See Figure 26
    a. The key will be connected to one side of the wire rope with a wire clamp on it already.
    b. Thread the other side of the wire rope, through the side of the upper hook that is enclosed by the carabiner, and a wire clamp to make a loop and tighten both nuts as tight as possible. Cut any excess wire rope. If the tape breaks, the spring will retract and pull down the key.

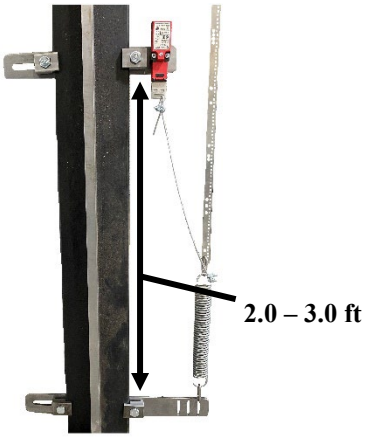


Figure 26: Tape Break Switch Assembly

13. Bring a pair of hoistway wires to connect the safety string circuit from the safety board to the tape break switch.
    See Figure 27 for safety board connection.

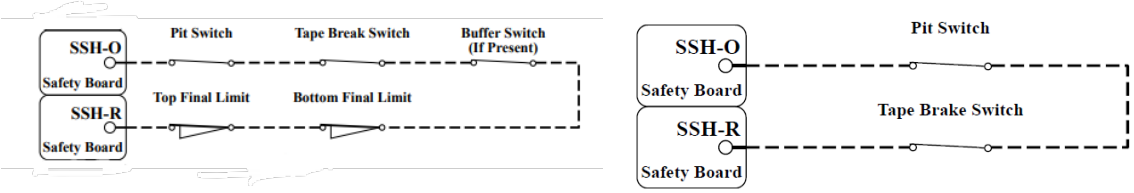


Figure 27: Safety String Wiring For Traction Safety Board (Left) and Hydro Safety Board (Right)

14. Unscrew and remove the front cover of the tape break switch to connect the normally closed contact to the safety string circuit through the hole. Ensure the contact is closed when the key is inserted and open when the key is removed. Close the cover and tighten screw after.
    See Figure 28

Figure 28: Tape Break Switch Contacts

15. Install the Sensor Mounting Plate to the crosshead on top of the car, using the supplied unistruts, washers and screws. Make sure to align the sensor mounting plate with the tape as much as possible. See Figure 29

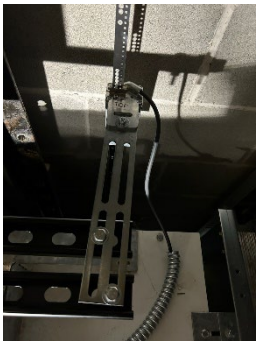


Figure 29: Sensor Mounting Plate Crosshead Installation

ATTENTION: DO NOT EXTEND THE SENSOR MOUNTING PLATE TOO FAR OUT FROM CAR WITHOUT STABLE MOUNTING. DOING SO MAY CAUSE CONTROLLER FAILURES DUE TO VIBRATIONS TO THE SENSOR WHEN TRAVELING THROUGH THE HOISTWAY.

16. Install the Sensor to the Sensor Mounting Plate using the Sensor Fastening Screw and the Sensor Fastening Washer but do not fully tighten the screw to allow for adjustments. See Figure 30. The sensor will need to be oriented accordingly with the tape (use sticker on sensor for reference). **Ensure that the sensor is installed with the led on top of the sensor (Note: Led will be off if there is no power to the sensor. See Figure 31**

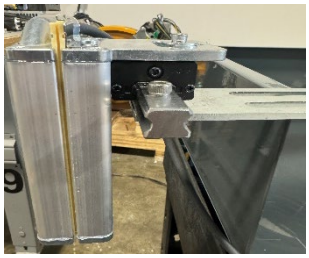


Figure 30: Sensor and Plate Assembly

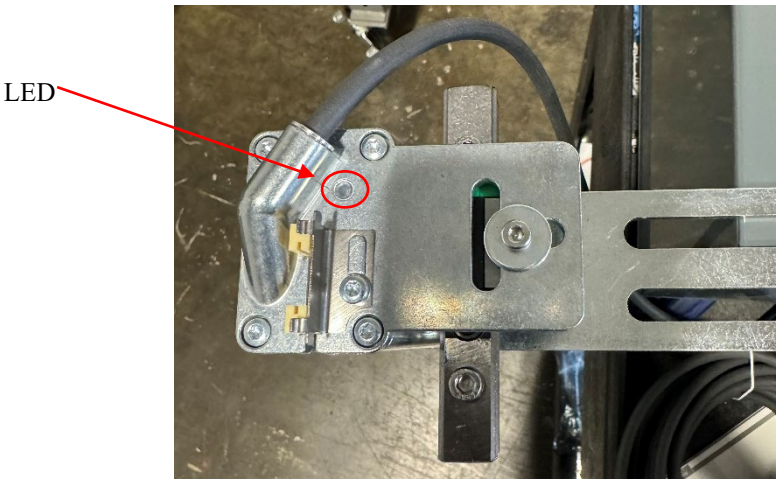


Figure 31: Sensor Properly Oriented (Top View of Sensor)

17. Remove the outer sliding strip from the sensor by loosening the sliding strip lock screw on the sliding strip lock and either pulling back the lock or sliding it to the side. Figure 32

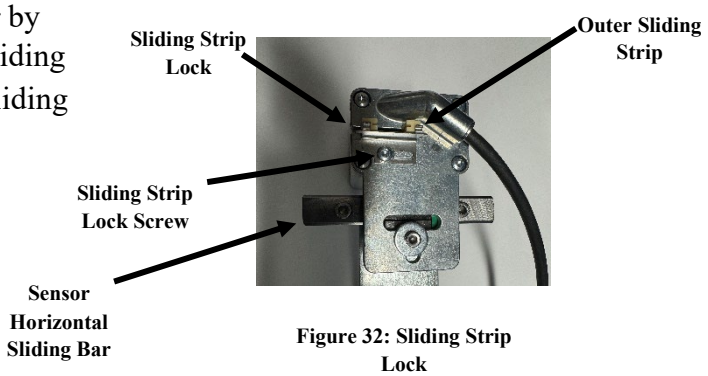


Figure 32: Sliding Strip Lock

18. Slide the tape in through the side of the sensor and insert the sliding strip back into the sensor by aligning the side of the strip with the tape. Fully tighten the sliding strip lock after. See Figure 33

Figure 33: Sensor and Tape Installation

19. Adjust the sensor's position using the T-hole so that the tape is straight and not tilted to the side. Once the tape is correctly positioned in the sensor, fully tighten the Sensor Fastening Screw. See Figure 34

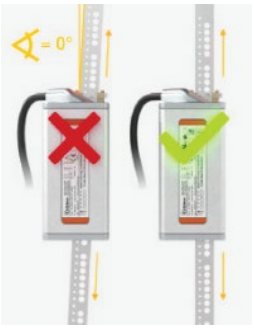


Figure 34: Sensor and Tape Alignment

20. Connect the 6 wires of the sensor for power and communication to the KIB Hydro board or KIB Traction board located inside the CT Box. See Figure 35

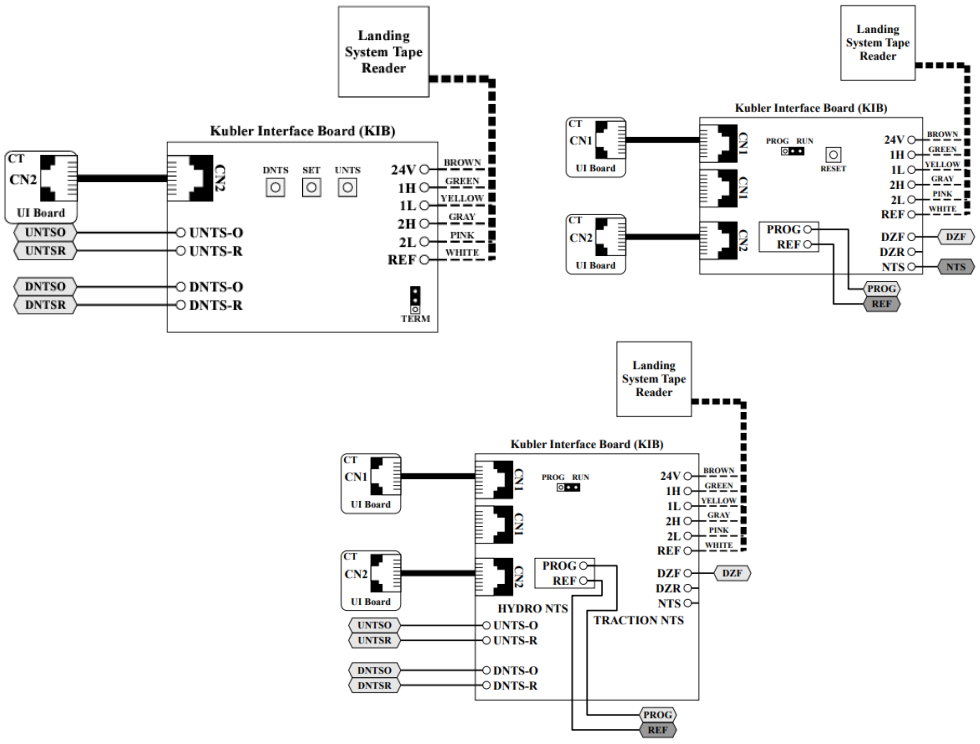


Figure 35: Sensor head connection to KIB Hydro board (Top Left), KIB Traction board (Top Right) and KIB H/T Board (Bottom)

LEARNING THE FLOOR LEVELS

Learning the floor levels pre-check:

- The landing system is to be fully installed before learning the floor levels.
- Verify the car doors and hall doors are closed and the controller sees all the correct door signals.
- Put the elevator on machine room inspection and verify that it runs on inspection without any faults. Verify that the bypass directionals is set to TRUE. To do this, go to **MAIN MENU → SETUP → INSPECTION/ACCESS → BYPASS DIRECTIONALS**, set it to **TRUE**, and save the parameter. (This is usually set up to TRUE by default from the factory)
- Verify that the controller is seeing a positive FPM in the up direction and a negative FPM in the down direction.

Learning the floor levels can be started at any floor and in any direction. The elevator will need to travel to each floor manually and be placed at floor level or close to floor level as possible and the controller will learn each floor level by following the instructions below:

Getting started:

1. Put the elevator on CT inspection.
2. Move the elevator on CT inspection to any floor to start. Recommended floor to start is at a terminal floor.
3. Make sure the elevator is at floor level or as close to floor level as possible.
4. On the CT UI Board, go to MAIN MENU → SETUP → FLOOR LEVELS → COARSE SET LEVEL.
5. Scroll to the floor that the elevator is currently positioned at and click save.

Figure 36: Menu Screen for Learning Door Zones

6. Move the elevator to the next unlearned floor and repeat steps 4 – 5 until all floor's door zones are learned.
7. If bypass directional limit is still set to TRUE, set to FALSE. To do this, go to **MAIN MENU → SETUP → INSPECTION/ACCESS → BYPASS DIRECTIONALS**, set it to **FALSE.**
8. Change the switch on the KIB Switch Board located in the controller from PROG to RUN. If it is already in the RUN position, change it to the PROG position for 30 seconds and change it back to the RUN position.

There are two different ways of verifying the controller learned all the floors.

1. There will be an alarm "A206: Floor Levels" displayed on the screen until all floors are learned. Once all floors are learned, the alarm will no longer be displayed.
2. On the main LCD screen, if the controller is not displaying any position for feet and inches that means the controller has not learned all floors door zone. Once all floors are learned, the position of the elevators will be displayed, the position indicator, and the door zone indicator.

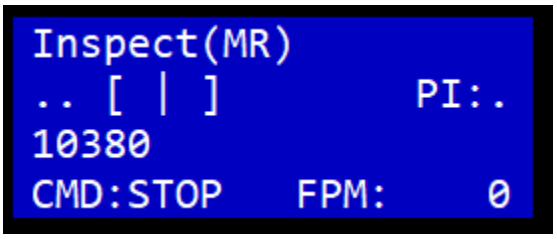


Figure 37: Not Learned LCD Screen

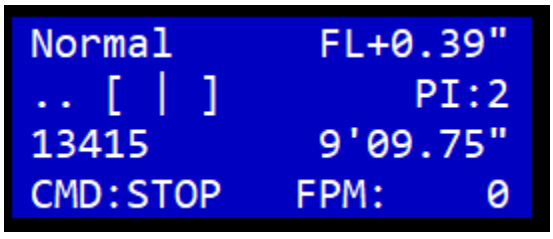


Figure 38: Learned All Floors LCD Screen

If there is a floor that has not been learned, follow these steps to determine which floor has not been learned:

1. Go to MAIN MENU → SETUP → FLOOR LEVELS → ADJUST ANY FLOOR.
2. Toggle using the up or down button to verify that all floors display a non-zero position in ft and inches besides the bottom floor. The bottom floor will never display any position in ft and inches because it will always be 0 FT, but it will display the landing system absolute position.

Figure 39: Not Learned floor Screen

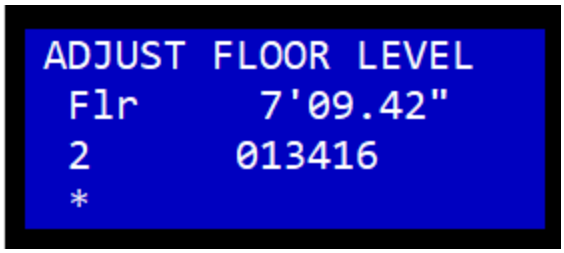


Figure 40: Learned floor Screen

OVERVIEW OF THE KUBLER INTERFACE BOARD

The controller gets the virtual NTS settings from the drive, then programs the information into the Kubler Interface Board on top of the car, so learning of the NTS is not required. However, whenever any NTS parameter setting is adjusted on the drive or the controller, for the Kubler Interface Board to learn those NTS values, the Kubler Interface board needs to be put on program mode and than back to run mode via jumper prior to releasing to the public. This can be done via the Kubler interface board or the KIB switch board.

KUBLER INTERFACE BOARD

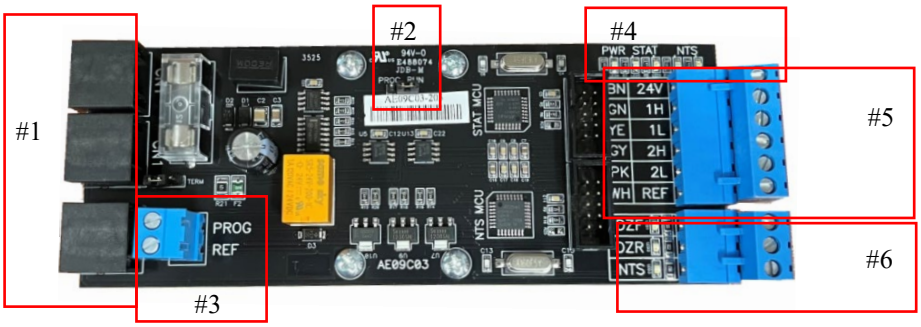


Figure 41: Kubler Interface Board

#1 – KIB CAN communication:

- CN1 port connects to CN1 port of the CT UI Board. Refer to the job schematics.
- CN2 port connects to CN2 port of the CT UI Board. Refer to the job schematics.

#2 – Program/Run Mode Jumper:

- Jumper set to Program Mode when programming NTS from controller into the KIB Board.
- Jumper set to Run Mode required to be set to turn elevator over to the public.

#3 – KIB Switch Board (PROG/REF) discrete signal.

#4 – LEDs

LED4 - Monitors Fuse & On-Board Regulators are Running	LED5 – Heartbeat Status	LED6 – Fault Status	LED7 – NTS Heartbeat Status	LED8 – Fault NTS Status

#5 – Kubler Sensor Head Connection

#6 – DZF/DZR/NTS discrete signal.

- LEDS to indicate if active

KIB SWITCH BOARD

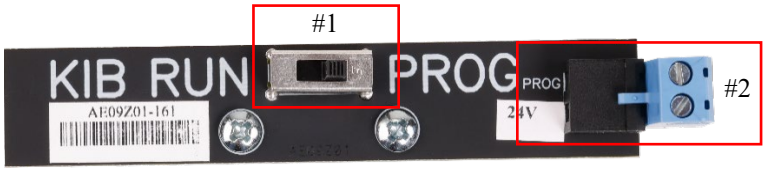


Figure 42: Kubler Interface Board

#1 – Run/Prog Switch:

- Switch to PROG to program NTS parameter from controller to KIB. This switch overrides the run jumper on the actual KIB Board.
- Switch to RUN to allow elevator to run on normal operation.

#2 – Program and 24V terminal:

- Traveler from MR to CT wiring

ADJUSTING NTS AND ETS

Whenever any NTS parameter setting is adjusted on the drive or the controller, for the Kubler Interface Board to learn those NTS values, the Kubler Interface board needs to be put on program mode and than back to run mode via jumper prior to releasing to the public. This can be done via the Kubler interface board or the KIB switch board.

Virtual NTS and ETS Curves are automatically created based on the controller values set below:

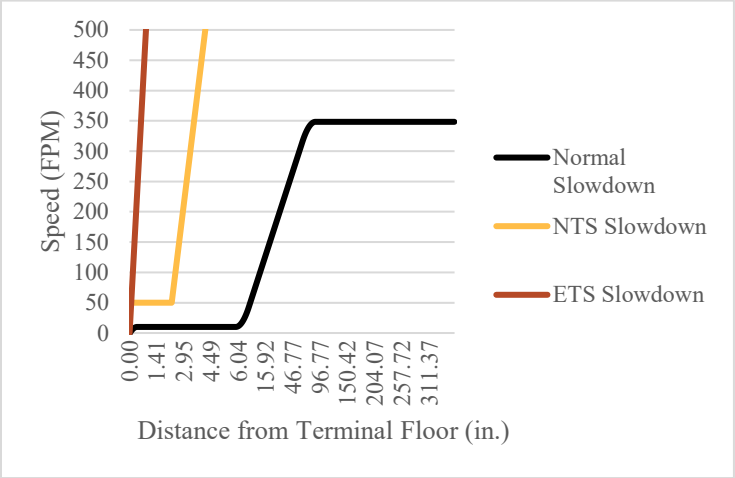


Figure 43: Car's Typical Slowdown Curves Vs NTS Slowdown Vs ETS Slowdown

NTS Controller Parameters

NTS PARAMETERS	
DECEL RATE	
Default Setting	004.00FT/S2
Description	This parameter affects the slope of the NTS curve. This parameter setting must match the drive NTS setting of Decel rate. Increase the value if the elevator is tripping nuisance NTS on a regular run.
JERK IN	
Default Setting	000.00FT/S3
Description	The Jerk In parameter is by default to a value of zero which is used to signify an instantaneous transition to full NTS deceleration and thus effectively taking it out of the equation. In general, it controls how rounded the transition to is from either constants speed to Full NTS Decel Rate or from Normal Decel Rate to NTS Decel Rate.
JERK OUT	
Default Setting	000.00FT/S3

Description	The Jerk Out parameter is by default to a value of zero which is used to signify an instantaneous transition to leveling speed and thus effectively taking it out of the equation. In general, it controls how rounded the transition is from Full NTS Decel Rate back to constant velocity (Leveling Speed).
MINIMUM TRIP SPEED	
Default Setting	050
Description	This parameter is set to the speed of the car at which the controller will no longer trip NTS.
SCALING FACTOR	
Default Setting	1.00
Description	This parameter effectively does the same thing as the Decel Rate parameter, it affects the slope of the NTS curve. The intent of this parameter is for you to be able to set the Decel Rate parameter and then use this parameter to fine tune the slope by a percentage. A value of 1 for this parameter means no scaling is applied to the slope.
OFFSET BEFORE TERM.	
Default Setting	00026 (1.02IN)
Description	This parameter sets what distance away from the floor the car speed should be at zero speed after slowing down using the NTS curve. Decrease the value if the elevator is tripping nuisance NTS on a regular run.

Note: A NTS slowdown is still a fully drive controlled slowdown, it is just much more aggressive than a normal slowdown.

ETS Controller Parameters

ETS PARAMETERS	
EST. STOPPING RATE	
Default Setting	006.00FT/S2
Description	An estimation of how fast the car will decelerate when stopping under the brake. This parameter affects the slope of the ETS curve. When an ETS fault occurs, power will be removed from the motor and brake and the car will slide to a stop.
OFFSET BEYOND TERM	
Default Setting	00051 (2.00IN)
Description	This parameter sets what distance away from the floor the car speed should be at zero speed after slowing down using the ETS curve. Increase the value if the elevator is tripping nuisance ETS on a regular run or during a NTS run.

ADJUSTING S-CURVES/SLOWDOWNS

After learning the door zones and verifying they are correct, the elevator should be able to run on normal operation. Adjust the slowdowns/s-curve accordingly using the controller.

1. Put the elevator on normal operation and make sure the controller is not faulted.
2. Place a car call in the up and down direction using the controller (MAIN MENU → TEST & TROUBLESHOOT → ENTER CALLS), to verify the car runs. Make adjustments inside the drive if needed for speed of the elevator.
3. Once all the speed adjustments are good, verify the time it takes from leveling to stop. Recommended time running in leveling speed to stop is 3 – 4 seconds.

ADJUSTING SLOWDOWNS

If the elevator is leveling too long before it stops in both direction, the leveling time setting will need to be decreased. If the elevator is overshooting the floor in leveling speed in both direction, the leveling time setting would need to be increased. Adjusting the setting would mean adjusting the time it commands high speed to leveling speed.

4. To adjust the leveling time, go to any of the UI boards, go to MAIN MENU → SETUP → SLOWDOWNS AND STOPS → LEVELING TIME, set the value to the desired time. Note: If leveling time is adjusted, it will required 3-4 regular normal runs for it to auto adjust itself correctly.

Figure 44: Menu Screen for Leveling time.

If the elevator is sliding pass floor level at zero speed in both direction, the stop (leveling) setting will need to be increased. If the elevator is stopping before floor level at zero speed in both direction, the stop (leveling) setting will need to be decreased.

The objective of adjusting stop (leveling) is to have the elevator come into the floor leveled consistently on each floor. The top right of the elevator should display "LEVEL" as the elevator stop on each floor. Make adjustments to stop (leveling) until this objective is reached.

5. To adjust the stop (leveling) go to any of the UI Boards, go to MAIN MENU → SETUP → SLOWDOWNS AND STOPS → STOP (LEVELING), set the value to the desired distance.

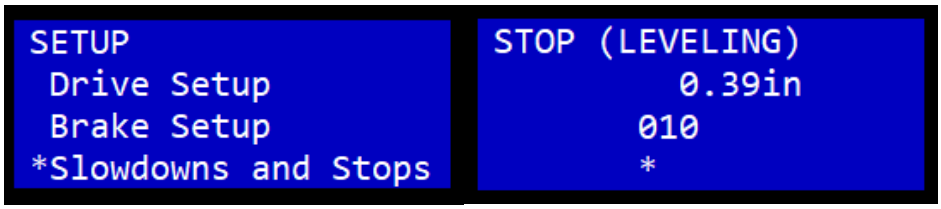


Figure 45: Menu Screen for Stop (Leveling)

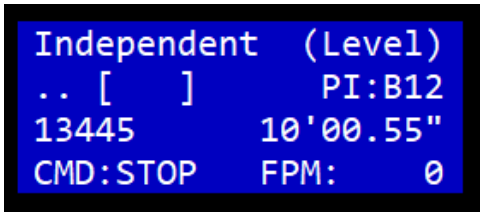


Figure 46: Floor leveled on LCD screen

ADJUSTING RIDE CONFIGURATION

Adjusting the S-Curve will affect the performance of the elevator. The controller can adjust the S-Curve on normal operation or inspection operation.

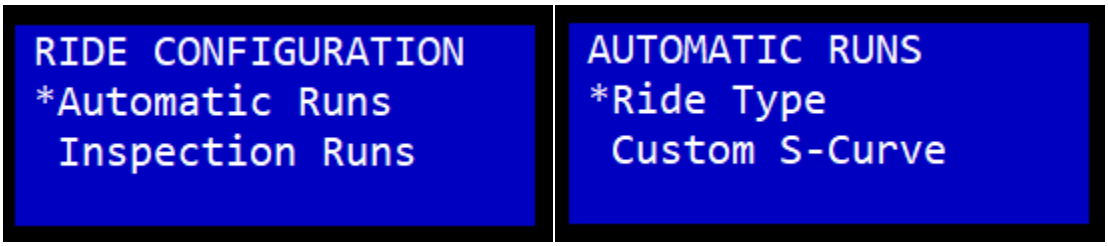


Figure 47: Setup Menu to Adjust S-Curve/Ride Type

1) Go to MAIN MENU → SETUP → DRIVE SETUP → RIDE CONFIGURATION → AUTOMATIC RUNS → RIDE TYPE, and set it to the desired performance.
    a. STANDARD (Default)
    b. SMOOTH
    c. AGGRESSIVE
    d. CUSTOM

Four Types of Ride Configuration (can adjust inspection ride differently from automatic ride):

AUTOMATIC OPERATION

Profiles	Acceleration Jerk In	Acceleration	Acceleration Jerk Out	Deceleration Jerk In	Deceleration	Deceleration Jerk Out
Smooth	2	1	2	2	1	2
Standard	4	2	2	4	2	2
Aggressive	8	3	4	8	3	4

INSPECTION OPERATION

Profiles	Acceleration Jerk In	Acceleration	Acceleration Jerk Out	Deceleration Jerk In	Deceleration	Deceleration Jerk Out
Smooth	1	1	8	8	4	8
Standard	8	2	8	8	6	8
Aggressive	8	4	8	8	7.8	8

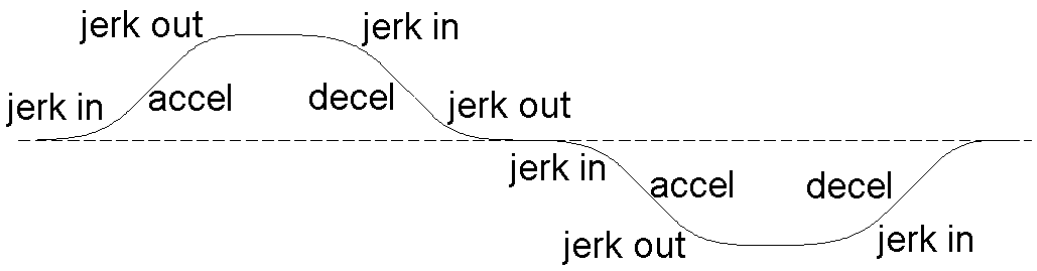


Figure 48: S Curve Graph

Custom ride configuration is the only one that can be adjusted manually and the higher the value is adjusted the more aggressive the transitions becomes.

ADJUSTING FLOOR LEVEL

After setting all the door zones and adjusting the slowdowns, the floors will need to be adjusted to be floor level.

FINE TUNE LEVEL METHOD

Floor level adjustments can only be made at the floor the elevator is currently at. Once the adjustment for the current floor is complete, bring the elevator to the rest of the other floors and make floor adjustments if needed.

Procedure:

1. Put the elevator on independent service or normal operation.
2. Press a car call button to travel to a floor. Once the doors open, check if the elevator is above or below the sill (if the floor level is good, travel to another floor).
3. If the floor needs to be adjusted, on any UI board (recommended COP UI board for ease) go to MAIN MENU → SETUP → FLOOR LEVELS → FINE TUNE LEVEL.
4. If the elevator is below the sill, set the word "LOW" below the word "Car". Change the 4-digit number circled below in red to get the estimated measurement that the elevator is below the sill. Each of the 4 numbers can be changed individually to get an accurate adjustment.

Figure 49: Menu Screen for Fine Tune Level

5. If the elevator is above the sill, set the word "HIGH" below the word "Car". Change the 4-digit number circled below in red to get the estimated measurement that the elevator is above the sill and press save.

6. Travel to all the other floors in the up or down direction to make any adjustments as needed to the floor level. This will only need to be done in one direction for all floors.

ADJUST ANY FLOOR METHOD

Floor level adjustments can be made for any floor at any time. **The use of this method is used only if the floor level(s) of any floor(s) are known.**

1. On any board, go to MAIN MENU → SETUP → FLOOR LEVELS → ADJUST ANY FLOOR.
2. Change the value to the floor that needs adjusting.
3. Change the 6-digit number circled in red below until the desired height in feet and inches has been made.
4. Continue this process for all known floor level values until complete.

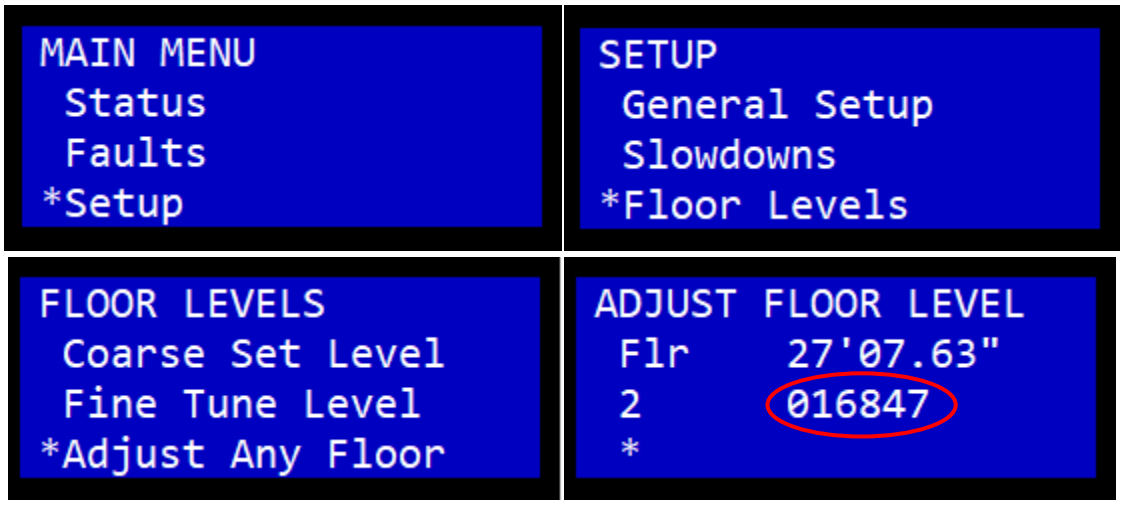


Figure 50: Menu Screen for Adjust Any Floor

FIRE SERVICE

The fire settings inside the controller will be set by Alpha Elevator Control, depending on how the job is ordered.

Verify that the safety code year in the controller is set appropriately to the building's safety code. To check or change this setting go to MAIN MENU → SETUP → FIRE SETUP → SAFETY CODE.

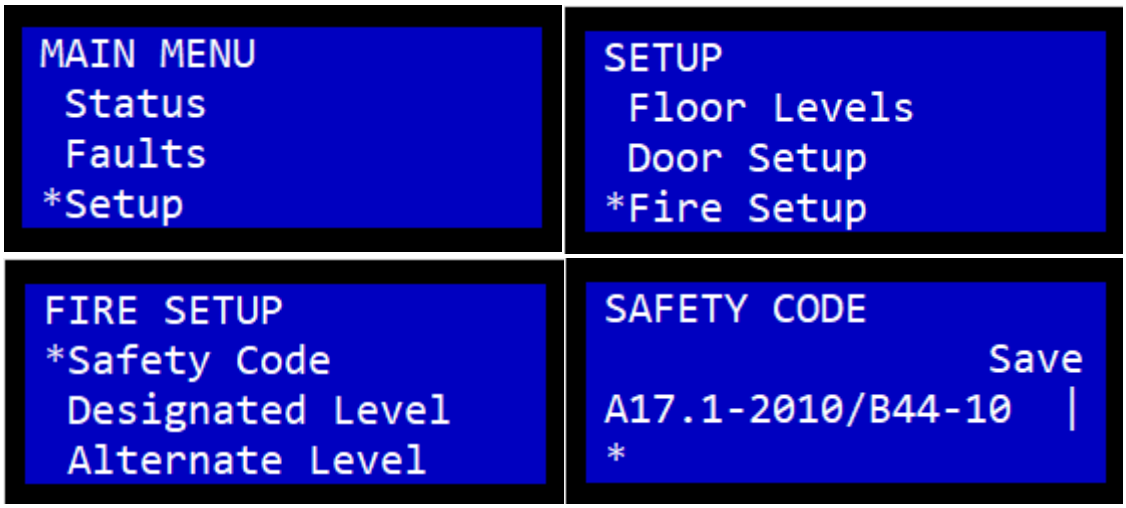


Figure 51: Menu Screen Safety Code Adjustment

Verify that the Designated Level and Alternate Level are set to the correct floor and opening. To check or change this setting go to MAIN MENU → SETUP → FIRE SETUP → DESIGNATED LEVEL or ALTERNATE LEVEL.

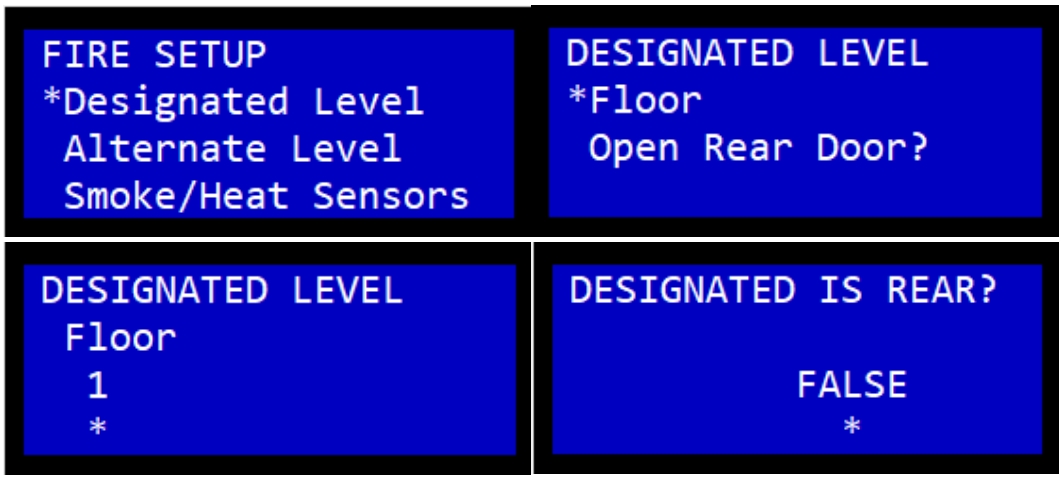


Figure 52: Designated/Alternate Level Adjustment

Verify that the Smoke/Heat Sensors are set to go to the alternate or main recall floor and if required to flash fire hat. To check or change this setting go to MAIN MENU → SETUP → FIRE SETUP → SMOKE/HEAT SENSORS.

SMOKE 1: Smoke sensor(s) located at any floors other than the lobby floor.

SMOKE 2: Smoke sensor located at the lobby floor.

SMOKE 3: Smoke sensor located in the machine room.

SMOKE 4: Smoke sensor located in the hoistway.

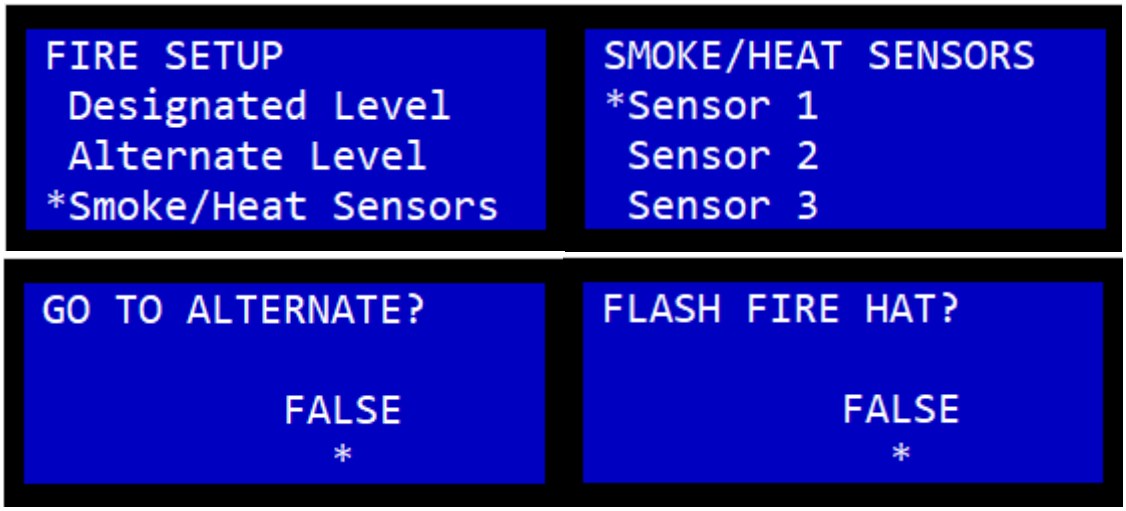


Figure 53: Smoke Sensor Adjustment

HALL BOARD

It is recommended to install hall boards in the hall stations and not in the trough. Also, it is recommended to keep hall board wiring separated from high voltage wires. If hall boards are wired in a halfway box, it is recommended to shield the wires coming into the hall boards.

Hall Boards are used for functions like hall call buttons, hall lanterns, and medical recall. Each opening will have a hall board designated to the opening no matter the function of the hall board. Hall buttons and lamps are to be wired to them for proper hall call operation.

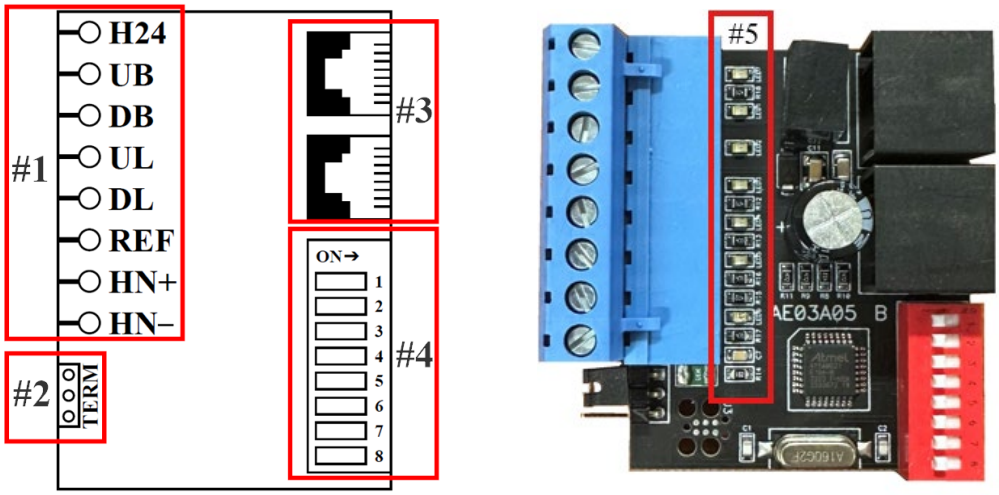


Figure 54: Hall Board Overview

1. Input/Output terminals for hall board

TERMINAL NAME	TERMINAL DEFINITION
H24	HALLWAY 24VDC POWER
UB	UP BUTTON (24VDC INPUT)
DB	DOWN BUTTON (24VDC INPUT)
UL	UP LAMP (DC GROUND SIGNAL WHEN ACTIVE)
DL	DOWN LAMP (DC GROUND SIGNAL WHEN ACTIVE)
REF	DC GROUND SIGNAL
HN+	HALL NETWORK POSITIVE COMMUNICATION
HN-	HALL NETWORK NEGATIVE COMMUNICATION

2. Termination jumper
    a. Used to terminate (jump 2 pins away from the terminal plug) last hall board(s) in the daisy chain to indicate the end of the chain. Without the termination being set correctly, the hall network can experience communication issue. Refer to figure

55 and figure 56 for termination jumper. Refer to figure 57-59 for last hall board(s) in daisy chain to be terminated.

Figure 55: Non Terminated Hall Board

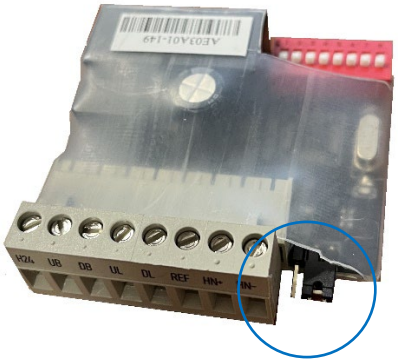


Figure 56: Terminated Hall Board

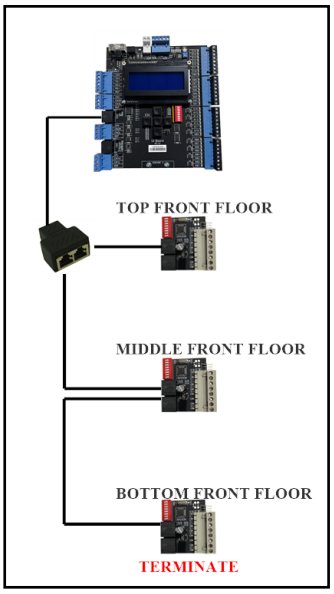


Figure 57: Top to Bottom Daisy Chain

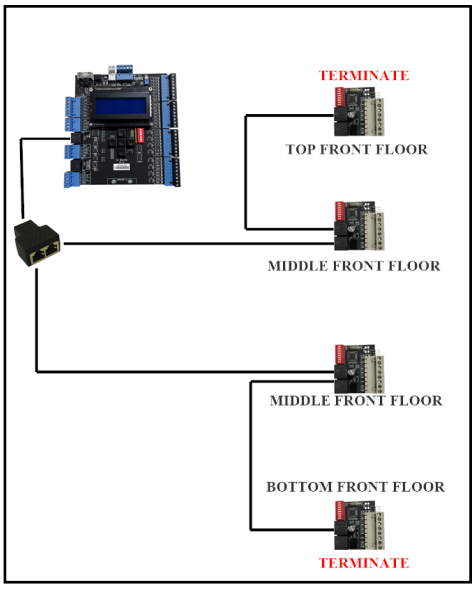


Figure 58: Middle to Top and Bottom Chain

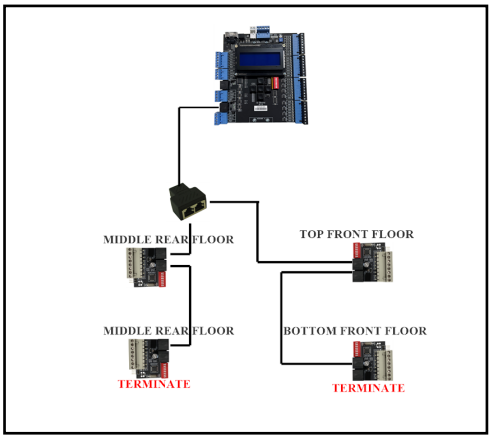


Figure 59: Front and Rear Daisy Chain

3. CAT-5 connection (Standard)
4. DIP Switches – Dip switches for all Alpha controllers are universal configurations. Functionality of the hall boards can be set up in the field following the dip switch table below.
    a. Dip Switches 1-5 are used to assign the landing the hall board will be used for. The tables below show the combinations of the 8 dip switches to specify the floor and operation of that board. If there are more than 31 floors, another riser will be added.

DESIGNATED FLOOR	DIP SWITCH				
	1	2	3	4	5
FLOOR 1	OFF	OFF	OFF	OFF	OFF
FLOOR 2	ON	OFF	OFF	OFF	OFF
FLOOR 3	OFF	ON	OFF	OFF	OFF
FLOOR 4	ON	ON	OFF	OFF	OFF
FLOOR 5	OFF	OFF	ON	OFF	OFF
FLOOR 6	ON	OFF	ON	OFF	OFF
FLOOR 7	OFF	ON	ON	OFF	OFF
FLOOR 8	ON	ON	ON	OFF	OFF
FLOOR 9	OFF	OFF	OFF	ON	OFF
FLOOR 10	ON	OFF	OFF	ON	OFF
FLOOR 11	OFF	ON	OFF	ON	OFF
FLOOR 12	ON	ON	OFF	ON	OFF
FLOOR 13	OFF	OFF	ON	ON	OFF
FLOOR 14	ON	OFF	ON	ON	OFF
FLOOR 15	OFF	ON	ON	ON	OFF
FLOOR 16	ON	ON	ON	ON	OFF
FLOOR 17	OFF	OFF	OFF	OFF	ON
FLOOR 18	ON	OFF	OFF	OFF	ON
FLOOR 19	OFF	ON	OFF	OFF	ON
FLOOR 20	ON	ON	OFF	OFF	ON
FLOOR 21	OFF	OFF	ON	OFF	ON
FLOOR 22	ON	OFF	ON	OFF	ON
FLOOR 23	OFF	ON	ON	OFF	ON
FLOOR 24	ON	ON	ON	OFF	ON
FLOOR 25	ON	OFF	OFF	ON	ON
FLOOR 26	OFF	ON	OFF	ON	ON
FLOOR 27	ON	ON	OFF	ON	ON
FLOOR 28	OFF	OFF	ON	ON	ON
FLOOR 29	ON	OFF	ON	ON	ON
FLOOR 30	OFF	ON	ON	ON	ON
FLOOR 31	ON	ON	ON	ON	ON

    b. Dip switches 6-8 are used to assign the function of the hall board.

FUNCTION	DIP SWITCH		
	6	7	8
HALL CALL FRONT	OFF	OFF	OFF
HALL LANTERN FRONT	OFF	ON	OFF
MEDICAL RECALL FRONT	ON	OFF	OFF
SPECIAL FUNCTION FRONT	ON	ON	OFF
HALL CALL REAR	OFF	OFF	ON
HALL LANTERN REAR	OFF	ON	ON
MEDICAL RECALL REAR	ON	OFF	ON
SPECIAL FUNCTION REAR	ON	ON	ON

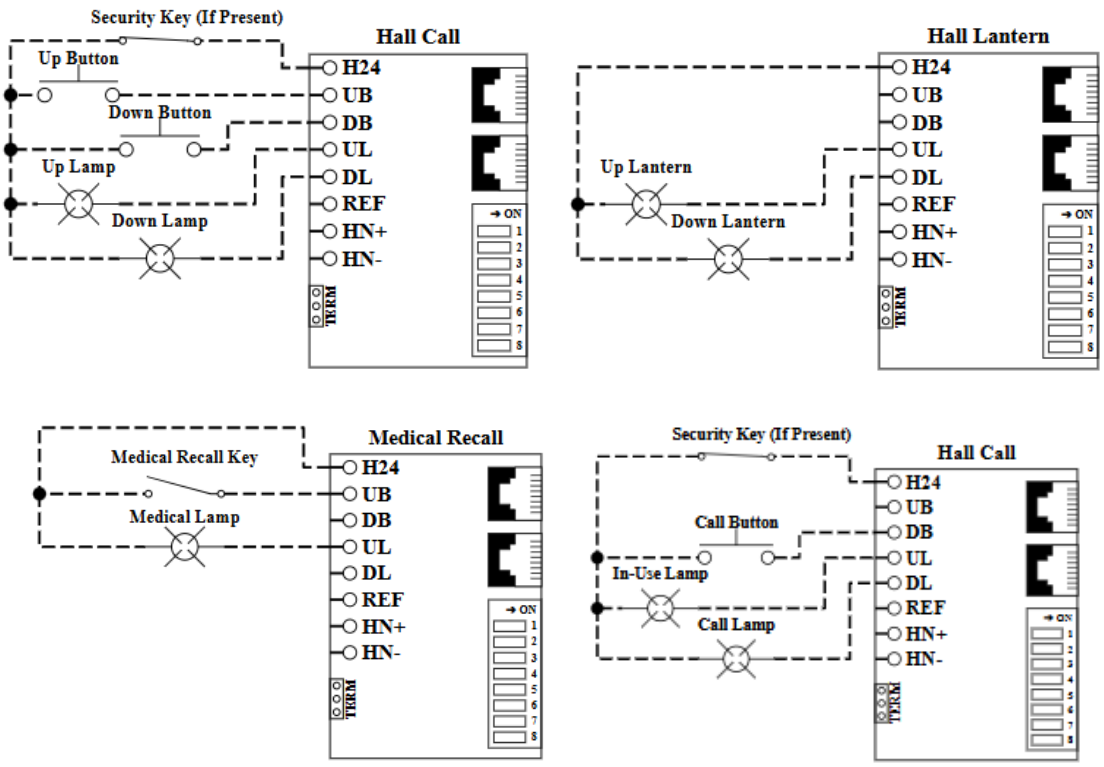


Figure 60: Example of Wiring of Hall Board Functions

5. LEDs

LED #	LED STATUS
LED 1	UB TERMINAL HAS 24VDC
LED 2	DB TERMINAL HAS 24VDC
LED 3	UP LAMP (UP CALL ACCEPTED)
LED 4	DOWN LAMP (DOWN CALL ACCEPTED)
LED 5	HEARTBEAT
LED 6	HEARTBEAT
LED 7	FAULT

To check if the hall boards are communicating, go to MAIN MENU → TEST & TROUBLESHOOT → TEST HALL BOARDS and move the asterisk underneath the dots and press up to match the dip switch setting to the hall board that is being tested. The number from left to right starts from 1 to 8.

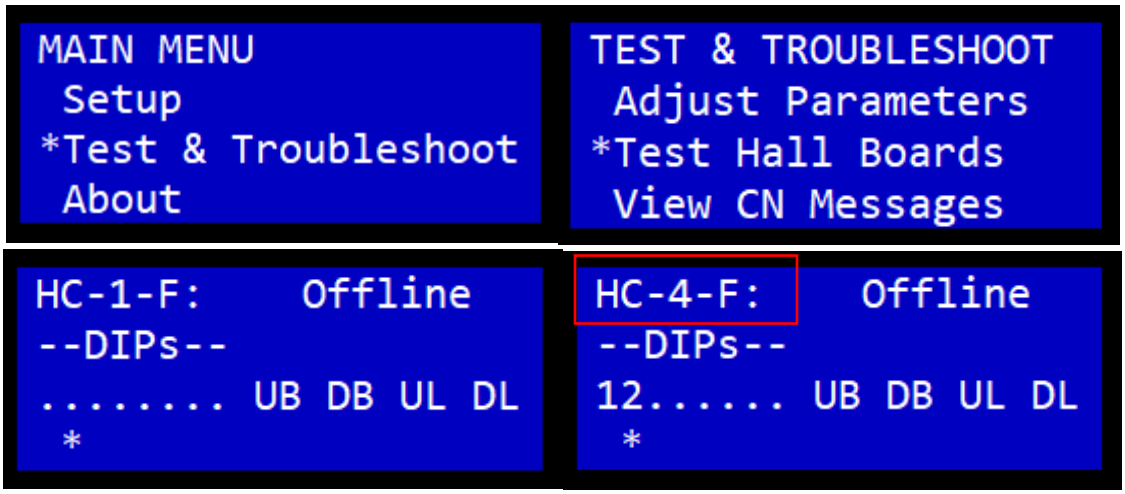


Figure 61: Hall Board Communication

The top left of the screen indicates the function of the hall board, what floor it is, and if it is for a front or rear opening. HC = Hall Calls, HL = Hall Lanterns, MC = Medical Call, and SF = Special Function.

For example, to check if the hall board for landing 4 is communicating, press up for the first two dots to turn on 1 and 2. If the hall board is communicating it will display ONLINE. If it is not communicating, it will display OFFLINE.

To check for online status for all hall boards for a certain floor, go to MAIN MENU → TEST & TROUBLESHOOT → HB ONLINE STATUS, and go to the desired floor.

If there is a F or R on the function it is under, it would mean there is a hall board online for that opening and floor.

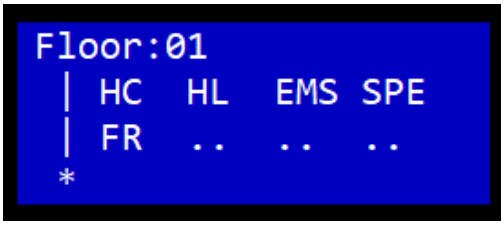


Figure 62: Hall Board Communication

HC = Hall Call

HL = Hall Lamp

EMS = Emergency Medical Recall

SPE: Special Function

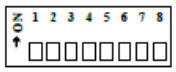
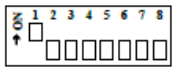
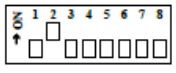
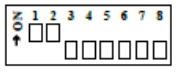
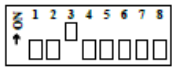
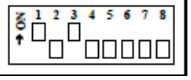
Hall Network Hall Board Table						
Landing	PI	Fire	Front	Rear	Type	DIP Switch Setting
1	1	D	X		Hall Call	
2	2	A	X		Hall Call	
3	3		X		Hall Call	
4	4		X		Hall Call	
5	5		X		Hall Call	
6	6		X		Hall Call	

Figure 63: Example Hall Network Hall Board Table

PROGRAMMING INPUTS/OUTPUTS

Inputs/Outputs can be programmed in the field without any software upgrades needed.

PROGRAMMING AN INPUT

Locate the IO Sheet in the job binder, this IO sheet will display all the inputs and outputs that are already programmed on the controller and their location. Fill out the inputs and outputs on the IO sheet as they are programmed in the field.

Step 1: Locate the desired input that is needed from the document "**Menu Settings/Parameters**" to find out which category the input will be in.

Step 2: Go to **MAIN MENU → SETUP → INPUTS → PLACE.**

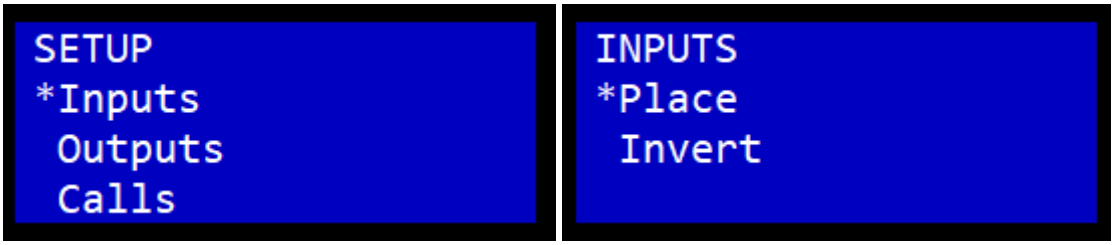


Figure 64: Setup Menu – Inputs - Place

Step 3: Press the middle button with the asterisk on PLACE. There will be 4 categories: general inputs, door inputs, cop inputs, and per-floor inputs. Select the category where your desired input is located from step 1. This will take you to the screen where all the inputs will be located.

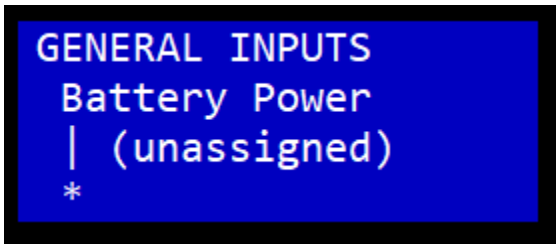


Figure 65: Unassigned Input

Step 4: Press the up/down button until the desired inputs shows on the screen. The desired input should show unassigned, if it does not, the desired input is already programmed in the controller.

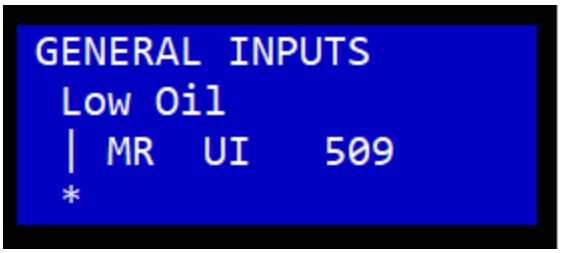


Figure 66: Assigned Input

Step 5: Press the right button once. Press the up button to find the location of where the input will be programmed. The input can be programmed in the MR (Machine Room), CT (Car Top), or COP (Car Operation Panel).

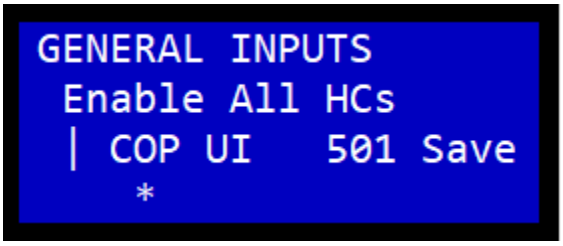


Figure 67: Location Of The Input

Step 6: Press the right button once. Press the up button to find the board the input will be programmed. The input can be programmed on the UI Board or Expansion(s) Board.

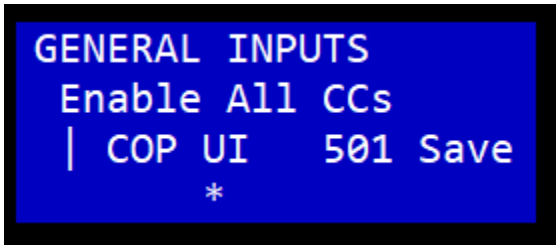


Figure 68: Board Used For The Input

Step 7: Press the right button once. Press the up button to find the number input that will be used on that board for the desired input. Note: Only program the input on an unassigned input, refer to the IO sheet for inputs that are not used. Press the right button to move the asterisk underneath the word save and press the middle button. Fill out the I/O Sheet with the newly programmed input.

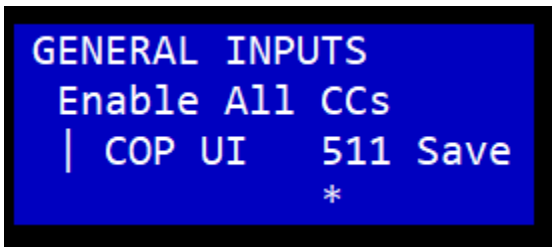


Figure 69: Input # Used

PROGRAMMING AN OUTPUT

Locate the IO Sheet in the job binder, this IO sheet will display all the inputs and outputs that are already programmed on the controller and their location. Fill out the inputs and outputs on the IO sheet as they are programmed in the field.

Step 1: Locate the desired output that is needed from the document "**Menu Settings/Parameters**" to find out which category the output will be in.

Step 2: Go to **MAIN MENU → SETUP → OUTPUTS**

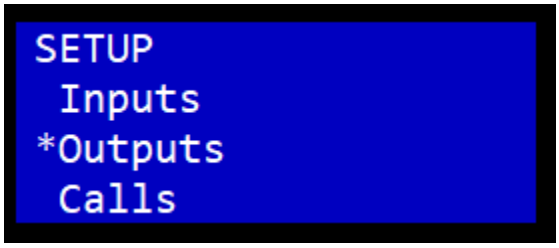


Figure 70: Setup Menu - Outputs

Step 3: Press the middle button with the asterisk on OUTPUTS. There will be 3 locations where the outputs can be programmed on: MR Board, CT Board, and COP Board. Move the asterisk to the location the output will be programmed at and press the middle button.

Figure 71: Location Of The Output

Step 4: Press the up/down button to go to the number output that will be used. Note: Only program the output on an unassigned output, refer to the IO sheet for outputs that are not used.

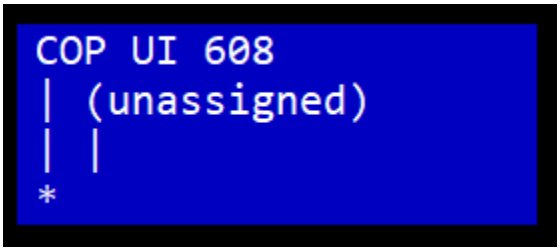


Figure 72: Unassigned Output

Step 5: Press the right button once. Press the up/down button to navigate to the category where the desired output is located.

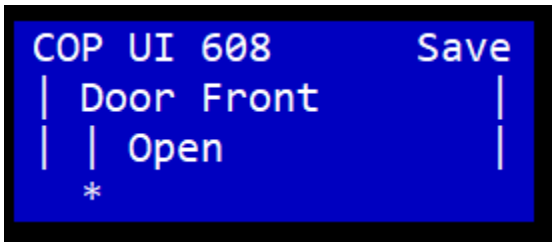


Figure 73: Outputs Category

Step 6: Press the right button once. Press the up/down button to navigated to the desired output. Press the right button to move the asterisk underneath the word save and press the middle button. Fill out the I/O Sheet with the newly programmed output.

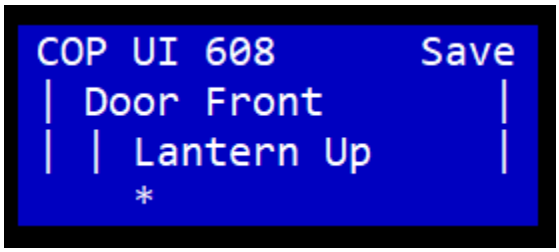


Figure 74: Desired Output

PROGRAMMABLE FEATURES

These features can be programmed in the field without any software upgrades needed.

SETTING UP CAR CALL SECURITY

There are two options of car call security.

OPTION #1 (CAR CALL SECURITY WITH A SECURITY SYSTEM)

Security system will need to provide the controller a normally open contact that is rated for 24VDC.

Step 1: Go to MAIN MENU → SETUP → SECURITY → CAR CALL SECURITY → TYPE OF SECURITY on the UI Board.

Step 2: Press the up button on the UI Board to change it from None to Using UI Inputs and bring the asterisk underneath the word Save and click the middle button.

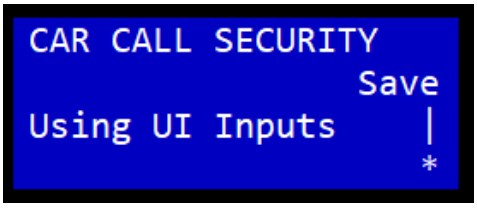


Figure 75: Using UI Inputs for Car Call Security Menu

Step 3: Press the left button to go back out to the SECURITY menu and then press the down button until the asterisk is on the OPENINGS TO SECURE menu and press the middle button.

Step 4: Depending if the configuration is to lockout front car calls or rear car calls, press enter on the desired configuration (Front and/or Rear).

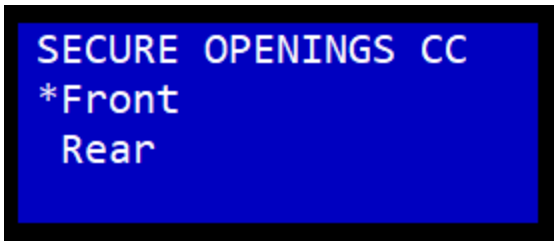


Figure 76: Secure Opening Front/Rear Menu

Step 5: Set the floor(s) that will have car call security to TRUE. To do this, put the asterisk underneath the floor PI, and press the up/down buttons to get to the floor that needs to be locked out. Press the right button to put the asterisk underneath the word FALSE, and press the up button to change it from FALSE to TRUE. Move the asterisk underneath the word Save and click the middle button.

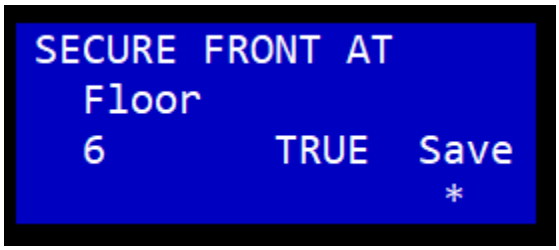


Figure 77: Secure Floor Menu

Step 6: Repeat step 4 and 5 for all floors/openings that will have car call security.

Step 7: To add the front car call security input(s), go to MAIN MENU → SETUP → INPUTS → PER FLOOR INPUTS → FRONT → CAR CALL ENABLES on any UI Board.

Step 8: Press the up button to get to the floor that will be locked out.

Step 9A: To set up car call security inputs on the MR UI Board, press the right button to move it over from |, then press the up button once to set it to MR (Machine Room). Press the right button twice and the asterisk should be underneath the input #. Find an unused input by looking at the IO sheet and press the up button to go to that input #. Press the right button once to put the asterisk underneath the word save and press the middle button.

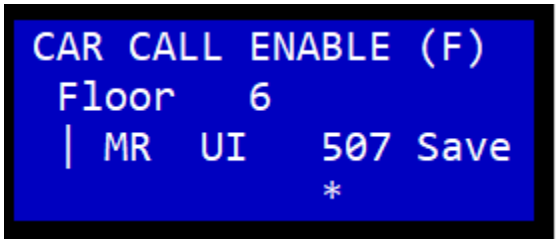


Figure 78: Setting Up Security Input Menu

Step 9B: To set up car call security on the COP UI Board, press the right button to move it over from |, then press the up button three times to set it to COP (Car Operation Panel). Press the right button twice and the asterisk should be underneath the input #. Find an unused input by looking at the IO sheet and press the up button to go to that input #. Press the right button once to put the asterisk underneath the word save and press the middle button.

Step 10: To add rear car call security input(s), go to MAIN MENU → SETUP → INPUTS → PER FLOOR INPUTS → REAR → CAR CALL ENABLES on the UI Board. Repeat step 8 and 9.

Step 11: Repeat step 8 and 9 until all floors desired have a programmed input. Wire in the security normally open contact to the input(s) programmed. One side of the normally open contact will go to the M24/C24 terminal block and the other side will go to the input programmed.

EXTRA SECURITY FEATURES:

- ***To have independent service override security, go to MAIN MENU → SETUP → SECURITY → IND. SRV. OVERRIDES, and set it to TRUE and SAVE.***
- ***To have the door open button function on a secured floor, go to MAIN MENU → SETUP → SECURITY DOB → OVERRIDES, and set it to TRUE and SAVE.***

OPTION #2 (CAR CALL SECURITY USING COP BUTTONS)

This option will be setting up access codes using the COP buttons as a security keypad. No external security system is needed.

Step 1: Go to MAIN MENU → SETUP → SECURITY → CAR CALL SECURITY → TYPE OF SECURITY on a UI Board.

Step 2: Press the up button on the UI Board to change it from None to Using ACCESS CODES and bring the asterisk underneath the word Save and click the middle button.

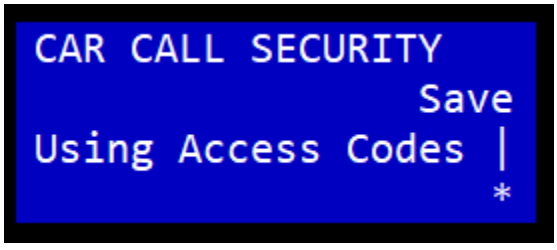


Figure 79: Using Access Codes for Car Call Security Menu

Step 3: Press the left button to go back out to the SECURITY menu and then press the down button until the asterisk is on the SECURE OPENINGS menu and press the middle button.

Step 4: Depending if configuration is to lockout front car calls or rear car calls, press enter on the desired configuration (Front and/or Rear).

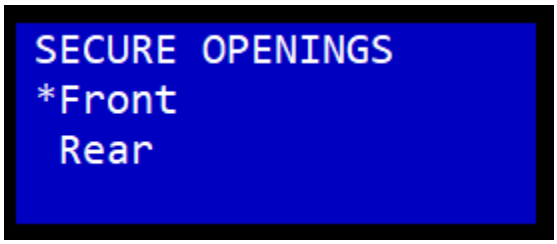


Figure 80: Secure Opening Front/Rear Menu

Step 5: Set the floor(s) that will have car call security, to TRUE. To do this, put the asterisk underneath the floor PI, and press the up button to the floor that is needed to be locked out. Press the right button underneath the word FALSE, and press the up button to change it from FALSE to TRUE and bring the asterisk underneath the word Save and click the middle button.

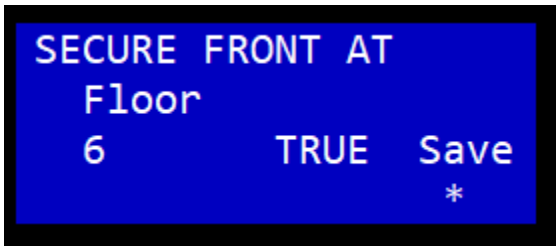


Figure 81: Secure Floor Menu

Step 6: Repeat step 4 and 5 for all floors/openings that will have car call security.

Step 7: Press the left button to go back out to the SECURITY menu and then press the down button until the asterisk is on the COP Access Codes menu and press the middle button.

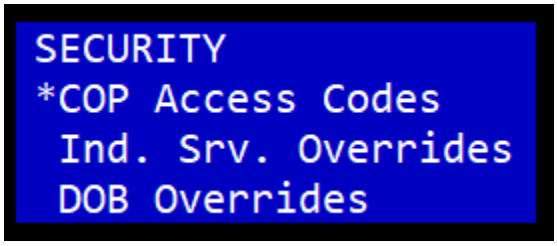


Figure 82: Security Menus – COP Access Codes Selected

Step 8A: Press the up button to go to the floor that will be locked out using an access code. If setting up access code security for front opening, press the right button once. Press the up botton

once and then move the asterisk underneath any of the 4 PI labels and press up to change the code to the desired number. After changing the 4 PI labels to the desired number press the right button until the asterisk is underneath the word Save and press the middle button.

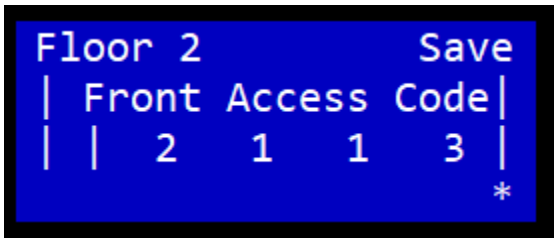


Figure 83: Setting up Access Codes Per Floor for Front Opening

Step 8B: Press the up button to go to the floor that will be locked out using an access code. If setting up access code security for rear opening, press the right button once. Press the up button once and then move the asterisk underneath any of the 4 PI labels and press up to change the code to the desired number. After changing the 4 PI labels to the desired number press the right button until the asterisk is underneath the word Save and press the middle button.

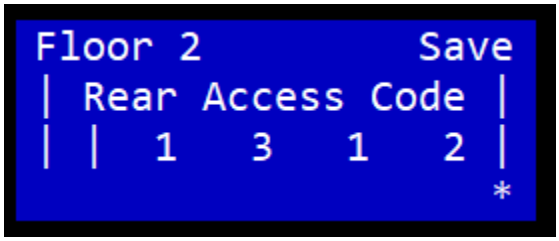


Figure 84: Setting up Access Codes Per Floor for Rear Opening

Step 9: Repeat step 8 until all the desired floors are set to the desired access code.

Step 10: There is an option to put a master code to override all secured floors. To set this up, go to the COP Access Code Menu and scroll down to the All Access Code menu and press the middle button.

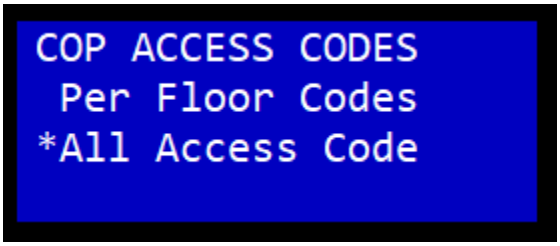


Figure 85: COP Access Codes menu – All Access Code Selected

Step 11: The 4 digit code is set to the bottom floor by default, which disables the override code. To enable it, change any of the 4 digit code to anything, but the bottom floor. To change the

code, press the right button to move the asterisk underneath any of the 4 digit and press up/down to change the value. After the code is set, press the right button to move the asterisk underneath the word save and press the middle button.

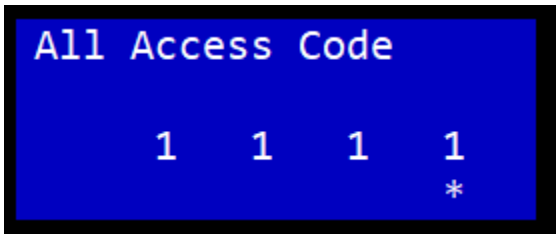


Figure 86: Override Secured Floor Disable

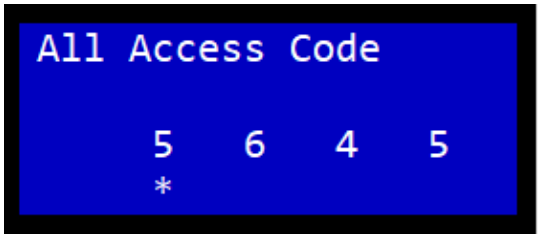


Figure 87: Override Code Set and Enabled

EXTRA SECURITY FEATURES:

- ***To have independent service override security, go to MAIN MENU → SETUP → SECURITY → IND. SRV. OVERRIDES, and set it to TRUE and SAVE.***
- ***To have the door open button function on a secured floor, go to MAIN MENU → SETUP → SECURITY → DOB OVERRIDES, and set it to TRUE and SAVE.***

SETTING UP FLOOD SENSOR

Flood sensor will need to be a normally close 24VDC contact by default. If the job was ordered with flood only do step 1.

Step 1: Go to MAIN MENU → SETUP → SPECIAL OPERATION → FLOOD SETUP → FLOOD SAFE FLOOR and press the up button to select the desired flood floor. (The flood floor would mean that the elevator will not be able to access any floor below the flood floor during a flood operation, if set to the second landing, the elevator will be not be able to go to the 1st landing). After selecting the desired floor , move the asterisk underneath the word save and press the middle button.

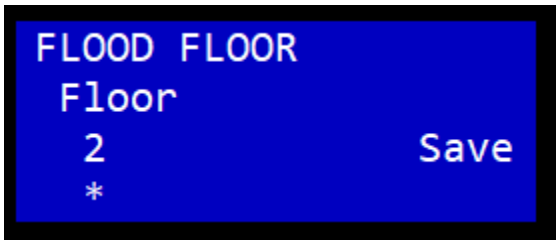


Figure 88: Flood Floor Selection Menu

Step 2: To set up the flood sensor input, go to MAIN MENU → SETUP → INPUTS → GENERAL INPUTS, press the up button until the flood sensor option is displayed.

Step 3: Press the right button once, press the up button once to set it to MR (Machine Room). Press the right button twice and the asterisk should be underneath the input #. Find an unused input by looking at the IO sheet and press the up button to go to that input #. Press the right button once to put the asterisk underneath the word save and press the middle button.

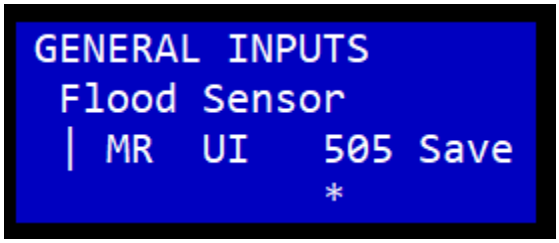


Figure 89: Setting Up Flood Sensor Input Menu

Step 4: Wire in the flood sensor contact to the input programmed. One side of the normally close contact will go to H24 terminal block and the other side will go to the input programmed.

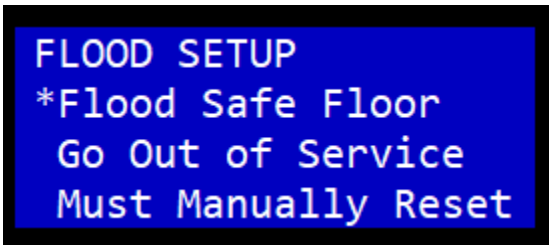


Figure 90: Extra Flood Features

EXTRA FLOOD FEATURES:

- ***To have elevator go out of service when flood sensor is activated, go to MAIN MENU → SETUP → SPECIAL OPERATION → FLOOD SETUP → GO OUT OF SERVICE, and set it to TRUE and SAVE.***
- ***To have the flood operation only be able to be reset by pressing the clear fault button, go to MAIN MENU → SETUP → SPECIAL OPERATION → FLOOD SETUP → MUST MANUALLY RESET, and set it to TRUE and SAVE.***
- ***To have the buzzer sound when on flood operation, go to MAIN MENU → SETUP → SPECIAL OPERATION → FLOOD SETUP → SOUND BUZZER, and set it to TRUE and SAVE.***

SETTING UP PARKING

SIMPLEX Parking:

Step 1: Go to MAIN MENU → SETUP → PARKING → ENABLE PARKING and press the up button to set this to TRUE and press the right button once to put the asterisk underneath the word save and press the middle button.

Step 2: Go to MAIN MENU → SETUP → PARKING → PARK DELAY TIME, change the value to the desired time of elevator being idle with no command before initiating a parking operation.

Step 3: Go to MAIN MENU → SETUP → PARKING → SIMPLEX PARKING → PARK FLOOR, change the value to the desired floor to park the elevator once the park delay time is met.

EXTRA PARKING FEATURES:

- ***To have elevator park with front doors open, go to MAIN MENU → SETUP → PARKING → SIMPLEX PARKING → PARK W/FRONT OPEN, and set it to TRUE.***
- ***To have elevator park with front doors open, go to MAIN MENU → SETUP → PARKING → SIMPLEX PARKING → PARK W/REAR OPEN, and set it to TRUE.***

GROUP Parking:

Step 1: Go to MAIN MENU → SETUP → PARKING → ENABLE PARKING and press the up button to set this to TRUE and press the right button once to put the asterisk underneath the word save and press the middle button.

Step 2: Go to MAIN MENU → SETUP → PARKING → PARK DELAY TIME, change the value to the desired time of elevator being idle with no command before initiating a parking operation.

Step 3: Go to MAIN MENU → SETUP → PARKING → GROUP PARKING → PARK FLOOR 1, change the value to the desired floor to park the first elevator once the park delay time is met. This will be the highest priority parking floor.

Step 3: Go to MAIN MENU → SETUP → PARKING → GROUP PARKING → PARK FLOOR 2, change the value to the desired second floor to park the second elevator once the park delay time is met. This will be the second priority parking floor.

NOTE: Repeat this step to the number of cars that are currently in the group that is needed to be parked. If the desired cars to park is 5 cars, set parking floor 1-5. Also, the park floors need to be identical for all the cars that are in the group that is needed to be parked.

SETTING UP SABBATH OPERATION

Sabbath operation can be enabled with or without a 24VDC key switch.

OPTION #1 (SABBATH OPERATION WITHOUT KEYSWITCH)

Step 1: If using sabbath operation without a key switch, go to MAIN MENU → SETUP → SABBATH → ACTIVATE SABBATH, and set it to TRUE.

EXTRA SABBATH FEATURES:

- ***To have sabbath skip certain floors, go to MAIN MENU → SETUP → SPECIAL FUNCTION → SABBATH → FLOORS TO SKIP, and set the floors that are desired to be skipped to TRUE and SAVE.***
- ***To have the doors dwell at a duration different than the normal door dwell time at the lobby floor, go to MAIN MENU → SETUP → SABBATH → DWELL AT LOBBY, and set the desired duration for the doors to dwell at the lobby floor on sabbath operation.***
- ***To have the doors dwell at a duration different than the normal door dwell time at the non-lobby floor, go to MAIN MENU → SETUP → SABBATH → DWELL AT NON-LOBBY, and set the desired duration for the doors to dwell at the non-lobby floor on sabbath operation.***

OPTION #2 (SABBATH OPERATION WITH A KEYSWITCH)

Step 1: If using sabbath operation with a key switch, go to MAIN MENU → SETUP → INPUTS → GENRAL INPUTS, press the up button until the sabbath enable option is displayed.

Step 2: Press the right button once, press the up button once to set it to MR (Machine Room). Press the right button twice and the asterisk should be underneath the input #. Find an unused input by looking at the IO sheet and press the up button to go to that input #. Press the right button once to put the asterisk underneath the word save and press the middle button.

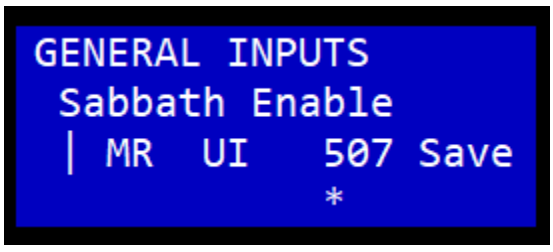


Figure 91: Setting Up Sabbath Enable Input Menu

Step 3: Wire in the sabbath operation contact to the input programmed. One side of the normally open contact will go to M24 terminal block and the other side will go to the input programmed.

EXTRA SABBATH FEATURES:

- ***To have sabbath skip certain floors, go to MAIN MENU → SETUP → SABBATH → FLOORS TO SKIP, and set the floors that are desired to be skipped to TRUE and SAVE.***
- ***To have the doors dwell at a duration different than the normal door dwell time at the lobby floor, go to MAIN MENU → SETUP → SABBATH → DWELL AT LOBBY, and set the desired duration for the doors to dwell at the lobby floor on sabbath operation.***
- ***To have the doors dwell at a duration different than the normal door dwell time at the non-lobby floor, go to MAIN MENU → SETUP → SABBATH → DWELL AT NON-LOBBY, and set the desired duration for the doors to dwell at the non-lobby floor on sabbath operation.***