

# C4

USER MANUAL

VERSION 4.1



SMARTRISE



## Document History

Date	Version	Summary of Changes
October 25, 2021	4.1	Added 24 Input Board Removed Manual Traction Test
September 30, 2021	4.0	Added Advanced Configuration Added Hoistway Access Slide Distance Added Hall Call Security Moved all Car Data information to one section Added I/O definitions Added Input Status Updated Access Code Added description for Floor Adjustment menu Added Invert Outputs Added Recall Key Deleted Sabbath Dwell Timer menu Moved Sabbath Operation to SETUP menu Added VIP Added Active Shooter Added Marshal Mode Replaced brackets used on Sensor Array Assembly. Added Swing Opening Added an Enter Door Command display when there is only front doors configured Added Door Type Added Brakes
November 13, 2020	3.1	Added Emcan LWD reference and Hall board 12 DIP Hall Mask Mapping switch settings
October 30, 2020	3.0	Deleted Load Weighing section and created a reference to the C4 Load Weighing manual Deleted DAD connection procedure and created a reference to the C4 GUI manual Replaced Emergency section Updated all menu structures Replaced CT and COP figures due to jumper Replaced S-Curve drawing with a more detailed drawing Added a 12-DIP configuration Hall board Added and deleted menu functions Added reference to specific drive when wiring C4 for Construction Mode Added Debug, About, Status, XREG, Attendant, Parking sections Expanded Doors, Faults, Alarms, Floors, S-Curve, and Speed sections to include additional menu descriptions and procedures

Date	Version	Summary of Changes
August 15, 2019	2.0	Updated cover page Added Menu Structures Added Soft Limit Added Sabbath Operation Added Load Weighing Added Alarms Added In-depth process descriptions Added NTS/ETS Added Profile, Parameters and Controlling Initial Start of Car Motion information to S-Curve Deleted Faults table and added reference to see C4 Faults and Alarms document
March 28, 2019	1.0	Initial Submittal

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# 1 C4 Traction Controller

The C4 Traction Controller is the state-of-the-art high-speed/high-rise controller designed for speeds up to 1400 fpm.

## 1.1 Overview

The C4 Traction Controller is built to learn and adapt.

The following is a list of C4 manuals included in the C4 package:

- C4 User Manual – A detailed description of the C4 Traction Controller including step by step procedures on how to configure the system.
- C4 Faults and Alarms – A list of faults codes, alarm codes, and resolutions.
- C4 Testing Procedures – Step by step procedure on how to test the C4 Traction Controller.
- C4 Drive Startup – Describes how to setup various drives that may be used within the C4 Traction Controller. The following is a list of drives that can be used on the C4:
  - DSD412
  - HPV900
  - M1000
  - KEB
- C4 GUI Manual – An in-depth description of how to use the Graphical User Interface to configure the controller.
- C4 Load Weighing Device – Describes how to install and calibrate the Load Weighing Device.
- C4 Emergency Rescue Device – Describes emergency operation sequence of events and maintenance.
- C4 Parameter List – A detailed list of values that define the set conditions for the controller. The parameters are job configurable.

## 1.2 C4 Traction Controller Components

The C4 Traction Controller consist of the following:

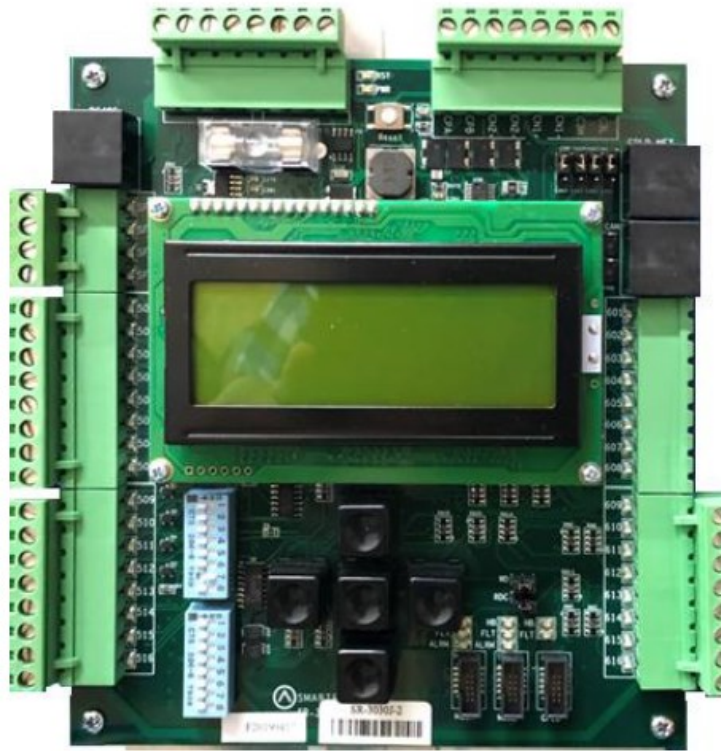
**C4 Controller** – Performs serial data exchange between the machine room, the top of the car, and the car panel.



Figure 1: C4 Controller



**Car Operating Panel Controller (COP)** – Gathers localized inputs and outputs and connects to the Car Top Controller.



*Figure 2: Car Operating Panel Controller*

**Car Top Controller (CT)** – Manages part of the safety logic. The CT connects the top of the car components and the traveler cable.



*Figure 3: Car Top Controller*

**Smart Positioning Landing System** – Tracks elevator speed and position with high precision and superior reliability. The Sensor Array Assembly can be mounted on the left or right side.

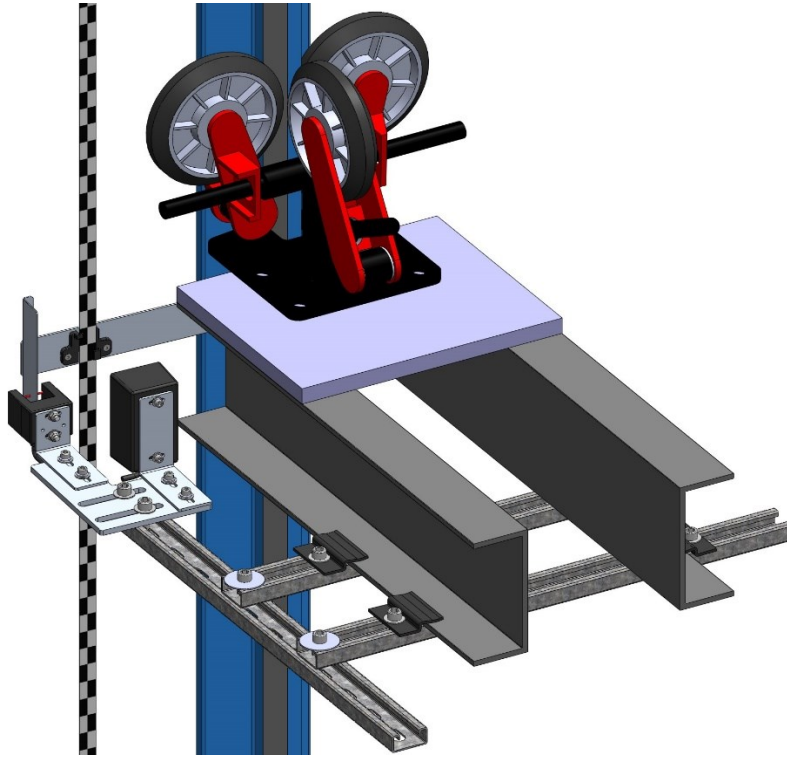


Figure 4: SmartPositioning Landing System (Left)

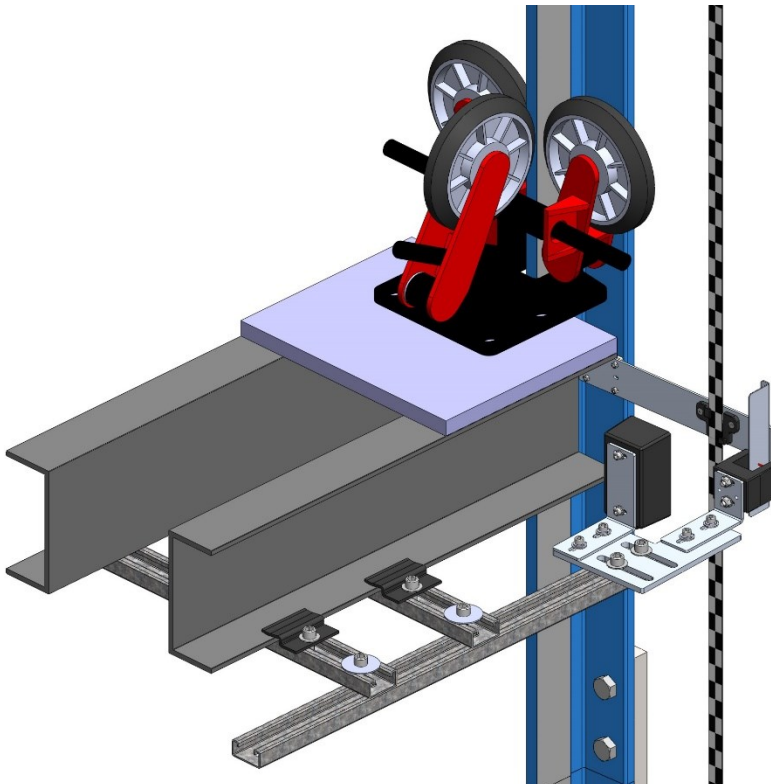


Figure 5: SmartPositioning Landing System (Right)

## 1.3 Safety

A proper and effective ground connection is required for the safe and successful operation of the controller. Ensure that each elevator controller disconnect has a sufficient earth ground provided from the building to the disconnect and is run to the earth ground inside the individual elevator controller (PE).

**Note:** The size of the ground wire should match the same size (AWG) as the controller ground lug wire internal inside the controller.

The system has one or more common ground bus terminal blocks (PE).



Figure 6: Ground Bus Terminal Blocks

The building, motor, transformer, and filter(s) must all share a common ground. Inefficient grounding can cause many types of issues with modern elevator control systems.

Proper grounding removes ground loops, limits impedance, and routes noise into the ground.

## 1.4 Default Voltage Settings Prior to Installation

While Smartrise takes every measure to provide the customer with an out-of-box installation, sometimes incomplete information leads to default values being set on equipment and voltage settings. This is done to protect the equipment from overvoltage issues. For example, the door operator for that job might operate at 240 VAC but if Smartrise was not provided with that information when the job was developed, the DR breaker (door operator voltage supply) is set to 120 VAC for safety reasons.

Verify, according to the provided drawings, that all required voltages for the existing equipment matches the voltages set by Smartrise PRIOR to powering up the controller.

## 2 Controller Hardware

The Controller consists of the following boards:

- Machine Room (MR) board - SR3032
- Smartrise Universal (SRU) board - SR3030
- I/O board (Riser board) - SR 3031
- Hall board - SR1060
- Serial Brake board - SR3038

## 2.1 MR Board SR3032

The MR board is the main interface in the controller.

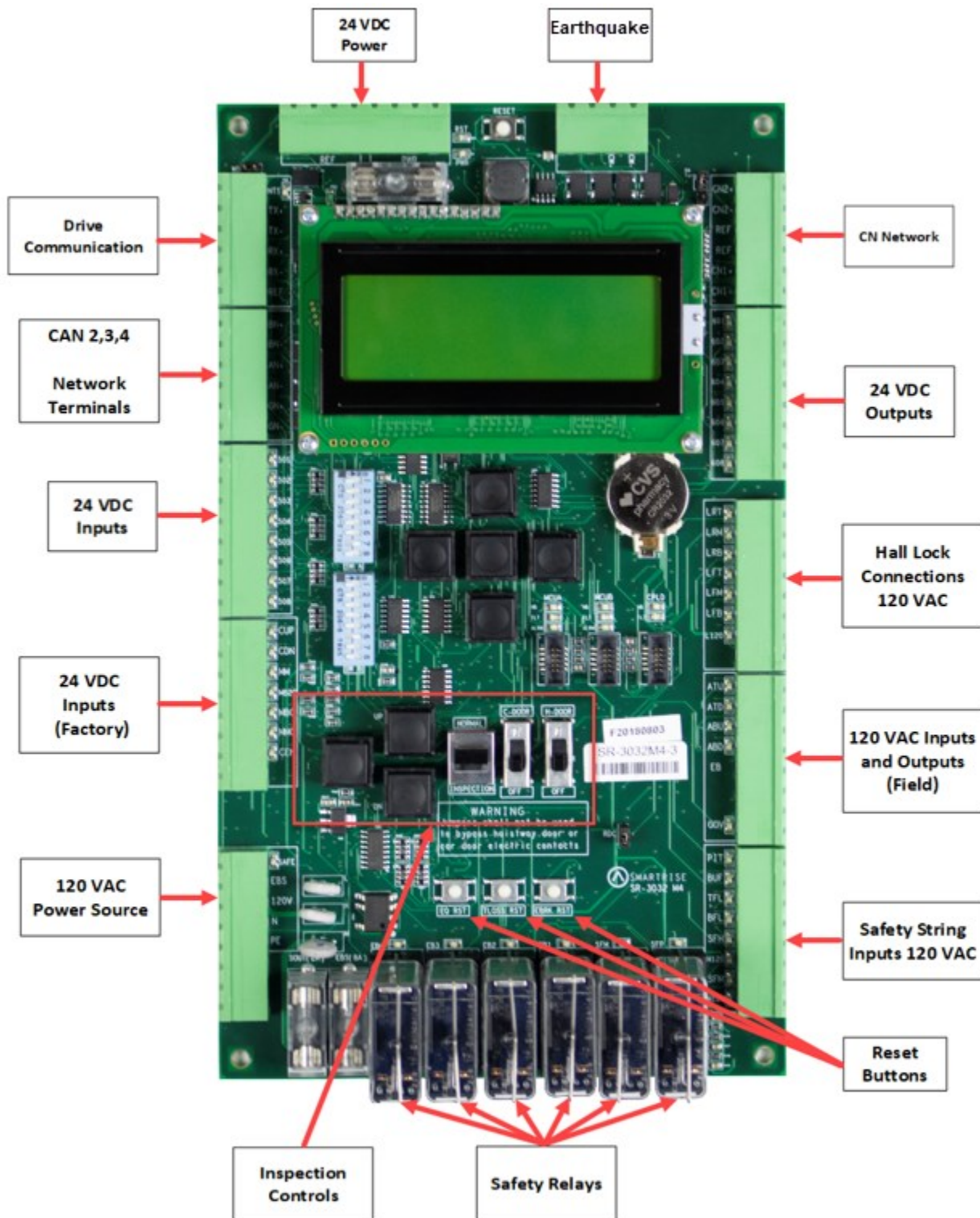


Figure 7: MR Board SR3032

There are two sets of DIP switch settings for the MR Board:

- Bank A (upper one)
- Bank B (lower one)

Each setting is configured for a different functionality.

The table below lists the functionality and configuration for the Bank A DIP switch setting.

*Table 1: MR Board SR3032 Bank A DIP Switch Setting Configuration*

DIP Switch	Functionality	Description
DIP 1	CPU Stop Switch	Halts parameters updates and used to reset fire and latched faults .
DIP 2	N/A	N/A
DIP 3	Capture Car/Disable Doors	Takes the car out of the group and completes all car calls before disabling the doors. Bypasses EMS operation.
DIP 4	Enable GUI Edit (v1.02.54 and above)	Allows parameter edits from external GUI.
DIP 5	Learn Mode	Activates learn mode on the controller to learn the hoistway.
DIP 6	Enable Tune	Sends message to the drive to begin the tune process. Used after setting the drive in motor tune or encoder learn.
DIP 7	Pop-up Blocker	Disables the fault pop-up messages. Faults can still be viewed in the active and logged faults.
DIP 8	Bootloader Flag	Sets all boards in Bootloader mode to update software.

The table below lists the functionality configuration for the MR Board SR3032 Bank B dip switch setting.

*Table 2: MR Board SR3032 Bank B DIP Switch Setting Configuration*

DIP Switch	Functionality	Description
DIP 1	Invert NTS Output	When set to ON, NTS output is Active Low.
DIP 2	Rear Doors	Must be set if rear doors are present.
DIP 3	Enable Landing Insp	Must be set if landing inspection operation is used.
DIP 4	Enable Pit Insp	Must be set if Pit inspection operation is used.

DIP Switch	Functionality	Description
DIP 5	Sync Params	Writes parameters from cartop to machine room. This switch is used when replacing the MR board.
DIP 6	Bypass Fire Srv (w/ 01-0131)	Setting this along with parameter 01-0131 to ON bypasses fire service.
DIP 7	N/A	N/A
DIP 8	Unintended Movement Acceptance Test	Used during the unintended movement acceptance test.

### 2.1.1 Navigation Buttons

The navigation buttons are the same on every SRU.

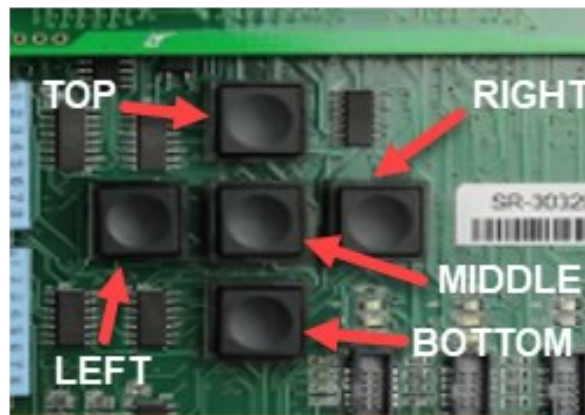


Figure 8: Navigation Buttons

The table below lists the navigation button descriptions.

Table 3: Navigation Button Descriptions

Button	Description
Top	Scrolls up through selected menu
Bottom	Scrolls down through selected menu
Left	Navigates back to Main Menu
Right	Navigates down to last series of menus used
Middle	Select the menu

The selected menu within the menu options is shown with a \*.



Figure 9: Example of Selected Menu

See <http://avtanski.net/projects/lcd/> for LCD images.

### 2.1.2 24 VDC Power Source

The 24 VDC power and reference connection to ground only requires having one terminal connected to the MR board. All other connections can be used for auxiliary sources, as needed.

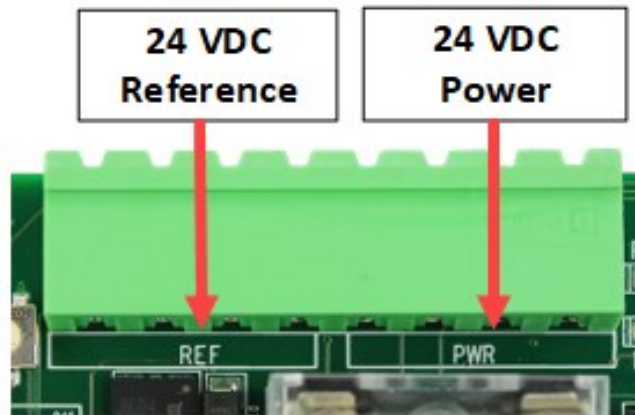


Figure 10: 24 VDC Connector

### 2.1.3 Reset Buttons

There are three reset buttons. When performing a reset via the reset buttons, press the button and immediately release it. The fault will reset after 5-6 seconds.

- EQ RST – Resets a seismic fault due to an earthquake
- TLOSS RST – Resets traction loss fault
- EBRK RST – Clears the latching type of fault



Figure 11: Reset Switches



## 2.1.4 Drive Communication

The drive communication connector is for transmitting and receiving signals to and from the drive (the type of drive is dependent on the application) as well as triggering the Normal Terminal Stop (NTS) operation.



Figure 12: Drive Communication Connector

**RX And TX Terminals** – Communication line to and from the drive. When 046 LED is lit, it indicates the activity of the NTS signal.

**REF Terminal** – A shield connection to connect to the drive, as applicable.

See the *C4 Controller* sheet *02 Machine Room I/O* for wiring information.

## 2.1.5 Network

The network is used for board to board communication between the Machine Room, Car Top, Car Operating Panel, and Expansion boards.

**CN Network Terminals** – Uses both CN1 and CN2 for communication.

**REF Terminal** – Provides a ground to prevent noise on the CN1 and CN2 signals.

These connections must be made before going into inspection and normal operation.

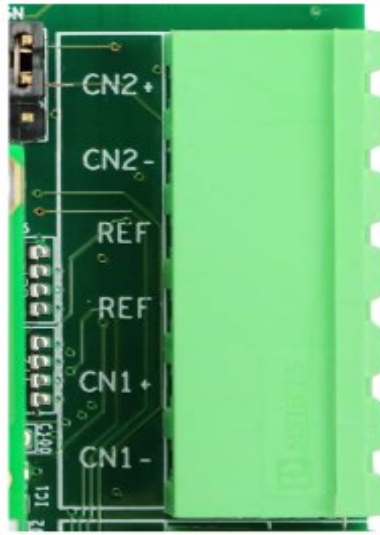


Figure 13: CN Connector

**Brake Network (BN) Terminals** – Communication between the Machine Room and Brake board. This channel transmits all brake commands to the Brake board.

**Aux Network (AN) Terminals** – Auxiliary communication between the Machine Room and any compatible third-party devices, for example, IE CE Drive board.

**Group Network (GN) Terminals** – Group communication. These connections connect all the cars together in a group setting.



Figure 14: CAN 1,2,3 Network Connector

## 2.1.6 120 VAC Inputs and Outputs (Factory)

### WARNING

ALL CONNECTIONS ON THIS TERMINAL BLOCK ARE HIGH VOLTAGE. DISCONNECT POWER TO THE CONTROLLER BEFORE WIRING THESE TERMINALS.

**Safe Terminal** – Outputs power to the motor contactor. The safe terminal will not output voltage to the motor contactor coil until all safety checks have been completed. See the *C4 Controller* sheet *02 Machine Room I/O* for wiring information.

When the SAFE LED is lit, it indicates there is an active signal to the motor contactor.

**EBS Terminal** – Connects the supply voltage for the emergency brake. Depending on the rope brake or disc ratings, this will either be 120 VAC or 240 VAC.



Figure 15: 120 VAC Connector

## 2.1.7 24 VDC Inputs and Outputs

24 VDC input is labeled 501-508.

Each input is activated when 24 VDC is applied to it. LEDs 501-508 are lit when active.

See the *C4 Controller* sheet *02 Machine Room I/O* for wiring information.

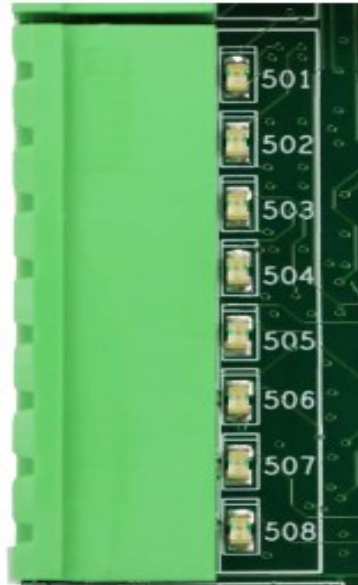


Figure 16: 24 VDC Input Connector

24 VDC output is labeled 601-608.

Each output sinks to REF when activated. LEDs 601-608 are lit when active.

See the *C4 Controller* sheet *02 Machine Room I/O* for wiring information.

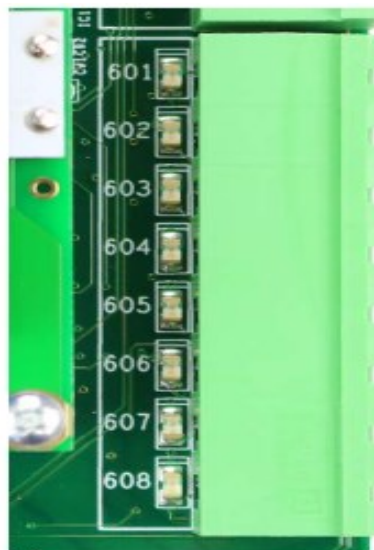


Figure 17: 24 VDC Output Connector

## 2.1.8 24 VDC Monitoring System

The monitoring connector is used to monitor the system. All terminals have a corresponding LED list when active.

**CUP and CDN Inputs** – Runs the car UP or DOWN using external run box.

**MM Terminal** – Puts the controller in either the Construction Mode (when the INSPECTION switch is on) or Test mode (when the INSPECTION switch is off). To activate this input, a jumper must be installed from 24 VDC to the input.

**MB2C Terminal** – Monitors the status of the B2 contactor (if used).

**MBC Terminal** – Monitors the status of the B contactor.

**MMC Terminal** – Monitors the status of the M contactor.

**CEN Terminal** – Monitors the status of the enable contact on the external run box during Construction Mode. This input must be enabled before the CUP and CDN buttons.



Figure 18: 24 VDC Monitoring System Connector

## 2.1.9 Safety String Inputs 120 VAC

### WARNING

**ALL CONNECTIONS ON THIS TERMINAL BLOCK ARE HIGH VOLTAGE. DISCONNECT POWER TO THE CONTROLLER BEFORE WIRING THESE TERMINALS.**

This terminal block contains the connections for the controller safety string. Each input is always monitored (including Construction Mode). The source and termination for all Machine Room and Hoistway safeties are located on this terminal block.

All terminals have a corresponding LED list when active.

**PIT Terminal** – Termination for the Pit switch. The primary side of the switch is connected to H120 and the secondary side is then wired back to the PIT terminal.

**BUF Terminal** – Termination for the Buffer switch. The primary side of the switch is connected to H120 and the secondary side is then wired back to the BUF terminal.

**TFL Terminal** – Termination for the Top Final Limit switch. The primary side of the switch is connected to H120 and the secondary side is then wired back to the TFL terminal.

**BFL Terminal** – Termination for the Bottom Final Limit switch. The primary side of the switch is connected to H120 and the secondary side is then wired back to the BFL terminal.

**H120 Terminal** – Internal fused source for all hoistway safeties. This is used to power the PIT, BUF, BFL, TFL and any other addition hoistway safety devices.

See the *C4 controller sheet 02 Machine Room I/O* wiring information.

**SFM Terminal** – Termination for all Machine Room safety devices that do not have a dedicated input, for example, Run/Stop switch, roper gripper contacts and EBrake. All additional devices are wired in series and terminated to the SFM.

**SFH Terminal** – Termination for all hoistway safety devices that do not have a dedicated input. All additional devices are wired in series and terminated to the SFH.

See the *C4 Controller sheet 02 Machine Room I/O* for wiring information.

**M120 Terminal** – Internal fused source for all Machine Room safeties.

See the *C4 Controller* sheet *02 Machine Room I/O* for wiring information.



Figure 19: Safety String Input Connector

### 2.1.10 120 VAC Inputs and Outputs (Field)

#### WARNING

ALL CONNECTIONS ON THIS TERMINAL BLOCK ARE HIGH VOLTAGE. DISCONNECT POWER TO THE CONTROLLER BEFORE WIRING THESE TERMINALS.

The following are input terminals. See the *C4 Controller* sheet *02 Machine Room I/O* for wiring information.

**ATU Terminal** – Access Top Up controller termination.

**ATD Terminal** – Access Top Down controller termination.

**ABU Terminal** - Access Bottom Up controller termination.

**ABD Terminal** – Access Bottom Down controller termination.

**GOV Input** – Termination for the Governor switch. The primary side of the governor electrical switch is connected to M120 and the secondary side is wired back to this terminal.

The following is an output terminal.

**EB Terminal** – Voltage output to either the rope gripper or the secondary brake contactor. In case of the rope gripper, this terminal is connected to the primary or hot side of the rope gripper. If a secondary sheave brake is being used, this is factory wired to the B2 contactor.



Figure 20: 120 VAC Input and Output Connector

### 2.1.11 Hall Lock Connections

#### WARNING

ALL CONNECTIONS ON THIS TERMINAL BLOCK ARE HIGH VOLTAGE. DISCONNECT POWER TO THE CONTROLLER BEFORE WIRING THESE TERMINALS.

**LRT Terminal** – Terminates the rear top lock. The primary side of the lock is connected to L120 and the secondary side is wired back to this terminal.

**LRM Terminal** – Terminates the rear middle locks. The primary side of the lock is connected to L120 and the secondary side is wired back to this terminal.

**LRB Terminal** – Terminates the rear bottom lock. The primary side of the lock is connected to L120 and the secondary side is wired back to this terminal.

**LFT Terminal** – Terminates the front top lock. The primary side of the lock is connected to L120 and the secondary side is wired back to this terminal.

**LFM Terminal** – Terminates the front middle locks. The primary side of the lock is connected to L120 and the secondary side is wired back to this terminal.

**LFB Terminal** – Terminates the front bottom lock. The primary side of the lock is connected to L120 and the secondary side is wired back to this terminal.



**L120 Terminals** – Internally fused source for all lock voltages.



Figure 21: Hall Lock Connector

### 2.1.12 Inspection Controls

**ENABLE Button** – Enables power to the direction commands for inspection operation. This button must be pressed prior to issuing a direction to move on inspection.

**INSPECTION Switch** – Toggles between inspection and normal operation. When the MM input signal is high and the switch is set to INSPECTION, the system is in Construction Mode. If the switch is set to NORMAL, the system is in test mode.

**UP and DOWN Buttons** – Moves the car either up or down on Inspection and Construction Mode.

**CAR and HALL DOOR BYPASS Switches** – Bypasses the hall locks and Gate switch (GSW) only on CT and IC inspection. These switches are used instead of jumpers to reduce the risk of accidentally leaving a jumper still connected. These switches are not used in Construction Mode and the controller faults out if used any time outside CT or IC inspection.

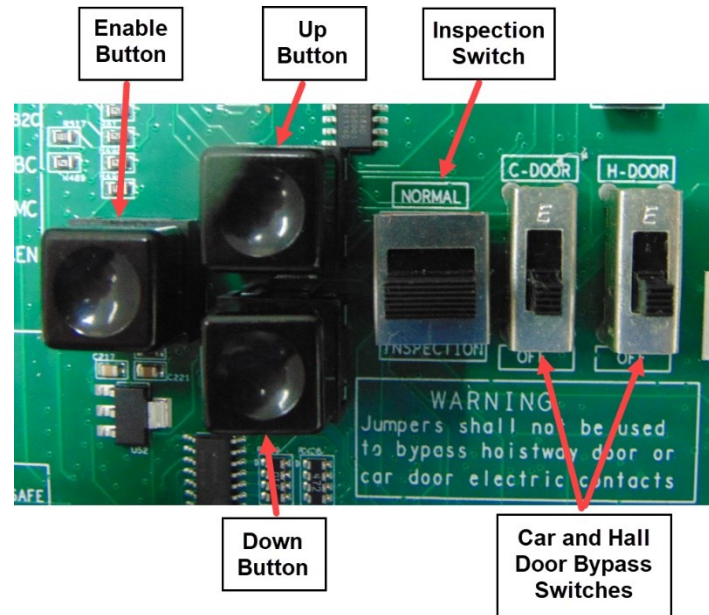


Figure 22: MR Board SR3032 Inspection Control

### 2.1.13 Safety Relays

**SFM** – The force guided relay that is controlled by the main processor. The status of the relay is monitored by both the main processor and the safety processor. When the relay is active, contacts that are in series with SFP output voltage to the SAFE terminal are used to control the motor contactor.

**SFP** – The force guided relay that is controlled by the safety processor. The status of the relay is monitored by both the main processor and the safety processor. When the relay is active, contacts that are in series with SFM output voltage to the SAFE terminal are used to control the motor contactor.

**EB1** – The force guided relay that is controlled by the safety processor. The status of the relay is monitored by both the main processor and the safety processor. When the relay is active, contacts that are in series with EB2 pass through voltage from the EBS terminal to the EB terminal.

**EB2** – The force guided relay that is controlled by the main processor. The status of the relay is monitored by both the main processor and the safety processor. When the relay is active, contacts that are in series with EB1 pass through voltage from the EBS terminal to the EB terminal.

**EB3** – The force guided relay that is controlled by the safety processor. The status of the relay is monitored by both the main processor and the safety processor. When the relay is active, contacts that are in series with EB3 pass through voltage from the EBS terminal to the EB terminal.

**EB4** – The force guided relay that is controlled by the main processor. The status of the relay is monitored by both the main processor and the safety processor. When the relay is active, contacts that are in series with EB1 pass through voltage from the EBS terminal to the EB terminal.

**NOTE:** EB3 and EB4 are only used during preflight operation to bypass EB1 and EB2 relays so they can be toggled without dropping the emergency brake.

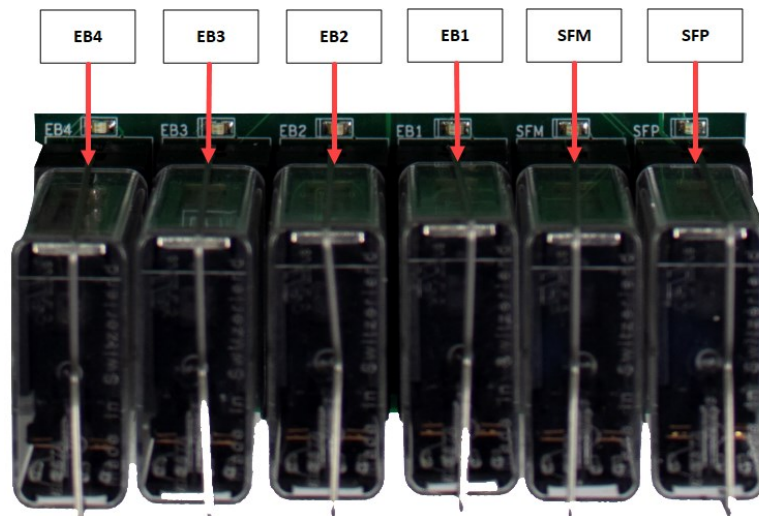


Figure 23: MR Board SR3032 Safety Relays

## 2.2 SRU Board SR3030

The LEDs on the SRU board are either red, yellow, or green dependent upon the terminal and status. Each color represents the following:

- **Red** – Indicates a fault has been detected or the board is resetting.
- **Yellow** – Indicates an active output terminal and alarm on the processors.
- **Green** – Shows power on an input terminal, power to the board and as a “heartbeat” to show the software is running on the processors.

Each LED on the SRU board has a reference designator.

The input terminals are labeled 501 through 5XX (508 on the MR board). 24 VDC is connected to the input terminals to run the logic circuitry.

### **WARNING**

**DO NOT APPLY AC CURRENT TO THE INPUT TERMINALS. APPLYING AC CURRENT WILL DAMAGE THE BOARD.**

The output terminal is connected to the negative side of the load and provides a reference (REF) signal. The positive side of the load is connected to a 24 VDC power source.

If the yellow LED is not lit, the output transistors have no output and there is no load actuation.

**WARNING**

**DO NOT APPLY 24 VDC DIRECTLY TO THE OUTPUT TERMINAL WITHOUT A CURRENT LIMITING DEVICE. THIS WILL CAUSE DAMAGE TO THE OUTPUT TRANSISTORS.**

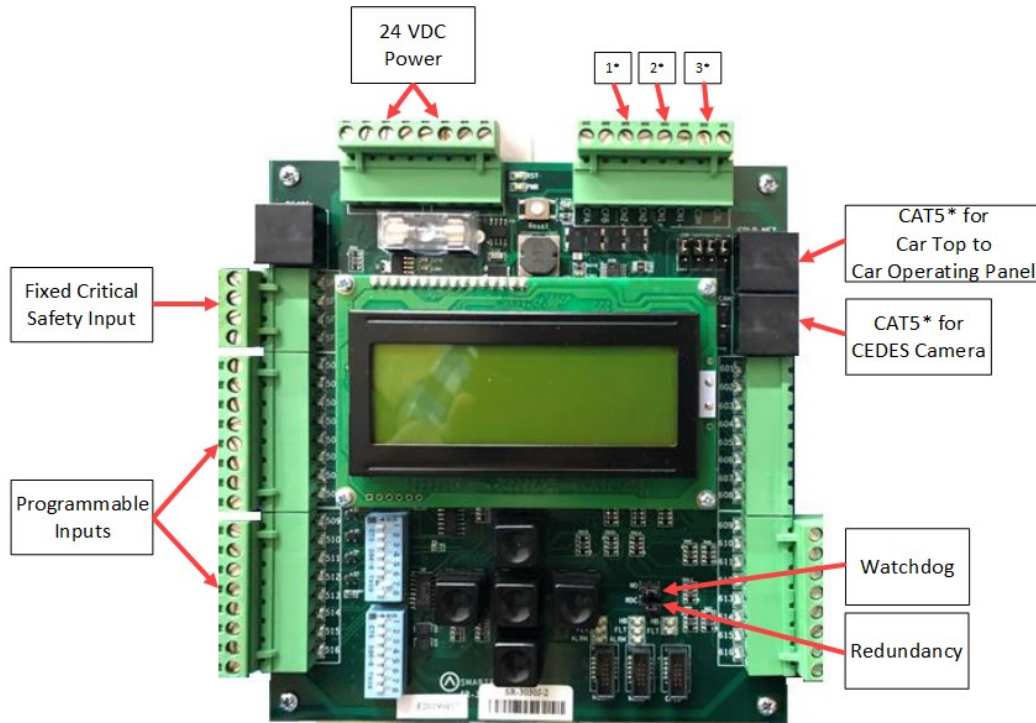


Figure 24: SRU Board SR3030

The serial communication is as follows:

- 1\* (CN2+ CN2-) – Serial communication from the CT to the MR board for safety network.
- 2\* (CN1+ CN1-) – Serial communication for devices on the car network.
- 3\* (C3H and C3L) – Serial communication to third-party devices, for example, the Fixture Driver board.

CAT5\* – The CAT5 supplies power and two serial communication channels.

There are two sets of DIP switch settings for the SR3030 board. Bank A (upper) and Bank B (lower). Each setting is configured for a different functionality.

The table below lists the functionality and configuration for the SRU board SR3030 Bank A DIP switch settings.

Table 4: SRU Board SR3030 Bank A DIP Switch Setting Configuration

DIP Switch	Functionality	Description
DIP 1	CPU Stop Switch	Halts parameter updates and used to reset fire and latched faults.
DIP 2	N/A	N/A
DIP 3	N/A	N/A

DIP Switch	Functionality	Description
DIP 4	N/A	N/A
DIP 5	N/A	N/A
DIP 6	N/A	N/A
DIP 7	Pop-up Blocker	Disables the fault pop-up messages. Faults can still be viewed in the active and logged faults.
DIP 8	N/A	N/A

The table below lists the functionality configuration for the SRU board SR3030 Bank B DIP switch settings.

*Table 5: SRU Board SR3030 Bank B DIP Switch Setting Configuration*

DIP Switch	Functionality	Description
DIP 1	COP (Not CT)	Must be turned on for COP operation and off for CT operation.
DIP 2	Enable Rear Doors	Must be set if rear doors are present.
DIP 3	Enable Landing Insp	Must be set when conducting landing maintenance.
DIP 4	Enable Pit Insp	Must be set when conducting pit maintenance.
DIP 5	N/A	N/A
DIP 6	N/A	N/A
DIP 7	N/A	N/A
DIP 8	N/A	N/A

## 2.3 I/O Board/Riser Board SR3031

The SR3031 Board serves two purposes:

1. Designated as a Riser board (DIP 8 is ON) for fire service or emergency power connections and hall network connections.
  - Additional Riser boards are added by increasing the addressing by one, for example, Riser board 2 has DIP 8 and DIP 1 ON. Up to four Riser boards can be used within the system.
2. Designated as an Expansion board (DIP 8 is OFF) to provide 24 VDC inputs and outputs that can be programmed as required.
  - Expansion boards are broken up into groups of 8. Up to 40 Expansion boards can be used within the system.

The Master/Slave switch is used to enable the secondary CAN network on the SR3031 board. When the switch is in the slave position, CAN1 and CAN2 terminals are identical and service the same network. When the switch is in the master position, CAN1 and CAN2 terminals are different and service different networks.

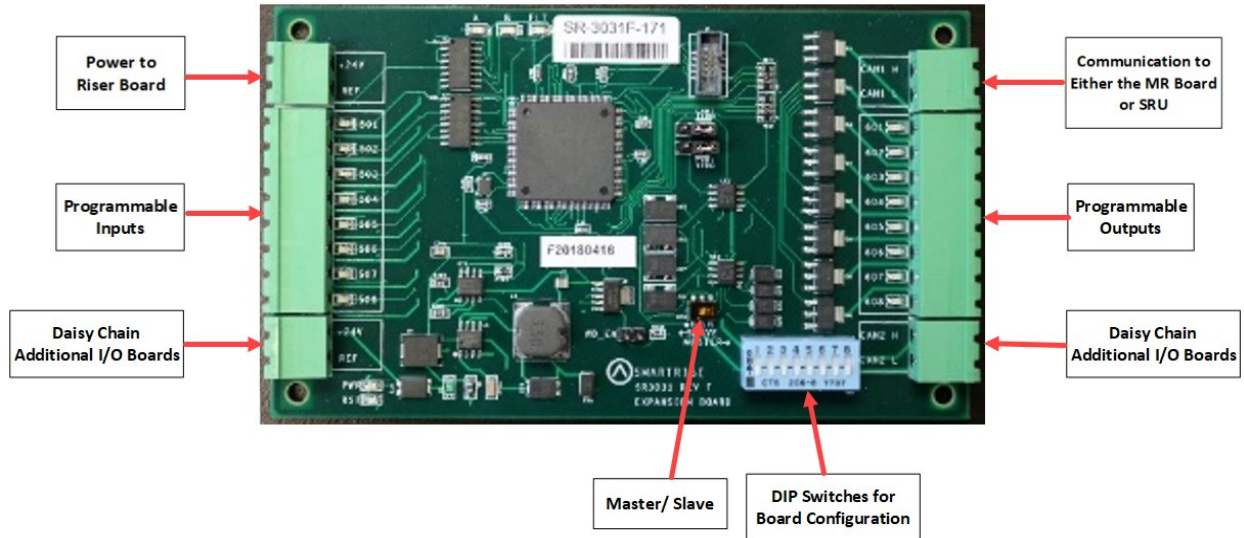


Figure 25: I/O Board/Riser Board SR3031

The table below lists the I/O Board SR3031 DIP switch settings.

Table 6: I/O Board SR3031 DIP Switch Settings

DIP Switch	Functionality
DIP 1	Slave ID 1
DIP 2	Slave ID 2
DIP 3	Slave ID 3
DIP 4	I/O Master ID 1
DIP 5	I/O Master ID 2
DIP 6	I/O Master ID 3
DIP 7	I/O Master ID 4
DIP 8	Riser Board

### 2.3.1 Group Redundancy

The Group Redundancy monitors pre-communicating Riser board(s). Group Redundancy is dependent upon the number of Riser boards connected within the group. For example, if only one Riser board is connected, then only one Riser board is monitored for loss of communication. If four Riser boards are connected, then all four Riser boards are monitored for loss of communication.

If any communicating Riser boards loses communication for more than 10 seconds, a signal is sent to trigger a set of relays to shut down the primary set of Riser boards and start the redundant set.

If there are no Riser boards connected prior to power up, Group Redundancy will not monitor any Riser boards.

The system has to have additional wiring for the Group Redundancy feature to operate.

- All I/Os between the primary and redundant Riser 1 boards needs to be wired in parallel.
- All Hall board communication between the primary and redundant Riser 1 boards needs to be wired in parallel.
- Additional wiring for the relays to control power to the primary and redundant Riser 1 boards.

## 2.4 24 Input Board SR3041

The 24 Input board serves the same purpose as the SR3031 I/O Expansion board with the exception that there are **NO** outputs. The 24 Input board has three sets of 8 assigned inputs which allows for the ability for this board to replace three SR3031 I/O boards. Just like the SR3031 Expansion board, the 24 Input board can be daisy chained to either the SR3041 or SR3031 board.

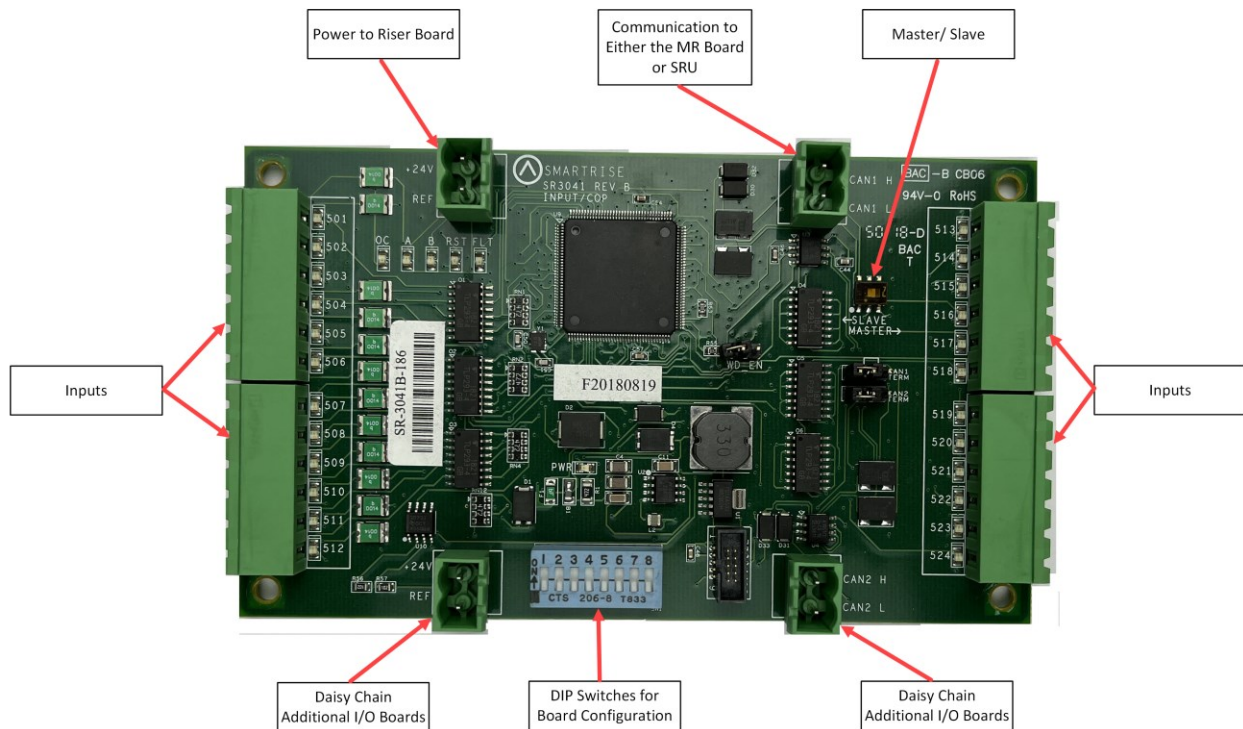


Figure 26: 24 Input Board SR3041

The serial communication is as follows:

- **CAN1** – The Master board connects to the COP board’s AUX net.
- **CAN2** – The Master board connects to CAN1 of the slave board.  
**NOTE:** CAN2 of each slave board will be connected to CAN1 to the following slave board.

The assigned input for wiring is as follows:

- **Inputs 501-508** – First address
- **Inputs 509-516** – Second address
- **Inputs 517-524** – Last address

The table below lists the 24 Input Board SR3041 DIP switch settings.

*Table 7: 24 Input Board SR3041 DIP Switch Settings*

DIP Switch	Functionality
DIP 1	Slave ID 1
DIP 2	Slave ID 2
DIP 3	Slave ID 3
DIP 4	I/O Master ID 1
DIP 5	I/O Master ID 2
DIP 6	I/O Master ID 3
DIP 7	I/O Master ID 4
DIP 8	Riser Board

**NOTE:** This board will occupy the expansion board address shown on its DIPs, as well as the next two slave addresses.

Depending upon the position of where the 24 Input board is within the controller, the DIP switches have to be set to certain positions.

The address of the board depends on the type of board previously used. If the previous board is a SR3041, the address is the previous board's address +3. If the previous board is a SR3031, the address is the previous board's address +1.

If this Input board is the first board within the chain, turn OFF all DIP switches. The 24 Input board will mimic SR3031 Expansion boards (1-3).

If this Input board follows directly after the first 24 Input board in the chain, turn ON DIP switches 1 and 2 only. The 24 Input board will mimic SR3031 Expansion boards (4-6).

If another 24 Input board follows directly after the first two 24 Input boards within the chain, turn ON DIP switches 2 and 3 only. The 24 Input board will mimic SR3031 Expansion boards (7-9).

The table below lists the DIP switch settings for the 24 Input board when SR3041 is the master.

*Table 8: 24 Input Board SR3041 DIP Switch Settings When SR3041 is Master*

Board Type	DIP 1	DIP 2	DIP 3	DIP 4	DIP 5	DIP 6	DIP 7	DIP 8
SR30041 (Master)								
SR3041 (Slave)	X	X						
SR3041 (Slave)		X	X					



The table below lists the DIP switch settings for the 24 Input board when SR3031 is the master.

Table 9: 24 Input Board SR3041 DIP Switch Settings When SR3031 is Master

Board Type	DIP 1	DIP 2	DIP 3	DIP 4	DIP 5	DIP 6	DIP 7	DIP 8
SR3031 (Master)								
SR3041 (Slave)	X							
SR3041 (Slave)			X					

X = Turn DIP switch ON

## 2.5 Hall Board SR1060

The Hall Board SR1060 is discretely wired. It is also used as the power source for the buttons and lamps on the fixture. Depending upon the C4 configuration, a 10 DIP or 12 DIP switch Hall board is used. See Table 10 and Table 11 for switch settings.

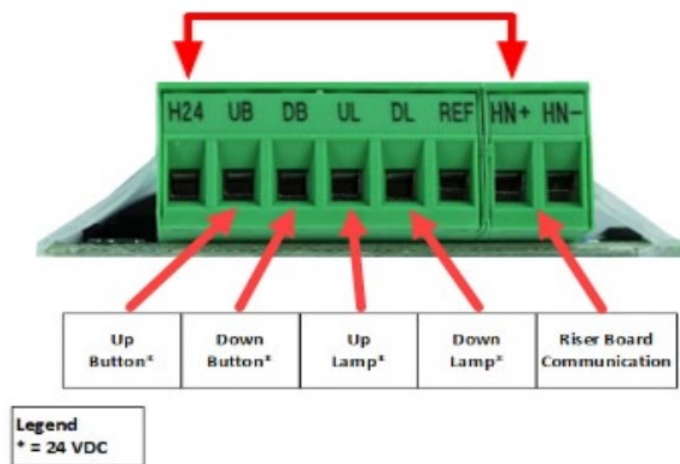


Figure 27: 10 DIP Hall Board SR1060-E

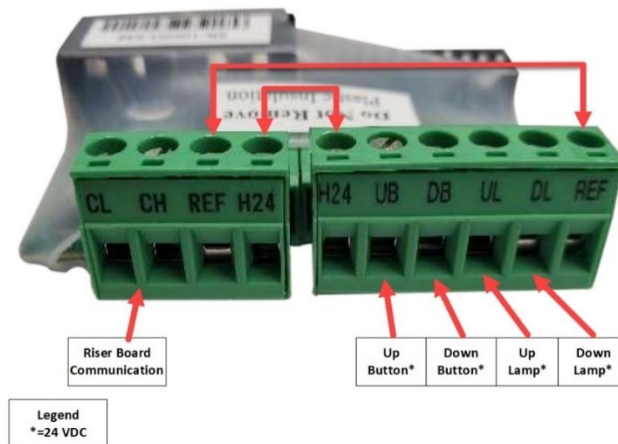


Figure 28: 12 DIP Hall Board SR1060-G

There are two ways the Hall board communicates with the Riser board:

- CAN bus via twisted pair
- CAT5

The table below lists the Hall Board 10 DIP switch settings.

*Table 10: Hall Board 10 DIP Switch Settings*

DIP Switch	Functionality
DIP 1	Landing ID 1
DIP 2	Landing ID 2
DIP 3	Landing ID 3
DIP 4	Landing ID 4
DIP 5	Landing ID 5
DIP 6	Landing ID 6
DIP 7	Function ID 1
DIP 8	Function ID 2
DIP 9	Function ID 3
DIP 10	CAN Termination

The table below lists the Hall Board 12 DIP switch settings.

*Table 11: Hall Board 12 DIP Switch Settings*

DIP Switch	Functionality
DIP 1	Landing ID 1
DIP 2	Landing ID 2
DIP 3	Landing ID 3
DIP 4	Landing ID 4
DIP 5	Landing ID 5
DIP 6	Landing ID 6
DIP 7	Landing ID 7
DIP 8	Function ID 1
DIP 9	Function ID 2
DIP 10	Function ID 3
DIP 11	N/A
DIP 12	CAN Termination

## 2.6 Brake Board SR3038

The version of the Brake board is dependent upon the current used in the system.

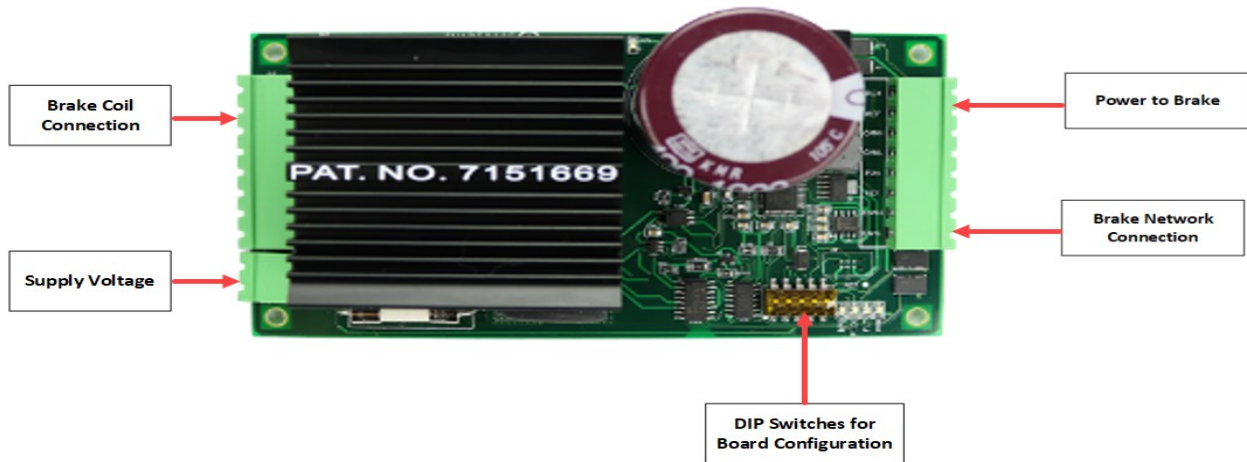


Figure 29: Brake Board SR3038

The table below lists the Brake Board SR3038 DIP switch settings.

Table 12: Brake Board SR3038 DIP Switch Settings

DIP Switch	Functionality
DIP 1	Emergency Brake
DIP 2	ID1 (Disable MOSFET Fault)**
DIP 3	ID2 (120 VAC Supply)
DIP 4	WDT Off*
DIP 5	CAN Bus Termination

\*DIP 4 set will cause the Fault LED to toggle every second.

\*\*If DIP 2 is set at start-up, the Brake board will not function.

The table below lists troubleshooting tips.

Table 13: Troubleshooting Tips

Error Number	Trigger	LED	Solution
Unknown (0)	Undefined fault	Toggle 250 ms	Replace Brake board
Power On/Reset (2)	Board reset	Solid	
Watchdog Reset (3)	CAN bus error or processor stalled	Solid	Check CAN bus connections for miswiring.
Communication (4)	No communication for 2 seconds	Toggle 500 ms	Check CAN bus connection for miswiring. Check bus termination.

Error Number	Trigger	LED	Solution
MOSFET Failure (6)	MOSFET output feedback signal deviates from input signal by > 20% for greater than 2 seconds	Toggle 250 ms	Check wiring for brake coil, BRC and AC supplied voltage to the Brake board. Check brake coil for a short. Replace Brake board.
CAN Bus Offline (7)		Toggle 500 ms	Check CAN bus connections for miswiring.
Duplicate Brake (8)	Multiple Brake boards with same DIP addressing	Toggle 250 ms	Check Brake boards for identical DIP switch setting. Remove and reconnect power to the Brake board.
Brown Out Reset (9)	Voltage rail DIP causing processor reset	Solid	Verify sufficient power supply rating for the Brake board.

### 3 Menu Structure

The following figures display the menu options for the C4 Traction Controller.

#### 3.1 Status

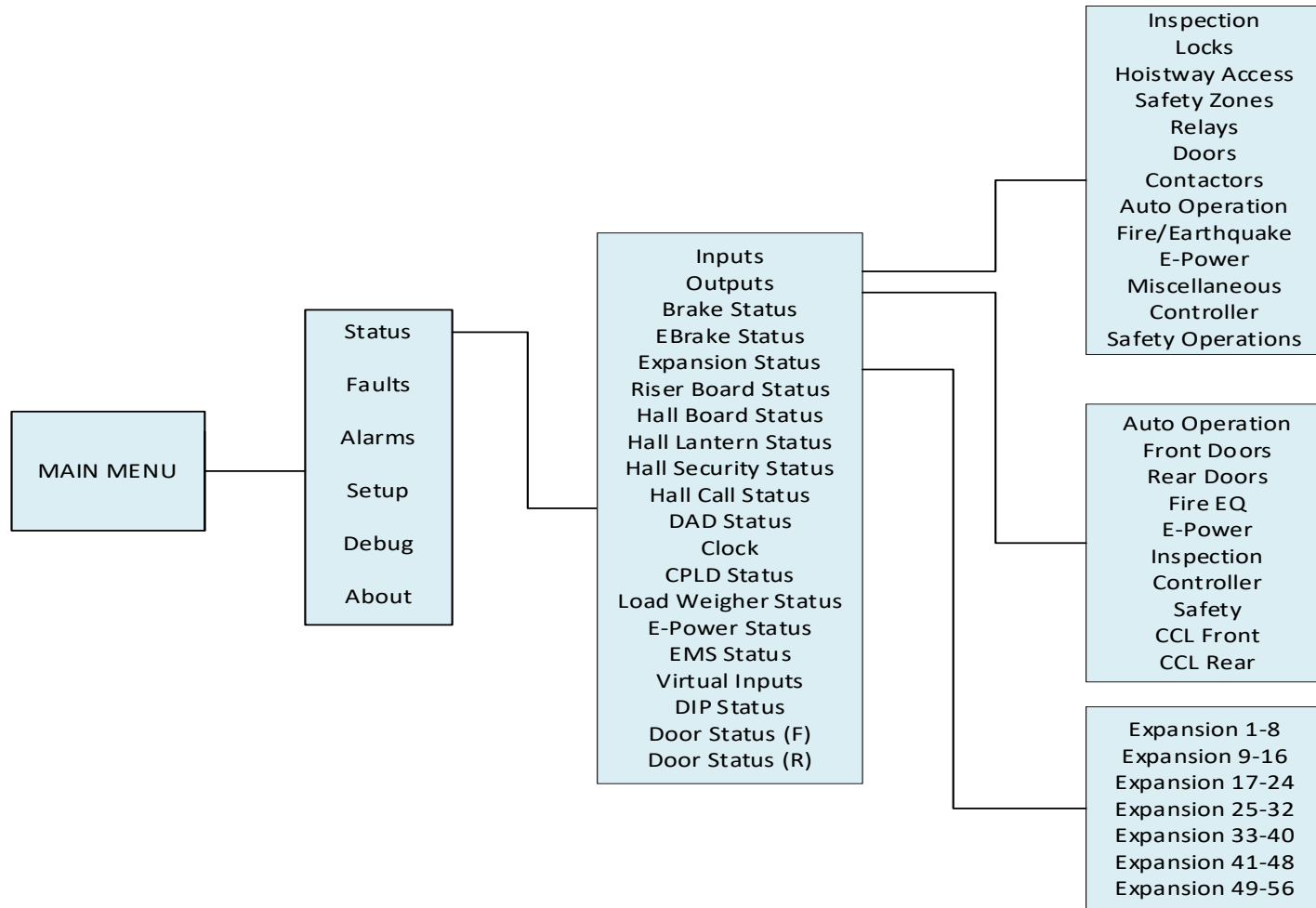


Figure 30: Status – Inputs, Outputs, and Expansion Status Menus

The table below lists the Status – Inputs, Outputs, and Expansion Status menu structures.

*Table 14: Status – Inputs, Outputs, and Expansion Status Menu Structures*

Menu	Description
MAIN MENU	
Status	Displays information about the current state of the controller
Status	
Inputs	Shows the status of all programmed inputs to the MR board
Outputs	Shows the status of all programmed outputs from the MR board
Brake Status	Shows the status of Brake board
EBrake Status	Shows the status of the secondary Brake board
Expansion Status	Shows communication status for a group of Expansion boards
Riser Board Status	Shows the status of the Riser board
Hall Board Status	Shows communication status for all Hall boards
Hall Lantern Status	Shows communication status for all Hall Lantern boards
Hall Security Status	Shows communication status for all Hall Security boards
Inputs	
Inspection	Shows the status of inspection related inputs
Locks	Shows the status of all locks
Hoistway Access	Shows the status of all hoistway accesses
Safety Zones	Shows the status of safety inputs
Relays	Shows the status of all active relays
Doors	Shows the status of all door operator signals
Contactors	Shows the status of all contactor monitoring signals
Auto Operation	Shows the status inputs under auto operation category
Fire/Earthquake	Shows the status of fire/earthquake inputs
E-Power	Shows the status E-Power inputs
Miscellaneous	Shows the status of various other inputs
Outputs	
Auto Operation	Shows the outputs that are in auto operation
Front Doors	Shows the status of front door outputs
Rear Doors	Shows the status of rear door outputs
Fire EQ	Shows the status of fire/earthquake outputs
E-Power	Shows the status of E-Power outputs
Inspection	Shows the status of inspection outputs
Controller	Shows the status of control outputs
Safety	Shows the status of safety outputs
CCL Front	Shows the status of front car call lamps
CCL Back	Shows the status of rear car call lamps
Expansion Status	
Expansion 1-8	Shows the communication status for Expansion group 1
Expansion 9-16	Shows the communication status for Expansion group 2

Menu	Description
Expansion 17-24	Shows the communication status for Expansion group 3
Expansion 25-32	Shows the communication status for Expansion group 4
Expansion 33-40	Shows the communication status for Expansion group 5

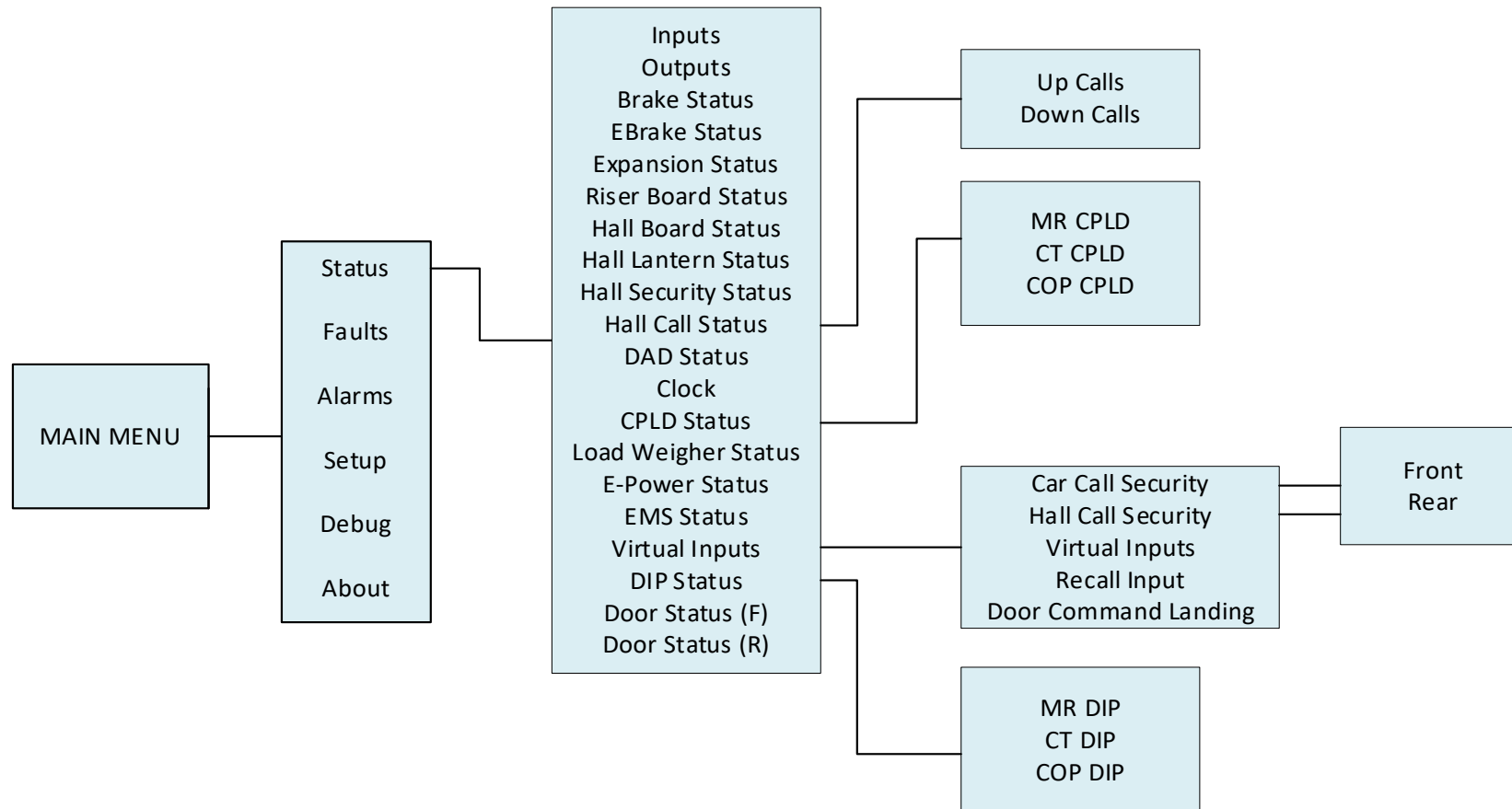


Figure 31: Status – Hall Call Status, CPLD Status, Virtual Inputs, and DIP Status Menus



The table below lists the Status – Hall Call Status, CPLD Status, Virtual Inputs, and DIP Status menu structures.

*Table 15: Status – Hall Call Status, CPLD Status, Virtual Inputs, and DIP Status Menu Structures*

Menu	Description
<b>Status</b>	
Hall Call Status	Shows the status of hall calls
DAD Status	Shows the status of DAD unit
Clock	View current clock setting on the system
CPLD Status	Shows the status of CPLDs
Load Weigher Status	Shows the status of the Load Weigher device
E-Power Status	Shows the status of emergency power
EMS Status	Shows the status of emergency medical service
Virtual Inputs	Shows the status of all inputs via remote access
DIP Status	Shows the status of the DIP switches
Door Status (F)	Shows the input status of a front door
Door Status (R)	Shows the input status of a rear door
<b>Hall Call Status</b>	
Up Calls	Shows list of latched up hall calls per car
Down Calls	Shows list of latched down hall calls per car
<b>CPLD Status</b>	
MR CPLD	Shows MR current CPLD version, activity, and faults
CT CPLD	Shows CT current CPLD version, activity, and faults
COP CPLD	Shows COP current CPLD version, activity, and faults
<b>Virtual Inputs</b>	
Car Call Security	Shows status of car call security map set remotely
Hall Call Security	Shows status of hall call security map set remotely
Virtual Inputs	Shows the status of variety of inputs set remotely by remote monitoring system
Recall Input	Shows the recall floor and door that opens when remote recall to floor input is asserted
Door Command Landing	Shows the status of a door to a designated landing
<b>DIP STATUS</b>	
MR DIP	Shows the status of MR DIP switches that are On
CT DIP	Shows the status of CT DIP switches that are On
COP DIP	Shows the status of COP DIP switches that are On

### 3.2 Faults and Alarms

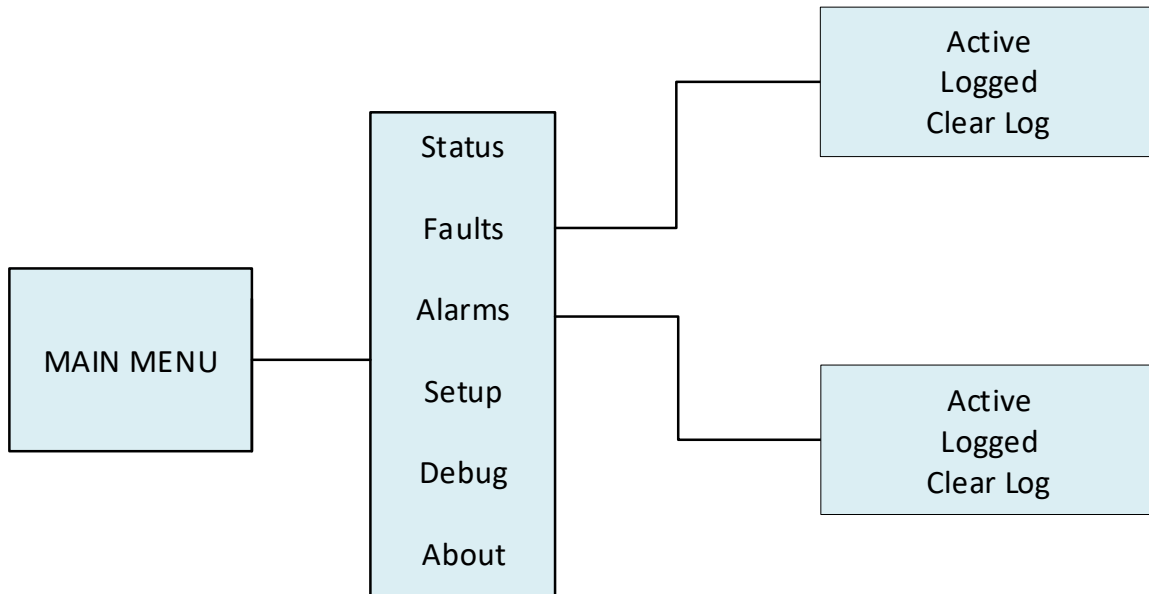


Figure 32: Faults and Alarms Menus

The table below lists the Faults and Alarms menu structures.

Table 16: Faults and Alarms Menu Structures

Menu	Description
MAIN MENU	
Faults	Allows the user to access Fault data
Alarms	Allows the user to access Alarm data
Faults	
Active	Displays current active faults that are preventing the car from running
Logged	Displays the 32 latest faults stored in the systems non-volatile memory with the most recent faults at the top
Clear Log	Clears the fault log history
Alarms	
Active	Displays current active alarms
Logged	Displays the 32 latest faults stored in the systems non-volatile memory with the most recent faults at the top
Clear Log	Clears the alarm log history

### 3.3 Setup

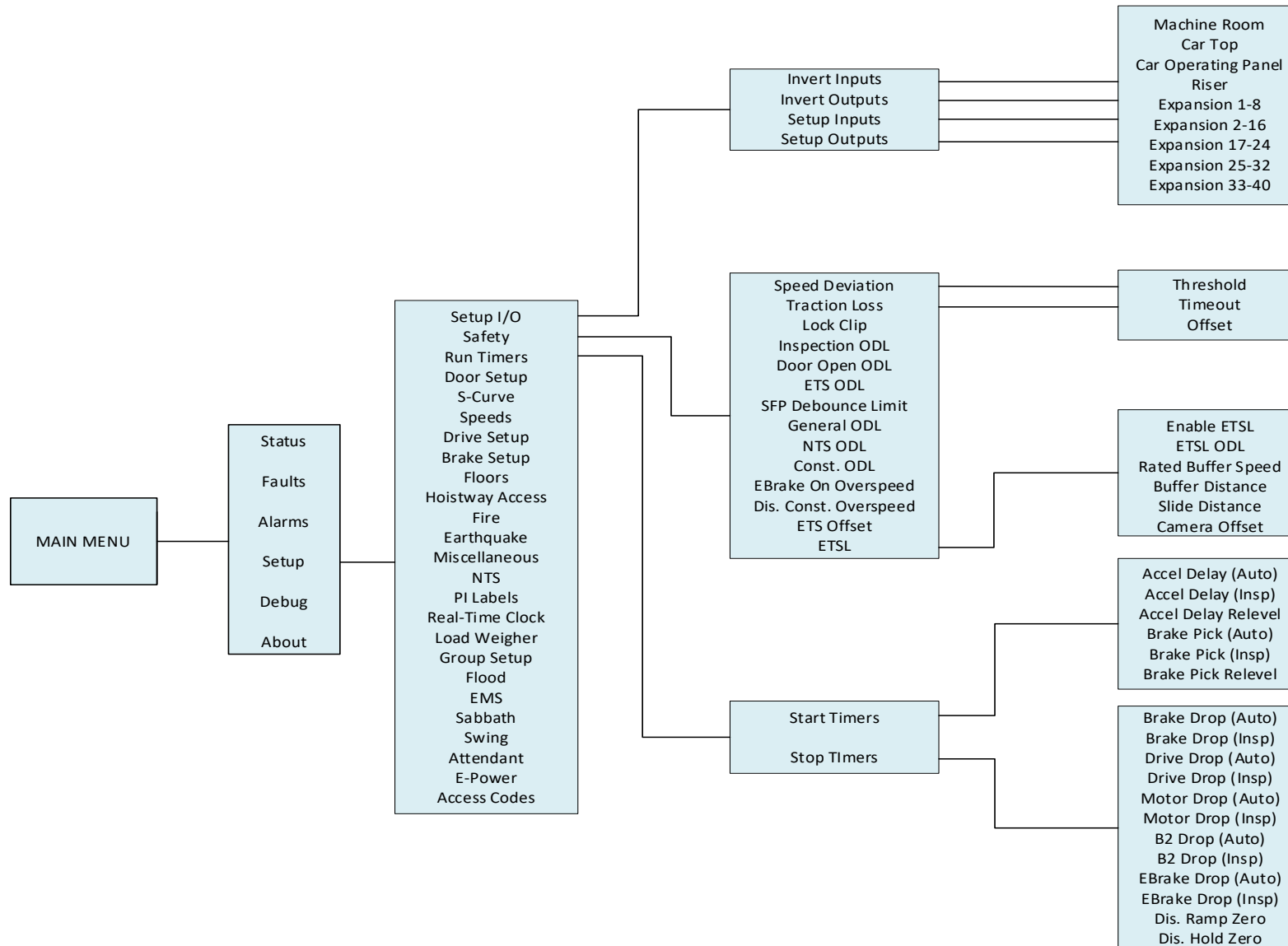


Figure 33: Setup – Setup I/O, Safety, and Run Timers Menus

The table below lists the Setup – Setup I/O, Safety, and Run Timers menu structures.

*Table 17: Setup – Setup I/O, Safety, and Run Timers Menu Structures*

Menu	Description
MAIN MENU	
Setup	Allows the user to setup the elevator configuration
Setup	
Setup I/O	Configure inputs and outputs
Safety	Allows the user to adjust safety related functions
Run Timers	Adjust start sequence and stop sequence timers
Setup I/O	
Invert Inputs	Invert selected inputs
Invert Outputs	Invert selected outputs
Setup Inputs	Assign inputs
Setup Outputs	Assign outputs
Invert Inputs	
Machine Room	Change state of input to the MR board
Car Top	Change state of input to the CT board
Car Operating Panel	Change state of input to the COP board
Riser	Change state of input to the Riser board
Expansion 1-8	Change state of input to the Expansion 1-8 boards
Expansion 9-16	Change state of input to the Expansion 9-16 boards
Expansion 17-24	Change state of input to the Expansion 17-24 boards
Expansion 25-32	Change state of input to the Expansion 25-32 boards
Expansion 33-40	Change state of input to the Expansion 33-40 boards
Invert Outputs	
Machine Room	Change state of output to the MR board
Car Top	Change state of output to the CT board
Car Operating Panel	Change state of output to the COP board
Riser	Change state of output to the Riser board
Expansion 1-8	Change state of output to the Expansion 1-8 boards
Expansion 9-16	Change state of output to the Expansion 9-16 boards
Expansion 17-24	Change state of output to the Expansion 17-24 boards
Expansion 25-32	Change state of output to the Expansion 25-32 boards
Expansion 33-40	Change state of output to the Expansion 33-40 boards
Setup Inputs	
Machine Room	Assign inputs to the MR board
Car Top	Assign inputs to the CT board
Car Operating Panel	Assign inputs to the COP board
Riser	Assign inputs to the Riser board
Expansion 1-8	Assign inputs to the Expansion 1-8 boards
Expansion 9-16	Assign inputs to the Expansion 9-16 boards

Menu	Description
Expansion 17-24	Assign inputs to the Expansion 17-24 boards
Expansion 25-32	Assign inputs to the Expansion 25-32 boards
Expansion 33-40	Assign inputs to the Expansion 33-40 boards
<b>Setup Outputs</b>	
Machine Room	Assign outputs from the MR board
Car Top	Assign outputs from the CT board
Car Operating Panel	Assign outputs from the COP board
Riser	Assign outputs from the Riser board
Expansion 1-8	Assign outputs from the Expansion 1-8 boards
Expansion 9-16	Assign outputs from the Expansion 9-16 boards
Expansion 17-24	Assign outputs from the Expansion 17-24 boards
Expansion 25-32	Assign outputs from the Expansion 25-32 boards
Expansion 33-40	Assign outputs from the Expansion 33-40 boards
<b>Safety</b>	
Speed Deviation	Adjust speed deviation options
Traction Loss	Adjust traction loss options
Lock Clip	The amount of time the controller disregards an open hall lock. This prevents intermittent interlock faults and for safety reasons, this timer should not exceed five seconds
Inspection ODL	Inspection overspeed debounce limit
Door Open ODL	Door open overspeed debounce limit
ETS ODL	ETS overspeed debounce limit
SFP Debounce Limit	Relay feedback debounce limit
General ODL	General overspeed debounce limit
NTS ODL	NTS overspeed debounce limit
Const. ODL	Construction overspeed debounce limit
EBrake On Overspeed	Sets the emergency brake on overspeed faults
Dis. Const. Overspeed	Disables construction overspeed setting
ETS Offset	Shifts learned ETS position by user defined offset from NTS points
ETSL	Option for reduced stroke buffer
<b>Speed Deviation</b>	
Threshold	The speed which speed deviation detection is activated
Timer	How long speed deviation is detected before triggering fault
Offset	Percent change between feedback and command speed for triggering the speed deviation fault
<b>Traction Loss</b>	
Threshold	The speed which traction loss detection is activated
Timer	Amount of time for traction loss to be present before a fault is issued

Menu	Description
Offset	Percent offset between drive and position system speed feedback
Run Timers	
Start Timers	Timers used for motion start sequence
Stop Timers	Timers used for motion stop sequence
ETSL	
Enable ETSL	Enable/Disables ETSL operation
ETSL ODL	ETSL overspeed debounce limit. Sets of sensitivity of the ETSL device. This setting is only increased to avoid nuisance tripping.
Rated Buffer Speed	Rated speed of the buffer installed
Buffer Distance	Distance from the bottom of the cab to the buffer
Slide Distance	Distance determined by the ETSL slide distance test
Camera Offset	Camera offset between main camera and ETSL camera. This is automatically calculated during learn operation.
Start Timers	
Accel Delay (Auto)	Sets a delay before moving into acceleration stage of pattern on automatic operation. This holds the car at zero speed (or at min accel speed if set).
Accel Delay (Insp)	Sets a delay before moving into acceleration stage of pattern on inspection operation. This holds the car at zero speed (or at min accel speed if set).
Brake Pick (Auto)	Delays the lifting of the main brake on automatic operation
Brake Pick (Insp)	Delays the lifting of the main brake on inspection operation
Stop Timers	
Brake Drop (Auto)	Sets delay between reaching zero speed and dropping the primary brake on automatic operation
Brake Drop (Insp)	Sets delay between reaching zero speed and dropping the primary brake on inspection operation
Drive Drop (Auto)	Sets delay between checking BPS and dropping drive control on automatic operation
Drive Drop (Insp)	Sets delay between checking BPS and dropping drive control on inspection operation
Motor Drop (Auto)	Sets delay between dropping drive control and dropping the M contactor on automatic operation
Motor Drop (Insp)	Sets delay between dropping drive control and dropping the M contactor on inspection operation
B2 Drop (Auto)	Sets delay between dropping the secondary brake and dropping the B2 contactor while in automatic operation
B2 Drop (Insp)	Sets delay between dropping the secondary brake and dropping the B2 contactor on inspection operation

Menu	Description
EBrake Drop (Auto)	Sets delay between reaching zero speed and dropping secondary brake on automatic operation
EBrake Drop (Insp)	Sets delay between reaching zero speed and dropping the secondary brake on inspection operation
DIS Ramp Zero	When ON, disables ramping down command speed from leveling speed to 1 fpm prior to dropping a run. This option must be off for KEB drives.
DIS Hold Zero	When ON, disables stop sequence check for encoder speed to read below 1 fpm prior to dropping the brake. Turning this option off may increase floor level accuracy.

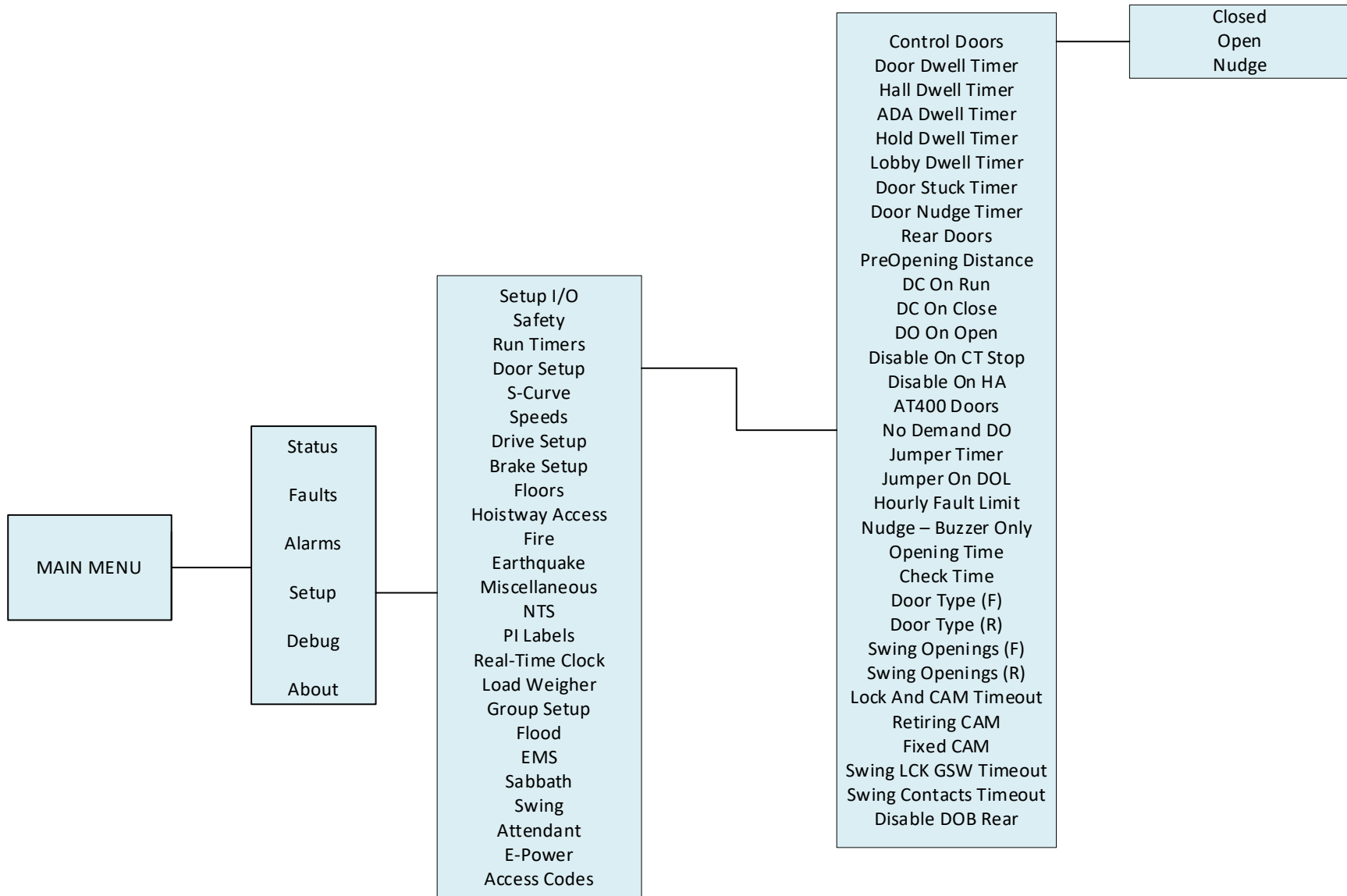


Figure 34: Setup – Door Setup Menu



The table below lists the Setup – Door Setup menu structure.

Table 18: Setup – Door Setup Menu Structure

Menu	Description
Setup	
Door Setup	Configure door parameters
Door Setup	
Control Doors	Allows for manually opening and closing the doors through the UI
Door Dwell Timer	Time car doors remains open when answer car calls
Hall Dwell Timer	Time car doors remain open when answering hall calls
ADA Dwell Timer	Time car doors remain open when answering ADA calls
Hold Dwell Timer (1 sec)	Time car doors remain open when responding to door hold button requests
Lobby Dwell Timer	Time car doors remain open when answering lobby calls
Door Stuck Timer (1 sec)	Time limit for a door to complete an opening or closing request before faulting
Door Nudge Timer (1 sec)	Time doors spend trying to close before transitioning to nudging which ignores photoeye. If set to zero, nudging is disabled.
Rear Doors	Enable or disable rear doors
PreOpening Distance (.019")	The distance from a floor to start preopening doors. If zero, preopening is disabled.
DC On Run	Activates door close output while in motion
DC On Close	Activates door close output while the doors are in closed state
DO On Open	Activates door open output while the doors are in open state
Disable On CT Stop	When set ON, door outputs are suppressed when the CT Stop switch is active
Disable On HA	When set ON, door outputs are suppressed when on hoistway access inspection
AT400 Doors	When set to On, the option for AT400 door operator is enabled (if applicable).
No Demand DO	Doors remain open while the car is idle
Jumper Timer (100 ms)	Timer for jumper on Gate switch (F98/F107) and jumper on lock (F99/F108) faults. This value is added to a minimum timeout of 1.6 seconds.
Jumpers On DOL	When set ON, detects jumper on open DOL instead of GSW
Hourly Fault Limit	The number of door faults allowed within 1-hour window before the car goes out of service. If the car goes out of service, it will remain out of service until the hour window elapses. If set to zero, this feature is disabled.

Menu	Description
Nudge – Buzzer Only	When set ON during nudging, the NDG output is suppressed and only the buzzer sounds.
Opening Time (100ms)	The estimated time it takes the doors to go from fully closed to fully open. This value is learned after performing a run with preflight disabled (01-0064) and the learn opening time bit is ON (01-0165). This can help improve dwell time delays when preflight is on. If set to zero, this option is disabled.
Check Time (100ms)	Sets the time the car doors must be seen as safe before the car is allowed to start a run on automatic operation. Time is set in 100 ms counts. If zero, defaults to 300 ms.
Door Type (F)	Sets front door type
Door Type (R)	Sets rear door type
Swing Opening (F)	Enable or disable swing operation for each front door landing
Swing Opening (R)	Enable or disable swing operation for each rear door landing
Lock And CAM Timeout	Sets the timeout which accounts for the delay between CAM activation and locks being made for manual doors. The units are in 100 ms counts. If set to zero, value defaults to 4 seconds.
Retiring CAM	When set to ON, the CAM output controls hall interlocks. Otherwise, interlocks are controlled by the door operator.
Fixed CAM	When set to ON, the door has a fixed hall CAM. The car is allowed to start a run without hall locks (hall closed contacts still required). The car is allowed to move up to 2 feet without locks before faulting.
Swing LCK GSW Timeout	Sets the timeout between GSW and locks. If value is zero, timeout is set to 500 ms. The units are in seconds.
Swing Contacts Timeout	Sets the timeout between CAM being energized and closed contacts being made. If value is zero, timeout is set to 500 ms. The units are in seconds.
Disable DOB Rear	When set to ON, the rear door on bottom floor is disabled



The table below lists the Setup – S-Curve and Speeds menu structures.

*Table 19: Setup – S-Curve and Speeds Menu Structures*

Menu	Description
Setup	
S-Curve	Configure S-Curve parameters
Speeds	Configure speed parameters
Drive Setup	Setup drive related parameters
S-Curve	
Normal Profile	Set pattern parameters used on normal profile runs. The normal profile is selected in all automatic operation runs longer than minimum short profile distance, with exception of emergency power.
Inspection Profile	Set pattern parameters used on inspection profile runs
E-Power Profile	Set pattern parameters used on E-Power profile runs
Short Profile	Set pattern parameters used on short profile runs
Quick Stop Decel	The rate of deceleration used during an NTS trip. During an NTS trip, the drive will ignore the controller's commanded speed, and both will ramp down their speeds independently.
Leveling Decel	Sets the rate of decel from leveling speed
Soft Limit Dist. Up (1 ft)	Distance away from the top terminal floor that car switches to terminal speed during manual operation
Soft Limit Dist. Dn (1 ft)	Distance away from the bottom terminal floor that car switches to terminal speed during manual operation
Short Run Min. Dist. (1 ft)	Distance below which the short motion profile is used instead of the normal motion profile
Dest. Offset Up	Distance the car slows down prior to the landing in the up direction
Dest. Offset Down	Distance the car slows down prior to the landing in the down direction
Relevel Offset Up	Maximum distance the car is from landing moving in the up direction
Relevel Offset Down	Maximum distance the car is from landing moving in the down direction
Normal Profile	
Acceleration	Sets the max acceleration rate used on normal profile runs
Acceleration Jerk In	Sets starting rate of acceleration change on normal profile runs
Acceleration Jerk Out	Sets the rate of acceleration change when approaching max speed on normal profile runs
Deceleration	Sets the max deceleration rate used on normal profile runs

Menu	Description
Decel Jerk In	Sets the starting rate of deceleration change on normal profile runs
Decel Jerk Out	Sets the rate of deceleration change when approaching a floor on normal profile runs
Leveling Distance	Sets the distance from a floor at which the car transitions to leveling speed on normal profile runs
<b>Inspection Profile</b>	
Acceleration	Sets the max acceleration rate used on inspection profile runs
Acceleration Jerk In	Sets starting rate of acceleration change on inspection profile runs
Acceleration Jerk Out	Sets the rate of acceleration change when approaching max speed on inspection profile runs
Deceleration	Sets the max deceleration rate used on inspection profile runs
<b>E-Power Profile</b>	
Acceleration	Sets the max acceleration rate used on emergency power profile runs
Acceleration Jerk In	Sets starting rate of acceleration change on emergency power profile runs
Acceleration Jerk Out	Sets the rate of acceleration change when approaching max speed on emergency power profile runs
Deceleration	Sets the max deceleration rate used on emergency power profile runs
Decel Jerk In	Sets the starting rate of deceleration change on emergency power profile runs
Decel Jerk Out	Sets the rate of deceleration change when approaching a floor on emergency power profile runs
Leveling Distance	Sets the distance from a floor at which the car transitions to leveling speed on emergency power profile runs
<b>Short Profile</b>	
Acceleration	Sets the max acceleration rate used on short profile runs
Acceleration Jerk In	Sets starting rate of acceleration change on short profile runs
Acceleration Jerk Out	Sets the rate of acceleration change when approaching max speed on short profile runs
Deceleration	Sets the max deceleration rate used on short profile runs
Decel Jerk In	Sets the starting rate of deceleration change on short profile runs
Decel Jerk Out	Sets the rate of deceleration change when approaching a floor on short profile runs

Menu	Description
Leveling Distance	Sets the distance from a floor at which the car transitions to leveling speed on short profile runs
Speeds	
Contract Speed	Maximum speed of the elevator
Inspection Speed	Set the speed at which the car runs for all Inspection Modes
Access Speed	Sets the speed used during hoistway access
Learn Speed	Sets the speed used during hoistway learn operation
EPower Speed	Sets the maximum speed during emergency power operation
Terminal Speed	Sets the speed the car will use while in inspection and within the configured soft limit distance of a terminal floor
Leveling Speed	Sets the speed used in automatic operation when leveling into a floor. If leveling distance is zero, this has no effect.
NTSD Speed	Set the target speed used during NTS. This option is independent of the target speed on the drive and the lowest value is used by the drive.
Min Accel Speed	Sets the minimum commanded speed used during acceleration. Necessary for quick recovery from rollback and cases of limited drive control at low speeds.
Min Relevel Speed	Sets the minimum commanded speed used when the car is releveling.
Test A/D Speed	Sets the speed used during ascending/descending overspeed tests
Test Buffer Speed	Sets the speed used during buffer test

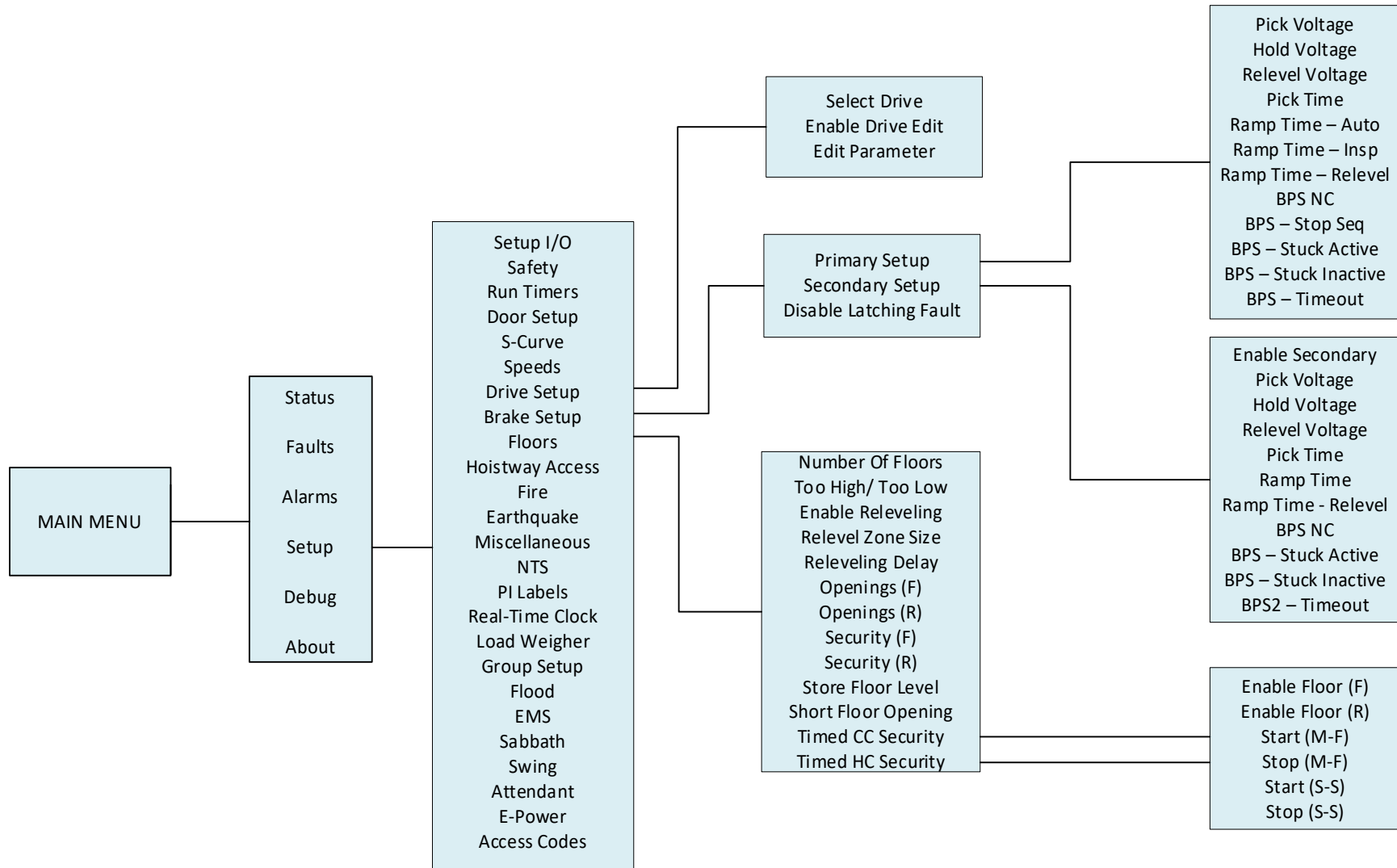


Figure 36: Setup – Drive Setup, Brake Setup, and Floors Menus

The table below lists the Setup – Drive Setup, Brake Setup, and Floors menu structures.

Table 20: Setup – Drive Setup, Brake Setup, and Floors Menu Structures

Menu	Description
Setup	
Drive Setup	Setup drive related parameters
Brake Setup	Setup brake related parameters
Floors	Setup floor related parameters
Drive Setup	
Select Drive	Allows for selecting the type of drive used
Enable Drive Edit	Enables the remote editing of the drive parameters
Edit Parameters	Allows for editing the parameters for the drive according to the configuration information
Brake Setup	
Primary Setup	Configuration setup for the primary brake system
Secondary Setup	Configuration setup for the secondary brake system, if applicable
Disable Latching Fault	When set ON, primary and secondary brake's MOSFET faults are not latching. When set to OFF, the faults require a reset of the MR board (F199 and F210).
Primary Setup	
Pick Voltage	Set the pick voltage of the primary brake
Hold Voltage	Set the hold voltage of the primary brake
Relevel Voltage	Set the releveling voltage of the primary brake. This voltage should be set to where the brake barely lifts during releveling to allow the sheave to turn under the brake.
Pick Time	Amount of time pick voltage is maintained before switching to hold voltage
Ramp Time – Auto	Amount of time the brake scales to full pick voltage on automatic operation
Ramp Time – Insp	Amount of time the brake scales to full pick voltage on inspection operation
Ramp Time – Relevel	Amount of time the brake scales to full releveling voltage
BPS – NC	Brake Pick switch is normally closed
BPS – Stuck Seq	Disables primary BPS check during the motion stop sequence
BPS – Stuck Active	Disables primary BPS stuck picked check
BPS – Stuck Inactive	Disables primary BPS stuck dropped check
BPS – Timeout (1 sec)	Sets the timeout for primary BPS stuck active and stuck inactive faults (F189/F190). Minimum of three seconds.
Secondary Setup	
Enable Secondary	Enables secondary brake
Pick Voltage	Set secondary brake pick voltage



Menu	Description
Hold Voltage	Set secondary brake hold voltage
Relevel Voltage	Set the releveling voltage of the secondary brake. This voltage should be set to where the brake barely lifts during releveling to allow the sheave to turn under the brake.
Pick Time	Amount of time pick voltage is maintained before switching to hold voltage
Ramp Time	Amount of time the brake scales to full pick voltage on automatic operation
Ramp Time – Relevel	Amount of time the brake scales to full releveling voltage
BPS – NC	Brake Pick switch is normally closed
BPS – Stuck Active	Disables secondary BPS stuck picked check
BPS – Stuck Inactive	Disables secondary BPS stuck dropped check
BPS – Timeout	Sets the timeout for secondary BPS stuck active and stuck inactive faults (F189/F190) to be asserted. Minimum of three seconds.
<b>Floors</b>	
Number Of Floors	Allows for setting the number of floors within the building
Too High/ Too Low	Used to adjust the learned position of the floor when setting floor levels
Enable Releveling	Enables releveling operation
Relevel Zone Size (.02")	Sets the size of the releveling zone (dead zone)
Relevel Delay	The time the controller waits before engaging a Relevel command while in a door zone and outside the dead zone
Openings (F)	Allows for setting the floors the front door opens
Openings (R)	Allows for setting the floors the rear door opens
Security (F)	Allows for setting the security parameters for front door
Security (R)	Allows for setting the security parameters for rear door
Store Floor Level	Sets the position of the short floor level
Short Floor Opening	Sets overlapping door zones (short floors)
Timed CC Security	Allows for setting car call security for specific times
Timed HC Security	Allows for setting hall call security for specific times
<b>Time CC Security</b>	
Enable Floor (F)	Allows for enabling timed security for front openings
Enable Floor (R)	Allows for enabling timed security for rear openings
Start (M-F)	Sets the time that floor access is denied during M-F
Stop (M-F)	Sets the time that floor access is resumed on M-F
Start (S-S)	Sets the time that floor access is denied during S-S
Stop (S-S)	Sets the time that floor access is resumed on S-S

Menu	Description
Time HC Security	
Enable Floor (F)	Allows for enabling timed security for front openings
Enable Floor (R)	Allows for enabling timed security for rear openings
Start (M-F)	Sets the time that floor access is denied during M-F
Stop (M-F)	Sets the time that floor access is resumed on M-F
Start (S-S)	Sets the time that floor access is denied during S-S
Stop (S-S)	Sets the time that floor access is resumed on S-S

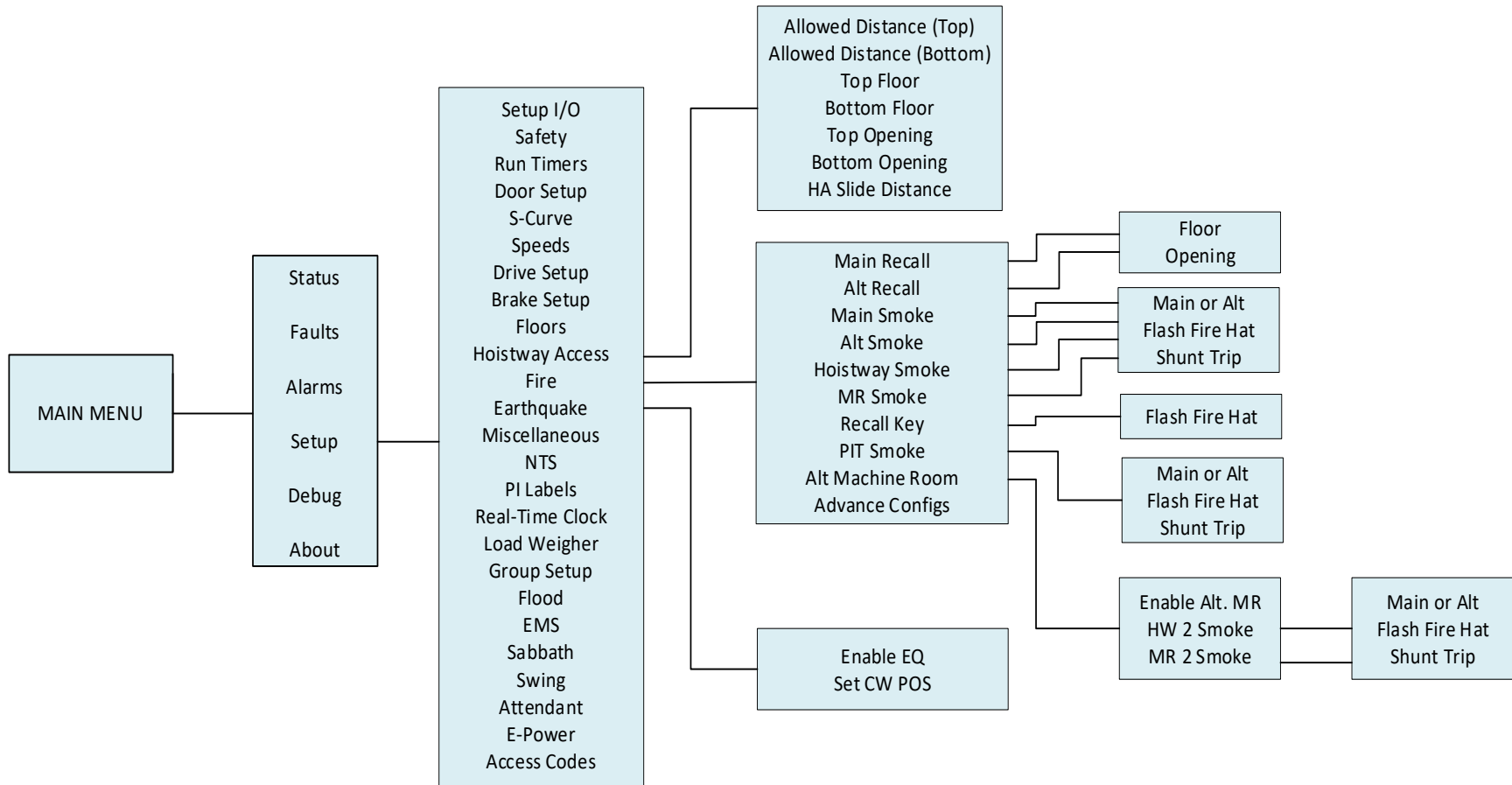


Figure 37: Setup –Hoistway Access, Fire, and Earthquake Menus

The table below lists the Setup –Hoistway Access, Fire, and Earthquake menu structures.

*Table 21: Setup –Hoistway Access, Fire, and Earthquake Menu Structures*

Menu	Description
Setup	
Hoistway Access	Hoistway access setup menu
Fire	Fire operation setup menu
Earthquake	Earthquake operation setup menu
Hoistway Access	
Allowed Distance (Top) (1 ft)	Sets the distance below the top hoistway access floor that the car is allowed to move while in top hoistway access
Allowed Distance (Bottom) (1 ft)	Sets the distance above the bottom hoistway access floor that the car is allowed to move while in bottom hoistway access.
Top Floor	Sets the top hoistway access floor. This value is zero based, so the bottom most floor is zero. This value's upper bound is the configured number of floors.
Bottom Floor	Sets the bottom hoistway access floor. This value is zero based, so the bottom most floor is zero.
Top Opening	When nonzero, configures the top hoistway access to use the rear opening
Bottom Opening	When nonzero, configures the bottom hoistway access to use the rear opening
HA Slide Distance	Sets the distance the car is from top/bottom door zone
Fire	
Main Recall	Sets the main recall floor
Alt Recall	Sets the designated alternate recall floor
Main Smoke	Main smoke options
Alt Smoke	Alternate smoke options
Hoistway Smoke	Hoistway smoke options
MR Smoke	Machine room smoke options
Recall Key	Key to recall to service floor
PIT Smoke	Pit smoke options
Alt Machine Room	Secondary machine room smoke
Advance Configs	Additional fire features
Main Recall	
Floor	Sets the main fire recall floor This value is zero based, so the bottom most floor is zero
Opening	Sets the main recall opening as front or rear
Alt Recall	
Floor	Sets the alternate fire recall floor This value is zero based, so the bottom most floor is zero

Menu	Description
Opening	Sets the main recall opening as front or rear
Main Smoke	
Main or Alt	Sets whether the elevator will recall to the main or alternate landing when the main smoke is active
Flash Fire Hat	Flash fire hat when main smoke is active
Shunt Trip	Activates fire shunt output during Phase 1 recall if triggered by main smoke input
Alt Smoke	
Main or Alt	Sets whether the elevator will recall to the main or alternate landing when the alternate smoke is active
Flash Fire Hat	Flash fire hat when alternate smoke is active
Shunt Trip	Activates fire shunt output during Phase 1 recall if triggered by alternate smoke input
Hoistway Smoke	
Main or Alt	Sets whether the elevator will recall to the main or alternate landing when the hoistway smoke is active
Flash Fire Hat	Flash fire hat when hoistway smoke is active
Shunt Trip	Activates fire shunt output during Phase 1 recall if triggered by hoistway smoke input
MR Smoke	
Main or Alt	Sets whether the elevator will recall to the main or alternate landing when the machine room smoke is active
Flash Fire Hat	Flash fire hat when machine room smoke is active
Shunt Trip	Activates fire shunt output during Phase 1 recall if triggered by machine room smoke input
Recall Key	
Flash Fire Hat	Flash fire hat when recall key is turned to the ON position
PIT Smoke	
Main or Alt	Sets whether the elevator recalls to the main or alternate landing when the pit smoke is active
Flash Fire Hat	Flash fire hat when pit smoke is active
Shunt Trip	Activates fire shunt output during Phase 1 recall if triggered by pit smoke input
Alt Machine Room	
Enable Alt. MR	Enables alternate machine room fire operation setup menu
HW 2 Smoke	Alternate hoistway smoke options
MR 2 Smoke	Alternate machine room smoke options

Menu	Description
HW 2 Smoke	
Main or Alt	Sets whether the elevator recalls to the main or alternate landing when alternate machine room smoke is active
Flash Fire Hat	Flash fire hat when alternate machine room smoke is active
Shunt Trip	Activates fire shunt output during Phase 1 recall if triggered by alternate machine room smoke input
MR 2 Smoke	
Main or Alt	Sets whether the elevator recalls to the main or alternate landing when the alternate machine room smoke is active
Flash Fire Hat	Flash fire hat when alternate machine room smoke is active
Shunt Trip	Activates fire shunt output during Phase 1 recall if triggered by alternate machine room smoke input
Earthquake	
Enable EQ	Enables earthquake options
Set CW POS	Set the CW midpoint position

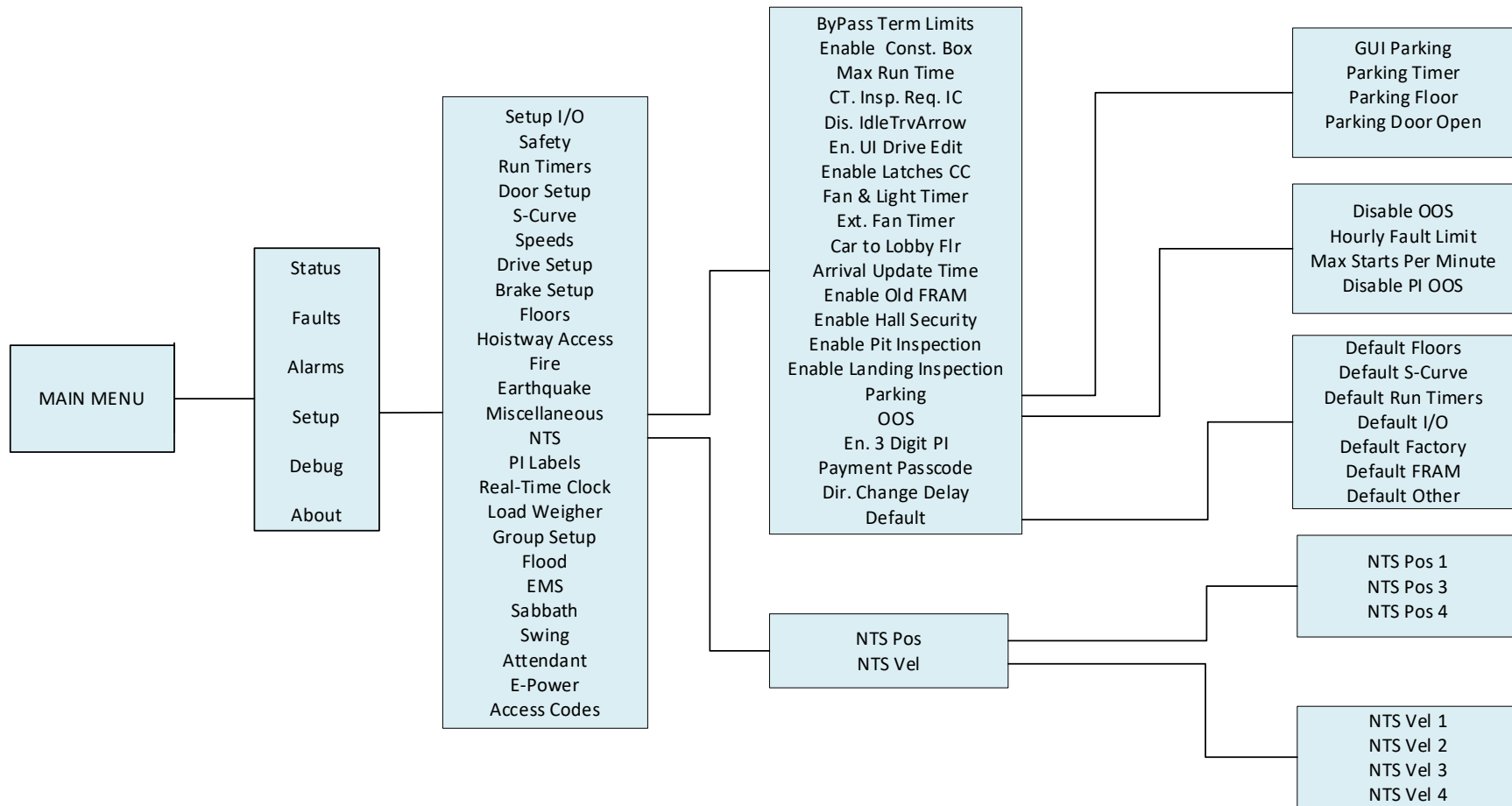


Figure 38: Setup – Miscellaneous and NTS Menus

The table below lists the Setup – Miscellaneous and NTS menu structures.

Table 22: Setup – Miscellaneous and NTS Menu Structures

Menu	Description
Setup	
Miscellaneous	Miscellaneous menu options
NTS	Normal Terminal Slowdown menu option
Miscellaneous	
ByPass Term Limit	Bypasses terminal limit faults. This option is automatically turned off when in automatic operation.
Enable Const. Box	Enable/Disable Construction Box. When enabled, onboard inspection buttons are ignored on construction operation and onboard inputs are used.
Max Run Time	Sets the max run time allowed in automatic operation before the car faults (F116). If set to zero, this fault is suppressed.
CT. Insp. Req. IC	Requires In-Car inspection to enable CT inspection
Dis. IdleTrvArrow	When set ON, CE travel arrows reflect the motion direction of the car. When set OFF, the arrows reflect the motion direction of the car and the arrival direction after a run.
En. UI Drive Edit	Enables editing of drive parameters from the MR board UI or the GUI
Enable Latches CC	When set ON, car call security enable input latches a car call
Fan & Light Timer	Sets the time the car may be idle before its fan and light output is turned off. If a longer timer is needed, the extended fan and light timer should be used instead. Units are in seconds.
Ext. Fan Timer	Extended fan and light timer
Car to Lobby Flr	Sets the floor the car moves to when the car to lobby input is activated. This value is zero based.
Arrival Update Time	Sets the time before arriving at a floor to update arrival lantern outputs. If set to zero, arrival outputs updates when doors begin to open. Units are in seconds.
Enable Old FRAM	When set ON, the MR board is configured to work with old FRAM hardware
Enable Hall Security	Enables hall call security
Enable Pit Inspection	Enables pit inspection
Enable Landing Inspection	Enables landing inspection
Parking	Parking options
OOS	Car out of service options
En. 3 Digit PI	Enables 3-digit PI
Payment Passcode	Controller passcode



Menu	Description
Dir. Change Delay	Sets the time to delay car direction changes. Allows time for passengers to enter their car calls. Units are in 1 second counts.
Default	Parameter default options
Parking	
GUI Parking	Enable GUI parking
Parking Timer (1 sec)	Sets the time it takes before an idle car is parked. If set to zero, parking is disabled.
Parking Floor	Floor the car parks at
Parking Door Open	Enables parking with doors open
OOS	
Disable OOS	Disables the controller from going out of service due to reoccurring faults
Hourly Fault Limit	Sets the number of faults allowed within a 1-hour window before the car goes out of service. If the car goes out of service, it remains out of service until the hour window elapses.
Max Starts Per Minute	Specifies how many times the car may attempt to start a run in automatic operation during a 1-minute window. If the controller attempts additional runs, the car goes out of service until the real-time clock increments to the next minute. Set this parameter to zero to disable the feature.
Disable PI OOS	When set ON, OOS does not flash on the PI when the car is out of group
Default	
Default Floors	Default learned floor values
Default S-Curve	Default S-curve values
Default Run Timers	Default Run Timer values
Default I/O	Default inputs and outputs
Default Factory	Restore all parameters to factory settings
Default FRAM	Set ON to default the FRAM chip. This option is self-resetting. This clears fault/alarm logs, latched faults, emergency bits and run counter.
Default Other	Defaults all miscellaneous values
NTS	
NTS Pos	Calculated NTS positions
NTS Vel	Calculated NTS velocities
NTS Pos	
NTS Pos 1	Calculated NTS Position 1 – Normal Profile
NTS Pos 3	Calculated NTS Position 3 – Emergency Power Profile
NTS Pos 4	Calculated NTS Position 4 – Short Profile
NTS VEL	
NTS Vel 1	Calculated NTS Velocity 1 – Normal Profile

Menu	Description
NTS Vel 2	Calculated NTS Velocity 2 – Inspection Profile
NTS Vel 3	Calculated NTS Velocity 3 – Emergency Power Profile
NTS Vel 4	Calculated NTS Velocity 4 – Short Profile

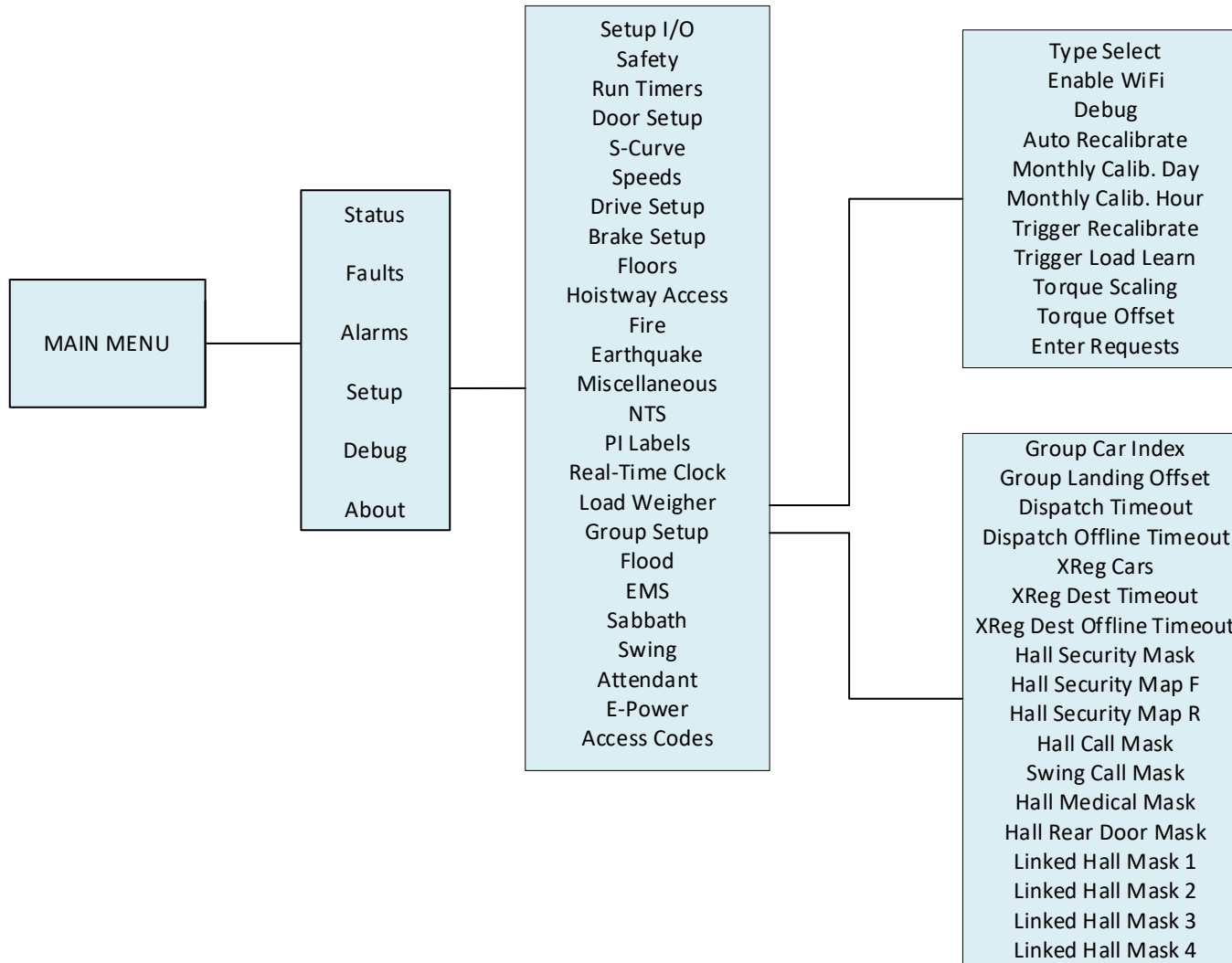


Figure 39: Setup – Load Weigher and Group Setup Menus

The table below lists the Setup – Load Weigher and Group Setup menu structures.

Table 23: Setup – Load Weigher and Group Setup Menu Structures

Menu	Description
Setup	
PI Labels	Set Position Indicator labels
Real-Time Clock	Set internal clock time for fault identification
Load Weigher	Load Weigher menu options
Group Setup	Group setup parameters
Load Weigher	
Type Select	Select the type of load weigh device used
Enable WiFi	Enables WiFi connection to load weighing device
Debug	When set to On, allows for viewing of load weighing device packet receive counts and raw load values
Auto Recalibrate	When set to On, the car regularly recalibrates its load weighing device.
Monthly Calib. Day	Day of the month the C4 is set for monthly automatic load recalibration
Monthly Calib. Hour	Time of the day the C4 is set for monthly automatic load recalibration
Trigger Recalibrate	When set to On, the car performs a load weighing device empty load recalibration.
Trigger Load Learn	When set to On, the car performs load weighing device full load calibration.
Torque Scaling	Sets a scaling value to multiply by the torque output of the Smartrise load weighing device. The value is a signed 8-bit integer in percentage format.
Torque Offset	Sets an offset to add to the Smartrise load weighing device torque percentage output. Value is a signed 8-bit integer.
Enter Requests	Commands sent to load weighing device
Group Setup	
Group Car Index	Sets the car's group ID.
Group Landing Offset	Sets an offset to the bottom landing so hall calls can be aligned properly for all cars in a group. If car 1 serves landing 1 and car 2 starts servicing landing 2, then car 2 would have an offset of 1.
Dispatch Timeout (1 sec)	Sets the time the car has to respond to a destination assignment before it temporarily removes itself from the group and the call is be reassigned. This prevents excessive delays in answering hall calls due to someone holding open the car door. If either the dispatch timeout or dispatch offline are set to zero, this feature is disabled. Should be set to 0 if only one car is in the group.

Menu	Description
Dispatch Offline (1 sec)	Sets the time the car removes itself from the group after failing to take an assigned call. If either the dispatch timeout or dispatch offline are set to zero, this feature is disabled.
XReg Cars	Sets the number of X-Reg cars to include in dispatching
XReg Dest Timeout (10 sec)	Sets the time the XReg car has to respond to a destination assignment before it temporarily removes itself from the group and the call is be reassigned. This prevents excessive delays in answering hall calls due to someone holding open the car door. If either the dispatch timeout or dispatch offline are set to zero, this feature is disabled.
XReg Dest Offline Timeout (10 sec)	Sets the time the XReg car removes itself from the group after failing to take an assigned call. If either the dispatch timeout or dispatch offline are set to zero, this feature is disabled.
Hall Security Mask	Turn ON/OFF which hall board function will have hall call security.
Hall Security Map Front	Turn ON/OFF Hall Call security for front landings
Hall Security Map Rear	Turn ON/OFF Hall Call security for rear landings
Hall Call Mask	Turn ON/OFF which hall board function the car will respond to for hall calls
Swing Call Mask	Turn ON/OFF which hall board functions the car will treat as a swing hall call. NOTE: Swing call mask cannot overlap with Medical Mask or Hall Call Mask.
Hall Medical Mask	Turn ON/OFF which hall board functions the car will treat as Emergency Medical Service call. NOTE: Medical Mask cannot overlap with Swing call mask or Hall Call Mask.
Hall Rear Door Mask	Turn ON/OFF which hall board functions are for rear opening. This acts as a modifier to the mask it overlaps with.
Linked Hall Mask 1	First set of Hall board functions that are turned ON are linked together. If 01 is ON and 02 is ON, a hall call on function 1 would latch the lamp for function 2.
Linked Hall Mask 2	Second set of Hall board functions that are turned ON are linked together. If 01 is ON and 02 is ON, a hall call on function 1 would latch the lamp for function 2.
Linked Hall Mask 3	Third set of Hall board functions that are turned ON are linked together. If 01 is ON and 02 is ON, a hall call on function 1 would latch the lamp for function 2.
Linked Hall Mask 4	Fourth set of Hall board functions that are turned ON are linked together. If 01 is ON and 02 is ON, a hall call on function 1 would latch the lamp for function 2.

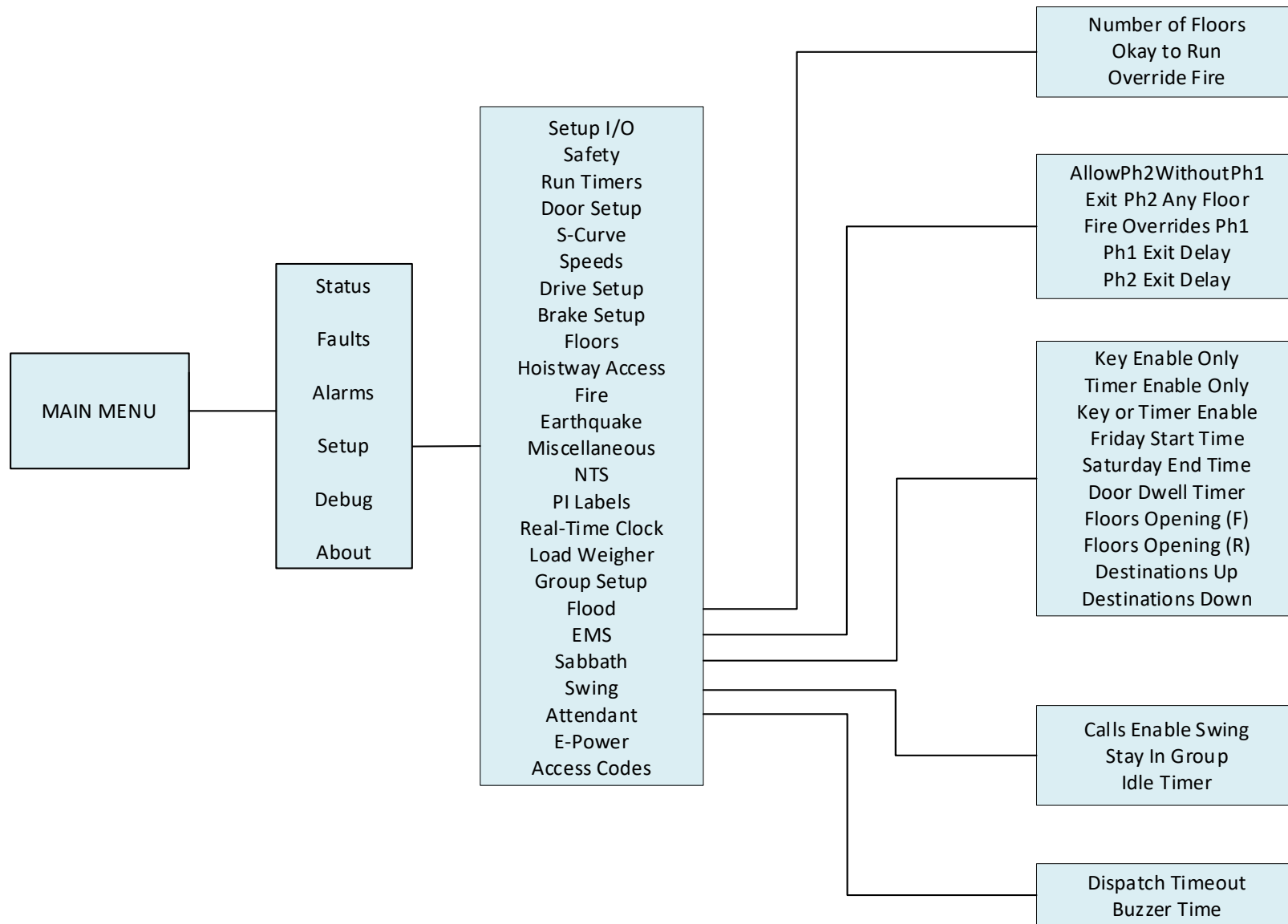


Figure 40: Setup – Flood, EMS, Sabbath, Swing, and Attendant Menus

The table below lists the Setup – Flood, EMS, Sabbath, Swing, and Attendant menu structures.

Table 24: Setup – Flood, EMS, Sabbath, Swing, and Attendant Menu Structures

Menu	Description
Setup	
Flood	Flood options
EMS	Emergency medical service options
Sabbath	Sabbath operation options
Swing	Swing operation options
Attendant	Attendant service options
Flood	
Number of Floors	Used in conjunction with the flood switch input. If a flood is detected, then this parameter tells the controller which floors to avoid. If set to zero, the elevator can go to all floors. If the flood switch is active and this parameter is set to one, then the car is not allowed to go to the bottom floor. If set to two, then elevator cannot go to bottom two floors, etc.
Okay to Run	Allows car to continue to run above the configured flood sensor floor
Override Fire	Allows flood operation to take priority over fire operation
EMS	
Allow Ph2WithoutPh1	Allows activation of Medical Phase 2 even if the car was never placed on Phase 1
Exit Ph2 Any Floor	Allows exiting of EMS Phase 2 at any floor. Jobs with full hospital service should have this parameter turned ON. Jobs with EMT service should have this parameter OFF.
Fire Overrides Ph1	When set ON, the activation of a smoke or Fire Phase 1 key causes a car that is currently on EMS Phase 1 to exit medical service and go on Fire Phase 1 recall. When turned OFF, the car remains on EMS Phase 1.
Ph1 Exit Delay (1 sec)	When a car is called to a landing by an EMS Phase 1 key, this parameter specifies how long it will remain there before returning to normal operation if no one places it on EMS Phase 2.
Ph2 Exit Delay (1 sec)	Specifies how long to wait after exiting EMS Phase 2 before returning to normal operation. A programmable delay allows time for the patient to be removed from the elevator if EMS Phase 2 were turned off prior to removing the patient.
Sabbath	
Key Enable Only	When set ON, Sabbath operations is only activated by keyswitch input

Menu	Description
Timer Enable Only	When set ON, Sabbath operation is activated by only the configured Sabbath Start Time and Sabbath End Time
Key or Timer Enable	When set ON, Sabbath operation is activated by either keyswitch input or configured Sabbath Start Time and Sabbath End Time
Friday Start Time	Sets the Friday start time for Sabbath when timer enable is set. Format is HHMM, for example 12:34 PM would be 1234.
Saturday End Time	Sets the Saturday end time for Sabbath when timer enable is set. Format is HHMM, for example, 12:34 PM would be 1234.
Door Dwell Timer (1 sec)	Sets the time car doors remain open while in Sabbath operation
Sabbath (F)	Sets the front opening floors to be serviced during Sabbath operation
Sabbath (R)	Sets the rear opening floors to be serviced during Sabbath operation
Destinations Up	Set which floors to stop at during Sabbath up operation
Destinations Down	Set which floors to stop at during Sabbath down operation
<b>Swing</b>	
Calls Enable Swing	Allows swing calls to activate swing operation
Stay in Group	Allows the car to continue to take regular hall calls while in swing operation
Idle Timer (1 sec)	If Swing mode is entered by a button press, this timer specifies how long to remain in Swing operation once the car is idle
<b>Attendant</b>	
Dispatch Timeout	Sets the time the car removes itself from answering hall calls after failing to take an assigned call while on attendant service. If either the dispatch timeout or dispatch offline are set to zero, this feature is disabled. If only one car is on attendant service, this feature should be disabled.
Buzzer Time (100ms)	Specifies how long to sound the buzzer to alert the attendant that a hall call was pressed



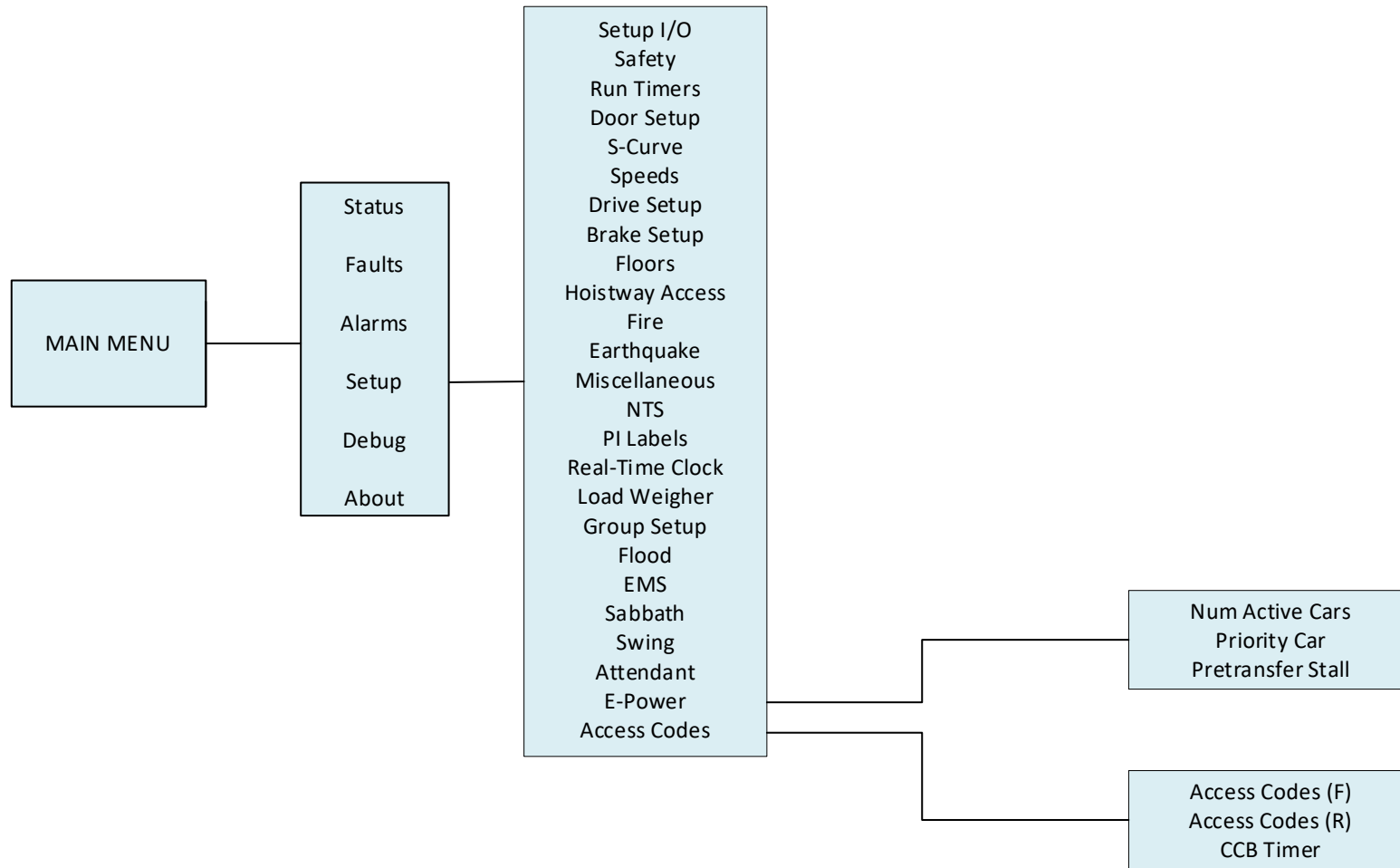


Figure 41: Setup – E-Power and Access Code Menus

The table below lists the Setup – E-Power and Access Code menu structures.

*Table 25: Setup – E-Power and Access Code Menu Structures*

Menu	Description
Setup	
E-Power	Emergency power options
Access Code	Access code options
E-Power	
Num of Active Cars	Sets the number of cars allowed to run during emergency power operation
Priority Car	Sets the first car selected when on emergency power and when the auto select input is active.
Pretransfer Stall	When set ON, if the Emergency Power Pretransfer input is active, cars stop in a faulted state wherever they are. When set to OFF, cars instead move to the nearest landing and go out of service with the door open. This option is used when the system is wired to use pretransfer input to delay cars both at the transfer into and out of emergency power.
Access Code	
Access Code (F)	Code that gives access to front door car calls
Access Code (R)	Code that gives access to rear door car calls
CCB Timer	Time for registering a car call after access code is entered

### 3.4 Debug and About

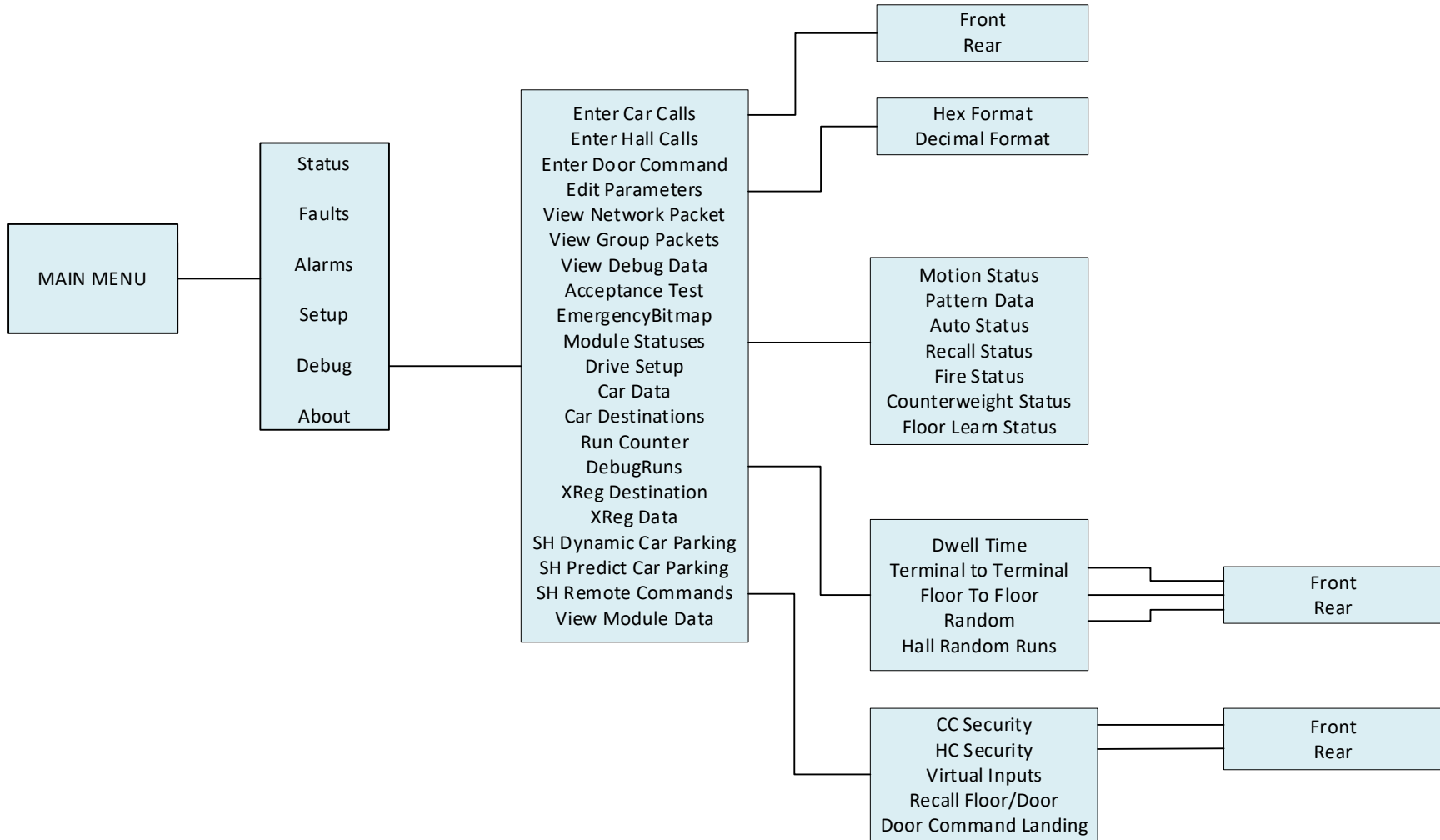


Figure 42: Debug and About Menus

The table below lists the Debug and About menu structures.

Table 26: Debug and About Menu Structures

Menu	Description
MAIN MENU	
Debug	Debug menu options
About	View job name and software version
Debug	
Enter Car Calls	Manually latch car calls. Calls entered here bypass security.
Enter Hall Calls	Enter hall calls to a specific landing and mask
Enter Door Command	Enter door commands
Edit Parameters	Edit parameters in hex or decimal
View Network Packet	Debug option to view network packets
View Group packets	Debug option to view group packets
View Debug Data	Debug option to view various controller data
Acceptance Test	Acceptance testing options
EmergencyBitmap	Emergency power debug option
Module Statuses	Debug option to view module status
Drive Setup	Drive setup options
Car Data	View car data
Car Destination	View car destination data
Run Counter	View number of runs car completed
DebugRuns	Random run generator
XReg Destination	Cross registration destination data
XReg Data	Miscellaneous cross registration data
SH Dynamic Parking	Parking based on priority landings
SH Predict Parking	Parking assignment based on prior history
SH Remote Commands	Virtual commands to the controller
View Module Data	View various information associated to specific modules
Enter Car Calls	
Front	Generate front car calls
Rear	Generate rear car calls
Edit Parameters	
Hex Format	Edit parameters in Hex format
Decimal Format	Edit parameters in Decimal format
Module Statuses	
Motion Status	Motion sequence status
Pattern Data	View status of pattern
Auto Status	View status of auto operation
Recall Status	View status of car recall operation
Fire Status	View status of fire service operation

Menu	Description
Counterweight Status	View status of counterweight derailment
Floor Learn Status	View status of floor learn operation
Drive Setup	
Select Drive	Allows for selecting the type of drive used
Enable Drive Edit	Enables editing of drive parameters
Edit Parameter	Allows for editing the parameters for the drive according to the configuration information
DebugRuns	
Dwell Time	Time between debug car calls for random call generator
Terminal to Terminal	Enables terminal to terminal runs
Floor to Floor	Enables floor to floor calls
Random	Generates random car calls
Terminal to Terminal	
Front	Enables front door terminal to terminal runs
Rear	Enables rear door terminal to terminal runs
Random	
Front	Enables front door random calls
Rear	Enables rear door random calls
SH Remote Commands	
CC Security	Allows for remote secure car calls
HH Security	Allows for remote secure hall call
Virtual Inputs	Allows for a variety of inputs set remotely
Recall/Floor Door	Sets recall floor and door that opens when remote recall to floor input is asserted
Door Command Landing	Sets door command to a designated landing
CC Security	
Front	Enables front door security car calls
Rear	Enables rear door security car calls
HC Security	
Front	Enables front door security hall calls
Rear	Enables rear door security hall calls

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## 4 High-Level Navigation Menu Structure

The high-level navigation displays a hierarchy of menus used to setup, troubleshoot, and check the status of the controller.

**NOTE:** The menu options displayed for the high-level navigation do not show a \* for the selected menu.

### 4.1 Main Menu

The MAIN MENU consists of the main options for the C4 controller.



Figure 43: MAIN MENU – Status, Faults, Alarms



Figure 44: MAIN MENU – Setup, Debug, About

### 4.2 Status

The STATUS menus display the current status of various functions.



Figure 45: STATUS Menu – Inputs, Outputs, Brake Status



Figure 46: STATUS Menu – EBrake Status, Expansion Status, Riser Board Status

```

STATUS
Hall Board Status
Hall Lantern Status
Hall Security Statu

```

Figure 47: STATUS Menu – Hall Board Status, Hall Lantern Status, Hall Security Status

```

STATUS
Hall Call Status
DAD Status
Clock

```

Figure 48: STATUS Menu – Hall Call Status, DAD Status, Clock

```

STATUS
CPLD Status
Load Weigher Status
E-Power Status

```

Figure 49: STATUS Menu – CPLD Status, Load Weigher Status, E-Power Status

```

STATUS
EMS Status
Virtual Inputs
DIP Status

```

Figure 50: STATUS Menu – EMS Status, Virtual Input, DIP Status

```

STATUS
DIP Status
Door Status (F)
Door Status (R)

```

Figure 51: STATUS Menu – Door Status (F) and Door Status (R)

## 4.3 Faults

The FAULTS menu displays a list of active and inactive faults.

```

FAULTS
Active
Logged
Clear Log

```

Figure 52: FAULTS Menu – Active, Logged, Clear Log



## 4.4 Alarms

The ALARMS menu displays a list of active and inactive alarms.



Figure 53: ALARMS Menu – Active, Logged, Clear Log

## 4.5 Setup

The SETUP menu consists of menus to allow for system configuration.



Figure 54: SETUP MENU – Setup I/O, Safety, Run Timers



Figure 55: SETUP MENU – Door Setup, S-Curve, Speeds



Figure 56: SETUP MENU – Drive Setup, Brake Setup, Floors



Figure 57: SETUP MENU – Hoistway Access, Fire



Figure 58: SETUP MENU – Earthquake, Miscellaneous, NTS

```

SETUP
PI Labels
Real-Time Clock
Load Weigher

```

Figure 59: SETUP MENU – PI Labels, Real-Time Clock, Load Weigher

```

SETUP
Group Setup
Flood
EMS

```

Figure 60: SETUP MENU – Group Setup, Flood, EMS

```

SETUP
Sabbath
Swing
Attendant

```

Figure 61: SETUP MENU – Sabbath, Swing, Attendant

```

SETUP
Attendant
E-Power
Access Code

```

Figure 62: SETUP MENU – E-Power and Access Code

## 4.6 Debug

The DEBUG menu allows for testing the system.

```

DEBUG
Enter Car Calls
Enter Hall Calls
Enter Door Command

```

Figure 63: DEBUG Menu – Enter Car Calls, Enter Hall Calls, Enter Door Command

```

DEBUG
Edit Parameters
View Network Packet
View Group Packets

```

Figure 64: DEBUG Menu – Edit Parameters, View Network Packet, View Group Packets

```

DEBUG
View Debug Data
Acceptance Test
EmergencyBitmap
    
```

Figure 65: DEBUG Menu – View Debug Data, Acceptance Test, EmergencyBitmap

```

DEBUG
Module Statuses
Drive Setup
Car Data
    
```

Figure 66: DEBUG Menu – Module Statuses, Drive Setup, Car Data

```

DEBUG
Car Destinations
Run Counter
DebugRuns
    
```

Figure 67: DEBUG Menu – Car Destinations, Run Counter, DebugRuns

```

DEBUG RUNS
XReg Destination
XReg Data
SH Dynam Car Parkin
    
```

Figure 68: DEBUG Menu – XReg Destination, XReg Data, SH Dynamic Car Parking

```

DEBUG
SH Predict Car Park
SH Remote Commands
View Module Data
    
```

Figure 69: DEBUG Menu – SH Predictive Car Parking SH Remote Commands and View Module Data

## 5 Parameters

Parameters are configured per job. Users can edit parameters either as binary, decimal, or hexadecimal format. If editing for binary, the binary option is part of the hexadecimal and decimal format. The binary parameter can be set to either ON or OFF.

The following procedure describes how to set the parameters.

1. Navigate to MAIN MENU | DEBUG | EDIT PARAMETERS. See Figure 64.
2. From the PARAMETER EDIT menu, scroll and select Hexadecimal or Decimal Format.



Figure 70: PARAMETER EDIT Menu – Hexadecimal or Decimal Format

3. From the EDIT menu, edit the address.



Figure 71: EDIT AS BINARY Menu



Figure 72: EDIT AS HEXADECIMAL Menu

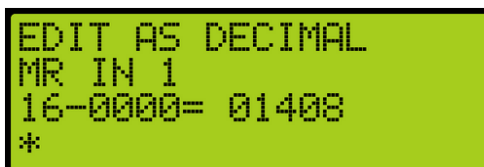


Figure 73: EDIT AS DECIMAL Menu

4. Scroll right and press Save.

## 6 Brakes

Smartrise sets the brake pick and hold settings in the factory prior to shipping. Prior to running, verify the data. For the default or factory set data. See the *C4 Controller sheet 01 Getting Started*.

The table below lists an example of the data settings.

*Table 27: Example of Data Settings*

Car	Doors	DR Breaker Voltage	Brake Pick	Brake Hold	Brake Ohm	Brake Amp
1	1	120	90	45	44	2.05

If the actual brake data is different from the specifications, use the UI menu to adjust the data configuration.

A secondary brake is required. Smartrise provides the following options:

- Secondary Brake board
- Rope gripper

The configuration for the Secondary Brake board is the same as the Primary Brake board but the Secondary Brake board must be enabled.

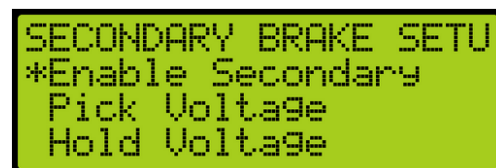
The following procedure describes how to enable the Secondary Brake board.

1. Navigate to MAIN MENU | SETUP | BRAKE SETUP. See Figure 56.
2. From the BRAKE SETUP menu, scroll and select Secondary Setup.



*Figure 74: BRAKE SETUP Menu – Secondary Setup*

3. From the SECONDARY BRAKE SETUP menu, scroll and select Enable Secondary.



*Figure 75: SECONDARY BRAKE SETUP Menu – Enable Secondary*

- From the ENABLE SECONDARY BRAKE menu, scroll and select On to enable the secondary brake.



Figure 76: ENABLE SECONDARY Menu

- Scroll right and press Save.

## 6.1 Pick Voltage

The pick voltage is the set voltage at which the brakes are released.

The following procedure describes how to set the pick voltage.

- Navigate to MAIN MENU | SETUP | BRAKE SETUP. See Figure 56.
- From the BRAKE SETUP menu, scroll and select Primary or Secondary Setup.



Figure 77: BRAKE SETUP Menu – Primary or Secondary Setup

- From the BRAKE or SECONDARY BRAKE SETUP menu, scroll and select Pick Voltage.



Figure 78: (Primary) BRAKE SETUP Menu – Pick Voltage

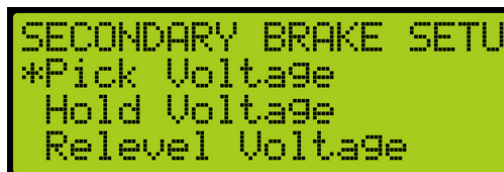


Figure 79: SECONDARY BRAKE SETUP Menu – Pick Voltage

- From the BRAKE PICK VOLTAGE menu, enter the correct pick voltage setting.



Figure 80: BRAKE PICK VOLTAGE Menu

- Scroll right and press Save.

## 6.2 Hold Voltage

The hold voltage is the set voltage to hold the car in place once the brake has been released.

The following procedure describes how to set the hold voltage.

- Navigate to MAIN MENU | SETUP | BRAKE SETUP. See Figure 56.
- From the BRAKE SETUP menu, scroll and select Primary or Secondary Setup. See Figure 77.
- From the BRAKE or SECONDARY BRAKE SETUP menu, scroll and select Hold Voltage.



Figure 81: (Primary) BRAKE SETUP Menu – Hold Voltage

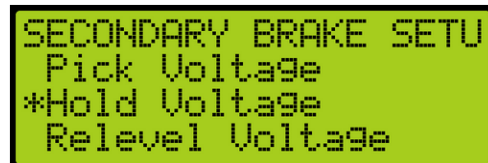


Figure 82: SECONDARY BRAKE SETUP Menu – Hold Voltage

- From the BRAKE HOLD VOLTAGE menu, enter the correct hold voltage setting.



Figure 83: BRAKE PICK VOLTAGE Menu

- Scroll right and press Save.

## 6.3 Relevel Voltage

The relevel voltage is set to where the brake slightly lifts which allows for the sheave to turn during the releveling process.

The following procedure describes how to set the relevel voltage.

1. Navigate to MAIN MENU | SETUP | BRAKE SETUP. See Figure 56.
2. From the BRAKE SETUP menu, scroll and select Primary or Secondary Setup. See Figure 77.
3. From the BRAKE or SECONDARY BRAKE SETUP menu, scroll and select Relevel Voltage.



Figure 84: (Primary) BRAKE SETUP Menu – Relevel Voltage

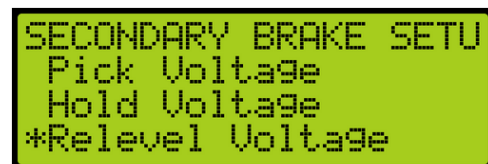


Figure 85: SECONDARY BRAKE SETUP Menu – Relevel Voltage

4. From the BRAKE RELEVEL VOLTAGE menu, enter the relevel voltage setting.



Figure 86: BRAKE RELEVEL VOLTAGE Menu

5. Scroll right and press Save.

## 6.4 Pick Time

The pick time is the hold time for the pick voltage before transitioning to hold voltage.

The following procedure describes how to set the pick time.

1. Navigate to MAIN MENU | SETUP | BRAKE SETUP. See Figure 56.
2. From the BRAKE SETUP menu, scroll and select Primary or Secondary Setup. See Figure 77.



- From the BRAKE or SECONDARY BRAKE SETUP menu, scroll and select Pick Time.



Figure 87: (Primary) BRAKE SETUP Menu – Pick Time



Figure 88: SECONDARY BRAKE SETUP Menu – Pick Time

- From the BRAKE PICK TIME menu, enter the time to switch from pick voltage to hold voltage.



Figure 89: BRAKE PICK TIME Menu

- Scroll right and press Save.

## 6.5 Ramp Time

Ramp time is the time it takes for the brakes to ramp up to full pick voltage during normal operation. The ramp time provides a smooth transition without any jerking motion prior to releasing the brakes. The primary brake is used during normal operation and inspection while the secondary brake is used only for normal operation.

The following procedure describes how to set the ramp time.

- Navigate to MAIN MENU | SETUP | BRAKE SETUP. See Figure 56.
- From the BRAKE SETUP menu, scroll and select Primary or Secondary Setup. See Figure 77.
- Setting ramp time for primary or secondary brake?
  - If setting the ramp time for the primary brake, go to step 4.
  - If setting the ramp time for the secondary brake, go to step 6.

- From the BRAKE SETUP menu, scroll and select Ramp Time – Auto.



Figure 90: (Primary) BRAKE SETUP Menu – Ramp Time – Auto

- From the BRAKE RAMP TIME – (AUTO) menu, enter the time to fully release the brakes. Go to step 8.



Figure 91: BRAKE RAMP TIME – (AUTO) Menu

- From the SECONDARY BRAKE SETUP menu, scroll and Ramp Time.



Figure 92: SECONDARY BRAKE SETUP Menu – Ramp Time

- From the BRAKE RAMP TIME menu, enter the time to fully release the brakes.



Figure 93: BRAKE RAMP TIME Menu

- Scroll right and press Save.

## 6.6 Ramp Time – Inspection

Ramp Time Inspection is the time it takes for the brakes to ramp up to full pick voltage during inspection. Only the primary brakes are used during Inspection Mode; therefore, there is no setting on the Secondary Brake menu options for inspection.

The following procedure describes how to set the ramp time during inspection.

- Navigate to MAIN MENU | SETUP | BRAKE SETUP. See Figure 56.
- From the BRAKE SETUP menu, scroll and select Primary Setup. See Figure 77.

- From the BRAKE SETUP menu, scroll and select Ramp Time – Inspection.



Figure 94: (Primary) BRAKE SETUP Menu – Ramp Time – Inspection

- From the BRAKE RAMP TIME – (INSPECTION) menu, enter the time to fully release the brakes during inspection.



Figure 95: BRAKE PICK TIME (INSPECTION) Menu

- Scroll right and press Save.

## 6.7 Ramp Time-Relevel

The relevel ramp time is the time it takes for the brakes to ramp up to releveling voltage. The delay prevents a sudden jerking motion and damage to the equipment.

The following procedure describes how to set the ramp time during releveling.

- Navigate to MAIN MENU | SETUP | BRAKE SETUP. See Figure 56.
- From the BRAKE SETUP menu, scroll and select Primary or Secondary Setup. See Figure 77.
- From the BRAKE or SECONDARY BRAKE SETUP menu, scroll and select Ramp Time - Relevel.



Figure 96: (Primary) BRAKE SETUP Menu – Ramp Time – Relevel



Figure 97: SECONDARY BRAKE SETUP Menu – Ramp Time – Relevel

- From the RAMP TIME (RELEVEL) menu, enter the time for the brakes to ramp up for releveling.



Figure 98: RAMP TIME (RELEVEL) Menu

- Scroll right and press Save.

## 6.8 BPS NC

The Brake Pick switch is set to normally closed. However, the Brake Pick switch may need to be set where the switch may need to be bypassed.

Primary Brake – The switch may be bypassed when the car is in Construction Mode.

Secondary Brake – The secondary brake may be a rope gripper which in turn does not use a Brake Pick switch.

The following instructions describe how to set the BPS to normally closed.

- Navigate to MAIN MENU | SETUP | BRAKE SETUP. See Figure 56.
- From the BRAKE SETUP menu, scroll and select Primary or Secondary Setup. See Figure 77.
- From the BRAKE or SECONDARY BRAKE SETUP menu, scroll and select BPS NC.



Figure 99: (Primary) BRAKE SETUP Menu – BPS NC

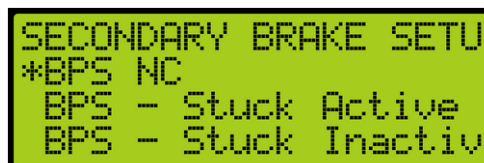


Figure 100: SECONDARY BRAKE SETUP Menu – BPS NC

- From the BRAKE PICK SWITCH NC menu, scroll and select On.



Figure 101: BRAKE PICK SWITCH NC Menu

- Scroll right and press Save.

## 6.9 BPS-Stop Sequence

The BPS Stop Sequence monitors the primary brakes motion sequence operation. The monitoring system can be enabled or disabled.

The following instructions describes how to disable the BPS Stop Sequence.

- Navigate to MAIN MENU | SETUP | BRAKE SETUP. See Figure 56.
- From the BRAKE SETUP menu, scroll and select Primary. See Figure 77.
- From the BRAKE SETUP menu, scroll and select BPS – Stop Sequence.



Figure 102: (Primary) BRAKE SETUP Menu – BPS – Stop Sequence

- From the DISABLE BPS STOP SEQUENCE MENU, scroll and select On.



Figure 103: DISABLE BPS STOP SEQUENCE Menu

- Scroll right and press Save.

## 6.10 BPS-Stuck Active

The BPS Stuck Active checks if the BPS switch is constantly picked during a run.

The following procedure describes how to enable monitoring to see if the BPS is stuck when active.

- Navigate to MAIN MENU | SETUP | BRAKE SETUP. See Figure 56.

- From the BRAKE SETUP menu, scroll and select Primary or Secondary Setup. See Figure 77.
- From the BRAKE or SECONDARY BRAKE SETUP menu, scroll and select BPS – Stuck Active.



Figure 104: (Primary) BRAKE SETUP Menu – BPS – Stuck Active



Figure 105: SECONDARY BRAKE SETUP Menu – BPS – Stuck Active

- From the DISABLE BPS ACTIVE menu, scroll and select Off to monitor if the BPS is stuck.



Figure 106: DISABLE BPS ACTIVE Menu

- Scroll right and press Save.

## 6.11 BPS-Stuck Inactive

The BPS Stuck Inactive checks if the BPS switch is constantly dropped when the car is stopped.

The following procedure describes how to enable monitoring if the BPS is stuck when the car is stopped.

- Navigate to MAIN MENU | SETUP | BRAKE SETUP. See Figure 56.
- From the BRAKE SETUP menu, scroll and select Primary or Secondary Setup. See Figure 77.
- From the BRAKE or SECONDARY BRAKE SETUP menu, scroll and select BPS – Stuck Inactive.



Figure 107: (Primary) BRAKE SETUP Menu – BPS – Stuck Inactive

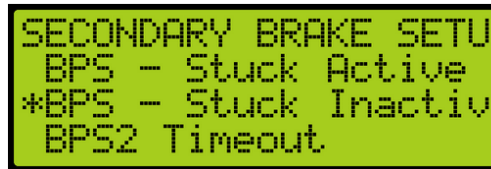


Figure 108: SECONDARY BRAKE SETUP Menu – BPS – Stuck Inactive

4. From the DISABLE BPS INACTIVE menu, scroll and select Off to monitor if the BPS is stuck.



Figure 109: DISABLE BPS INACTIVE Menu

5. Scroll right and press Save.

## 6.12 BPS-Timeout

The BPS Timeout is the maximum amount of time for the BPS to remain picked or dropped. If the BPS remains in the same state in either situation after the allotted time, a fault occurs.

The following procedure describes how to set the time the BPS switch can remain closed or open.

1. Navigate to MAIN MENU | SETUP | BRAKE SETUP. See Figure 56.
2. From the BRAKE SETUP menu, scroll and select Primary or Secondary Setup. See Figure 77.
3. Setting BPS Timeout for primary or secondary brake?
  - a. If setting the BPS Timeout for the primary brake, go to step 4.
  - b. If setting the BPS Timeout for the secondary brake, go to step 6.
4. From the BRAKE SETUP menu, scroll and select BPS Timeout.



Figure 110: (Primary) BRAKE SETUP Menu – BPS Timeout

- From the BPS TIMEOUT menu, enter the maximum time the BPS can remain open or closed before a fault occurs. Go to step 8.



Figure 111: BPS TIMEOUT Menu

- From the SECONDARY BRAKE SETUP menu, scroll and select BPS – Stuck Inactive.

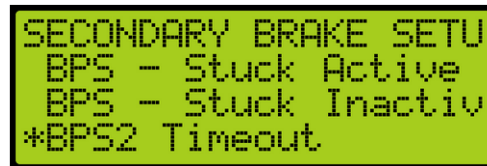


Figure 112: SECONDARY BRAKE SETUP Menu – BPS2 TIMEOUT Menu

- From the BPS TIMEOUT menu, enter the maximum time the BPS can remain open or closed before a fault occurs. See Figure 111.
- Scroll right and press Save.

## 6.13 Disable Latching Faults

When enabled, the primary and secondary brake faults are not latching. When set to disabled and a fault occurs, a fault will be displayed. To reset the fault, the user must reset the MR board.

The following procedure describes how to enable the controller to latch faults.

- Navigate to MAIN MENU | SETUP | BRAKE SETUP. See Figure 56.
- From the BRAKE SETUP menu, scroll and select Disable Latching Faults.



Figure 113: BRAKE SETUP Menu – Disable Latching Faults



- From the DISABLE LATCHING FAULTS menu, scroll and select Off to enable faults to be latched.



*Figure 114: DISABLE LATCHING FAULT Menu*

- Scroll right and press Save.

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## 7 Construction Mode

There will be a supplemental document provided with your controller to explain the start-up procedure for the drive used. These additional steps must be performed before the car runs.

### 7.1 Main Power Setup

The following procedure describes how to setup the Main Power.

1. Verify that the main disconnect switch is in the OFF position.
2. Verify all green push breakers are in the up position (OFF).



Figure 115: Breakers in the OFF Position

3. Verify the L1/L2 breaker is in the OFF position.
  - Green = OFF
  - Red = ON



Figure 116: L1/L2 Breaker

4. Connect the main line power connection to terminal block L1/L2/L3.

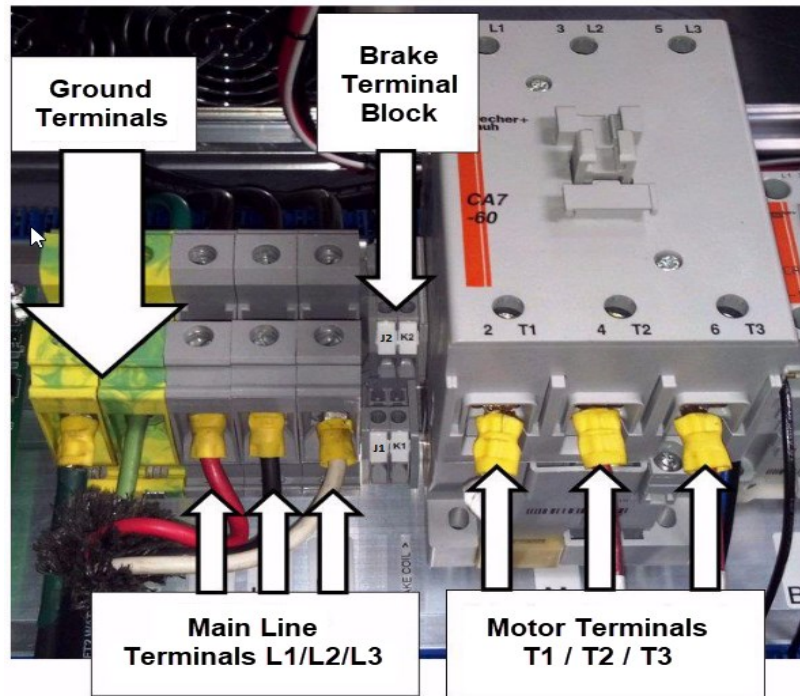


Figure 117: Control Panel

5. Connect the ground wire to the yellow/green ground terminal block next to the L1/L2/L3 terminals. See Figure 117.
 

**NOTE:** For connecting a proper ground, see section 1.3 Safety.
6. Connect motor leads to the M contactor on terminals T1/T2/T3. See Figure 117.
7. Connect the main brake wires to terminals K1 and K2. See Figure 117.
8. Is a rope gripper being used?
  - a. If a rope gripper is being used, make sure it is pinned open and go to step 9.
  - b. If a rope gripper is not being used, go to step 9.
9. Is a secondary sheave brake being used?
  - a. If a secondary sheave brake is being used, connect the sheave brake to terminals J1 and J2 then process ends. See Figure 117.
  - b. If a secondary sheave brake is not being used, the process ends.

## 7.2 Start Construction Mode

All connections regarding safety are functional during Construction Mode.

See the *C4 Drive Startup Manual* provided with your controller to show how to wire the Construction Box.

## 7.3 Drive Setup

The setup to run the controller in Construction Mode is dependent upon the drive that is being used. Follow the steps in the selected *C4 Drive Startup Manual* that is within the system, for completing the motor tune operation.

If the elevator is running at slow speed after completing all the Construction Mode setup, usually 10 fpm, then the drive is in Normal Terminal Stopping Device (NTSD) operation and needs to be disabled while in Construction Mode.

- KEB – Set input 1 function LI04 to no function from ESD or NTS 1.
- M1000 or HPV900S2 – Verify NTSD MODE is set to EXTERNAL in the C1 menu. Set logic input 3 to NO FUNCTION from NTS INPUT 1.

The parameters for the drive are set by Smartrise before being sent to the field.

### 7.3.1 Selecting the Type of Drive

The type of drive selected is dependent upon the system configuration.

The following procedure describes how to select the type of drive.

1. Navigate to MAIN MENU | DEBUG | DRIVE SETUP. See Figure 66.
2. From the DRIVE SETUP menu, scroll and select Drive.



Figure 118: DRIVE SETUP Menu – Select Drive

3. From the DRIVE SELECT menu, scroll and select the drive being used.



Figure 119: DRIVE Select Menu

4. Scroll right and press Save.

### 7.3.2 Enable Drive Edit

The C4 drive information can be updated via the UI.

The following procedure describes how to enable the drive to be enabled via the UI.

1. Navigate to MAIN MENU | DEBUG | DRIVE SETUP. See Figure 66.
2. From the DRIVE SETUP menu, scroll and select Enable Drive Edit.



Figure 120: DRIVE SETUP Menu – Enable Drive Edit

3. From the ENABLE UI DRIVE EDIT menu, scroll and select if the drive is going to be enabled via the UI.



Figure 121: ENABLE UI DRIVE EDIT Menu

4. Scroll right and press Save.

## 8 Inspection Mode

Prior to running on inspection operation, all connections need to be made from the MR to the CT and CT to COP. See the *C4 Controller sheet 02 Machine Room I/O*, sheet *07 Traveler/Safety String*, sheet *08 Car Board I/O* and sheet *09 COP Connections* for wiring information.

### 8.1 Standard Modes of Inspection

Machine room inspection is available using the MR INSPECTION switch. The car can be run from the UP and DOWN buttons located on the MR board. This form of inspection is overridden by the Hoistway Access and CT Inspection.

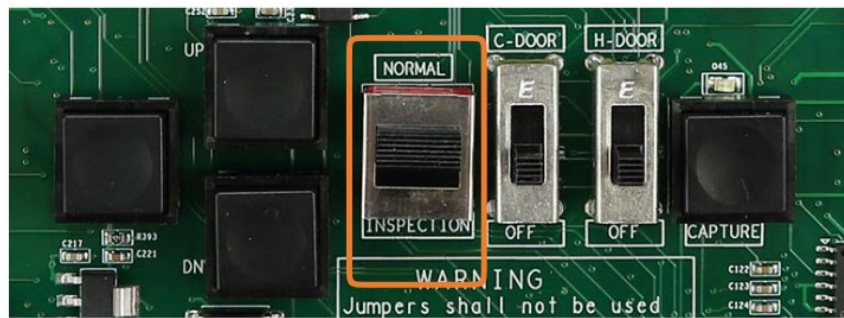


Figure 122: MR INSPECTION Switch

CT Inspection is the highest mode of inspection and overrides all other forms of inspection. The car is placed on CT inspection using the INSPECTION switch located on the top of the car run box. A run can be asserted by using the enable and UP and DOWN commands from the run box.



Figure 123: Car Run Box

Hoistway Access Inspection is a form of inspection used to run the car with the doors open at a terminal landing. The Hoistway Access inputs are discretely wired back to each controller's MR board. To use this form of inspection, the car must be at a terminal landing.

## 8.2 Inspection Run Options and Adjustments

The C4 controller uses pattern generation to conduct all runs, including inspection runs. This means that there is an inherent ramp up to the inspection speed when beginning the run and a ramp back to zero speed when the run is released. The inspection run options are configurable. If the speed is increased, the car travels faster. If speed is decreased, the car runs slower. The controller will fault if the speed feedback exceeds 150 fpm.

The adjustment range is from 0-150 fpm.

- Default = 50 fpm
- Units of Measure = fpm

The following procedure describes how to verify the inspection speed of the car.

1. Navigate to MAIN MENU | SETUP | SPEEDS. See Figure 55.
2. From the SPEEDS menu, scroll and select Inspection Speed.



Figure 124: SPEEDS Menu – Inspection Speed

3. Verify the inspection speed. The value of the inspection speed can be set from 0 to 150 fpm. If the value is set > 150 fpm, the controller will fault until the parameter is adjusted to a value  $\leq$  150 fpm.



Figure 125: INSPECTION SPEED Menu

4. Scroll right and press Save.



## 9 S-Curve

There are eight standard options for adjusting the S-Curve.

- Acceleration – Maximum acceleration for the profile.
- Accel Jerk In – How quickly the profile transitions from minimum acceleration speed to full acceleration. Higher values result in a sharper start.
- Accel Jerk Out – How quickly the profile transitions from maximum acceleration to zero acceleration.
- Deceleration – Maximum acceleration for the profile.
- Decel Jerk In – How quickly the profile transitions from zero deceleration to maximum decelerations.
- Decel Jerk Out – How quickly the profile transitions from maximum deceleration to leveling speed.
- Leveling Speed – The speed at which the elevator levels into the floor.
- Leveling Distance – The stabilized distance the elevator travels before arriving at the destination floor.

**NOTE:** Decel Jerk In and Decel Jerk Out are not shown during Inspection mode.

The following is a graphical image of the parameters that are being adjusted.

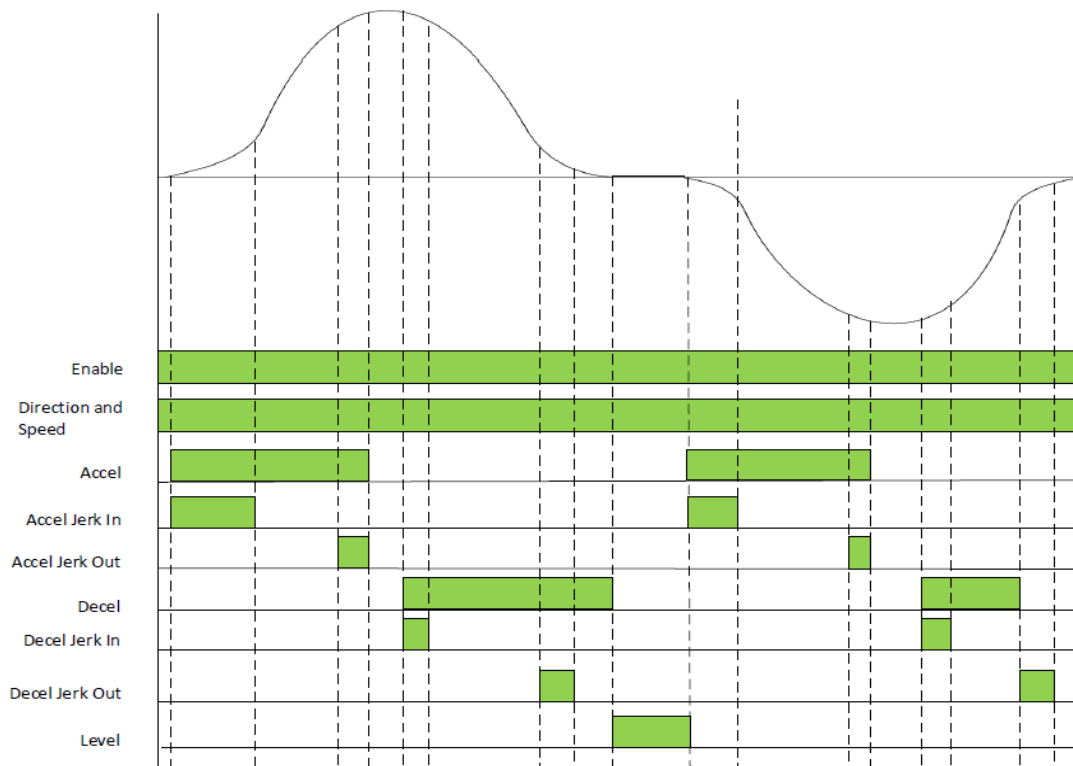


Figure 126: Graphical Representation of an S-Curve

## 9.1 Profile

There are 4 programmable profiles.

- Normal Profile – Used under normal operating conditions.
- Inspection Profile – Used when the system is placed on Inspection/Access and Construction operation.
- Emergency Power Profile – Used when the Emergency Power input is activated, indicating the car is running on generator power.
- Short Profile – Used when the minimum short distance is set.

### 9.1.1 Adjusting S-Curve Profile

All four profiles are adjusted in the same manner. For the purpose of adjusting the S-Curve, the Normal Profile is displayed.

#### 9.1.1.1 Acceleration

The Acceleration parameter defines the rate at which the car reaches constant speed. The higher the acceleration value, the sharper the rate. For example, with Contract Speed set at 350 fpm (5.8 ft/s), and Acceleration set to 2  $\text{fps}^2$ , the car will reach contract speed in 2.9 seconds (this calculation does not allow for rounding). Each rounding corner will normally add about half of its rounding time to the time required to reach contract speed.

**NOTE:** Divide fpm/s by 60 to get  $\text{fps}^2$ .

The adjustment range is from 1-8  $\text{fps}^2$ .

- Default = 2  $\text{fps}^2$
- Units of measure =  $\text{fps}^2$

The Acceleration parameter is also used to control the pattern ramp-up during relevel. Changing this parameter will change the rate at which respective rated speeds are attained for automatic run patterns and relevel patterns. A higher value will allow for higher speeds to be attained up to contract speed.

The following procedure describes how to set Acceleration.

1. Navigate to MAIN MENU | SETUP | S-CURVE. See Figure 55.
2. From the S-CURVE menu, scroll and select the profile that is being adjusted.



Figure 127: S-CURVE Menu – Normal Profile

- From the PROFILE menu, scroll and select Acceleration.



Figure 128: NORMAL PROFILE Menu – Acceleration

- From the ACCELERATION menu, select the rate of acceleration.



Figure 129: ACCEL Menu

- Scroll right and press Save.

### 9.1.1.2 Accel Jerk In

The Acceleration Jerk In parameter defines the transition from zero speed to full acceleration. As accel Jerk in increases, the profile transitions more quickly from starting to maximum acceleration. Larger values result in car occupants feeling a greater gravitational force when starting. With larger jerk values, the car reaches constant speed more rapidly, since the pattern spends less time in rounding. This also results in achieving higher constant speeds up to contract speed.

The adjustment range is from 0.3-25  $\text{fps}^3$ .

- Default = 2  $\text{fps}^3$
- Units of measure =  $\text{fps}^3$

The exact amount of time spent in rounding depends on the acceleration rate. Rounding time is  $\text{acceleration} \div \text{initial jerk}$  and should normally be adjusted between 0.6 to 1.3 seconds. You can easily set a one second round by setting the jerk numerically equal to the acceleration. If the acceleration is 2  $\text{fps}^2$ , an initial jerk value of 2  $\text{fps}^3$  will provide one second of initial rounding.

The following procedure describes how to set Accel Jerk In.

- Navigate to MAIN MENU | SETUP | S-CURVE. See Figure 55.
- From the S-CURVE menu, scroll and select the profile that is being adjusted. See Figure 127.

- From the PROFILE menu, scroll and select Accel Jerk In.



Figure 130: NORMAL PROFILE MENUS – Accel Jerk In

- From the JERK IN ACCELERATION menu, select the rate of transition from minimum acceleration speed to full acceleration.



Figure 131: JERK IN ACCEL Menu

- Scroll right and press Save.

### 9.1.1.3 Accel Jerk Out

The Acceleration Jerk Out parameter determines how quickly the profile transitions from maximum to zero acceleration (constant velocity). As Accel Jerk Out increases, the profile transitions more quickly. Lower values provide greater comfort. Larger values result in a greater gravitational force felt in the car when attaining maximum speed. With larger jerk values, the pattern also spends less time in rounding and reaches constant speed sooner resulting in higher achieved speeds up to contract speed.

The adjustment range is from 0.3-25 fps<sup>3</sup>.

- Default = 2 fps<sup>3</sup>
- Units of measure = fps<sup>3</sup>

The exact amount of time spent in rounding depends on the acceleration rate. The time is acceleration ÷ jerk out and should normally be 0.6 to 1.3 seconds. You can easily set a one second rounding time by setting the jerk numerically equal to the acceleration. If the acceleration is 2 fps<sup>2</sup>, accel jerk out value of 2 fps<sup>3</sup> will give one second of rounding. Rounding should never take more than one half of the total time to reach constant speed.

The following procedure describes how to set Accel Jerk Out.

- Navigate to MAIN MENU | SETUP | S-CURVE. See Figure 55.
- From the S-CURVE menu, scroll and select the profile that is being adjusted. See Figure 127.

- From the PROFILE menu, scroll and select Accel Jerk Out.



Figure 132: NORMAL PROFILE Menu – Accel Jerk Out

- From the JERK OUT ACCELERATION menu, select the rate of transition from maximum acceleration to zero acceleration.



Figure 133: JERK OUT ACCEL Menu

- Scroll right and press Save.

### 9.1.1.4 Deceleration

The Deceleration parameter defines the rate at which the car reaches leveling speed. The higher the deceleration value, the sharper the rate. For example, with Contract Speed set at 350 fpm (5.8 ft/s), and Deceleration set to 1 fps<sup>2</sup>, the car will reach leveling speed in 5.8 seconds. This calculation is before rounding is considered. Each rounding corner will normally add about half of its rounding time to the time to reach contract speed.

The adjustment range is from 1-8 fps<sup>2</sup>.

- Default = 1 fps<sup>2</sup>
- Units of measure = fps<sup>2</sup>

The following procedure describes how to set Deceleration.

- Navigate to MAIN MENU | SETUP | S-CURVE. See Figure 55.
- From the S-CURVE menu, scroll and select the profile that is being adjusted. See Figure 127.
- From the PROFILE menu, scroll and select Deceleration.



Figure 134: NORMAL PROFILE – Deceleration

- From the DECELERATION menu, select the rate of deceleration.



Figure 135: DECEL Menu

- Scroll right and press Save.

### 9.1.1.5 Decel Jerk In

The Deceleration Jerk In parameter controls the softness of the transition from constant velocity to deceleration. Larger values resulting car occupants feeling a greater gravitational force when rounding into constant deceleration. With larger jerk values, the car reaches constant deceleration more rapidly; since the pattern spends less time in rounding reaches leveling speed sooner.

The adjustment range is from 0.3-25  $\text{fps}^3$ .

- Default = 2  $\text{fps}^3$
- Units of measure =  $\text{fps}^3$

The exact amount of time spent in rounding depends on the deceleration. Rounding time is  $\text{deceleration} \div \text{deceleration jerk in}$  and should normally be adjusted between 0.6 to 1.3 seconds. You can easily set a one second rounding time by setting the jerk numerically equal to the deceleration. If the deceleration is 2  $\text{fps}^2$ , a deceleration jerk in value of 2  $\text{fps}^3$  will provide one second of deceleration rounding.

The following procedure describes how to set Decel Jerk In.

- Navigate to MAIN MENU | SETUP | S-CURVE. See Figure 55.
- From the S-CURVE menu, scroll and select the profile that is being adjusted. See Figure 127.
- From the PROFILE menu, scroll and select Decel Jerk In.



Figure 136: NORMAL PROFILE Menu – Decel Jerk In

- From the JERK IN DECELERATION menu, select the rate of transition from zero deceleration to maximum deceleration.



Figure 137: JERK IN DECEL Menu

- Scroll right and press Save.

### 9.1.1.6 Decel Jerk Out

The Deceleration Jerk Out parameter controls the softness of the transition from deceleration to leveling speed. Larger values resulting car occupants feeling a greater gravitational force when rounding into constant leveling speed. With larger jerk values, the car reaches leveling speed more rapidly; since the pattern spends less time in rounding reaches leveling speed sooner.

The adjustment range is from 0.3-25  $\text{fps}^3$ .

- Default = 0.8  $\text{fps}^3$
- Units of measure =  $\text{fps}^3$

Deceleration Jerk out defines the transition from approach deceleration to Leveling Speed. As Jerk out increases, the profile transitions more quickly from Deceleration to Leveling Speed. This value should be kept low to avoid high tracking errors.

The following procedure describes how to set Decel Jerk Out.

- Navigate to MAIN MENU | SETUP | S-CURVE. See Figure 55.
- From the S-CURVE menu, scroll and select the profile that is being adjusted. See Figure 127.
- From the PROFILE menu, scroll and select Decel Jerk Out.



Figure 138: NORMAL PROFILE – Decel Jerk Out

- From the JERK OUT DECELERATION menu, select the rate of transitions from maximum deceleration to leveling speed.



Figure 139: JERK OUT DECEL Menu

- Scroll right and press Save.

### 9.1.1.7 Leveling Distance

The Leveling Distance parameter determines the stabilized distance the elevator will travel before arriving at the destination floor. The car will travel at leveling speed for the set distance before ramping to zero.

The adjustment range is from 0-24.4 in.

- Default = 1 inch
- Units of measure = inches

Increasing this parameter will allow car to run at leveling speed for the programmed distance. A higher value allows the car to correct any speed overshoot but increases leveling time. A value too low may cause overshoot of the floor due to motor tracking issues and a harsh stop under the brake.

The following procedure describes how to set the leveling distance.

- Navigate to MAIN MENU | SETUP | S-CURVE. See Figure 55.
- From the S-CURVE menu, scroll and select the profile that is being adjusted. See Figure 127.
- From the PROFILE menu, scroll and select Leveling Distance.



Figure 140: NORMAL PROFILE Menu – Leveling



- From the LEVELING DISTANCE menu, select the stabilized distance the elevator travels before arriving at the destination floor.



Figure 141: LEVELING DISTANCE Menu

- Scroll right and press Save.

## 9.2 Quick Stop Deceleration

The quick stop deceleration is the rate the controller uses to slow down when an NTS (Normal Terminal Stop) event is triggered. This rate is independent of what the drive does and is a backup to the drive. Setting the value too high would cause the car to decelerate at a very high and aggressive rate, too low of a value might cause the car to not be able to reach NTS speed in time.

**NOTE:** The drive always takes the lower commanded speed, so if the controller Quick Stop Decel rate is more aggressive than the drives internal decel rate, the drive will command the controller's rate.

The adjustment range is from 0 -25.5 fps<sup>2</sup>.

- Default = 8.0 fps<sup>2</sup>
- Units of measure = fps<sup>2</sup>

The following procedures describe how to set the deceleration rate during quick stop deceleration.

- Navigate to MAIN MENU | SETUP | S-CURVE. See Figure 55.
- From the S-CURVE menu, scroll and select Quick Stop Decel.



Figure 142: S-CURVE Menu – Quick Stop Decel

- From the QUICK STOP DECELERATION menu, enter the rate of deceleration for a quick stop.



Figure 143: QUICK STOP DECEL Menu

- Scroll right and press Save.

## 9.3 Leveling Deceleration

Leveling Deceleration is the rate of deceleration from leveling speed to 0. This value should not need to be changed from the maximum set value. A value too low may cause inconsistent floor counts.

The adjustment range is from 0 -25.5 fps<sup>2</sup>.

- Default = 25.5 fps<sup>2</sup>
- Units of measure = fps<sup>2</sup>

The following procedures describe how to set leveling deceleration.

- Navigate to MAIN MENU | SETUP | S-CURVE. See Figure 55.
- From the S-CURVE menu, scroll and select Leveling Decel.



Figure 144: S-CURVE Menu – Leveling Decel

- From the LEVELING DECELERATION menu, enter the rate of deceleration for leveling.



Figure 145: LEVELING DECEL Menu

- Scroll right and press Save.

## 9.4 Short Run Minimum Distance

The short run minimum distance sets the distance below where short run profiles are used instead of normal profiles.

The following procedures describe how to set the minimum distance during a short run.

1. Navigate to MAIN MENU | SETUP | S-CURVE. See Figure 55.
2. From the S-CURVE menu, scroll and select Short Run Minimum Distance.



Figure 146: S-CURVE Menu – Short Run Min Distance

3. From the SHORT RUN MINIMUM DISTANCE menu, enter the distance the car travels down for a short run.



Figure 147: SHORT RUN MIN DIST Menu

4. Scroll right and press Save.

## 9.5 Destination Offset

Destination offsets are used to make up for motor tracking issues when making floor levels. The destination offset up is set to start slowing down the car prior to the landing when moving in the up direction. The destination offset down is set to start slowing down the car prior to the landing when moving in the down direction. Best practice is to set all floor levels in one direction (approaching floor in the up direction for example) and then set offset approaching the floor from the other direction (setting Destination Offset Down in this example) to offset floor level discrepancy in different approach directions.

**NOTE:** If destination offset is set to a value higher than 26 counts, it will cause the car to relevel. Releveling offset will need to be set to match the destination offset in that situation.

The following procedure describes how to set the offset destination offset when the car is moving.

1. Navigate to MAIN MENU | SETUP | S-CURVE. See Figure 55.

- From the S-CURVE menu, scroll and select Destination Offset Up or Destination Offset Down.



Figure 148: S-CURVE Menu – Destination. Offset (Up or Down)

- From the DESTINATION OFFSET UP or DOWN menu, enter the amount offset allowed when the car is moving down.



Figure 149: DESTINATION OFFSET UP Menu



Figure 150: DESTINATION OFFSET DOWN Menu

- Scroll right and press Save.

## 9.6 Relevel Offset

Releveling offsets are used to make up for motor tracking issues when releveling up or down to a floor. This is active when the car is leveling up to or down to a floor.

**NOTE:** If destination offset is set to a value higher than 26 counts, it will cause the car to relevel. Releveling offset will need to be set to match the destination offset in that situation.

The following procedure describes how to set the releveling offset when the car is releveling.

- Navigate to MAIN MENU | SETUP | S-CURVE. See Figure 55.
- From the S-CURVE menu, scroll and select Relevel Offset Up or Relevel Offset Down.

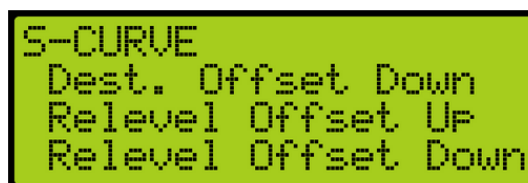


Figure 151: S-CURVE Menu – Relevel Offset (Up or Down)

- From the RELEVEL OFFSET UP or DOWN menu, enter the amount offset allowed when the car is moving up.



Figure 152: RELEVEL OFFSET UP Menu



Figure 153: RELEVEL OFFSET DOWN Menu

- Scroll right and press Save.

## 9.7 Drive Adjustment

**Contract Speed Tracking** – The following drive adjustments are:

- F5 drive** – See *Drive Startup KEB* for proper drive setup.
  - Set parameter LS02 High Speed to the car contract speed.  
**NOTE:** US06 sets the max value that LS02 can be. LS02 can be set to any value that is less than or equal to US06.
  - Check LC03/LC04 proportional gain vales are not set too low. Lower values (less than 1000) may result in loose control and overshoot of the command speed.
  - Check LC08/LC09 Integral gain values are not set too high. High values can result in pulsations during acceleration, deceleration, or at contract speed. Lower values result in the speed to lag command.
- HPV900** – See *Drive Startup HPV900* for proper drive setup.
  - Set Contract Car SPD to the car contract speed in the A1 menu.
  - Verify Contract MTR SPD in the A1 matches the motor manufacturer name plate. If the car is traveling too fast then reduce this value, if too slow then increase it.
  - Increase Inertia in the A1 menu.
- M1000** - See *Drive Startup Manual M1000* for proper drive setup.
  - Set Contract Car SPD to the car contract speed in the A1 menu.
  - Verify Contract MTR SPD in the A1 matches the motor manufacturer name plate. If the car is traveling too fast then reduce this value, if too slow then increase it.
  - Increase Inertia in the A1 menu.
- DSD412** – See *Drive Startup Manual DSD412* for proper drive setup.
  - Set Rated Car Speed #17 to the car contract speed.

- Verify Motor RPM #11 matches the motor manufacturer name plate. If the car is traveling faster than commanded then reduce this value, if too slow then increase it.
- Check Per-Unit Inertia #41 value is not set too low which will result in velocity overshoot. If value is set too high, it will result in velocity undershoot.

**Motor Current Limiting** – If running out of motor current near the end of Acceleration becomes a problem, as is evidenced by the AC motor current on the drive keypad during a full load UP operation:

- **F5 Drive** – Set parameter LC.30 Maximum Torque = 300 (3x LF.17). This will automatically adjust the current limit.
  - Magnetek – Increase A1 > Mtr Torque Limit.
  - If this does not help, reduce the value of Acceleration. Another possibility is to decrease the value of accel jerk out so that there is a smooth transition from maximum acceleration to contract speed.
  - Slope of Acceleration / Deceleration – Ideally, the slope of acceleration should be equal to or slightly greater than the slope of deceleration. To get approximately equal acceleration and deceleration speeds in a system where tracking accuracy is very good, Acceleration can be equal to Deceleration. If tracking is less accurate, set Acceleration greater than Deceleration to get the same effective rate of deceleration as acceleration.

**Approaching the Floor** – Final approach to the floor can be customized in many different ways. If tracking accuracy is very good, you can set the following:

- **Leveling Speed** – The desired leveling speed. A typical number is from 2 to 5. See section 13.5 Leveling Speed.
- **Leveling Distance** – The distance of choice. A typical number is from 1 to 2. See section 9.1.1.7 Leveling Distance.  
If ideal tracking is not obtained, begin to introduce values in the Leveling Speed and Distance that allows for molding the shape of the last few inches of approach.

**Increase in Deceleration Rate** – If observing an increase of deceleration as the floor is approached, it is generally due to inaccurate tracking.

- Improve tracking or lower the value of the Deceleration parameters.

## 9.8 Controlling Initial Start of Car Motion

Gearless application may experience rollback at the start of car motion. To control rollback at the start of the run:

- Implement pre-torque to the system
- Make brake adjustments
- Apply synthetic speed torque
- Adjust run timers

### 9.8.1 Pre-Torque Adjustments

For jobs with the Smartrise serial load weighing device (LWD), load information can be used to provide pre-torquing of the motor to accommodate for load changes and prevent rollback. See *C4 Load Weighing Device* for calibrating the LWD. If the configuration at the job site is using the Omega LWD, see the *Omega Load Weighing Device User Manual* for calibrating the LWD.

### 9.8.2 Brake Adjustment

Brake adjustments can be done to allow for rollback control using slow picking of the brake. Increase the brake ramp time in the Brake Setup menu to allow for slow picking of the brake and for the sheave to move under the brake. See section 6 Brakes to adjust the brake.

Brake pick delay in the run timers can also be increased to allow time for the drive to hold the car at zero speed.

### 9.8.3 Synthetic Speed Torque

Adjust the value of the MIN ACCEL Speed in the Speed menu to a value between 2 and 4 to overcome rollback. Use this in conjunction with the brake adjustments for best ride quality. The Min Releveling Speed value might also need to be adjusted. Force the car to relevel to verify no roll back occurs during releveling operation.

**NOTE:** This speed is applied instead of 0 speed at the beginning of the run. While it will help overcome rollback, it also causes the car to jerk forward when traveling in the direction of least resistance.

## 9.9 Adjusting Run Timers

Start and end run timers are used to maximize the quality of the run for each car. The run timers may need to be adjusted depending on the start and stop sequence.

**Acceleration Delay** – Delays the pattern and holds the car at the min acceleration speed. This value can be increased to allow for the drive to generate pre-torque for motor control or can be set lower to lower start of run delay.

The adjustment range is from: 0 – 65535 ms.

- Default = 100 ms on Automatic Operation and 0 ms on Inspection Operation
- Units of Measure: ms

**Brake Pick Delay** – The Brake Pick Delay parameter adds a delay to the brake energizing phase of the start of run sequence. As the delay time increases, the brakes are deenergized for a longer period of time to allow time for the motor to energize and gain control of the car. As time decreases, the brakes energize faster to allow for a faster take off.

If pick delay is too high, the motor can potentially run through the brake. If pick delay is too low, roll back may potentially occur if the car is not balanced or drive is tuned to handle the load.

The adjustment range is from: 0 - 65535 ms.

- Default: 100 ms
- Units of Measure: ms

**Brake Drop Delay** – The Brake Drop Delay parameter controls the amount of time the motor holds at zero speed prior to deenergizing the primary brake. If the delay is too soon, the brakes deenergize and car may stop under the brake causing a harsh stop. If the timer is set too long, the car may roll forward or back. This parameter should remain at 0 for most jobs unless there is a bit of overshoot in the motor.

The adjustment range is from: 0 - 3000 ms.

- Default: 0 ms
- Units of Measure: ms

**Drive Drop Delay** – Sets the stop sequence delay between dropping the brake and dropping drive control (zero speed). Value can be increased if the drive is dropping control too early and there is still movement after the brake drops. Lowering the value may cause unwanted movement at the end of the run.

The adjustment range is from: 0 - 3000 ms.

- Default = 500 ms
- Units of Measure: ms

**Motor Drop Delay** – Sets the stop sequence delay between dropping drive control and dropping the M contactor. This value should remain unchanged for most jobs. A high value may cause a delay in the stop sequence, a low value may cause drive faults due to the M contactor de-energizing while the motor is still energized.

The adjustment range is from: 0 - 65535 ms.

- Default: 0 ms
- Units of Measure: ms

**B2 Drop Delay** – Sets the stop sequence delay between dropping the secondary brake and dropping the B2 contactor. Timer set too low may cause the contactor to open under load, timer set too high will cause a longer stop sequence.



The adjustment range is from: 0 -65535 ms.

- Default: 500 ms
- Units of Measure: ms

**EBrake Drop Delay** – Sets the stop sequence delay between reaching zero speed and dropping the secondary brake. A longer timer would allow the brake to remain open longer after the run. A short timer would drop the brake at least 1 second after zero speed command.

The adjustment range is from 1000 -65535 ms on Automatic Operation and 0-65535 ms on Inspection Operation.

- Default: 1000 ms on Automatic Operation and 0 ms on Inspection Operation
- Units of Measure: ms

**Disable Ramp Zero** – The Disable Ramp Zero parameter disables ramping down command speed from leveling speed to 1 fpm prior to dropping a run. This option must be OFF for KEB drives due to the drive’s internal slowdown profile. This parameter should remain off for most jobs.

The adjustment range is from: ON or OFF.

- Default: OFF

**Disable. Hold Zero** – The Disable Ramp Zero parameter disables stop sequence check for encoder speed to read below 1 fpm prior to dropping the brake. Turning this option OFF may increase floor level accuracy. This option should remain off for most jobs.

The adjustment range is from: ON or OFF.

- Default: OFF

The following procedure describes how to adjust the Run Timers.

1. Navigate to MAIN MENU | SETUP | Run Timers. See Figure 54.
2. Adjusting start of run timers or end of run timers?



Figure 154: TIMERS Menu

- a. If adjusting start of run timers, from the TIMERS menu, click Start Timers and go to step 3.
- b. If adjusting end of run timers, from the TIMERS menu, click Stop Timers and go to step 4.

3. If adjusting Accel Delay or Brake Pick Delay, select the timer being adjusted and adjust the value. Go to step 5.



```
START TIMERS
Accel Delay (Auto)
*Accel Delay (Insp)
Brake Pick (Auto)
```

Figure 155: START TIMERS Menu

4. If adjusting Brake Drop Delay (Insp), Drive Drop Delay (Insp), Motor Drop Delay (Insp), B2 Drop Delay (Insp), or Emergency Brake Drop Delay (Insp), scroll and select the timer being adjusted and adjust the value.



```
STOP TIMERS
*Brake Drop (Auto)
Brake Drop (Insp)
Drive Drop (Auto)
```

Figure 156: STOP TIMERS Menu

5. Scroll right and press Save.

## 10 SmartPositioning Landing System

The SmartPositioning Landing System tracks elevator speed and position with high precision and superior reliability. It incorporates a contact-less dual infrared sensor system, QR Code tape and a SmartClip consolidated mounting system that reduces installation time and maintenance. The system increases performance and reliability. See Figure 4 and Figure 5 for the SmartPositioning Landing System.

The SmartPositioning Landing System consists of:

- Coded Tape
- Sensor Array Assembly
- Tape Clip Assembly
- Top Tape Mount Assembly
- Bottom Tape Mount Assembly
- Emergency Tape Break Switch Assembly

### 10.1 Coded Tape

The tape is a special coded tape that provides the absolute positioning feedback to the CEDES camera.



Figure 157: Coded Tape

#### WARNING

THE TAPE EDGE IS SHARP. CUT-PROOF GLOVES MUST BE WORN WHILE HANDLING THE TAPE.



Figure 158: Gloves Required

The following procedure describes how to install the tape.

1. Open the tape box at the top corner, being mindful of the sharp end or edges, and pull out tape as needed.

**CAUTION:** Do not pull too much tape out of the box as excessive bending can occur and damage the tape.

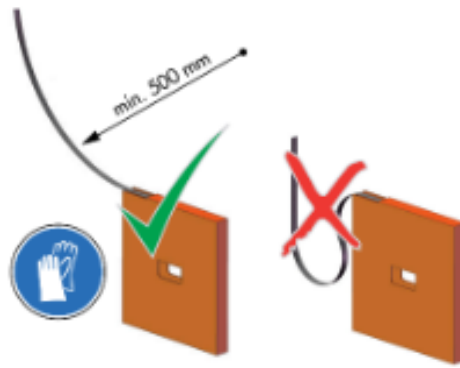


Figure 159: Tape Minimum Bend Radius

2. Serpentine and secure the tape through the bracket then zip tie loose end.

**NOTE:** Verify the words Left are on the left side of the tape with the barcode facing out towards the camera.

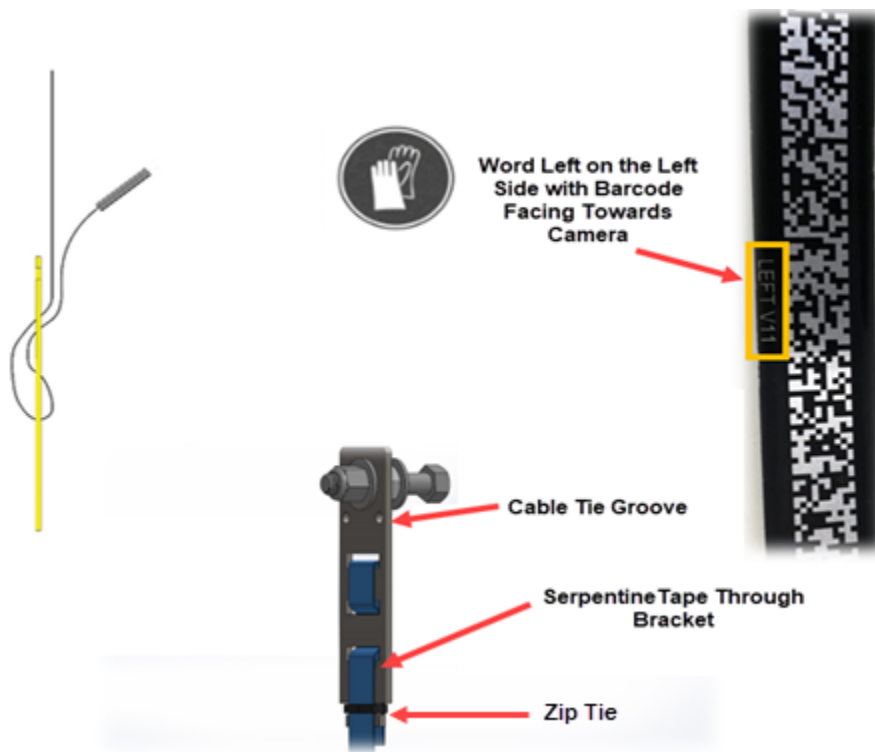


Figure 160: Routing Tape

## 10.2 Sensor Assembly Installation

The following procedure describes how to secure the Sensor Assembly to the Car Top Frame C-Channel.

**NOTE:** Exact positioning and lengths of the Unistrut can be adjusted as needed if the Sensor Array is positioned as shown in Figure 161.

1. Cut the lengths of Unistrut as follows:
  - Two 18"
  - One 24"
2. Bolt the two 18" lengths of Unistrut to the C-Channel.

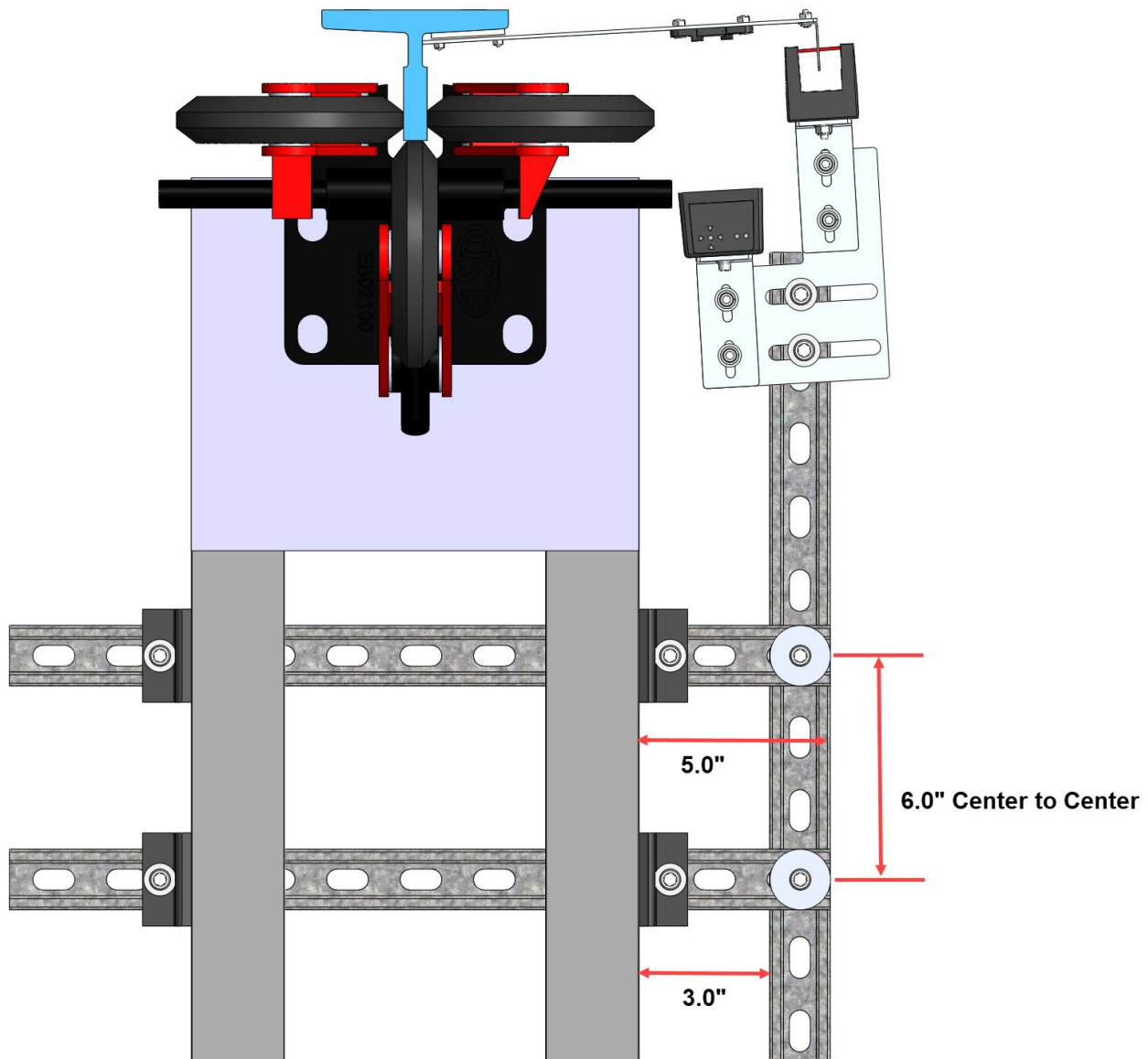


Figure 161: Unistrut Installation

3. Bolt the 24" length of Unistrut to the two 18" lengths of Unistrut. See Figure 161.  
**NOTE:** The 24" length may be bolted to the top of the two 18" lengths if applicable.
4. Temporarily affix a Tape Clip Assembly on the guide rail to use as an alignment for the Sensor Array Assembly.

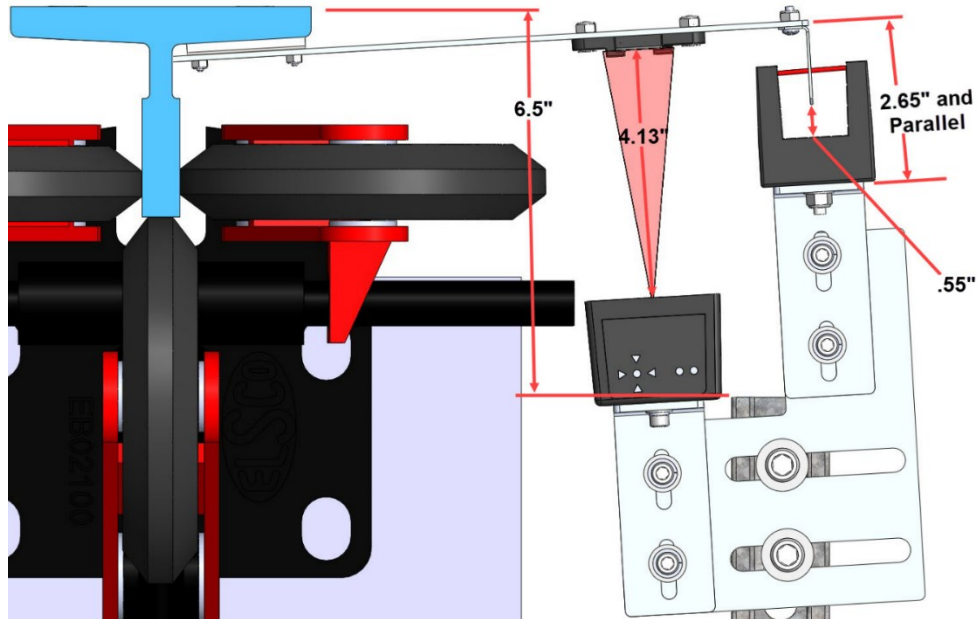


Figure 162: Sensor Array Assembly Positioning

5. Set the end of the 24" length Unistrut at 6.5" from the rear surface of the guide rail. See Figure 162.
6. Loosely bolt the Sensor Array Assembly onto the 24" length of Unistrut with the Door Zone Blade centered horizontally in the GLS Reader and parallel to the Tape Clip Assembly. See Figure 162.
7. Position the Sensor Array Assembly according to the distances shown in then tighten all bolts.  
**NOTE:** The Optical Sensor Mount bolts may be loosened if needed to adjust the position of the sensor.

After the Sensor Array Assembly positioning has been completed, the Sensor Array Assembly needs to be fine-tuned for proper operation. See section 10.8 Fine Tune.

### 10.3 Upper Tape Mount Assembly

The Upper and Lower Tape Mount Assemblies are located as shown.

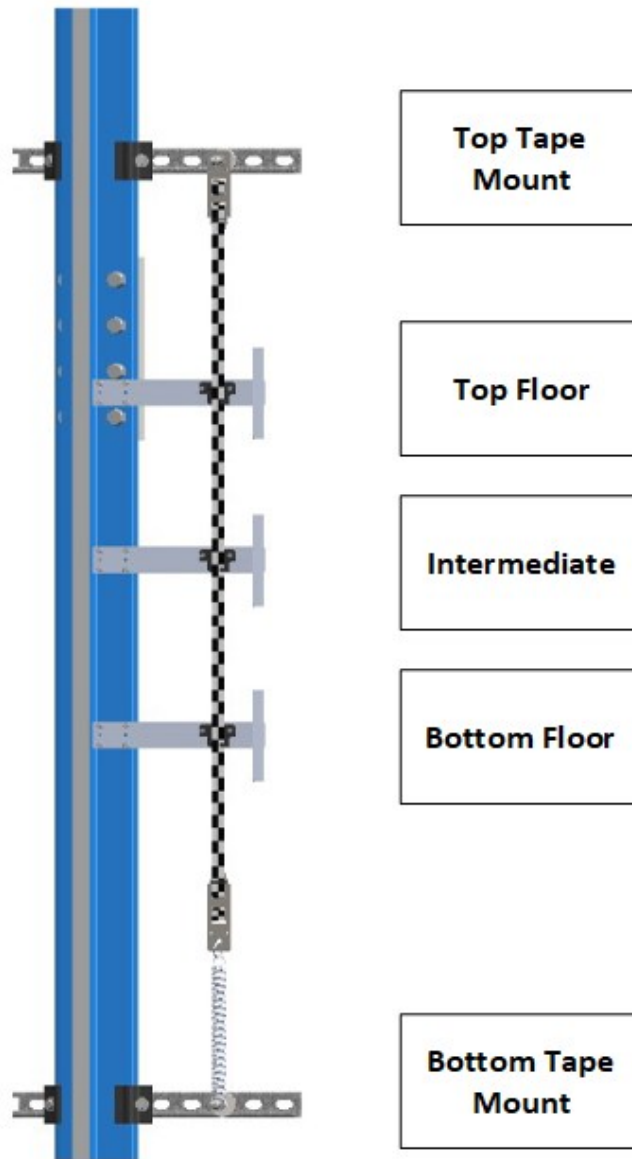


Figure 163: Location of Tape Mount Assemblies

The following procedure describes how to install the Upper Tape Mount Assembly.

1. Affix an 18" length of Unistrut to the top of the guide rail.

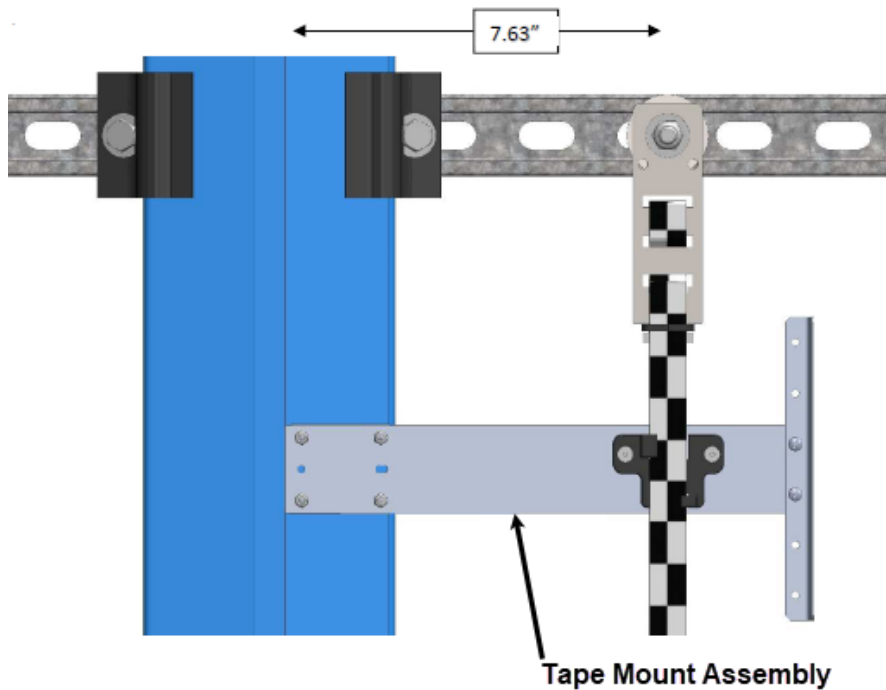


Figure 164: Upper Tape Unistrut Installation

2. Loosely attach the hardware to the Upper Tape Mount Assembly.

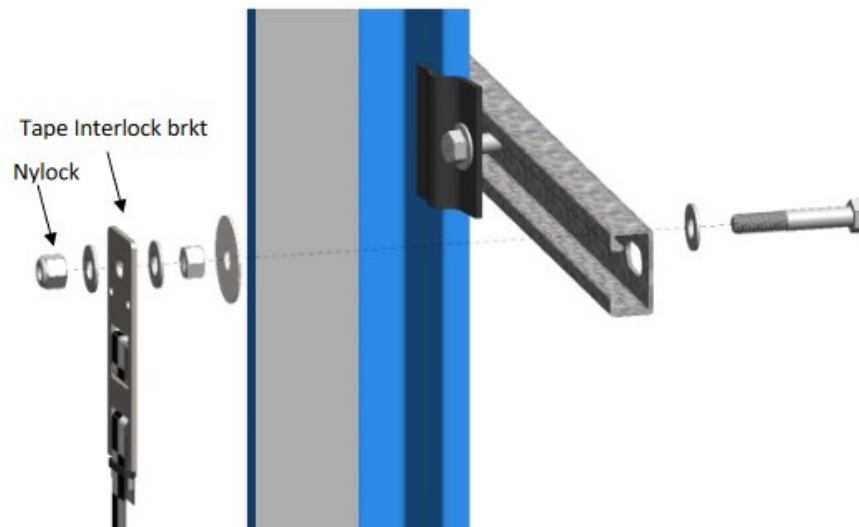


Figure 165: Hardware

3. Position the Upper Tape Mount assembly 7.63" from the wheel surface of the guide rail to the center of the 3/8" bolt. See Figure 164.
4. Temporarily affix a Tape Clip Assembly to the guide rail and onto the tape to verify location.
5. Tighten the first hex nut to secure the assembly in place.



6. Thread the Nylock nut on the bolt until there is a 0.2" gap between the two flat washers that are on either side of the Tape Interlock bracket. This gap is required to relieve twist in the tape.

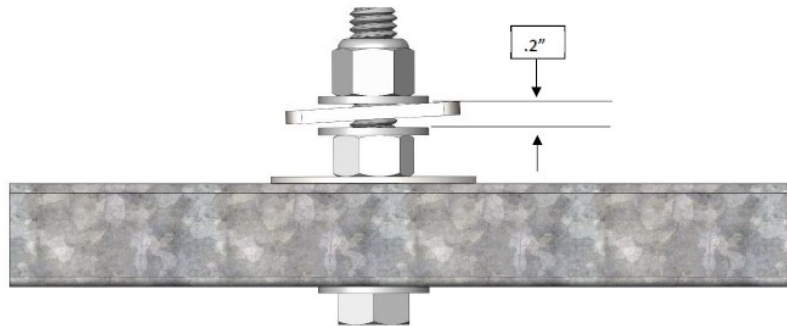


Figure 166: Gap Verification

## 10.4 Tape Clip Assembly

As you descend, unspool the tape, install the Tape Clip Assemblies and set the door zones.

The Tape Clip Assembly includes:

- Tape guide clip
- Door zone (DZ) blade
- Mounting magnets (preassembled)

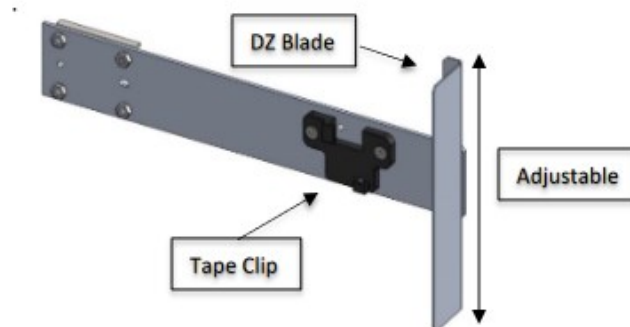


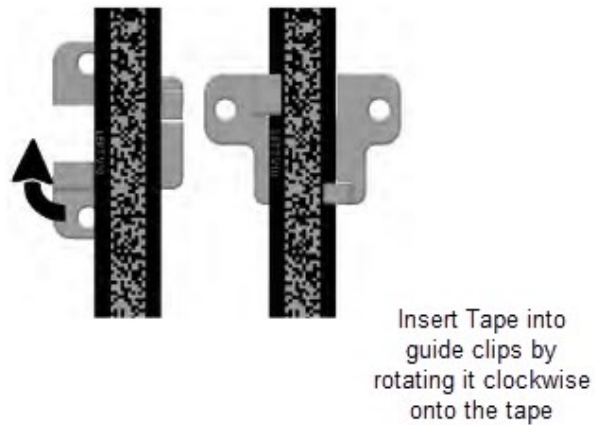
Figure 167: Tape Clip Assembly

**NOTE:** In applications where there is 15 ft. of distance between door zones, an extra bracket needs to be placed between those door zones. The bracket will only contain the tape clip and NOT the DZ blade. This will minimize tape twisting caused by long distances between the door zones. These extra tape clip brackets will be provided as needed.

The following procedure describes how to install the Tape Clip Assembly.

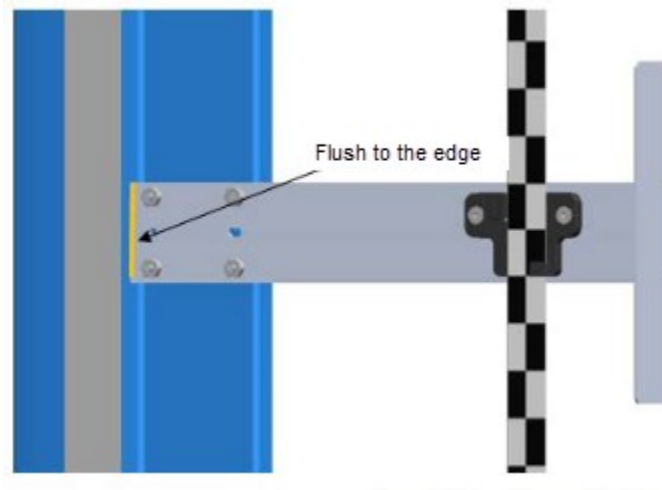
1. Bring the car to floor level.
2. Wipe the rail clean where the Tape Clip Assembly is being attached.
3. Holding the Tape Clip Assembly with one hand and the tape with the other, rotate the tape into the tape clip.

**CAUTION:** Do not twist or bend the tape as this may damage the tape.



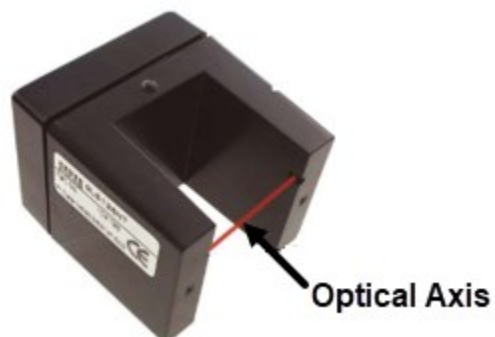
*Figure 168: Tape Clip Insertion*

- Place the Tape Clip Assembly onto the guide rail with the edge flush to the rail.  
**CAUTION:** There are strong magnets. Do not remove the bracket from the rail by pulling the bracket from the far end as this may bend the bracket.



*Figure 169: Tape Clip Assembly Alignment*

- Verify that the DZ blade is vertically centered with the GLS Reader optical axis.



*Figure 170: Optical Axis*

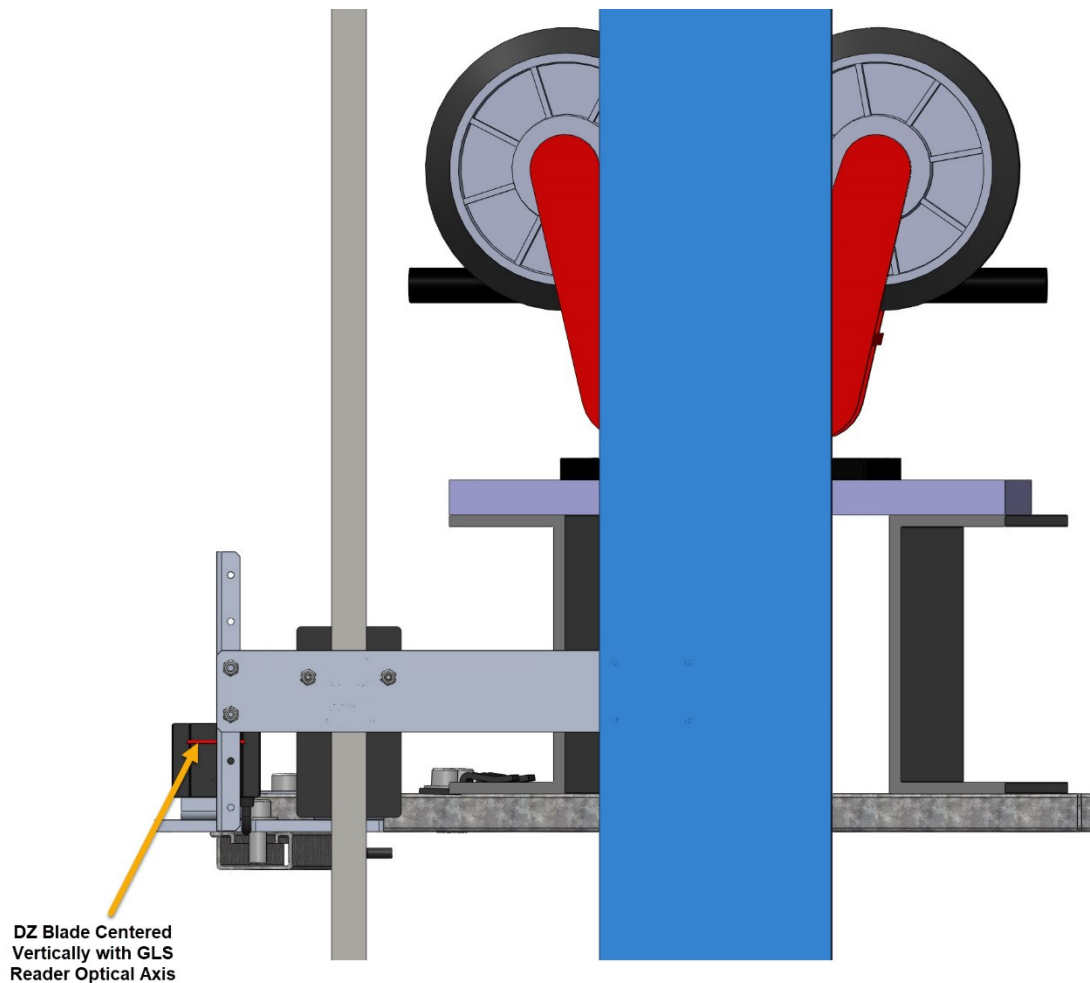


Figure 171: Tape Clip Assembly Placement (Rear View)

6. Are there any bolts or obstructions preventing the Tape Clip Assembly to be placed where needed?
  - a. If there are bolts or other obstructions, remove the two screws, washers and nuts securing the DZ blade and adjust the blade up or down. Go to step 7.
  - b. If there are no obstructions, go to step 9.
7. Has the Tape Clip Assembly been placed as needed after the DZ blade has been moved up and down?
  - a. If there are still obstructions, an extension arm is required. Go to step 8.
  - b. If there are no obstructions, go to step 9.
8. Install extension arm as follows:
  - Remove the DZ blade from the Tape Clip Assembly.
  - Install the door zone extension arm using the same screws, nuts, and washers. See Figure 172.
  - Using two more screws, nuts and washers provided in the install kit, mount the DZ blade to the DZ extension arm at the desired location.

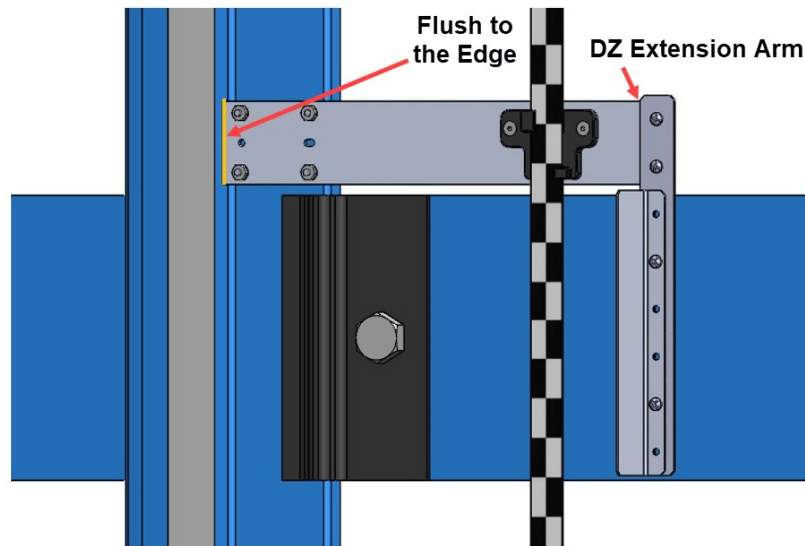


Figure 172: Tape Clip Assembly Alignment

9. Continue down the hoistway, placing the Tape Clip Assembly at each landing.

## 10.5 Lower Tape Mount Assembly

See Figure 163 for the location of the Lower Tape Mount Assembly.

The following procedure describes how to install the Lower Tape Mount Assembly.

1. Affix an 18" length of Unistrut to the bottom of the guide rail.

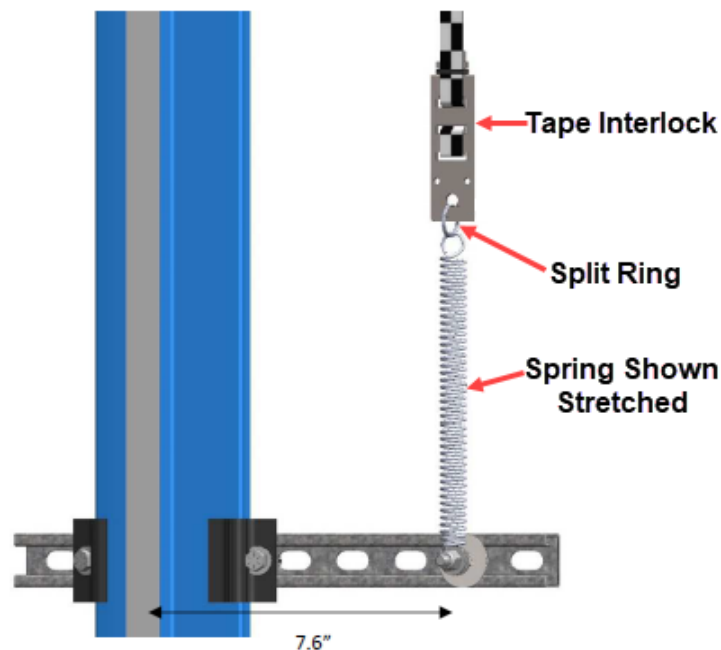


Figure 173: Lower Tape Mount Assembly

- Loosely attach the hardware to the Lower Tape Mount Assembly.

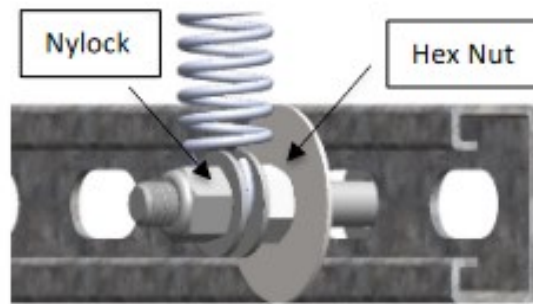


Figure 174: Hardware to Lower Tape Mount Assembly

- Position the Lower Tape Mount Assembly 7.6" from the surface of the guide rail to the center of the 3/8" bolt. See Figure 173.
- Tighten the first hex nut to secure the Lower Tape Mount Assembly in place.
- Thread the Nylock nut onto the bolt until the two flat washers located on each side of the spring are just touching the spring loop. This nut does not need to be tightened.
- Connect the spring to the tape interlock bracket using the split ring. See Figure 173.
- Adjust the spring tension by raising or lowering the Unistrut mounting point so that the spring is stretched to approximately 3".

## 10.6 Sensor Array Assembly

The Sensor Array Assembly contains the CEDES Optical Sensor, CEDES Exact Position GLS Reader, mounting brackets, and associated hardware. The sensors can be oriented differently as long as the corresponding tape and blades are aligned correctly.

After assembly is complete, connect the CEDES Optical Sensor and the CEDES Exact Position GLS Reader to the CT board and secure cabling.

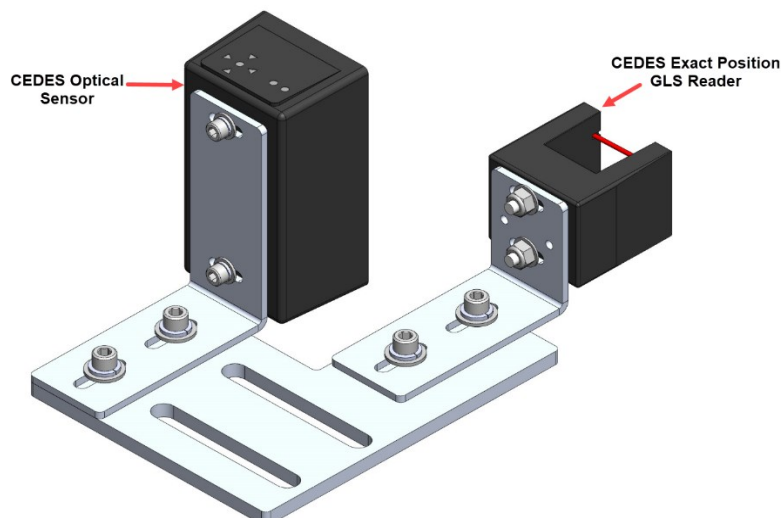
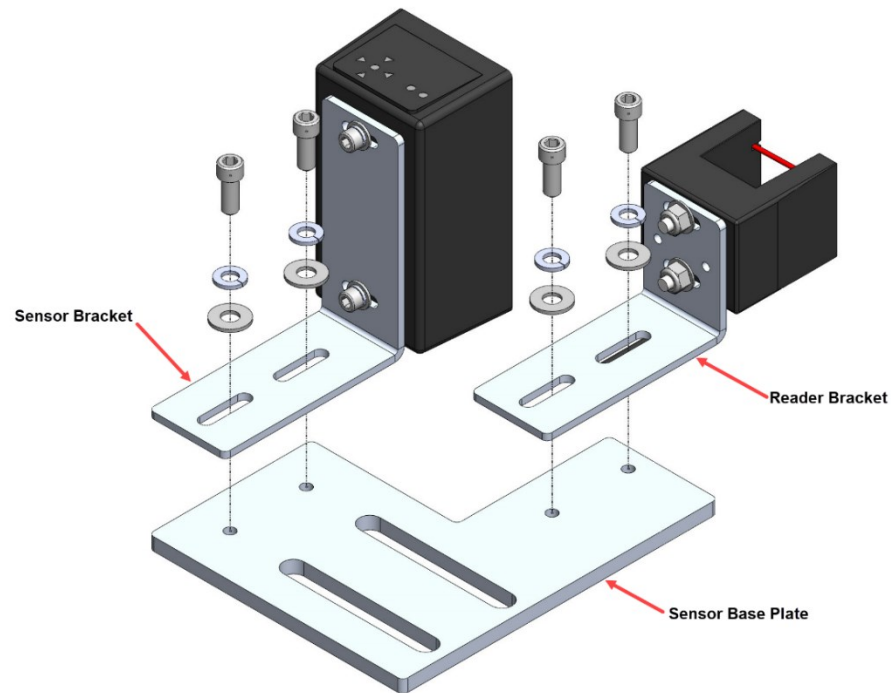


Figure 175: Sensor Array Assembly

The Cedes Optical Sensor and Reader can be connected to either side of the sensor base plate depending upon which side the Sensor Array Assembly is connected to the C-Channel See Figure 4 and Figure 5.

The following procedure describes how to connect the Optical Sensor and Reader to either side of the sensor base plate.



*Figure 176: Sensor Array Assembly (Right Side)*

1. Remove screws, lock washers, and washers securing the sensor and reader brackets to the sensor base plate.
2. Remove both sensor and reader brackets from the sensor base plate.
3. Flip the sensor base plate.

- Place the sensor and reader brackets back onto the sensor base plate and secure.

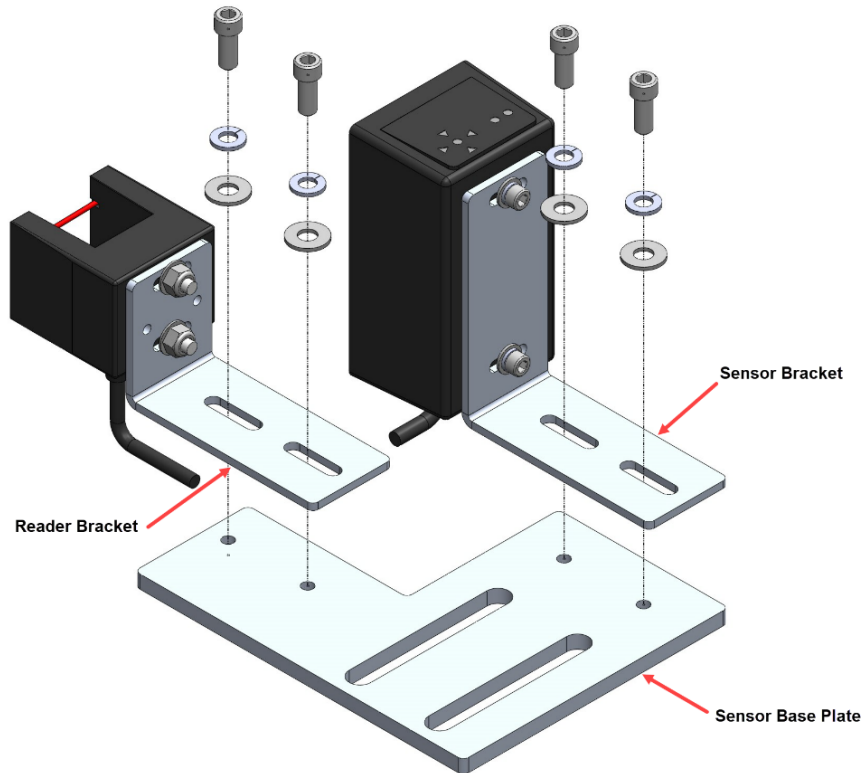


Figure 177: Sensor Array Assembly (Left Side)

A Dual Sensor Array Assembly can be installed if applicable.

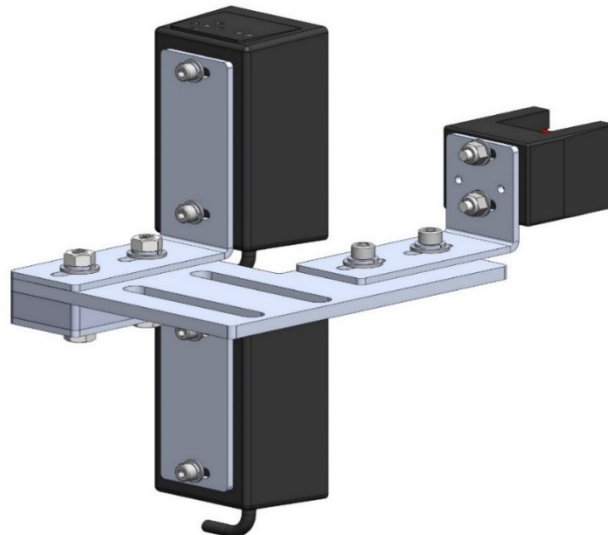


Figure 178: Dual Sensor Array Assembly

The following procedure describes how to connect the Optical Sensor and Reader to either side of the sensor base plate used on a Dual Sensor Array Assembly.

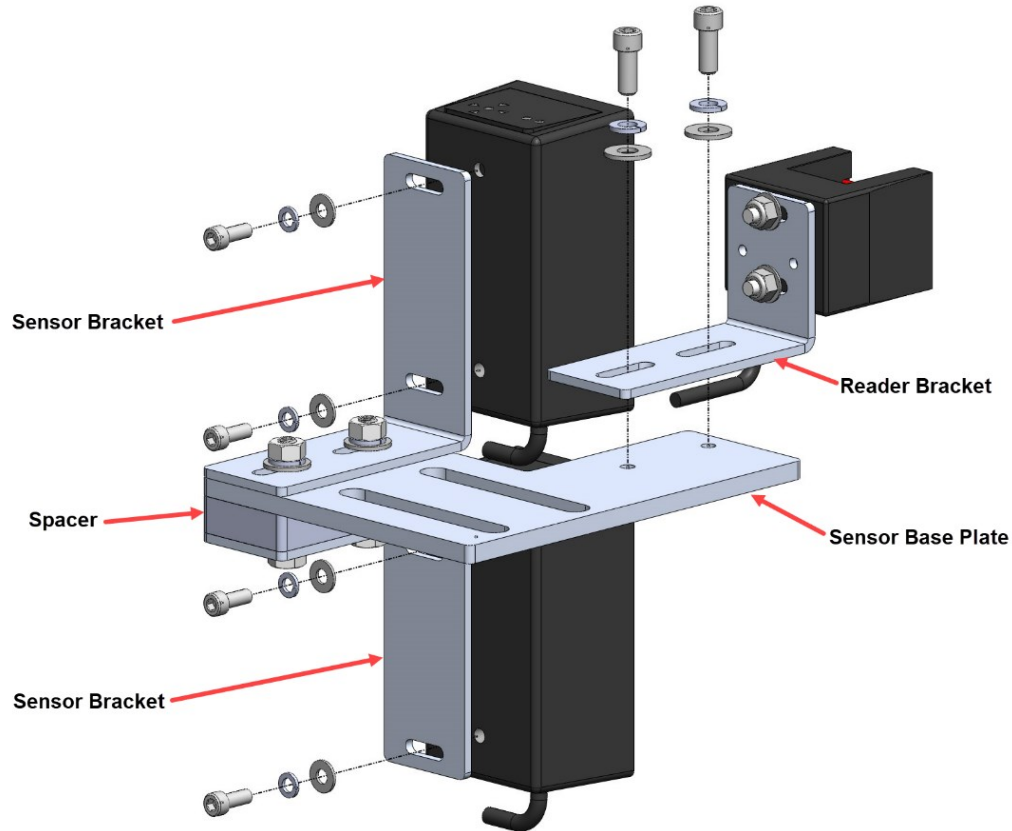


Figure 179: Dual Sensor Array Assembly (Right Side)

1. Remove screws, lock washers, and washers securing both optical sensors to the sensor brackets and remove optical sensors.
2. Remove screws, lock washers, and washers securing the reader bracket to the bottom sensor base plate and remove reader bracket.  
**NOTE:** Do not remove the reader from the reader bracket.
3. Flip the sensor base plate. The spacer is secured to the top of the sensor base plate.
4. Place both optical sensors back onto the sensor brackets with the optical sensor cables facing down and secure.



- Place the reader bracket back onto the sensor base plate and secure.

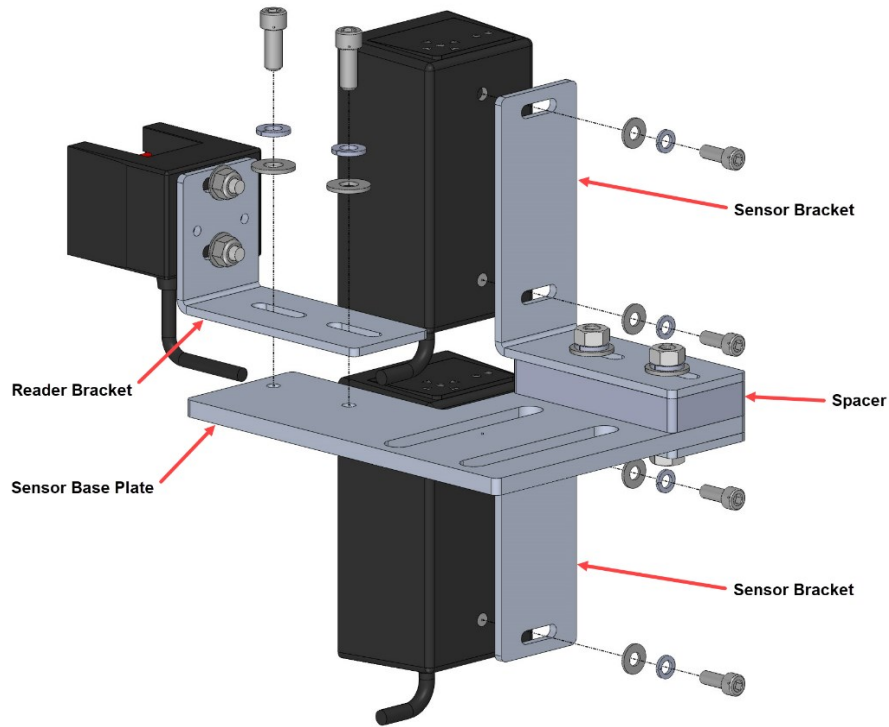


Figure 180: Dual Sensor Array Assembly (Left Side)

## 10.7 Emergency Tape Break (ETB) Switch Assembly

The ETB Switch Assembly is optional.

The ETB switch is installed in the safety string in series with the Buffer switch.

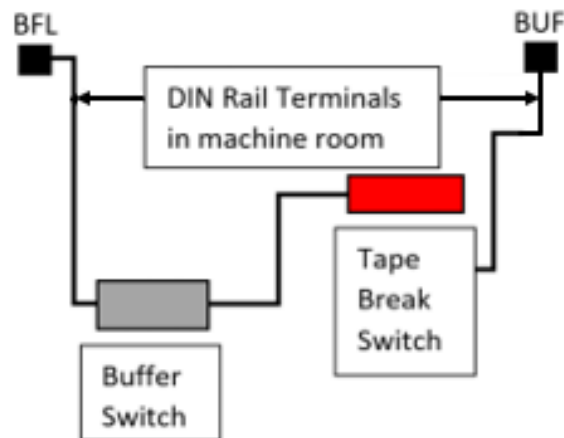


Figure 181: Emergency Tape Break Switch in Series with Buffer Switch

There is slack in the wire when the tape tension spring is fully extended. This slack allows for tape and/or building movement. If the tape breaks, the tension spring retracts and pulls the

cable attachment out of the ETB switch, opening the safety string. Verify that the cable length allows the tab to pull out of the ETB switch when the spring is retracted. See Figure 183.

The following procedure describes how to install the ETB Switch Assembly.

1. Affix a 12" length of Unistrut to the bottom of the guide rail approximately 20" above the Lower Tape Mount Assembly Unistrut.

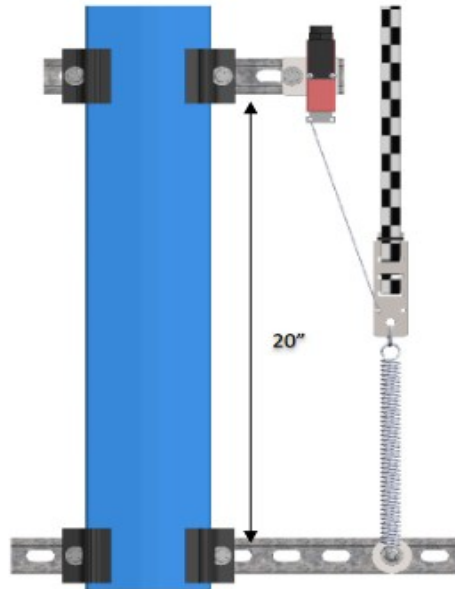


Figure 182: Unistrut to Lower Tape Mount Assembly

2. Attach bracket and ETB switch to the Unistrut.
3. Link the ETB switch to the tape interlock via the cable kit provided. Leave 1-2" for slack in the cable.

**NOTE:** The switch can be mounted vertically as well as by inserting a switch pull tab into the bottom end, pull should always face downward.

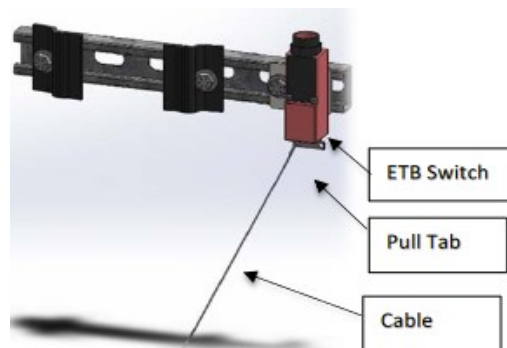


Figure 183: Emergency Tape Break Switch

## 10.8 Fine Tune

Prior to fine tune, verify the Sensor Array Assembly placement. The Sensor Array Assembly should be at a distance of 4.13" with a tolerance of  $\pm 1$  cm from the tape and parallel to the tape clip mounting brackets. See Figure 162.

The optical sensor and reader can move front and back, and side to side as applicable.

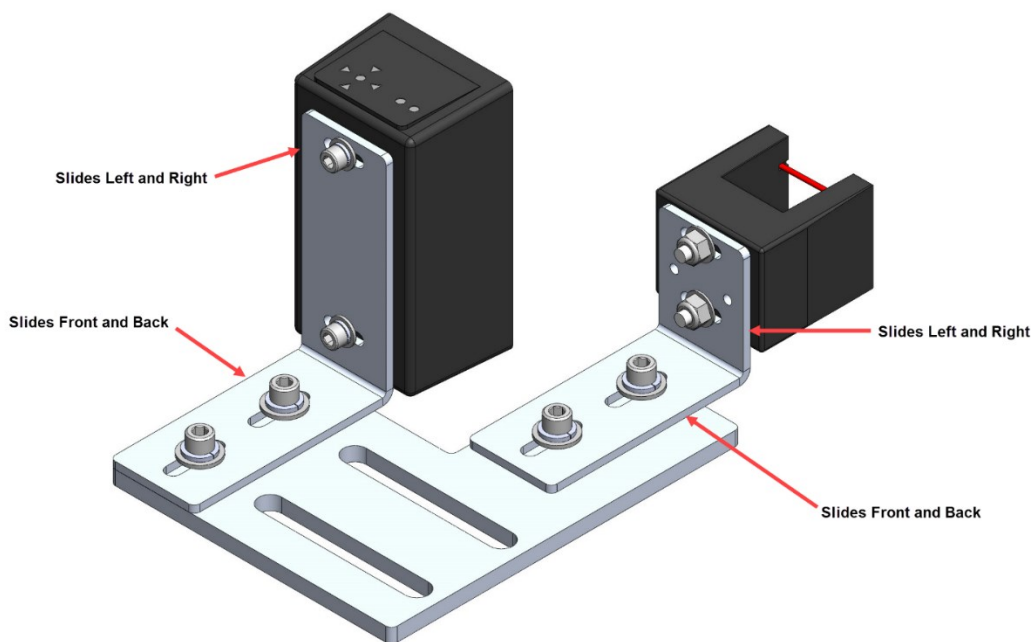


Figure 184: Sensor Array Assembly Adjustment

Power the APS camera via a RJ45 cable to the CT board so a red array can be seen on the tape to allow for alignment. If there is no red array on the tape, reset the power by disconnecting and reconnecting the RJ45 cable to the CT board CAT5 connector.

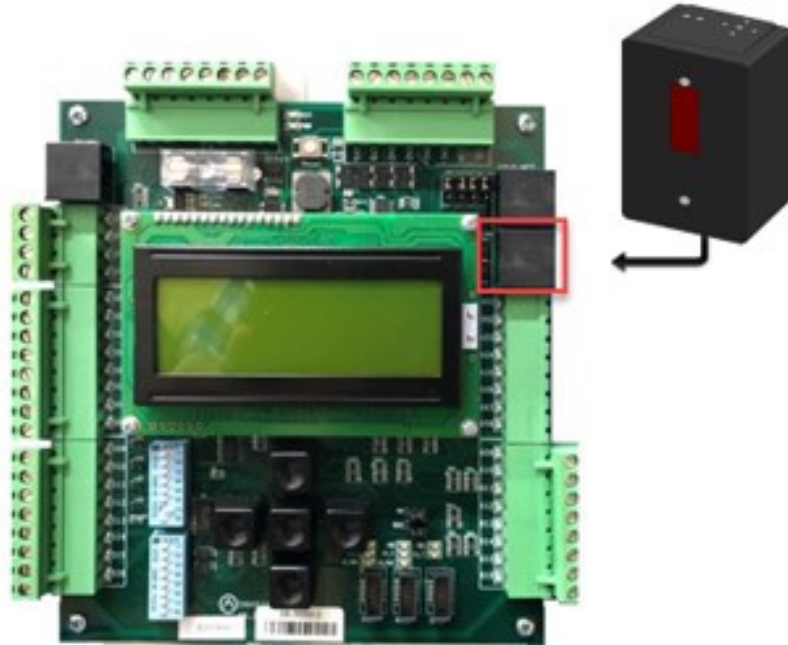


Figure 185: RJ45 Connection

Proceed on inspection up and down the hoistway and adjust each tape guide clip to the correct in-line position with respect to the Sensor Array Assembly.

The camera powers up when the CT station is powered up.

## 10.9 Alignment

Alignment and Position Status LEDs are located on top of the optical sensor. These LEDs are used to align the sensor to the tape.

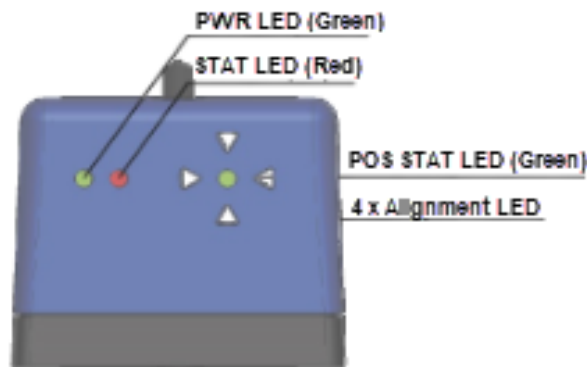


Figure 186: Optical Sensor LEDs

When the optical sensor needs to be aligned, the red arrow LEDs indicate which way to move the sensor.

The following procedure describes how to align the optical sensor.

1. Loosen the two mounting bolts on sensor base plate or sensor bracket to adjust the sensor position, as required.

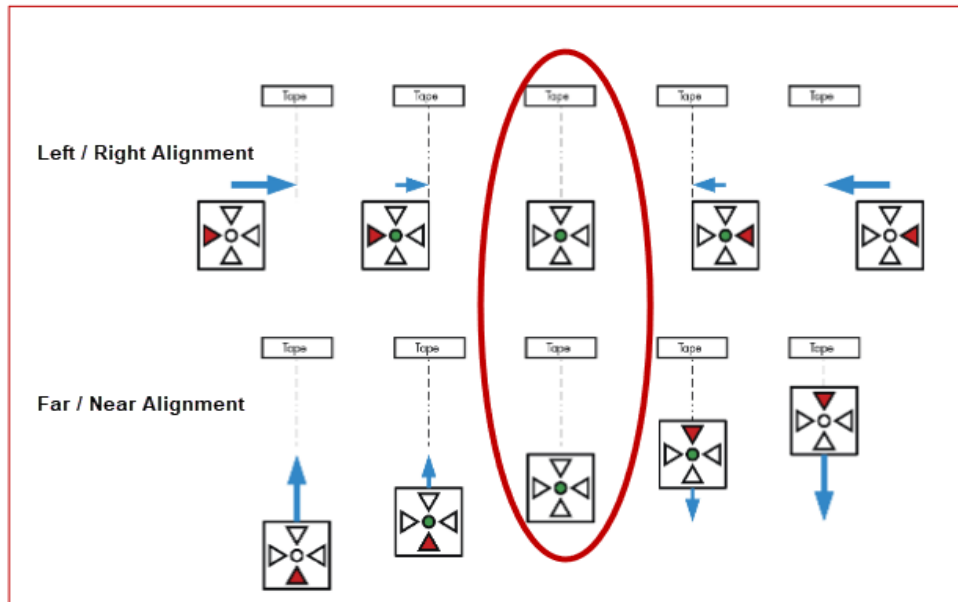


Figure 187: Alignment Arrows

2. Position the sensor according to the LEDs.
  - **Left / Right Alignment** – Using the direction arrows on top of the sensor, move the camera left or right until only the green POS STAT LED is on.
  - **Far / Near Alignment** – Using the directional arrows on top of the sensor, move the sensor closer to or further away from the tape until only the green POS STAT LED is on.
3. Once the sensor is aligned, tighten the two mounting bolts to the sensor base plate or sensor bracket as applicable.
4. Run the car on INSPECTION from terminal to terminal while watching the POS LED on top of the sensor.
5. Is the sensor aligned with the tape for the entire length of travel?
  - a. If the sensor is aligned, the process ends.
  - b. If the sensor is not aligned, go to step 1.

**NOTE:** As the car runs up and down the hoistway, the red alignment arrow LEDs may flash on and off. This is OK if the center green LED stays on.

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## 11 Learning the Hoistway

Prior to learning the hoistway, verify the number of floors and openings are correct. See section 14.8 Floor Openings.

The following procedure describes how to learn the hoistway.

1. Bring the car to the top or bottom floor terminal.
2. Check if the DZ input to the CT board is high by:
  - Checking the top right corner of the Main screen.
  - Viewing status menus.
3. Checking by Main screen?
  - a. If checking by Main screen, go to step 7.



Figure 188: Check Status by Main Screen Method

- b. If checking by Status screen, go to step 4.
4. Press the right button and navigate to MAIN MENU | STATUS | INPUTS. See Figure 45.
5. On the MR board, turn on DIP 5A.
6. The Main screen changes from Normal to Hold UP/DN To Start.
 

**NOTE:** Verify the Fire Service signals are active, or the elevator will go into fire service after the Hoistway learn is complete.

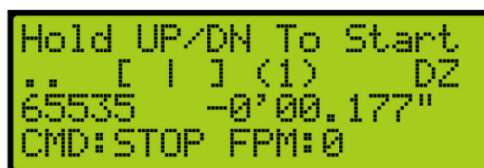


Figure 189: Normal to Hold UP/DN To Start

7. Is the car at the top landing or bottom landing?
  - If the car is at the top landing, hold Enable and Down until the car starts moving.
  - If the car is at the bottom landing, hold Enable and Up until the car starts moving.
8. When the car stops, the screen shows Learn Complete.



Figure 190: Learn Complete

9. On the MR board, turn off DIP 5A.

## 11.1 Learn Speed

Learn speed is used during the learning the hoistway operation.

The following procedure describes how to adjust the learn speed.

1. Navigate to MAIN MENU | SETUP | SPEEDS. See Figure 55.
2. From the SPEEDS menu, scroll and select Learn Speed.



Figure 191: SPEEDS Menu – Learn Speed

3. From the Learn Speed menu, verify the learn speed.  
**NOTE:** Learning at higher speeds may cause errors.



Figure 192: LEARN SPEED Menu

4. Scroll right and press Save.

## 12 NTS/ETS

The NTS and Emergency Terminal Stop (ETS) points are automatically calculated by the system based on the S-curve values that are programmed in the S-curve menu.

There are three profiles that have NTS and ETS points calculated based on their S-curve values.

- P1 – Normal profile
- P3 – Emergency profile
- P4 – Short profile

NTS points are generated after the hoistway is learned and as a result, during Construction Mode or before the hoistway is learned, NTS may get triggered. See section 7.3 Drive Setup to bypass NTS on the drive while in Construction Mode.

An NTS signal, located near the drive connections on the MR board, can be either a 24 VDC source or sink. The NTS LED is in source mode when lit and in sink mode when not lit. the LED will change states when NTS status changes. The functionality may change based on the job and



can be inverted using parameter 01-0067. If the elevator is moving at NTS speed, this may be the cause. For the list of parameters, see the *C4 Parameter List*.

Parameters are provided to reduce the sensitivity of ETS and NTS tripping points.

## 12.1 NTS ODL

The NTS overspeed debounce limit (ODL) is used to reduce the sensitivity of the NTS trip points. Increase this value by 3-5 points to reduce nuisance tripping if elevator tracking is off at the terminal floors.

The following procedure describes how to set the NTS ODL.

1. Navigate to MAIN MENU | SETUP | SAFETY. See Figure 54.
2. From the SAFETY menu, scroll and select NTS ODL.

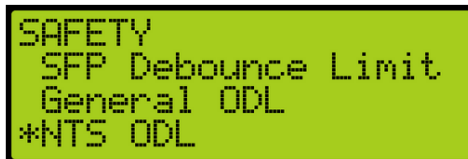


Figure 193: SAFETY Menu – NTS ODL

3. From the NTS ODL menu, enter the NTS debounce limit.



Figure 194: NTS ODL

4. Scroll right and press Save

## 12.2 ETS ODL

The ETS ODL is used to reduce the sensitivity of the ETS trip points. Increase this value by 3-5 points to reduce nuisance tripping if elevator tracking is off at the terminal floors.

The following procedure describes how to set the ETS ODL.

1. Navigate to MAIN MENU | SETUP | SAFETY. See Figure 54.
2. From the SAFETY menu, scroll and select ETS ODL.

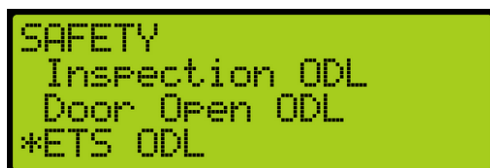


Figure 195: SAFETY Menu – ETS ODL

- From the ETS ODL menu, enter the ETS debounce limit.



Figure 196: ETS ODL Menu

- Scroll right and press Save.

## 12.3 NTS POS

The controller calculates 8 NTS points for each profile based on pattern data. P1 is the normal profile, P3 is emergency profile, and P4 is short profile. The menu displays the points as an offset from the terminal floor, the larger the number, the further from the terminal floor the point is. P1-01 is the closes point to the terminal landing and P1-08 is the furthest. The values can be modified for testing reasons but are automatically recalculated on board reset and S-Curve parameter updates.

The following procedure describes how to view the NTS position for each learned point.

- Navigate to MAIN MENU | SETUP | NTS. See Figure 58.
- From the NTS menu, scroll and select NTS Pos.



Figure 197: NTS Menu – NTS Pos

- From the NTS POSITIONS menu, scroll and select the NTS profile position being set.



Figure 198: NTS POSITIONS Menu – NTS Pos P1

- From the NTS POS P1 menu, set the NTS position.

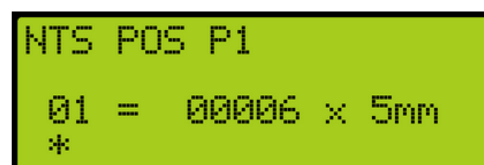


Figure 199: NTS POS P1 Menu

5. Scroll right and press Save.

## 12.4 NTS VEL

The controller calculates eight NTS points for each profile based on pattern data. P1 is the normal profile, P3 is emergency profile, and P4 is short profile. The menu displays the trip speed for each point at the corresponding position viewed in the NTS POS menu. The values can be modified for testing reasons but are automatically recalculated on board reset and S-Curve parameter updates.

The following procedure describes how to view the NTS velocity threshold for each point.

1. Navigate to MAIN MENU | SETUP | NTS. See Figure 58.
2. From the NTS menu, scroll and select NTS Vel.
3. From the NTS VELOCITY menu, scroll and select the velocity profile position being set.



Figure 200: NTS VELOCITY Menu – NTS Vel P1

4. From the NTS VEL P1 menu, set the NTS velocity.

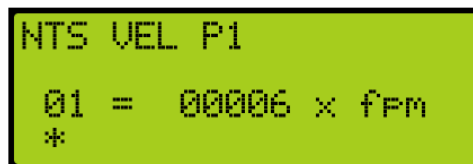


Figure 201: NTS VEL P1 Menu

5. Scroll right and press Save.

## 12.5 ETS Offset

The ETS Offset sets the position offset from generated NTS trip points to be applied to ETS trip points. Units are in 0.2 counts per inch (CPI). This can be used if the ETS points need to be shifted further from the terminal landing.

The following procedure describes how to set the ETS offset.

1. Navigate to MAIN MENU | SETUP | SAFETY. See Figure 54.

- From the SAFETY menu, scroll and select ETS Offset.



*Figure 202: SAFETY Menu – ETS Offset*

- From the ETS OFFSET menu, enter the offset amount for the learned ETS.



*Figure 203: ETS OFFSET Menu*

- Scroll right and press Save.

## 13 Speeds

Individual speed profiles can be set to operate the car.

### 13.1 Contract Speed

The contract speed is the maximum speed of the elevator the job was configured for. If the contract speed is increased, the speed of the car travels faster up to the allowable contract speed. When the speed is increased on the MR board, the speed of the drive has to be increased and the job must be able to handle the updated speed. In rare occasions, contract speed can be decreased due to job configuration discrepancies.

The adjustment range is from 10-1200 fpm.

- Default = Job Specific
- Units of Measure = fpm

The following procedure describes how to set the maximum speed.

1. Navigate to MAIN MENU | SETUP | SPEEDS. See Figure 55.
2. From the SPEEDS menu, scroll and select Contract Speed.



Figure 204: SPEEDS Menu – Contract Speed

3. From the CONTRACT SPEED menu, set the contract speed.



Figure 205: CONTRACT SPEED Menu

4. Scroll right and press Save.

## 13.2 Access Speed

Access speed is the set speed of the elevator during hoistway access. An overspeed fault occurs if the speed feedback is higher than 150 fpm. If the speed is increased, the car travels faster. If the speed is decreased, car runs slower.

The adjustment range is from 0-150 fpm.

- Default = 20 fpm
- Units of Measure = fpm

The following procedure describes how to set the access speed.

1. Navigate to MAIN MENU | SETUP | SPEEDS. See Figure 55.
2. From the SPEEDS menu, scroll and select Access Speed.



Figure 206: SPEEDS Menu – Access Speed

3. From the ACCESS SPEED menu, set the access speed.



Figure 207: ACCESS SPEED Menu

4. Scroll right and press Save.

## 13.3 E-Power Speed

E-Power speed is the speed of the car during emergency power operation. If the speed is increased, the car will run faster during emergency power operation. A generator might not be able to handle higher speeds and slower speeds might be required. If decreased, the car runs slower. This speed cannot be set higher than contract speed.

The adjustment range is from 0-1200 (or contract speed) fpm.

- Default = 10 fpm
- Units of Measure = fpm

The following procedure describes how to set the speed for emergency power operation.

1. Navigate to MAIN MENU | SETUP | SPEEDS. See Figure 55.

- From the SPEEDS menu, scroll and select EPower Speed.

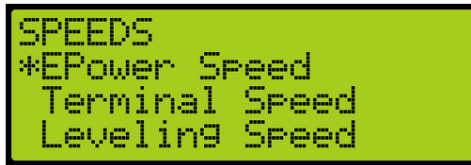


Figure 208: SPEEDS Menu – EPower Speed

- From the EPOWER SPEED menu, set the speed when in an emergency power condition.



Figure 209: EPOWER SPEED Menu

- Scroll right and press Save.

## 13.4 Terminal Speed

Terminal speed sets the speed of the car while on inspection and within the configured soft limit distance of a terminal floor. If speed is increased, the car runs faster when approaching the terminal floor. If the speed is decreased, the car runs slower.

The adjustment range is from 0-30 fpm.

- Default = 15 fpm
- Units of Measure = fpm

The following procedure describes how to set the terminal speed.

- Navigate to MAIN MENU | SETUP | SPEEDS. See Figure 55.
- From the SPEEDS menu, scroll and select Terminal Speed.

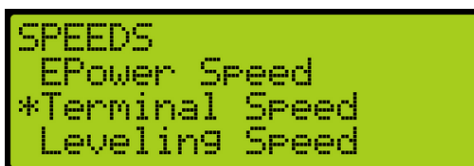


Figure 210: SPEEDS Menu – Terminal Speed

- From the TERMINAL SPEED menu, set the speed of the car during inspection.



Figure 211: TERMINAL SPEED Menu

- Scroll right and press Save.

## 13.5 Leveling Speed

The leveling speed is the set speed in automatic operation when leveling to a floor during leveling distance section of the speed curve. If the speed is increased, the car may overshoot the landing. If the speed is decreased, the car would decelerate directly to the floor.

The adjustment range is from 1-20 fpm.

- Default =5 fpm
- Units of Measure = fpm

The following procedure describes how to set the leveling speed.

- Navigate to MAIN MENU | SETUP | SPEEDS. See Figure 55.
- From the SPEEDS menu, scroll and select Leveling Speed.

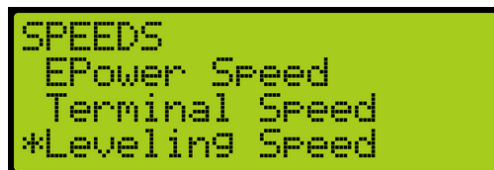


Figure 212: SPEEDS Menu – Leveling Speed

- From the LEVELING SPEED menu, set the speed when leveling a car to a floor.



Figure 213: LEVELING SPEED Menu

- Scroll right and press Save.



## 13.6 NTSD Speed

The NTSD speed is the set speed when the NTS point is tripped. If the speed is increased, the car will have a harsher stop when it stops. If the speed is decreased, the car will run slower and may timeout before reaching the floor during NTS event.

The adjustment range is from 1-20 fpm.

- Default =10 fpm
- Units of Measure = fpm

The following procedure describes how to set the NTSD speed.

1. Navigate to MAIN MENU | SETUP | SPEEDS. See Figure 55.
2. From the SPEEDS menu, scroll and select NTSD Speed.



Figure 214: Speeds Menu – NTSD Speed

3. From the NTSD SPEED menu, set the speed for approaching the landings.



Figure 215: NTSD SPEED Menu

4. Scroll right and press Save.

## 13.7 Minimum Acceleration Speed

The minimum acceleration speed is the minimum speed the controller will use at the start of the run instead of zero speed. This speed will be held at the start of the run during the Accel delay phase. If speed is increased, the initial start speed will increase which prevents rollback. If speed is decreased and roll back is present, it would delay the takeoff of the elevator. see section 9.8.3 Synthetic Speed Torque for more details on rollback adjustment.

The adjustment range is from 1-25 fpm.

- Default =1 fpm
- Units of Measure = fpm

The following procedure describes how to set the minimum acceleration speed.

1. Navigate to MAIN MENU | SETUP | SPEEDS. See Figure 55.

- From the SPEEDS menu, scroll and select Minimum Acceleration Speed.



Figure 216: SPEEDS Menu – Minimum Accel Speed

- From the MINIMUM ACCELERATION SPEED menu, set the minimum acceleration speed.



Figure 217: Minimum ACCEL SPEED Menu

- Scroll right and press Save.

## 13.8 Minimum Relevel Speed

The minimum relevel speed is the minimum speed used when releveling. If speed is increased, there is a quick recovery from rollback, but may cause overshoot. If speed is decreased, roll back may occur.

The adjustment range is from 1-25 fpm.

- Default =1 fpm
- Units of Measure = fpm

The following procedure describes how to set the minimum relevel speed.

- Navigate to MAIN MENU | SETUP | SPEEDS. See Figure 55.
- From the SPEEDS menu, scroll and select Minimum Relevel Speed.



Figure 218: SPEEDS Menu – Minimum Relevel Speed

- From the MINIMUM RELEVEL SPEED menu, set the speed.



Figure 219: MINIMUM RELEVEL SPEED Menu

- Scroll right and press Save.

## 13.9 Test A/D Speed

Test A/D speed is the set speed during an ascending or descending overspeed test.

The following procedure describe how to setup the A/D speed for an overspeed test.

- Navigate to MAIN MENU | SETUP | SPEEDS. See Figure 55.
- From the SPEEDS menu, scroll and select Test A/D Speed.

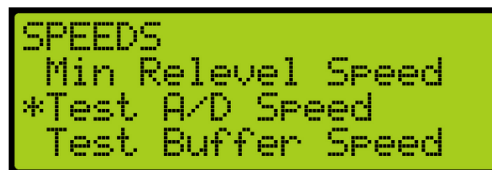


Figure 220: SPEEDS Menu – Test A/D Speed

- From the ACCELERATION/DECELERATION SPEED menu, set the ascending and descending speed.

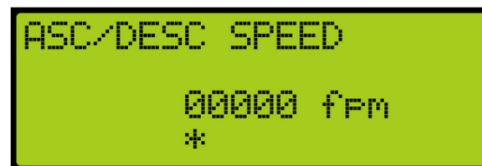


Figure 221: ACCELERATION/DECELERATION SPEED Menu

- Scroll right and press Save.

## 13.10 Test Buffer Speed

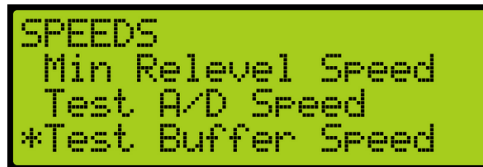
The test buffer speed is the set speed during buffer tests.

- If the speed is set equal to contract speed, the car will move at high speed.
- If the speed is anything else than contract speed, the car will move at leveling speed.

The following procedure describes how to set buffer speed for testing.

- Navigate to MAIN MENU | SETUP | SPEEDS. See Figure 55.

- From the SPEEDS menu, scroll and select Test Buffer Speed.



*Figure 222: SPEEDS Menu – Test Buffer Speed*

- From the BUFFER SPEED menu, set the buffer speed.



*Figure 223: BUFFER SPEED Menu*

- Scroll right and press Save.

## 14 Floors

Floors need to be set for landing, the door that opens at each floor (if it opens), and other commands.

### 14.1 Number of Floors

Number of floors allows the user to set the number of floors within the building.

The following procedure describes how to set the number of floors.

1. Navigate to MAIN MENU | SETUP | FLOORS. See Figure 56.
2. From the FLOORS menu, scroll and select Number of Floors.



Figure 224: FLOORS Menu – Number Of Floors

3. From the NUMBER OF FLOORS MENU, scroll and select the number of floors there are.  
**NOTE:** The number of floors should include any express zones that are serviced by other cars in the group. The opening map will reflect the floors the car serves.



Figure 225: NUMBER Of FLOORS Menu

4. Scroll right and press Save.

### 14.2 Floor Adjustment

If the car does not stop at the exact floor level, tripping can occur. The floor adjustment allows for adjusting the stopping point of the elevator. The value will return to zero after the change has been saved.

#### 14.2.1 Car is Too High/ Too Low

The car may stop either too low or too high to the floor level.

The following procedure describes how to adjust the floor level.

1. Navigate to MAIN MENU | SETUP | FLOORS. See Figure 56.

2. From the FLOORS menu, scroll and select Too High/Too Low.



Figure 226: FLOORS Menu – Too High/Too Low

3. Is car stopping too low or too high?
  - a. If the car stops too low, go to step 4
  - b. If the car stops too high, go to step 5.
4. From the ADJUST FLOORS menu, adjust the stopping point so the car stops at the exact floor level. For example, if the car stops 1.5"-2" below the floor level, add that distance to the learned position. Go to step 6.



Figure 227: ADJUST FLOORS Menu – Too Low

The ADJUST FLOORS menus display the following:

- Adjust Floors [ 1] – Displays the floor the car is currently at.
  - [ 1] +001.791" – The distance the car needs to be adjusted to stop at floor level.
  - 01 = +00000091 –The counts that determine the amount of distance needed for floor leveling.
5. From the ADJUST FLOORS menu, adjust the stopping point so the car stops at the exact floor level. For example, if the car stops 1.5"-2" above the floor level, add that distance to the learned position.



Figure 228: ADJUST FLOORS Menu – Too High

6. Scroll right and press Save.

## 14.3 Security Setting

Security must be set to ON per opening to lock out the floor. The front security marks the landings with front openings that are secured and are located under address 32-0008 - 32-0010.

The rear opening marks the landings with rear openings that are secured and are located under addresses 32-0012 – 32-0014. For the list of parameters, see the *C4 Parameter List*.

**NOTE:** The security input must be assigned prior to setting up which floors require security access. See section 21 Assigning Inputs and Outputs.

The following procedure describes how to setup security for front or rear car calls.

1. Navigate to MAIN MENU | SETUP | FLOORS. See Figure 56.
2. From the FLOORS menu, scroll and select, Security (Front or Rear).



Figure 229: FLOORS Menu – Security (Front or Rear)

3. From the SECURITY FLOORS menu, scroll and select the floors the front or rear door is going to open. Setting the floor to ON will enable security for the floor.



Figure 230: SECURITY FLOORS Menu

4. Scroll right and press Save.

## 14.4 Access Code

The access code is a feature that when a car call is pressed, its corresponding lamp begins flashing, and the user has a set amount of time to enter a 4-digit code, one digit at time. Access codes are only available for the first eight floors the car serves. The system compares the user input sequence with the code stored in the parameter. If the car call button (CCB) sequence is correct, the car call latches. If the code does not match or the time to enter the code has elapsed, the lamp stops flashing and the user has to start from the beginning by pressing the car call button and entering the correct sequence code. Access code security is bypassed when the car is on Fire or EMS.

**NOTE:** Debug car calls bypasses all car call security options.

### 14.4.1 Front and Rear Access

The following is an example of how to set the front door access code.

1. Navigate to MAIN MENU | SETUP | ACCESS CODE. See Figure 62.

- From the ACCESS CODE menu, scroll and select Access Codes (Front or Rear).



Figure 231: ACCESS CODE Menu – Access Codes (Front or Rear)

- From the ACCESS CODES (Front or Rear) menu, scroll and select the car call floor that requires an access code.



Figure 232: ACCESS CODES FRONT Menu – Floor Number



Figure 233: ACCESS CODES REAR Menu – Floor Number

- An access code may not have been previously set. If an access code has not been set, the display shows all dashes. Go to step 5.



Figure 234: No Access Code

- From the FRONT or REAR ACCESS CODE menu, set the access code.  
**NOTE:** When a front or rear floor has not been configured, the access code displays n/a for that floor.



Figure 235: FRONT ACCESS CODE Menu





Figure 236: REAR ACCESS CODE Menu



Figure 237: Invalid Floor

6. Scroll right and press Save.
7. Are additional floors being set up for special access?
  - a. If there are additional floors being set up for special access, scroll back to the ACCESS CODES (F or R) menu and go to step 5.
  - b. If there are no more additional floors being set up for special access, the process is complete.

## 14.4.2 Car Call Button Timer

The car call button timer is the set time the user has to enter the access code one digit at a time. The user has an equivalent amount of time to enter each digit. If time has elapsed, the user has to press the car call button and enter the code within the configured time frame.

**NOTE:** The default for the time period is five seconds.

The follow procedure describes how to set the time for a user to enter each digit of the access code.

1. Navigate to MAIN MENU | SETUP | ACCESS CODE. See Figure 62.
2. From the ACCESS CODE menu, scroll and select CCB Timer.

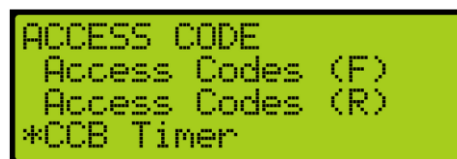


Figure 238: ACCESS CODE Menu – CCB Timer

- From the CCB TIMER menu, set the time the user has to enter each digit of the access code.



Figure 239: CCB TIMER Menu

- Scroll right and press Save.

## 14.5 Enable Releveling

Load weight and velocity are calibrated when setting the landing point of a car. When the position indicator sends a signal that the position of the landing point of the car is not equal to the landing floor, the landing point has to be recalibrated.

The following procedure describes how to enable releveling.

- Navigate to MAIN MENU | SETUP | FLOORS. See Figure 56.
- From the FLOORS menu, scroll and select Enable Releveling.



Figure 240: FLOORS Menu – Enable Releveling

- From the ENABLE RELEVELING menu, select if releveling is enabled.



Figure 241: ENABLE RELEVELING Menu

- Scroll right and press Save.

## 14.6 Relevel Zone Size

The dead zone is a software-defined area at a floor that the car will stop in when at floor level and not trigger a relevel. A zone size too small will cause a yo-yoing effect, a zone too large would hinder the releveling operation and allow the car to remain off level.

The following procedure describes how to relevel zone size.

1. Navigate to MAIN MENU | SETUP | FLOORS. See Figure 56.
2. From the FLOORS menu, scroll and select Relevel Zone Size.



Figure 242: FLOORS Menu – Relevel Zone Size

3. From the RELEVEL ZONE SIZE menu, scroll and select the zone size.

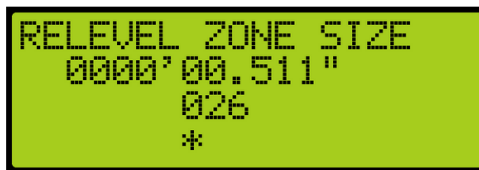


Figure 243: RELEVEL ZONE SIZE Menu

4. Scroll right and press Save.

## 14.7 Releveling Delay

A delay time is set prior to the releveling process to allow the car to settle before triggering a releveling operation.

The following procedure describes how to set the relevel delay time.

1. Navigate to MAIN MENU | SETUP | FLOORS. See Figure 56.
2. From the FLOORS menu, scroll and select Releveling Delay.



Figure 244: FLOORS Menu – Releveling Delay

3. From the RELEVELING DELAY menu, set the relevel delay time.



Figure 245: RELEVELING DELAY Menu

4. Scroll right and press Save.

## 14.8 Floor Openings

The front opening mask marks the landings that have front openings and are located under address 32-0000 – 32-0002. The rear opening mask marks the landings that have rear openings and are located under addresses 32-0004 – 32-0006. For the list of parameters, see the *C4 Parameter List*

The following procedure describes how to set the floor the front door opens.

1. Navigate to MAIN MENU | SETUP | FLOORS. See Figure 56.
2. From the FLOOR menu, scroll and select Openings (Front or Rear).



Figure 246: FLOOR Menu – Openings

3. From the FLOOR OPENING (Front or Rear) menu, scroll and select the floors the front and/or rear door is going to open.



Figure 247: FLOOR OPENING Menu

4. Scroll right and press Save.

## 14.9 Store Floor Level

The store floor level stores the position of the floor level.

The following procedure describes how to store the car's current position as the position of the selected floor.

1. Navigate to MAIN MENU | SETUP | FLOORS. See Figure 56.
2. From the FLOORS menu, scroll and select Store Floor Level.



Figure 248: FLOORS Menu – Store Floor Level

- From the STORE FLOORS menu, scroll and select which floors position that is being changed.

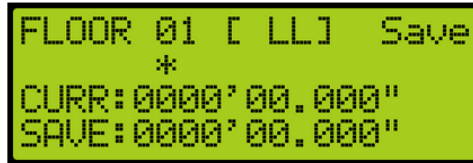


Figure 249: STORE FLOORS Menu

- Scroll right and press Save.

## 14.10 Short Floor Opening

A short floor is a floor that has an overlapping door zone with the previous floor. For example, if floor 5 and floor 6 have overlapping door zones, then floor 6 should be marked as a short floor.

The following procedure describes how to set overlapping door zones.

- Navigate to MAIN MENU | SETUP | FLOORS. See Figure 56.
- From the FLOORS menu, scroll and select Short Floor Opening.



Figure 250: FLOORS Menu – Short Floor Opening

- From the SHORT FLOOR OPENING menu, scroll and select the short floor door zone.



Figure 251: SHORT FLOOR OPENING Menu

- Scroll right and press Save.

## 14.11 Timed Car Call Security

The timed car call security allows for a car call to be denied access during certain times for any day of the week. When timed car call security is enabled, car calls that are time-secured will not latch. Access for the secured floors resume normal operation when the set time period has past, the timed car call security has been turned off, Car Call Enable Key is enabled, or Enable All Car Calls is activated.

If the access code is set, the access code overrides the timed car call security.

The following procedure describes how to set the front and rear time car call security.

1. Navigate to MAIN MENU | SETUP | FLOORS. See Figure 56.
2. From the FLOOR menu, scroll and select Timed Car Call Security.



Figure 252: FLOOR Menu – Timed Car Call Security

3. From the TIMED CAR CALL SECURITY, scroll and select Enable Floor (Front or Rear).



Figure 253: TIMED CC SECURITY Menu – Enable Floor (Front or Rear)

4. From the SECURITY FLOORS menu, select the front or rear secured floor. See Figure 230.
5. Scroll right and press Save.
6. Setting the security floor for the weekday or weekend?
  - a. If setting the security floor for the weekday, scroll back to Timed Car Call Security menu and go to step 7.
  - b. If setting the security floor for the weekend, scroll back to Timed Car Call Security menu and go to step 14.
7. From the TIMED CAR CALL SECURITY menu, scroll and select Start (M-F).



Figure 254: TIMED CAR CALL SECURITY Menu – Start (M-F)

8. From the WEEKDAY START TIME menu, set the start time of the car call security.



Figure 255: WEEKDAY START TIME Menu

9. Scroll right and press Save.
10. Press the left button until the TIMED CAR CALL SECURITY menu displays.

11. From the TIMED CAR CALL SECURITY menu, scroll and select Stop (M-F).



Figure 256: TIMED CAR CALL SECURITY Menu – Stop (M-F)

12. From the WEEKDAY STOP TIME menu, set the stop time of the car call security.



Figure 257: WEEKDAY STOP TIME Menu

13. Scroll right and press Save. The process is done.

14. From the TIMED CAR CALL SECURITY menu, scroll and select Start (S-S). Go to step 19.



Figure 258: TIMED CAR CALL SECURITY Menu – Start (S-S)

15. From the WEEKEND START TIME menu, set the start time of the car call security.



Figure 259: WEEKEND START TIME Menu

16. Scroll right and press Save.

17. Press the left button until the TIMED CAR CALL SECURITY menu displays.

18. From the TIMED CAR CALL SECURITY menu, scroll and select Stop (S-S).



Figure 260: TIMED CAR CALL SECURITY Menu – Stop (S-S)

- From the WEEKEND STOP TIME menu, set the stop time of the car call security.



Figure 261: WEEKEND STOP TIME Menu

- Scroll right and press Save.

## 14.12 Timed Hall Call Security

The timed hall call security allows for a hall call to be denied access during certain times for any day of the week. When timed hall call security is enabled, hall calls that are time-secured will not latch. Hall calls resume normal operation when the set time period has past, the timed hall call security has been turned off, or Enable All Hall Calls is activated. All prior hall calls to non-secured floors are canceled when hall call security has been enabled. However, all latched car calls will be completed.

The following procedure describes how to set the front and rear time hall call security.

- Navigate to MAIN MENU | SETUP | FLOORS. See Figure 56.
- From the FLOOR menu, scroll and select Timed Hall Call Security.



Figure 262: FLOOR Menu – Timed Hall Call Security

- From the TIMED HALL CALL SECURITY, scroll and select Enable Floor (Front or Rear).

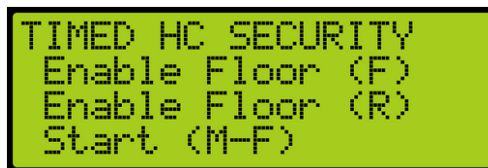


Figure 263: TIMED HALL CALL SECURITY Menu – Enable Floor (Front or Rear)

- From the SECURITY FLOORS menu, select the front or rear secured floor. See Figure 230.
- Scroll right and press Save.
- Setting the security floor for the weekday or weekend?
  - If setting the security floor for the weekday, scroll back to TIMED HALL CALL SECURITY menu and go to step 7.
  - If setting the security floor for the weekend, scroll back to TIMED HALL CALL SECURITY menu and go to step 14.



7. From the TIMED HALL CALL SECURITY menu, scroll and select Start (M-F).



Figure 264: TIMED HALL CALL SECURITY Menu – Start (M-F)

8. From the WEEKDAY START TIME menu, set the start time of the hall call security. See Figure 255.
9. Scroll right and press Save.
10. Press the left button until the TIMED HALL CALL SECURITY menu displays.
11. From the TIMED HALL CALL SECURITY menu, scroll and select Stop (M-F).



Figure 265: TIMED HALL CALL SECURITY Menu – Stop (M-F)

12. From the WEEKDAY STOP TIME menu, set the stop time of the hall call security. See Figure 257.
13. Scroll right and press Save. The process is done.
14. From the TIMED HALL CALL SECURITY menu, scroll and select Start (S-S).



Figure 266: TIMED HALL CALL SECURITY Menu – Start (S-S)

15. From the WEEKEND START TIME menu, set the start time of the hall call security. See Figure 259.
16. Scroll right and press Save.
17. Press the left button until the TIMED HALL CALL SECURITY menu displays.
18. From the TIMED HALL CALL SECURITY menu, scroll and select Stop (S-S).



Figure 267: TIMED HALL CALL SECURITY Menu – Stop (S-S)

19. From the WEEKEND STOP TIME menu, set the stop time of the hall call security. See Figure 261.
20. Scroll right and press Save.

## 15 Sabbath Operation

There are two ways to initiate Sabbath operation:

- Turn on a key that is configured to an input.
- The clock on the controller reaches the Sabbath start time on Friday.

Once in Sabbath operation, the car goes to each door that has a valid Sabbath opening and skip those without a valid Sabbath opening. Sabbath operation has a separate door dwell timer. The door remains open based on the Sabbath timer and not the original door dwell timer. The car exits Sabbath operation if the Sabbath key is turned off or once the controller clock reaches the Sabbath end time on Saturday. For the list of parameters, see the *C4 Parameter List*.

The following procedure describes how to set the Sabbath operation.

1. Navigate to MAIN MENU | SETUP. See Figure 44.
2. Is the Sabbath operation being setup by Key Enable Only, Timer Enable Only, or Key Or Timer Enable?
  - a. If the Sabbath operation is being set by Key Enable Only, go to step 3.
  - b. If the Sabbath operation is being set by Timer Enable Only, go to step 35.
  - c. If the Sabbath operation is being set by Key or Timer Enable, go to step 51.
3. Navigate to SETUP | SETUP I/O. See Figure 54.
4. From the SETUP I/O menu, scroll and select Setup Inputs.

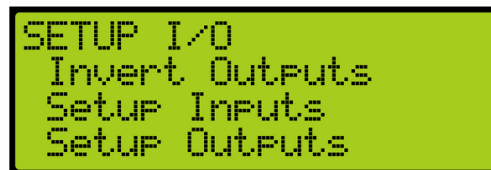


Figure 268: SETUP I/O Menu – Setup Inputs

5. From the SELECT BOARD menu, scroll and select the board the Sabbath key is wired to.



Figure 269: SELECT BOARD Menu – Machine Room

6. From the Input menu, scroll and select the configuration to be used as the Sabbath input.

**NOTE:** The X input is a representation of a number between 1-8.



Figure 270: Input Menu

7. Scroll right.
8. Scroll and select Auto Operation. See Figure 270.
9. Scroll right.
10. Scroll and select Sabbath. See Figure 270.
11. Scroll right and press Save.
12. Press the left button and navigate to SETUP | SABBATH. See Figure 61.
13. Is the Sabbath operation being setup for Key Enable Only or Key or Timer Enable Only?
  - a. If the Sabbath Operation is being setup for Key Enable Only, go to step 14.
  - b. If the Sabbath Operation is being setup for Key or Timer Enable, go to step 18.
14. From the SABBATH menu, scroll and select Key Enable Only.



Figure 271: SABBATH Menu – Key Enable Only

15. From the KEY ENABLE ONLY menu, press the up button and select On.



Figure 272: KEY ENABLE ONLY Menu

16. Scroll right and press Save.
17. Press the left button until the SABBATH menu is displayed.

18. From the SABBATH menu, scroll and select Floors Opening (F).



Figure 273: SABBATH Menu – Floors Opening (F)

19. From the FLOOR OPENING (Front) menu, scroll and select the front doors for each floor that opens during the Sabbath.

**NOTE:** The doors, that open, have to be set to On.



Figure 274: FLOOR OPENINGS (Front) Menu

20. Scroll right and press Save.  
 21. Press the left button until the SABBATH menu is displayed.  
 22. From the SABBATH menu, scroll and select Floors Opening (R).



Figure 275: SABBATH Menu – Floors Opening (R)

23. From the FLOOR OPENING (Rear) menu, scroll and select the rear doors for each floor that opens during the Sabbath.



Figure 276: FLOORS OPENINGS (Rear) Menu

24. Scroll right and press Save.  
 25. Press the left button until the SABBATH menu is displayed.

26. From the SABBATH menu, scroll and select Destinations Up.



Figure 277: SABBATH Menu – Destinations Up

27. From the UP DESTINATIONS menu, scroll and select the up destination for the Sabbath.

- Ensure the highest down destination is below the highest up destination.
- Ensure the lowest down destination is above the lowest up destination.
- Up destinations should be different from down destinations.



Figure 278: UP DESTINATIONS Menu

28. Scroll right and press Save.

29. Press the left button until the SABBATH menu is displayed.

30. From the SABBATH menu, scroll and select Destinations Down.



Figure 279: SABBATH Menu – Destinations Down

31. From the DOWN DESTINATIONS menu, scroll and select the down destination for the Sabbath.



Figure 280: DOWN DESTINATION Menu

32. Is the Sabbath Operation being setup for Key Enable Only, Timer Enable Only, or Key or Timer Enable?

- If the Sabbath Operation is being setup for Key Enable Only, go to step 34.
- If the Sabbath Operation is being setup for Timer Enable Only, go to step 34.
- If the Sabbath Operation is being setup for Key or Timer Enable, go to step 33.

33. Is the Sabbath Operation setup for Key or Timer Enable complete?
  - a. If the setup for Sabbath for Key or Timer Enable is complete, go to step 34.
  - b. If the setup for Sabbath for Key or Timer Enable is not complete go to step 38.
34. Scroll right and press Save. The process ends.
35. Navigate to SETUP | SABBATH. See Figure 61.
36. From the Sabbath menu, scroll and select Timer Enable Only.



Figure 281: SABBATH Menu – Timer Enable Only

37. From the TIMER ENABLE ONLY menu, press the up button and select On.



Figure 282: TIMER ENABLE ONLY Menu

38. Scroll right and press Save.
39. Press the left button until the SABBATH menu is displayed.
40. From the SABBATH menu, scroll and select Friday Start Time.



Figure 283: SABBATH Menu – Friday Start Time

41. Set the time the Sabbath starts.



Figure 284: FRIDAY START TIME Menu

42. Scroll right and press Save.
43. Press the left button until the SABBATH menu is displayed.

44. From the SABBATH menu, scroll and select Saturday End Time.



Figure 285: SABBATH Menu – SATURDAY END Time

45. Set the time the Sabbath ends.



Figure 286: SATURDAY END TIME Menu

46. Scroll right and press Save.

47. Press the left button until the SABBATH menu is displayed.

48. From the SABBATH menu, scroll and select Door Dwell Timer.



Figure 287: SABBATH Menu – Door Dwell Timer

49. From the DOOR DWELL TIMER menu, set the time the door stays open.



Figure 288: DOOR DWELL TIMER Menu

50. Scroll right and press Save. Go to step 17.

51. Navigate to SETUP | SABBATH. See Figure 61.

52. From the Sabbath menu, scroll and select Key or Timer Enable.



Figure 289: SABBATH Menu – Key or Timer Enable

53. From the KEY OR TIMER ENABLE menu, press the up button and select On.



*Figure 290: Key or Timer Enable Menu*

54. Scroll right and press Save.

55. Press the left button until the SETUP menu is displayed and go to step 3.



## 16 Doors

The table below lists door symbols for each state.

Table 28: Door Symbols for Each State

State	Symbol
Unknown	"[?]"
Closed	"[ ]"
Closed With DC	"> <"
Opening	"[<>]"
Opening With GSW	"[< >]"
Opening With PHE	"[<*>]"
Open	"[ ]"
Open With DO	"< >"
Open With PHE	"[ * ]"
Open With PHE DO	"< * >"
Partially Open	"[   ]"
Partially Open with PHE	"[  *  ]"
Closing	"[><]"
Closing With GSW	"[> <]"
Closing With PHE	"[>*<]"
Nudging	"[!<]"

### 16.1 Control Doors

Doors can be manually controlled to open, close, or nudge.

The following procedure describes how to manually control the doors.

1. Navigate to MAIN MENU | SETUP | DOOR SETUP. See Figure 55.
2. From the DOORS menu, scroll and select Control Doors.

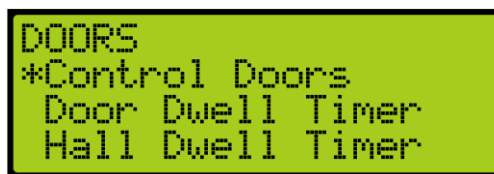


Figure 291: DOORS Menu – Control Doors

3. From the CONTROL DOORS menu, the user can:
  - Press and hold the middle button on the MR board to assert a Door Close command.
  - Under the Door Open option, the user can assert a Door Open Command to the Front or Rear doors.

- Under the Nudge option, the user can assert a Nudge command to the Front or Rear door.



Figure 292: CONTROL DOORS Menu

## 16.2 Door Dwell Timer

The door dwell timer is the time the car doors stay open when answering car calls.

The following procedure describes how to set the door dwell timer.

1. Navigate to MAIN MENU | SETUP | DOOR SETUP. See Figure 55.
2. From the DOORS menu, scroll and select Door Dwell Timer.

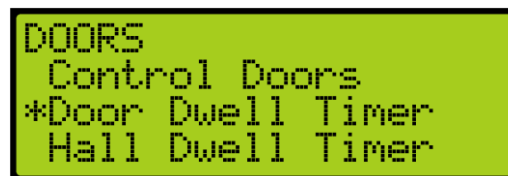


Figure 293: DOORS Menu –Door Dwell Timer

3. From the DOOR DWELL TIMER menu, set the time the doors stay open. See Figure 288.
4. Scroll right and press Save.

## 16.3 Hall Dwell Timer

The hall dwell timer is the time the doors stay open when responding to hall calls.

The following procedure describes how to set the hall dwell timer.

1. Navigate to MAIN MENU | SETUP | DOOR SETUP. See Figure 55.
2. From the DOORS menu, scroll and select Hall Dwell Timer.

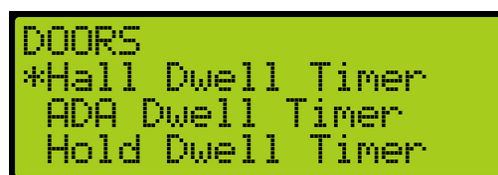


Figure 294: DOORS Menu – Hall Dwell Timer

- From the HALL DWELL TIMER menu, set the time the doors stay open.



Figure 295: HALL DWELL TIMER Menu

- Scroll right and press Save.

## 16.4 ADA Dwell Timer

The America’s with Disabilities Act (ADA) timer is the time the doors stay open when answering calls from disabled passengers.

The following procedure describes how to set the ADA dwell timer.

- Navigate to MAIN MENU | SETUP | DOOR SETUP. See Figure 55.
- From the DOORS menu, scroll and select ADA Dwell Timer.

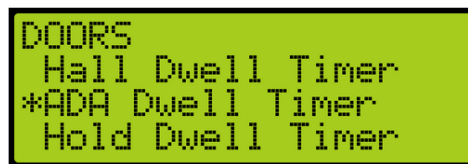


Figure 296: DOORS Menu – ADA Dwell Timer

- From the ADA DWELL TIMER menu, set the time the doors stay open.



Figure 297: ADA DWELL TIMER Menu

- Scroll right and press Save.

## 16.5 Hold Dwell Timer

The hold dwell timer is the time the doors stay open after a hold door button has been requested.

The following procedures describe how to set the hold dwell timer.

- Navigate to MAIN MENU | SETUP | DOOR SETUP. See Figure 55.

- From the DOORS menu, scroll and select Hold Dwell Timer.

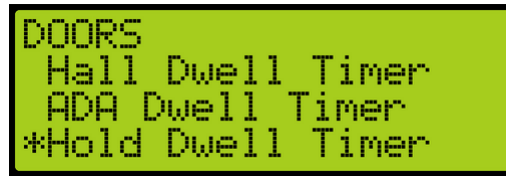


Figure 298: DOORS Menu – Hold Dwell Timer

- From the HOLD DWELL TIMER menu, set the time the doors stay open.



Figure 299: HOLD DWELL TIMER Menu

- Scroll right and press Save.

## 16.6 Lobby Dwell Timer

The lobby dwell timer is the time the doors stay open when the car answers calls in the lobby.

The following procedures describe how to set the lobby dwell timer.

- Navigate to MAIN MENU | SETUP | DOOR SETUP. See Figure 55.
- From the DOORS menu, scroll and select Lobby Dwell Timer.

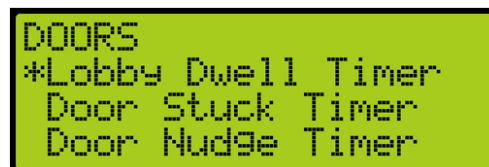


Figure 300: DOORS Menu – Lobby Dwell Timer

- From the LOBBY DWELL TIMER menu, set the time the doors stay open.



Figure 301: LOBBY DWELL TIMER Menu

- Scroll right and press Save.

## 16.7 Door Stuck Timer

The door stuck timer is the time limit for the door to completely open or close before a fault occurs.

The following procedures describe how to set the door stuck timer.

1. Navigate to MAIN MENU | SETUP | DOOR SETUP. See Figure 55.
2. From the DOORS menu, scroll and select Door Stuck Timer.

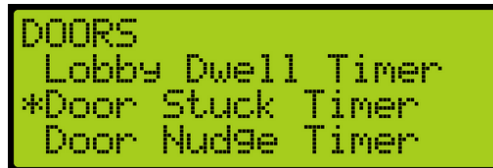


Figure 302: DOORS Menu – Door Stuck Timer

3. From the DOOR STUCK TIMER menu, set the time the doors completely open or close before faulting.



Figure 303: DOOR STUCK TIMER Menu

4. Scroll right and press Save.

## 16.8 Door Nudge Timer

The door nudge timer is the time the doors try to close after the door has been held open past a certain period of time. If set to zero, nudging is disabled.

The following procedures describe how to set the door nudge timer.

1. Navigate to MAIN MENU | SETUP | DOOR SETUP. See Figure 55.
2. From the DOORS menu, scroll and select Door Nudge Timer.



Figure 304: DOORS Menu – Door Nudge Timer

- From the DOOR NUDGE TIMER menu, set the time the door tries to close after the period of time that the door has been opened elapsed.



Figure 305: DOOR NUDGE TIMER Menu

- Scroll right and press Save.

## 16.9 Rear Doors

The rear doors can be configured to be enabled or disabled. When enabled the rear door opens at designated landings.

The following procedure describes how to enable rear doors to open.

- Navigate to MAIN MENU | SETUP | DOOR SETUP. See Figure 55.
- From the DOORS menu, scroll and select Rear Doors.



Figure 306: DOORS Menu – Rear Doors

- From the REAR DOORS menu, scroll and select On for the rear doors to open.  
**NOTE:** If rear doors are set to Off, the rear doors do not open.



Figure 307: REAR DOORS Menu

- Scroll right and press Save.

## 16.10 PreOpening Distance

Preopening distance is the distance the doors start to open prior to the landing. The opening distance is limited by the door zone. Setting the distance outside of the door zone signal will cause the doors to begin opening as soon as DZ is active.

The following procedure describes how to set the preopening distance.

1. Navigate to MAIN MENU | SETUP | DOOR SETUP. See Figure 55.
2. From the DOORS menu, scroll and select PreOpening Distance.



Figure 308: DOORS Menu – PreOpening Distance

3. From the PREOPENING DISTANCE menu, set the distance from the landing the doors start to open.



Figure 309: PREOPENING DISTANCE Menu

4. Scroll right and press Save.

## 16.11 DC On Run

The DC On Run activates a door close output when the car is in motion. This can be useful if doors require constant pressure to prevent relaxing.

The following procedure describes how to set the DC on Run.

1. Navigate to MAIN MENU | SETUP | DOOR SETUP. See Figure 55.
2. From the DOORS menu, scroll and select DC On Run.



Figure 310: DOORS Menu – DC On Run

3. From the DC ON RUN menu, scroll and select On to enable the doors to close when the car is in motion.



Figure 311: DC ON RUN Menu

4. Scroll right and press Save.

## 16.12 DC On Close

The DC On Close activates a door close output while the doors are in a closed state. This can be useful if doors require constant pressure to prevent relaxing.

The following procedure describes how to set the DC on Close.

1. Navigate to MAIN MENU | SETUP | DOOR SETUP. See Figure 55.
2. From the DOORS menu, scroll and select DC On Close.



Figure 312: DOORS Menu – DC On Close

3. From the DC ON DOOR CLOSE menu, scroll and select On to enable the doors to close.



Figure 313: DC ON DOOR CLOSE Menu

4. Scroll right and press Save.

## 16.13 DO On Open

The DC On Open activates a door open output while the doors are in an open state. This can be useful if doors require constant pressure to prevent relaxing.

The following procedure describes how to set the DO on Open.

1. Navigate to MAIN MENU | SETUP | DOOR SETUP. See Figure 55.
2. From the DOORS menu, scroll and select DO On Open.



Figure 314: DOORS Menu – DO On Open



- From the DO ON DOOR OPEN menu, scroll and select On to enable the doors to open.



Figure 315: DO ON DOOR OPEN Menu

- Scroll right and press Save.

## 16.14 Disable on CT Stop

Door outputs are disabled when the top CT Stop switch is enabled.

The following procedure describes how to disable all door outputs.

- Navigate to MAIN MENU | SETUP | DOOR SETUP. See Figure 55.
- From the DOORS menu, scroll and select Disable On CT Stop.



Figure 316: DOORS Menu – Disable On CT Stop

- From the DISABLE ON CT STOP menu, scroll and select On to disable all door outputs.



Figure 317: DISABLE ON CT STOP Menu

- Scroll right and press Save.

## 16.15 Disable on HA

Door outputs are disabled when the hoistway access is active.

The following procedure describes how to disable all door outputs.

- Navigate to MAIN MENU | SETUP | DOOR SETUP. See Figure 55.

- From the DOORS menu, scroll and select Disable On HA.



Figure 318: DOORS Menu – Disable On HA

- From the DISABLE ON HA menu, scroll and select On to disable all door outputs.



Figure 319: DISABLE ON HA Menu

- Scroll right and press Save.

## 16.16 AT400 Doors

If job is configured with an AT400 door operator, this option needs to be enabled.

The following procedure describes how to enable AT400 interface.

- Navigate to MAIN MENU | SETUP | DOOR SETUP. See Figure 55.
- From the DOORS menu, scroll and select AT400 Doors.



Figure 320: DOORS Menu – AT400 Doors

- From the ENABLE AT400 DOOR menu, scroll and select On.



Figure 321: ENABLE AT400 DOOR Menu

- Scroll right and press Save.

## 16.17 No Demand Doors Open

The No Demand Doors Open option allows the car doors to stay open while the car is idle.

The following procedure describes how to set the doors to remain open when the car is idle.

1. Navigate to MAIN MENU | SETUP | DOOR SETUP. See Figure 55.
2. From the DOORS menu, scroll and select No Demand Doors Open.



Figure 322: DOORS Menu – No Demand Doors Open

3. From the NO DEMAND DOORS OPEN menu, scroll and select On to keep the doors open while the car is idle.



Figure 323: NO DEMAND DOORS OPEN Menu

4. Scroll right and press Save.

## 16.18 Jumper Timer

The jumper timer detects if the GSW or door locks are still jumpered. When jumpers are detected after a configured amount of time, a fault occurs. This time is added to a fixed 1.6 second timeout.

The following description describes how to set the time for verifying jumpers prior to a fault.

1. Navigate to MAIN MENU | SETUP | DOOR SETUP. See Figure 55.
2. From the DOORS menu, scroll and select Jumper Timer.



Figure 324: DOORS Menu – Jumper Timer

- From the JUMPER TIMEOUT menu, set the time to verify there are no jumpers attached to the GSW or door locks.



Figure 325: JUMPER TIMEOUT Menu

- Scroll right and press Save.

## 16.19 Jumper on DOL

The door open limit (DOL) and GSW send signals to determine whether the door is open or closed. When the Jumper on DOL is enabled, the controller detects a jumper on an open DOL instead of the GSW.

The following procedure describes how to verify if there are jumpers on an open DOL.

- Navigate to MAIN MENU | SETUP | DOOR SETUP. See Figure 55.
- From the DOORS menu, scroll and select Jumper On DOL.



Figure 326: DOORS Menu – Jumper On DOL

- From the LOCKS JUMPED ON DOL menu, scroll and select On to verify jumpers are detected on the DOL.



Figure 327: LOCKS JUMPED ON DOL Menu

- Scroll right and press Save.

## 16.20 Hourly Fault Limit

The hourly fault is the number of door faults allowed per hour prior to the car going out of service. The car remains out of service until the hour window elapses.

The following procedure describes how to set the hourly fault limit.

1. Navigate to MAIN MENU | SETUP | DOOR SETUP. See Figure 55.
2. From the DOORS menu, scroll and select Hourly Fault Limit.



Figure 328: DOORS Menu – Hourly Fault Limit

3. From the DOOR HOURLY FAULT LIMIT menu, set the number of logged faults allowed per hour before the car goes out of service.



Figure 329: DOOR HOURLY FAULT LIMIT Menu

4. Scroll right and press Save.

## 16.21 Nudge – Buzzer Only

When enabled during nudging, the Nudge (NDG) output is disabled and only the buzzer sounds.

The following procedure describes how to only enable the buzzer during nudging.

1. Navigate to MAIN MENU | SETUP | DOOR SETUP. See Figure 55.
2. From the DOORS menu, scroll and select Nudge – Buzzer Only.



Figure 330: DOORS Menu – Nudge – Buzzer Only

- From the NUDGE – BUZZER ONLY menu, scroll and select On if the buzzer sounds when nudging.



Figure 331: NUDGE – BUZZER ONLY Menu

- Scroll right and press Save.

## 16.22 Opening Time

The opening time is the time for a door to go from fully closed to fully open. This allows the controller to estimate door opening time for use during preflight operation.

The following procedure describes how to set the time to fully open the doors.

- Navigate to MAIN MENU | SETUP | DOOR SETUP. See Figure 55.
- From the DOORS menu, scroll and select Opening Time.



Figure 332: DOORS Menu – Opening Time

- From the OPENING TIME menu, set the time for the doors to fully open.



Figure 333: OPENING TIME Menu

- Scroll right and press Save.

## 16.23 Check Time

The check time is the configured amount of time that the doors need to be considered safe before the car is allowed to run on automatic operation.

The following procedure describes how to set the check time.

- Navigate to MAIN MENU | SETUP | DOOR SETUP. See Figure 55.

- From the DOORS menu, scroll and select Check Time.



Figure 334: DOORS Menu – Check Time

- From the CHECK TIME menu, set the time to check if the doors are considered safe.



Figure 335: CHECK TIME Menu

- Scroll right and press Save.

## 16.24 Door Type

The door type is the type of door used on the front or rear landing. The user can set the controller for a different type of door used on all front landings and all rear landings. The type of doors are as follows:

- Automatic
- Freight
- Manual
- Swing

The following procedure describe how to select the front or rear door type.

- Navigate to MAIN MENU | SETUP | DOOR SETUP. See Figure 55.
- From the DOORS menu, scroll and select Door Type (Front or Rear).



Figure 336: DOORS Menu – Door Type (Front or Rear)

- From the DOOR TYPE menu, select the type of door used on the front and the type of door used on the rear landing as applicable.



Figure 337: DOOR TYPE Menu

- Scroll right and press Save.

## 16.25 Lock and CAM Timeout

Sets the timeout which accounts for the delay between CAM activation and locks being made for manual doors. The units are in 100 ms counts. If set to zero, value defaults to 4 seconds.

The following procedure describes how to set the lockout time for lock and cam.

- Navigate to MAIN MENU | SETUP | DOOR SETUP. See Figure 55.
- From the DOORS menu, scroll and select Lock and CAM Timeout.



Figure 338: DOORS Menu – Lock and CAM Timeout

- From the TIMEOUT LOCK AND CAM menu, set the amount of time for the timeout.

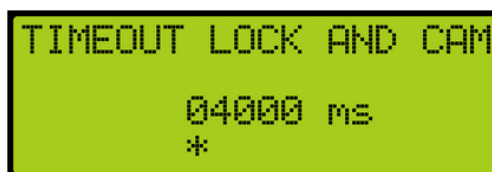


Figure 339: TIMEOUT LOCK AND CAM Menu

- Scroll right and press Save.

## 16.26 Retiring CAM

When set to ON, the CAM output controls hall interlocks. When set to OFF, interlocks are controlled by the door operator.

The following procedure describes how to set the retiring CAM on.

- Navigate to MAIN MENU | SETUP | DOOR SETUP. See Figure 55.



- From the DOORS menu, scroll and select Retiring CAM.



Figure 340: DOORS Menu – Retiring CAM

- From the RETIRING CAM menu, scroll and select On.



Figure 341: RETIRING CAM Menu

- Scroll right and press Save.

## 16.27 Fixed CAM

When set to ON, the door has a fixed hall CAM. The car is allowed to start a run without hall locks (hall closed contacts still required). The car is allowed to move up to 2 feet without locks before faulting.

The following procedure describes how to set the fixed CAM on.

- Navigate to MAIN MENU | SETUP | DOOR SETUP. See Figure 55.
- From the DOORS menu, scroll and select Fixed CAM.



Figure 342: DOORS Menu – Fixed CAM

- From the FIXED CAM menu, scroll and select On.



Figure 343: FIXED CAM Menu

- Scroll right and press Save.

## 16.28 Swing Lock GSW Timeout

Sets the timeout between GSW and locks. If the value is zero, the timeout is set to 500 ms.

The following procedure describes how to set the timeout for the Swing Lock Gate switch.

1. Navigate to MAIN MENU | SETUP | DOOR SETUP. See Figure 55.
2. From the DOORS menu, scroll and select SWING LOCK GSW TIMEOUT.



Figure 344: DOORS Menu – Swing Lock GSW Timeout

3. From the SWING LOCK GSW TIMEOUT menu, set the amount of time for the Swing Lock Gate switch will timeout.



Figure 345: SWING LOCK GSW TIMEOUT Menu

4. Scroll right and press Save.

## 16.29 Swing Contacts Timeout

Sets the timeout between CAM being energized and closed contacts being made. If value is zero, timeout is set to 500 ms.

The following procedure describes how to set the timeout for swing contacts.

1. Navigate to MAIN MENU | SETUP | DOOR SETUP. See Figure 55.
2. From the DOORS menu, scroll and select Swing Contacts Timeout.



Figure 346: DOORS Menu – Swing Contacts Timeout

- From the SWING CONTACTS TIMEOUT menu, set the amount of time for the swing contacts to timeout.



Figure 347: SWING CONTACTS TIMEOUT Menu

- Scroll right and press Save.

## 16.30 Disable DOB Rear

When set to ON, the rear door on the bottom floor is disabled and will not open.

The following procedure describes how to disable the rear door on the bottom landing.

- Navigate to MAIN MENU | SETUP | DOOR SETUP. See Figure 55.
- From the DOORS menu, scroll and select Disable DOB Rear.



Figure 348: DOORS Menu – Disable DOB Rear

- From the DISABLE REAR DOB menu, scroll and select ON to disable rear door.



Figure 349: DISABLE REAR DOB Menu

- Scroll right and press Save.

## 16.31 Front Door State

The front door state displays the current state of the car with front door opening.

The following procedure describes how to view the state of the front door.

- Navigate to MAIN MENU | DEBUG | VIEW DEBUG DATA. See Figure 65.
- From the VIEW DEBUG DATA menu, press the right button.

3. Scroll down and right until code 043 is displayed.



Figure 350: VIEW DEBUG DATA Menu – Front Door

4. View the state of the front door.

The Door State menus display the following:

- Front or Rear Door State – The symbol for the state of the door. See Table 30.
- Current Door Command – The current door command being issued to the door module. See Table 29.
- Last Door Command – The last door command issued to the door module. See Table 29.
- Current Door Timer – The counter tracking when the door state should change. Each count is 200 ms.
- Door Timer Limit – The limit the Current Door Timer needs to reach before proceeding to the next door state. Each count is 200 ms.

The table below lists the door command issued to the Door Module.

Table 29: Door Command Issued to the Door Module

Command Index	Door Command
0	None
1	OPEN UI REQUEST
2	OPEN IN CAR REQUEST
3	OPEN ADA MODE
4	OPEN SABBATH MODE
5	OPEN HALL REQUEST
6	OPEN HOLD REQUEST
7	OPEN CONSTANT PRESSURE
8	CLOSE
9	CLOSE CONSTANT PRESSURE
10	NUDGE
11	NUDGE CONSTANT PRESSURE
12	FAULT
13	OPEN HOLD DWELL REQUEST
14	OPEN LOBBY REQUEST

## 16.32 Rear Door State

The rear door state displays the current state of the car with rear door opening.

The following procedure describes how to view the state of the rear door.

1. Navigate to MAIN MENU | DEBUG | VIEW DEBUG DATA. See Figure 65.
2. From the View Debug Data menu, press the right button.
3. Scroll down and right until code 044 is displayed.



Figure 351: VIEW DEBUG DATA Menu – Rear Door

4. View the state of the rear door.

See section 16.31 Front Door State for the door state, commands, and command descriptions.

## 17 Car Data

The Car Data can be used to view important dispatching and car status information passed between grouped cars. It can be used to debug dispatching issues.

### 17.1 Car Data Overview

The following procedure describes how to view the car status overview.

1. Navigate to MAIN MENU | DEBUG | CAR DATA. See Figure 66.
2. View the Car Data Overview Status.



Figure 352: Car Data Overview Status

The Car Data Overview shows:

**Car ID** – Displays the selected cars ID number. Valid from 1 to 8.

**Online Status** – Displays ON if the car is online and broadcasting on the group network, otherwise it reads OFF.

**Master Status** – Displays [M] if the car is acting as the master dispatcher for the group.

**Class and Mode of Operation** – Displays the cars class of operation as a single letter abbreviation, followed by the mode of operation.

**In Group Status** – Displays IN GRP if the car is in group and currently accepting hall calls.

**ISR Flags** – A flag is displayed depending on the status of the car.

- If the car is idle and able to perform a direction change, the “I” displays instead of “.”.
- If the car is stopped or decelerating, the “S” displays instead of “.”.
- If the car door reopening is blocked in preparation for a run, the “R” displays instead of “.”.

**Current Landing** – Displays the car’s current landing number, preceded by C-.

**Destination Landing** – Displays the car’s destination landing number, preceded by D-.

**Reachable Landing** – Displays the car’s estimated closest reachable landing number, preceded by R-. This landing is calculated based on the cars ability to slow down with current S-curve values.

**Motion Status** – Displays the car’s motion status. If the car is not moving up (M-UP) or moving down (M-DN), then the car motion displays M-ST.

**Direction Priority** – Displays the car’s direction priority. If the car is serving up calls it appears as P-UP, otherwise it will appear P-DN.

The table below lists the Car Status codes.

Table 30: Car Status Codes

Code	Description
Unknown	
U-UNK	Unknown
Manual	
M-UNK	Unknown
M-INV	Invalid
M-NON	None
M-CT	Car Top Inspection
M-IC	In-Car Inspection
M-HA	Hoistway Access
M-MR	Machine Room Inspection
M-PIT	Pit Inspection
M-LND	Landing Inspection
M-CON	Construction
M-HAT	Hoistway Access (Top)
M-HAB	Hoistway Access (Bottom)

Code	Description
Learn	
L-UNK	Unknown
L-INV	Invalid
L-NON	None
L-G <sub>2</sub> T	Go to Terminal
L-RB <sub>1</sub>	Invalid
L-RB <sub>2</sub>	Invalid
L-BHA	Bypass Term Limits
L-RHA	Ready Hoistway Learn
L-LB <sub>1</sub>	Invalid
L-LB <sub>2</sub>	Invalid
L-LHU	Learning Hoistway Up
L-LHD	Learning Hoistway Down
L-EBP	Invalid
L-INV	Invalid
L-CMP	Learn Complete
L-RLD	Invalid
L-LLD	Invalid
Automatic	
A-UNK	Unknown
A-NON	None
A-NORM	Normal
A-FIR <sub>1</sub>	Fire Phase 1
A-FIR <sub>2</sub>	Fire Phase 2
A-EMS <sub>1</sub>	EMS Phase 1
A-EMS <sub>2</sub>	EMS Phase 2
A-ATTD	Attendant
A-INDP	Independent Service
A-SEIS	Seismic
A-CWDR	Counterweight Derail
A-SABB	Sabbath
A-EPWR	Emergency Power
A-EVAC	Invalid
A-OOS	Out of Service
A-BATL	Battery Lowering
A-BATR	Battery Rescue
A-PRS1	Prison Transport 1
A-PRS2	Prison Transport 2
A-INV	Invalid
A-WG	Wander Guard
A-HUGS	HUGS

Code	Description
A-CSW	Invalid
A-TEST	Test Mode
A-WIND	Wind Operation
A-FLD	Flood Operation
A-SWING	Swing Operation
A-CUST	Custom Operation
A-ACTS	Active Shooter
A-MARS	Marshall Mode

## 17.2 Hall Call Mask Status

Hall call mask status displays the status of front, rear, and latchable hall calls.

The following procedure describes how to view the hall call mask status.

1. Navigate to MAIN MENU | DEBUG | CAR DATA. See Figure 66.
2. From the Car Data Overview Status (see Figure 352), press the right button.
3. View the Hall Mask Status.



Figure 353: Hall Mask Status

The table below lists the Hall Mask Status definitions.

Table 31: Hall Mask Status Definitions

Hall Mask Code	Definition	Description
HMF	Front hall mask	Marks which front hall calls can be taken
HMR	Rear hall mask	Marks which rear hall calls can be taken
HML	Latchable hall mask	Marks which hall calls can be latched

To view hall mask errors, see section 18.11 Errors.

## 17.3 Opening Map Status

The opening map status displays which landings have front or rear openings enabled.

### 17.3.1 Front Opening Map Status

The following procedure describes how to view the front opening map status.

1. Navigate to MAIN MENU | DEBUG | CAR DATA. See Figure 66.



2. From the Car Data Overview Status (see Figure 352), press the right button.
3. From the Hall Mask Status (see Figure 353), press the right button.
4. View the Front Opening Map Status. Opening Map Front 1 (OMF1) represents the hex value for the first 32 landings that have front openings. OMF2 represents landings 33-64 and OMF3 represents landings 65-96.



Figure 354: Front Opening Map Status

### 17.3.2 Rear Opening Map Status

The following procedure describes how to view the rear opening map status.

1. Navigate to MAIN MENU | DEBUG | CAR DATA. See Figure 66.
2. From the Car Data Overview Status (see Figure 352), press the right button.
3. From the Hall Mask Status (see Figure 353), press the right button.
4. From the Front Opening Map Status (see Figure 354), press the right button.
5. View the Rear Opening Map Status. Opening Map Rear 1 (OMR1) represents the hex value for the first 32 landings that have rear openings. OMR2 represents landings 33-64 and OMR3 represents landings 65-96.



Figure 355: Rear Opening Map Status

## 17.4 Security Map Status

The security map status displays the status of secure landings.

### 17.4.1 Front Security Map Status

The following procedure describes how to view the front security map status.

1. Navigate to MAIN MENU | DEBUG | CAR DATA. See Figure 66.
2. From the Car Data Overview Status (see Figure 352), press the right button.
3. From the Hall Mask Status (see Figure 353), press the right button.
4. From the Front Opening Map Status (see Figure 354), press the right button.
5. From the Rear Opening Map Status (see Figure 355), press the right button.

- View the Front Security Map Status. Security Mask Front 1 (SMF1) represents hex value for first 32 front openings that have security enabled. SMF2 represents the next 32 front openings.



```

CAR1 - ON [M] <>
SMF1: 0xFFFFFFFF
SMF2: 0xFFFFFFFF
SMF3: 0xFFFFFFFF

```

Figure 356: Front Security Map Status

## 17.4.2 Rear Security Map Status

The following procedure describes how to view the rear security map status.

- Navigate to MAIN MENU | DEBUG | CAR DATA. See Figure 66.
- From the Car Data Overview Status (see Figure 352), press the right button.
- From the Hall Mask Status (see Figure 353), press the right button.
- From the Front Opening Map Status (see Figure 354), press the right button.
- From the Rear Opening Map Status (see Figure 355), press the right button.
- From the Front Security Map Status (see Figure 356), press the right button.
- View the Rear Security Map Status. Security Mask Rear 1 (SMR1) represents hex value for first 32 rear openings that have security enabled. SMR2 represents the next 32 rear openings.



```

CAR1 - ON [M] <>
SMR1: 0xFFFFFFFF
SMR2: 0x00000001
SMR3: 0x00000000

```

Figure 357: Rear Security Map Status

## 17.5 Linked Hall Mask Status

The linked hall call masks are used to tie together the lamps of separate hall buttons. Each paired mask must be set to the sum of the hall call masks for each of the paired boards. The paired hall call parameters addresses are located at 08-0178 – 08-0181. For the list of parameters, see the *C4 Parameter List*.

The following procedure describes how to view the linked hall mask status.

- Navigate to MAIN MENU | DEBUG | CAR DATA. See Figure 66.
- From the Car Data Overview Status (see Figure 352), press the right button.
- From the Hall Mask Status (see Figure 353), press the right button.
- From the Front Opening Map Status (see Figure 354), press the right button.
- From the Rear Opening Map Status (see Figure 355), press the right button.
- From the Front Security Map Status (see Figure 356), press the right button.
- From the Rear Security Map Status (see Figure 357), press the right button.

8. View the Linked Hall Mask status.

**NOTE:** The following example shows:

- First mask (LM1) pairs the front Hall Call boards
- Second mask (LM2) pairs the rear Hall Call boards



Figure 358: Linked Hall Mask Status

## 17.6 Hall Security Map Status

The hall security map marks the landings that require hall security contacts. The front hall security map parameters are 16-0940 – 16-0945 and the rear hall security map parameters are located under address 16-1035 – 16-1040. For the list of parameters, see the *C4 Parameter List*.

### 17.6.1 Front Hall Security Map Status

The following procedure describes how to view the front hall security map status.

1. Navigate to MAIN MENU | DEBUG | CAR DATA. See Figure 66.
2. From the Car Data Overview Status (see Figure 352), press the right button.
3. From the Hall Mask Status (see Figure 353), press the right button.
4. From the Front Opening Map Status (see Figure 354), press the right button.
5. From the Rear Opening Map Status (see Figure 355), press the right button.
6. From the Front Security Map Status (see Figure 356), press the right button.
7. From the Rear Security Map Status (see Figure 357), press the right button.
8. From the Linked Hall Mask Status (see Figure 358), press the right button.
9. View the Front Hall Security Map Status.



Figure 359: Front Hall Security Map Status

### 17.6.2 Rear Hall Security Map Status

The following procedure describes how to view the rear hall security map status.

1. Navigate to MAIN MENU | DEBUG | CAR DATA. See Figure 66.
2. From the Car Data Overview Status (see Figure 352), press the right button.
3. From the Hall Mask Status (see Figure 353), press the right button.
4. From the Front Opening Map Status (see Figure 354), press the right button.

5. From the Rear Opening Map Status (see Figure 355), press the right button.
6. From the Front Security Map Status (see Figure 356), press the right button.
7. From the Rear Security Map Status (see Figure 357), press the right button.
8. From the Linked Hall Mask Status (see Figure 358), press the right button.
9. From the Front Hall Security Map Status (see Figure 359), press the right button.
10. View the Rear Hall Security Map Status.



Figure 360: Rear Hall Security Map Status

## 17.7 Hall Security Mask Status

The hall security mask displays the status of all enabled secured hall calls.

The hall security bypass status (BYP) is ON if the hall security is disabled. This occurs if the Enable Hall Security option is OFF (parameter 01-0138) or the Enable All HC input is programmed and active. For the list of parameters, see the *C4 Parameter List*.

The following procedure describes how to view the hall security mask status.

1. Navigate to MAIN MENU | DEBUG | CAR DATA. See Figure 66.
2. From the Car Data Overview Status (see Figure 352), press the right button.
3. From the Hall Mask Status (see Figure 353), press the right button.
4. From the Front Opening Map Status (see Figure 354), press the right button.
5. From the Rear Opening Map Status (see Figure 355), press the right button.
6. From the Front Security Map Status (see Figure 356), press the right button.
7. From the Rear Security Map Status (see Figure 357), press the right button.
8. From the Linked Hall Mask Status (see Figure 358), press the right button.
9. From the Front Hall Security Map Status (see Figure 359), press the right button.
10. From the Rear Hall Security Map Status (see Figure 360), press the right button.
11. View the Front and Rear Hall Security Mask Status.



Figure 361: Front and Rear Hall Security Mask Status

## 17.8 Dispatching Timer Status

The dispatching timer status displays the configured amount of time the car has to respond to hall calls before being taken out of the group.

The following procedure describes how to view the dispatching timer status.

1. Navigate to MAIN MENU | DEBUG | CAR DATA. See Figure 66.
2. From the Car Data Overview Status (see Figure 352), press the right button.
3. From the Hall Mask Status (see Figure 353), press the right button.
4. From the Front Opening Map Status (see Figure 354), press the right button.
5. From the Rear Opening Map Status (see Figure 355), press the right button.
6. From the Front Security Map Status (see Figure 356), press the right button.
7. From the Rear Security Map Status (see Figure 357), press the right button.
8. From the Linked Hall Mask Status (see Figure 358), press the right button.
9. From the Front Hall Security Map Status (see Figure 359), press the right button.
10. From the Rear Hall Security Map Status (see Figure 360), press the right button.
11. From the Front and Rear Hall Security Mask Status (see Figure 361), press the right button.
12. View the Dispatching Timers Status.

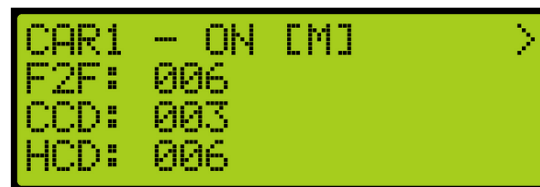


Figure 362: Dispatching Timers Status

The Dispatching Timers Status menu displays the following:

- **F2F:** The car's estimated floor to floor (worst-case) time. Auto generated based on Normal Profile S-Curve settings. See section 9.1.1 Adjusting S-Curve Profile.
- **CCD:** The period the doors remain open when responding to car calls. See section 16.2 Door Dwell Timer.
- **HCD:** The period the doors remain open when responding to hall calls. See section 16.3 Hall Dwell Timer.

## 17.9 VIP Flags

The VIP flags define the status of the VIP Mode of the car within the group.

The following procedure describes how to view the status of VIP.

1. Navigate to MAIN MENU | DEBUG | CAR DATA. See Figure 66.
2. From the Car Data Overview Status (see Figure 352), press the right button.
3. From the Hall Mask Status (see Figure 353), press the right button.
4. From the Front Opening Map Status (see Figure 354), press the right button.
5. From the Rear Opening Map Status (see Figure 355), press the right button.

6. From the Front Security Map Status (see Figure 356), press the right button.
7. From the Rear Security Map Status (see Figure 357), press the right button.
8. From the Linked Hall Mask Status (see Figure 358), press the right button.
9. From the Front Hall Security Map Status (see Figure 359), press the right button.
10. From the Rear Hall Security Map Status (see Figure 360), press the right button.
11. From the Front and Rear Hall Security Mask Status (see Figure 361), press the right button.
12. From the Dispatching Timers Status (see Figure 362), press the right button.
13. View the VIP Flags Status.

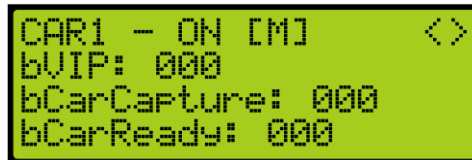


Figure 363: VIP Flags Status

The VIP Flags menu displays the following:

- **bVIP:** Went the setting is 1, the VIP Mode has been enabled.
- **bCarCapture:** When the setting is 1, the car is being captured prior to a VIP call assignment.
- **bCarReady:** When the setting is 1, the car is captured and read to take a VIP call assignment.

## 17.10 VIP Masks

The VIP masks mark which hall riser functions the car can serve in VIP Mode.

The following procedure describes how to view the VIP masks.

1. Navigate to MAIN MENU | DEBUG | CAR DATA. See Figure 66.
2. From the Car Data Overview Status (see Figure 352), press the right button.
3. From the Hall Mask Status (see Figure 353), press the right button.
4. From the Front Opening Map Status (see Figure 354), press the right button.
5. From the Rear Opening Map Status (see Figure 355), press the right button.
6. From the Front Security Map Status (see Figure 356), press the right button.
7. From the Rear Security Map Status (see Figure 357), press the right button.
8. From the Linked Hall Mask Status (see Figure 358), press the right button.
9. From the Front Hall Security Map Status (see Figure 359), press the right button.
10. From the Rear Hall Security Map Status (see Figure 360), press the right button.
11. From the Front and Rear Hall Security Mask Status (see Figure 361), press the right button.
12. From the Dispatching Timers Status (see Figure 362), press the right button.
13. From the VIP Flag Status (see Figure 363), press the right button.

14. View the VIP (Front and Rear) Mask Status.



Figure 364: VIP Mask Status

## 17.11 Car Call Enable Bitmap Status

The car call enable signals (signals that bypass car call security) active on the car in bitmap form. Each bit in the map represents a front or rear opening for a different group landing.

### 17.11.1 Front Car Call Enable Bitmap Status

The following procedure describes how to view the Front Car Call Enable Bitmap Status.

1. Navigate to MAIN MENU | DEBUG | CAR DATA. See Figure 66.
2. From the Car Data Overview Status (see Figure 352), press the right button.
3. From the Hall Mask Status (see Figure 353), press the right button.
4. From the Front Opening Map Status (see Figure 354), press the right button.
5. From the Rear Opening Map Status (see Figure 355), press the right button.
6. From the Front Security Map Status (see Figure 356), press the right button.
7. From the Rear Security Map Status (see Figure 357), press the right button.
8. From the Linked Hall Mask Status (see Figure 358), press the right button.
9. From the Hall Security Map Status (see Figure 359), press the right button.
10. From the Front Hall Security Map Status (see Figure 359), press the right button.
11. From the Rear Hall Security Map Status (see Figure 360), press the right button.
12. From the Dispatching Timers Status (see Figure 362), press the right button..
13. From the VIP Flags Status (see Figure 363), press the right button.
14. View the VIP (Front and Rear) Mask Status (see Figure 364), press the right button.
15. View the Front Car Call Enable Bitmap Status.

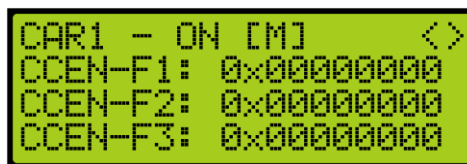


Figure 365: Front Car Call Enable Bitmap Status

### 17.11.2 Rear Car Call Enable Bitmap Status

The following procedure describes how to view the Rear Car Call Enable Bitmap Status.

1. Navigate to MAIN MENU | DEBUG | CAR DATA. See Figure 66.
2. From the Car Data Overview Status (see Figure 352), press the right button.
3. From the Hall Mask Status (see Figure 353), press the right button.

4. From the Front Opening Map Status (see Figure 354), press the right button.
5. From the Rear Opening Map Status (see Figure 355), press the right button.
6. From the Front Security Map Status (see Figure 356), press the right button.
7. From the Rear Security Map Status (see Figure 357), press the right button.
8. From the Linked Hall Mask Status (see Figure 358), press the right button.
9. From the Hall Security Map Status (see Figure 359), press the right button.
10. From the Front Hall Security Map Status (see Figure 359), press the right button.
11. From the Rear Hall Security Map Status (see Figure 360), press the right button.
12. From the Dispatching Timers Status (see Figure 362), press the right button.
13. From the VIP Flags Status (see Figure 363), press the right button.
14. View the VIP (Front and Rear) Mask Status (see Figure 364), press the right button.
15. From the Front Car Call Enable Bitmap Status (see Figure 365), press the right button.
16. View the Rear Car Call Enable Bitmap Status.

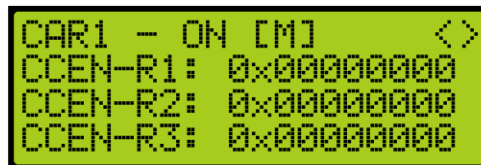


Figure 366: Rear Car Call Enable Bitmap Status Menu

## 17.12 Emergency Medical Call Mask and Landing

The Emergency Medical Call Mask and Landing is the status of a car in the group that is designated for emergencies.

The following procedure describes how to view the Emergency Medical Call Mask and Landing.

1. Navigate to MAIN MENU | DEBUG | CAR DATA. See Figure 66.
2. From the Car Data Overview Status (see Figure 352), press the right button.
3. From the Hall Mask Status (see Figure 353), press the right button.
4. From the Front Opening Map Status (see Figure 354), press the right button.
5. From the Rear Opening Map Status (see Figure 355), press the right button.
6. From the Front Security Map Status (see Figure 356), press the right button.
7. From the Rear Security Map Status (see Figure 357), press the right button.
8. From the Linked Hall Mask Status (see Figure 358), press the right button.
9. From the Hall Security Map Status (see Figure 359), press the right button.
10. From the Front Hall Security Map Status (see Figure 359), press the right button.
11. From the Rear Hall Security Map Status (see Figure 360), press the right button.
12. From the Dispatching Timers Status (see Figure 362), press the right button.
13. From the VIP Flags Status (see Figure 363), press the right button.
14. View the VIP (Front and Rear) Mask Status (see Figure 364), press the right button.
15. From the Front Car Call Enable Bitmap Status (see Figure 365), press the right button.
16. From the Rear Car Call Enable Bitmap Status (see Figure 366), press the right button.



17. View the Emergency Medical Call Mask and Landing Status.



*Figure 367: Emergency Medical Call Mask and Landing*

View the Emergency Medical Call Mask and Landing StatusThe Emergency Medical Call Mask and Landing menu displays the following:

- **EMS Mask:** The hall mask for the hall risers that are interpreted as hall medical calls by this car.
- **EMS Landing:** If an emergency medical call has been assigned to the car, this field reflect the landing of the call, where “1” is the lowest landing served by the group and “0” is no assignment.

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## 18 Hall Network

The hall network is a group of Hall boards connected by a CAN bus.

### 18.1 CAN Bus

Each Hall board communicates over a CAN bus to a Riser board located in the machine room.

The figure below shows a standard CAN network. For optimal performance, the cable stub lengths should be kept short and only node 1 and node 4 on the CAN bus line should be terminated.

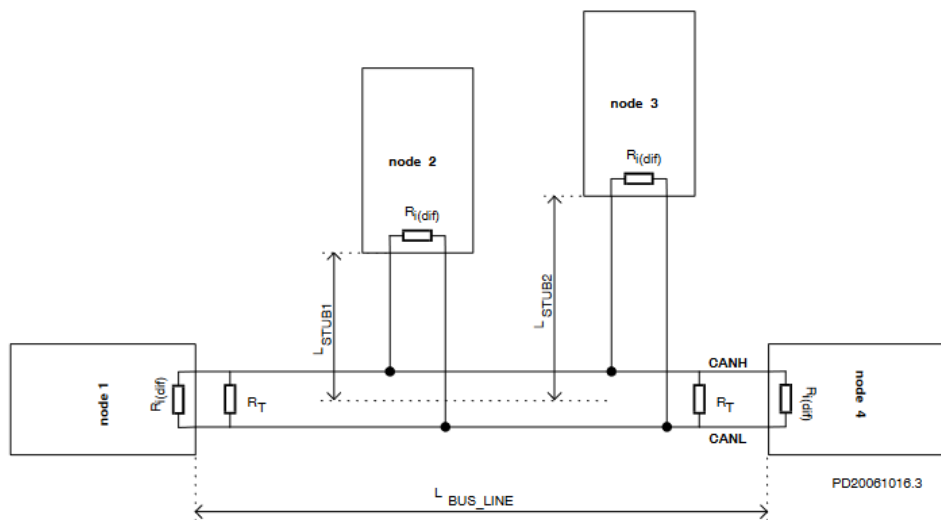


Figure 368: Standard CAN Bus<sup>1</sup>

**Termination** – The first and last boards within each CAN network are terminated. See section 2.3 I/O Board/Riser Board SR3031 for more information.

- Example 1 – A single set of hall buttons are wired to Riser board 1.
  - The Riser board's CAN2 termination and the bottom landing Hall board's termination is set.
- Example 2 – Two sets of Hall buttons are both wired to Riser board 1.
  - The bottom landing Hall board for each Hall board set is terminated. The Riser board's CAN2 is NOT terminated. For tall buildings, the second set of Hall boards may need to be split off and connected to a second Riser board. Both networks are terminated as described in example 1.

<sup>1</sup> See <https://www.onsemi.com/pub/Collateral/AND8376-D.PDF> for CAN Bus with Unterminated Stubs

**NOTE:** For most C4 PCB boards, a jumper is used to terminate the CAN bus. For Hall boards, the termination is set by switching DIP 10 or DIP 12 to ON depending on the type of Hall board. See Table 10 and Table 11 for switch settings.

**Stub Length** – A CAN bus resembles a long branch with only short ‘stubs’ coming out of it. These stubs are kept shorter than 1 ft in length. See Figure 368.

**Connections** – A twisted pair is used over CAT5 splitters whenever possible. For networks with over 20 Hall boards, additional power and REF connections will be needed to mitigate voltage drops.

## 18.2 Hall Board Status

If problems occur due to hall calls, start by checking the Hall board Status UI menu.

The Hall board status display gives information on each board’s communication status, error state, connected Riser board, I/O and DIP addressing.

The following procedure describes how to verify Hall board status.

1. Navigate to MAIN MENU | STATUS | HALL BOARD STATUS. See Figure 47.
2. The example below shows the Status of the Hall board configured for the 64<sup>th</sup> landing.

```
LND01 - F1 - RIS1
COM:100%  ERR:NONE
0064 SW: 123456.....
*          UL DL UB DB
```

Figure 369: Hall Board Status for the 64<sup>th</sup> Landing

The 64<sup>th</sup> Landing example shows the following:

- Belongs to the first function range of Hall boards
  - Connected to Riser board 1 in the machine room
  - There are no errors
  - Both up and down button are currently being pressed
  - Both up and down lamps are currently lit
3. The figure below shows an example of the status of an uninitialized Hall board.

```
LND01 - F1 - N/A
COM:N/A  ERR:UNK
0001 SW: .....
*          .. .. .. ..
```

Figure 370: Uninitialized Hall Board Status

**NOTE:** Once communication has been established with a Hall board and the communication is lost, the com status is 0% instead of N/A.

## 18.3 Enable Hall Security

When hall security is enabled, access to designated floors are restricted to authorized users.

The following procedure describes how to enable hall security.

1. Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 58.
2. From the MISCELLANEOUS menu, scroll and select Enable Hall Security.



Figure 371: MISCELLANEOUS Menu – Enable Hall Security

3. From the ENABLE HALL SECURITY menu, scroll and select On to enable hall security.



Figure 372: ENABLE HALL SECURITY Menu

4. Scroll right and press Save.

## 18.4 Hall Security Mask

The hall security mask marks what hall call masks require hall security contacts. Each bit corresponds to a different Hall board function ID. This mask is separated between front and rear masks (HSMF and HSMR) by the Hall Rear Door Mask (see section 18.10 Hall Rear Door Mask. The hall security mask parameter is 08-0208. For the list of parameters, see the *C4 Parameter List*.

The following procedure describes how to set Hall Security Mask.

1. Navigate to MAIN MENU | SETUP | GROUP SETUP. See Figure 60.
2. From the GROUP SETUP menu, scroll and select Hall Security Mask.



Figure 373: GROUP SETUP Menu – Hall Security Mask

- From the HALL SECURITY MASK menu, scroll and turn ON the Hall board functions that need to be secured.



Figure 374: HALL SECURITY MASK Menu

- Scroll right and press Save.

## 18.5 Hall Security Map

The hall security map marks the landings that require hall security contacts. The configuration of the master group car (the car with the lowest group car ID) is used. However, all cars should share the same hall call security configuration parameters in case the master group car is taken offline. The front hall security map parameters are located under address 16-0940 – 16-0945 and the rear hall security map parameters are located under address 16-1035 – 16-1040. For the list of parameters, see the *C4 Parameter List*.

The following procedure describes how to set hall security map.

- Navigate to MAIN MENU | SETUP | GROUP SETUP. See Figure 60.
- From the GROUP SETUP menu, scroll and select Hall Security Map (Front or Rear).



Figure 375: GROUP SETUP Menu – Hall Security Map (Front or Rear)

- From the HALL SECURITY MAP menu, scroll and select the front or rear landings that require security access. Setting the landing to ON enables security for that landing.



Figure 376: HALL SECURITY MAP FRONT Menu



Figure 377: HALL SECURITY MAP REAR Menu

4. Scroll right and press Save.

## 18.6 Hall Security Status

The Hall Security status displays the status of the hall call security hall boards.

The following procedure describes how to view the Hall Security status.

1. Navigate to MAIN MENU | STATUS | HALL SECURITY STATUS. See Figure 47.
2. From the Hall Security menu, scroll up or down to view the floors that are set for hall security. See Figure 369.

## 18.7 Hall Call Mask

Hall call mask must be set to enable regular hall calls for a car. The hall call mask setting is located under address 08-0209 – 08-0212. The value for the address varies depending on the Function IDs of the Hall board installed. For the list of parameters, see the *C4 Parameter List*.

The following procedure describes how to set hall call mask.

1. Navigate to MAIN MENU | SETUP | GROUP SETUP. See Figure 60.
2. From the GROUP SETUP menu, scroll and select Hall Call Mask.



Figure 378: GROUP SETUP Menu – Hall Call Mask

3. From the HALL CALL MASK menu, scroll and select if the function is enabled.



Figure 379: HALL CALL MASK Menu

4. Scroll right and press Save.

To determine the value of the address, use the table below and add the corresponding values of each of the function IDs serviced by the car.

The table below lists the Hall board 10 DIP Hall Mask Mapping switch settings.

*Table 32: Hall Board 10 DIP Hall Mask Mapping Switch Settings*

DIP Switch 7-8-9	Function ID	Mask Value (Decimal)
OFF-OFF-OFF	1	1
ON-OFF-OFF	2	2
OFF-ON-OFF	3	4
ON-ON-OFF	4	8
OFF-OFF-ON	5	16
ON-OFF-ON	6	32
OFF-ON-ON	7	64
ON-ON-ON	8	128

The table below lists the Hall board 12 DIP Hall Mask Mapping switch settings.

*Table 33: Hall board 12 DIP Hall Mask Mapping Switch Settings*

DIP Switch 8-9-10	Function ID	Mask Value (Decimal)
OFF-OFF-OFF	1	1
ON-OFF-OFF	2	2
OFF-ON-OFF	3	4
ON-ON-OFF	4	8
OFF-OFF-ON	5	16
ON-OFF-ON	6	32
OFF-ON-ON	7	64
ON-ON-ON	8	128

## 18.8 Linked Hall Buttons

To get two sets of hall buttons to light up together, the paired hall mask parameter must be set. This parameter is set on each group car. This setting is located under address 08-0178. The value of the parameter varies the function IDs of the paired Hall boards. If additional pairings are required, addresses 08-0179 to 08-0181 are available for use. For the list of parameters, see the *C4 Parameter List*.

Example 1 – Paired Hall boards with function ID 0 (DIP 7, DIP 8 and DIP 9 OFF) and function ID 2 (DIP 7 ON). Set 08-0178 to x03 (3 in decimal).

Example 2 – Paired Hall boards with function ID 3 (DIP 8 ON) and function ID 4 (DIP 7 and DIP 8 ON). Set 08-0178 to x0C (12 in decimal).



The following procedure describes how to set linked hall mask.

1. Navigate to MAIN MENU | SETUP | GROUP SETUP. See Figure 60.
2. From the GROUP SETUP menu, scroll and select Linked Hall Mask.



Figure 380: GROUP SETUP Menu – Linked Hall Mask

3. From the LINKED HALL MASK 1 menu, scroll and select the Hall boards within the group that are linked.



Figure 381: LINKED HALL MASK 1 Menu

4. Scroll right and press Save.

## 18.9 Hall Medical Mask

The Hall Medical Mask configures hall boards for emergency medical service calls. These calls put the nearest car on Emergency Medical Service mode of operation.

The following procedure describes how to set hall medical mask.

1. Navigate to MAIN MENU | SETUP | GROUP SETUP. See Figure 60.
2. From the GROUP SETUP menu, scroll and select Hall Medical Mask.



Figure 382: GROUP SETUP Menu – Hall Medical Mask

3. From the HALL MEDICAL MASK menu, scroll and select which cars are set for emergency service calls.

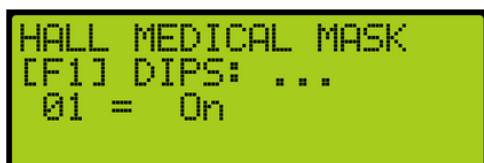


Figure 383: HALL MEDICAL MASK Menu

4. Scroll right and press Save.

## 18.10 Hall Rear Door Mask

The hall rear door mask sets which hall boards function as rear door calls. Hall boards that are configured as rear door calls will be latched.

The following procedure describes how to set hall rear door mask.

1. Navigate to MAIN MENU | SETUP | GROUP SETUP. See Figure 60.
2. From the GROUP SETUP menu, scroll and select Hall Rear Door Mask.



Figure 384: GROUP SETUP Menu – Hall Rear Door Mask

3. From the HALL REAR DOOR MASK menu, scroll and select hall calls that service landings where only the rear door opens.



Figure 385: HALL REAR DOOR MASK Menu

4. Scroll right and press Save.

## 18.11 Errors

The following are possible errors that can occur:

- **UNK** – The board is uninitialized
- **NONE** – The board has no errors
- **POR** – The board is starting up
- **WDT** – The board stalled and triggered a reset
- **BOR** – The board power was insufficient and triggered a reset
- **COM** – The board is not receiving commands
- **DIP** – The board has the same address as another board on the network
- **BUS** – The board is resetting its CAN transceiver

## 18.12 Compatibility

The C4 Hall board and V2 Hall board are NOT compatible. The C4 Hall boards have 10 or 12 DIP switches (depending on the configuration), while the V2 Hall board has 8 DIP switches.

## 19 Serial Hall Lanterns

Serial Hall Lantern Hall boards, which are interchangeable with Hall Call boards, connect to the CAN network of the MR board. Since the Serial Hall Lantern Hall boards and the Hall Call boards share the same hardware and software, this manual references Hall boards.

### 19.1 CAN BUS

The Serial Hall Lantern Hall board CAN bus follows the same CAN bus guidelines as the Hall boards.

By default, the CAN network is terminated on the MR board so only terminate the lowest landings Serial Hall Lantern Hall board. If a CE Driver board is being used within the network, the termination on this board is removed.

### 19.2 Hall Lantern Masks

To enable hall lantern communications, the car's hall lantern mask must be set. The setting is located under address 08-0213. The value for the address varies depending on the function IDs of the Serial Hall Lantern Hall boards installed. To determine the value of the address, use Table 32 or Table 33 and add the corresponding values of each of the Function IDs serviced by the car. See section 5 Parameters to set the decimal format for Hall Lantern Masks.

To configure the Serial Hall Lantern Hall Call boards to serve as rear calls, set the rear hall lantern mask located under address 32-0036 to the corresponding value. Use the values in Table 32 to determine the value by adding the mask values of each of the function IDs that serve as rear calls. For the list of parameters, see the *C4 Parameter List*.

### 19.3 Serial Hall Lantern Status

If any issues occur with the Serial Hall Lantern Hall boards, start by checking the Hall Lantern status. The STATUS menu displays information about each board's communication status, error state, I/O and DIP addressing.

The following procedure describes how to verify Hall Lantern status.

1. Navigate to MAIN MENU | STATUS | HALL LANTERN STATUS. See Figure 47.
2. The example below shows the status of the Hall Lantern configured for the 64<sup>th</sup> landing.



Figure 386: Hall Lantern Status for the 64<sup>th</sup> Landing

The figure below shows an example of the status of an uninitialized Hall Lantern Status.



Figure 387: Uninitialized Hall Lantern Status

## 19.4 Errors

For Hall Lantern Mask errors, see section 18.11 Errors.

# 20 C4 Data Acquisition Device Unit

Each Smartrise C4 Controller comes wired to a DAD unit that comes equipped with a Graphical User Interface Application (GUI). The following section explains how to connect wirelessly to the DAD unit and access its application using a laptop or a tablet. See *C4 GUI Manual* for more information.

## 20.1 DAD Status

The DAD status displays the status and communication of the DAD unit.

The following procedure describes how to view the DAD status.

1. Navigate to MAIN MENU | STATUS | DAD STATUS. See Figure 48.
2. From the DAD STATUS menu, view the status of the DAD unit.

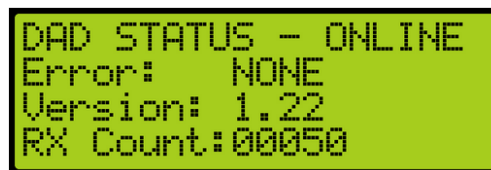


Figure 388: DAD STATUS Menu

The DAD STATUS menu displays the following:

- **DAD STATUS** – Shows if the DAD unit is ONLINE or OFFLINE.
- **ERROR** – Displays the current fault the DAD unit is experiencing if a red LED light is blinking on the DAD unit.
- **Version** – Shows the current software version of the DAD unit.
- **RX Count** – Displays the communication packets the controller is receiving from the DAD unit.

## 21 Assigning Inputs and Outputs

Like previous Smartrise controllers, the C4 retains the ability to change, add, remove, or move inputs and outputs if they are not fixed (inputs/outputs that cannot be changed due to safety issues). Any UNUSED input or output can be assigned a feature if the installer needs additional features or needs to move an input or output.

Inputs can only be assigned to the 500's and outputs to the 600's. As such, if an output is being searched for and attempting to assign it to a 500 section, the feature will not be found.

### 21.1 Adding an Input or Output

The following procedure describes how to add an input or output.

1. Navigate to MAIN MENU | SETUP | SETUP I/O. See Figure 54.
2. From the SETUP I/O menu, select Setup Inputs for the Input menu or Setup Outputs for the Output Menu. See Figure 268.
3. From the SELECT BOARD menu, select which board the input or output is assigned to. See Figure 269.
4. Press the up button until there is an unused input/output available.

**NOTE:** For this example, we are showing the input.



Figure 389: Unused Input/Output

The Unused Input/Output displays the following:

- The second and third lines display unused.
  - The number on top indicates which input/output is currently being viewed. For example, Figure 389 shows an example of an unused input.
  - 503 is the input that is currently being viewed.
  - 508 states how many inputs there are for that specific board.
5. Scroll right.
  6. Scroll and select the desired category of the input or output. See Table 34 and Table 44 for types of inputs and outputs.

**NOTE:** The category is the second line.

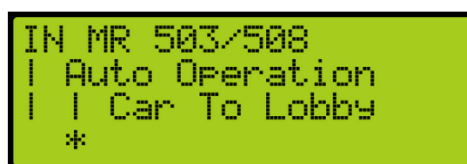


Figure 390: Category and Input

7. Scroll right.
8. Scroll and select the desired input or output. Figure 390 shows the Auto Operation category to assign Car to Lobby to an unused input.
9. Scroll right and press Save.

## 21.2 Removing an Input or Output

The following procedure describes how to remove an input or output.

1. Navigate to MAIN MENU | SETUP | SETUP I/O. See Figure 54.
2. From the SETUP I/O menu, select Setup Inputs for the Input menu or Setup Outputs for the Output Menu. See Figure 268.

**NOTE:** The input and output steps are the same.

3. From the SELECT BOARD menu, select which board the input or output is being removed from. See Figure 269.
4. Scroll and select the input or output to be removed. See Figure 390.
5. Scroll right.
6. Scroll and select the current input or output to unused.
7. Scroll right.
8. Scroll and select the desired category of the input/output to unused.
9. Scroll right and press Save.

## 21.3 Types of Inputs

The tables below list the definition for the types of inputs per category.

*Table 34: Description of Auto Operation Inputs*

Input	Description
Active Shooter	Places all cars in a group into Active Shooter Mode (must be programmed to a shared group input on each car).
Attd Byp	When active, attendant operation causes the car to skip past all hall calls between its current position and current destination.
Attd Down	Sets the next direction the car will try to move in the down direction when doors are closed on attendant operation.
Attd On	Puts the car on attendant operation.
Attd Up	Sets the next direction the car will try to move in the up direction when doors are closed on attendant operation.
Car To Lobby	Captures car and sends it to the lobby where it will hold doors open.
Custom Operation	Puts car on custom operation mode.
DISA All HC	Disables all hall calls on the car when active.

Input	Description
DISA Pass Chime	Disables passing chime when active.
Distress Ack	At a central control console, a distress and light buzzer is provided for each elevator and an acknowledge button common to all elevators. Pressing the distress alarm button, triggering the emergency stop switch, if a dispatched car remains at a landing for >30 seconds, or if the electrical safety circuit is open, will turn on the distress light and pulse the distress buzzer. The Distress light will remain lit until the acknowledge button is pressed.
Distress BTN	At a central control console, a distress and light buzzer is provided for each elevator and an acknowledge button common to all elevators. Pressing the distress alarm button, triggering the emergency stop switch, if a dispatched car remains at a landing for >30 seconds, or if the electrical safety circuit is open, will turn on the distress light and pulse the distress buzzer. The Distress light will remain lit until the acknowledge button is pressed.
EMS2 On	Holds car on EMS Phase 2 operation after activation of EMS Phase 1 operation.
Enable All CC	Bypasses car call security on all floors.
Enable All CC F	Enables all car call front buttons, bypassing car call security on all front car call buttons.
Enable All CC R	Enables all car call rear buttons, bypassing car call security on all rear car call buttons.
Enable All HC	Bypasses hall call security on all landings.
ENA Down Peak	Causes the car to park at the top floor when idle.
ENA Lobby Peak	Causes the car to park at the lobby floor when idle.
ENA Up Peak	Causes the car to park at the bottom floor when idle.
Enable Swing	Puts car on swing operation, removing the car from regular group calls and allowing it to take swing hall calls.
Indep Srv	Puts car on independent service operation.
Light Load	Analog load weigher signal indicating weight below configured threshold. Used for anti-nuisance features.
Marshal Mode	Puts the car on marshal mode operation.
Parking Off	Disables parking.
Sabbath	Puts car on Sabbath operation where car will automatically move to configured floors and cycle doors, without user intervention.
Wander Guard	Puts the car on wander guard operation.

Table 35: Description of Car Call (Front and Rear) Inputs

Input	Description
Buttons 1-96	Front car call buttons.
Buttons 1-96	Rear car call buttons.

Table 36: Description of Car Call Enable (Front and Rear) Inputs

Input	Description
Keys 1-96	Used to enable/disable front car call buttons.
Keys 1-96	Used to enable/disable rear car call buttons.

Table 37: Description of Controller Inputs

Input	Description
Auto Rescue	When active, and the car is put on battery rescue operation, car will recall to the landing requiring the least energy to reach. When inactive, car will fault until the manual rescue procedure is executed.
Battery Fault	When active, car will assert a battery fault Indicates that the Battery in the Battery Rescue device may need replacing.
Battery Power	Indicates a Battery Rescue device is active. This is used in combination with Auto Rescue when a battery lowering or emergency rescue device is active.
Brake1 BPS	AC primary brake BPS input. Signals that the brake has fully picked. Only checked if programmed.
Brake2 BPS	AC secondary brake BPS input. Signals that the brake has fully picked. Only checked if programmed.
Delta	Feedback input from the delta relay which picks the run contactor in a Wye Delta starter configuration.
DNH Valve Mon	Monitors safety relay for cutting the down high valve's neutral side. If the input is high, the valve's neutral side is disconnected. Only checked if programmed.
DSD Run Engaged	This is a redundant message from the DSD drive that it has control of the sheave and the brakes can be lifted. Only checked if programmed.
Fan And Light	When active, causes the output LIGHT FAN to also activate.
Fault	Generic fault that will stop the car.
Insp Valve Mon	Monitors safety relay for cutting the inspection valve's neutral side. If the input is high, the valve's neutral side is disconnected. Only checked if programmed.
Manual Pick	Indication to the controller that a manual rescue is occurring.
OOS	Puts the car in out of service operation.



Input	Description
Phase Flt	Line monitoring hardware has detected voltage lines are out of phase or missing. Only checked if programmed.
Rec Trv Dir	When the car is on automatic battery rescue operation. For Magnetek drives, this indicates to the car that the easiest direction to move is down. When inactive, this indicates that the easiest direction is up.
Rec Trv On	When the car is on automatic battery rescue operation. For Magnetek drives, this indicates to the car that it has determined the easiest direction for the car to move, indicated by REC TRV DIR.
Regen Flt	When active, causes the C4 car to assert a regen fault.
SS Flt	Primary soft starter signaling a generic fault. Only checked if programmed.
SS2 Flt	Secondary soft starter signaling a generic fault. Only checked if programmed.
Start OVLD	Feedback input from the contactor starter overload relay. Used for jobs with a contactor starter.
UPH Valve Mon	Monitors safety relay for cutting the up high valve's neutral side. If the input is high, the valve's neutral side is disconnected. Only checked if programmed.
Valve Flt	Valve controller generic fault.

Table 38: Description of Front Doors Inputs

Input	Description
BCL	Indicates that the manual hall doors for the bottom floor front opening are closed.
DCB	Door close button, requests that the front door closes.
DCL	Car door, door close limit input indicating that the front door is closed.
DOB	Door open button, requests that the front door opens.
DOL	Car door, door open limit input indicating the front door is open.
DPM	Car door position monitor input indicating front door is closed. Checked only if programmed.
HOLD	Door hold button, requests that the front door opens and remains open for a longer than usual dwell period.
Marshl DCB	Disables the car controls for the front DCB. All operations are controlled remotely via a remote control panel. Used during prison operation.
Marshl DOB	Disables the car controls for the front DOB. All operations are controlled remotely via a remote control panel. Used during prison operation.

Input	Description
MCL	Indicates that the manual hall doors for all the middle floors front openings are closed.
PHE	Car door photoeye input indicating that the front door light curtain is obstructed and doors are not permitted to close.
PHE ALT	When detected, allows for the alternate photoeye to be used simultaneous with the primary photoeye to increase the field of view. Used with Peelle light curtain.
Safety Edge	Indicates that the safety edge is obstructed and doors are not permitted to close. For freight doors only.
TCL	Indicates that the manual hall doors for the top floor front opening are closed.

Table 39: Description of Rear Doors Inputs

Input	Description
BCL	Indicates that the manual hall doors for the bottom floor rear opening are closed.
DCB	Door close button, requests that the rear door closes.
DCL	Car door, door close limit input indicating that the rear door is closed.
DOB	Door open button, requests that the rear door opens.
DOL	Car door, door open limit input indicating the rear door is open.
DPM	Car door position monitor input indicating rear door is closed. Checked only if programmed.
HOLD	Door hold button, requests that the rear door opens and remains open for a longer than usual dwell period.
Marshl DCB	Disables the car controls for the rear DCB. All operations are controlled remotely via a remote control panel. Used during prison operation.
Marshl DOB	Disables the car controls for the rear DOB. All operations are controlled remotely via a remote control panel. Used during prison operation.
MCL	Indicates that the manual hall doors for all the middle floors rear openings are closed.
PHE	Car door photoeye input indicating that the rear door light curtain is obstructed and doors are not permitted to close.
PHE ALT	When detected, allows for the alternate photoeye to be used simultaneous with the primary photoeye to increase the field of view. Used with Peelle light curtain.
Safety Edge	Indicates that the safety edge is obstructed and doors are not permitted to close. For freight doors only.

Input	Description
TCL	Indicates that the manual hall doors for the top floor rear opening are closed.

Table 40: Description of Emergency Power Inputs

Input	Description
AutoSelect	After all cars have completed their recall, a preconfigured number of cars are released to go back to automatic operation. These cars are auto selected.
EP On	Car is on generator power. Puts car on emergency power operation.
Pretransfer	Car is moving from generator Description back to main line power. Cars should stop at their nearest reachable landings and hold doors open.
Select1	After all cars have completed their recall, a preconfigured number of cars are released to go back in to automatic operation. These cars are manually selected via the select inputs if Auto Select is inactive.
Select2	After all cars have completed their recall, a preconfigured number of cars are released to go back in to automatic operation. These cars are manually selected via the select inputs if Auto Select is inactive.
Select3	After all cars have completed their recall, a preconfigured number of cars are released to go back in to automatic operation. These cars are manually selected via the select inputs if Auto Select is inactive.
Select4	After all cars have completed their recall, a preconfigured number of cars are released to go back in to automatic operation. These cars are manually selected via the select inputs if Auto Select is inactive.
Select5	After all cars have completed their recall, a preconfigured number of cars are released to go back in to automatic operation. These cars are manually selected via the select inputs if Auto Select is inactive.
Select6	After all cars have completed their recall, a preconfigured number of cars are released to go back in to automatic operation. These cars are manually selected via the select inputs if Auto Select is inactive.
Select7	After all cars have completed their recall, a preconfigured number of cars are released to go back in to automatic operation. These cars are manually selected via the select inputs if Auto Select is inactive.
Select8	After all cars have completed their recall, a preconfigured number of cars are released to go back in to automatic operation. These cars are manually selected via the select inputs if Auto Select is inactive.

Input	Description
UpToSpeed	Car is on generator power. Generator has spun up and cars can begin recalling one at a time to the lobby where they will hold doors open.

Table 41: Description of Fire/Earthquake Inputs

Input	Description
EQ Hoistway Scan	Initiates the hoistway scan for earthquake at low speed.
Fire2 Cncl	In car Fire Phase 2 cancel keyswitch is ON. The car will cancel its current destination and not take calls until the input is deactivated.
Fire2 Hold	In car Fire Phase 2 keyswitch is in the HOLD position.
Fire2 Off	In car Fire Phase 2 keyswitch is in the OFF position.
Fire2 On	In car Fire Phase 2 keyswitch is in the ON position.
Fire Recall Off	Car is being commanded to go on Fire Phase 1 recall via the main keyswitch.
Fire Recall Rst	Car is commanded to exit Fire Phase 1 recall via the main keyswitch.
Mashal Fire Ovl	When active, prevents the elevator from going to the recall floor on fire recall. Used during prison operation.
Remote Fire Key	Car is being commanded to go on Fire Phase 1 recall via a remote keyswitch. Only checked when programmed.
Seismic	Seismic activity detected, puts car on Seismic Mode of operation.
Smoke Alt	Alternate recall floor smoke detector indicating fire is detected.
Smoke HA	Hoistway smoke sensor indicating fire is detected.
Smoke HA 2	Secondary hoistway smoke sensor indicating fire is detected. Used for a jobsite where the group is split between two machine rooms.
Smoke Main	Main recall floor smoke detector indicating fire is detected.
Smoke MR	Machine room smoke detector indicating fire is detected.
Smoke MR 2	Secondary machine room smoke detector indicating fire is detected. Used for a jobsite where the group is split between two machine rooms.
Smoke Pit	Pit smoke sensor indicating fire is detected. Not checked if not programmed.

Table 42: Description of Fire/Earthquake Inputs

Input	Description
IL Down	Moves the car down when on in car inspection mode.

Input	Description
IL Up	Moves the car up when on landing inspection mode.
IP Down	Moves the car down when on pit inspection mode.
IP Up	Moves the car up when on pit inspection mode.

Table 43: Description of Safety Inputs

Input	Description
Flood	Puts car on flood operation.
Full Load	Analog load weigher signal indicating the weight is above the configured threshold and the car cannot take additional passengers, car will remove itself from group (stop taking hall calls).
Low Oil	N/C input signals low oil.
Low PRESS	N/C input signals low pressure.
Motor OVHT	N/C input signals motor overheat.
Over Load	Analog load weigher signal indicating the weight is above the configured threshold and the car cannot move. Car will remain stopped with an overload fault.
Phone Failure	Indicates if in car emergency phone has failed.
Phone Reset	Resets the emergency phone failure buzzer.
TLoss Reset	Alternate method of resetting a latched traction loss fault via moveable input.
Viscosity	N/C input signals cold oil.

## 21.4 Types of Outputs

The tables below list the definitions for the types of outputs per category.

Table 44: Description of Auto Operation Outputs

Output	Description
Accelerating	Activates when the car is in the acceleration stage of its run.
Arrival DN 1	Discrete arrival lantern output, set 1.
Arrival DN 2	Discrete arrival lantern output, set 2.
Arrival DN 3	Discrete arrival lantern output, set 3.
Arrival DN 4	Discrete arrival lantern output, set 4.
Arrival DN 5	Discrete arrival lantern output, set 5.
Arrival UP 1	Discrete arrival lantern output, set 1.
Arrival UP 2	Discrete arrival lantern output, set 2.
Arrival UP 3	Discrete arrival lantern output, set 3.
Arrival UP 4	Discrete arrival lantern output, set 4.
Arrival UP 5	Discrete arrival lantern output, set 5.

Output	Description
Buzzer	Triggers an audible in car buzzer when the car is overloaded, on fire, nudging, on EMS Phase 1, or when on Attendant and there is a demand.
Car To Lobby	Activates if the car has finished its recall.
CC Acknowledge	Activates when a car call is placed. This is used in Canada for blind people.
Chime	Activates when the car is in an automatic mode of operation and the passing chime disable Output is inactive. The chime is triggered for 500ms every time the car's PI changes.
Decelerating	Activates when the car is in the deceleration stage of its run.
Distress Buzzer	At a central control console, a distress and light buzzer will be provided for each elevator and an acknowledge button common to all elevators. Pressing the distress alarm button, triggering the emergency stop switch, if a dispatched car remains at a landing for >30 seconds, or if the electrical safety circuit is open will turn on the distress light, and pulse the distress buzzer. The Distress light will remain lit until the acknowledge button is pressed.
Distress Lamp	At a central control console, a distress and light buzzer will be provided for each elevator and an acknowledge button common to all elevators. Pressing the distress alarm button, triggering the emergency stop switch, if a dispatched car remains at a landing for >30 seconds, or if the electrical safety circuit is open will turn on the distress light, and pulse the distress buzzer. The Distress light will remain lit until the acknowledge button is pressed.
In Service	Activates if hall calls are not disabled and the car is not faulted.
In Use	Activates when the car is not in normal operation, is in motion, or has its doors open.
Group Redundancy	Switches power to a redundant set of Riser boards.
Lamp At Recall	Activates when the car has completed EMS, Fire, or emergency power recall.
Lamp Attd Above	Activates when the car is in attendant operation and there is a hall call at a floor above.
Lamp Attd Below	Activates when the car is in attendant operation and there is a hall call at a floor below.
Lamp EMS	Activates when the car is in EMS Phase 1 or Phase 2.
Lamp Indp Srv	Activates when the car is in independent service operation.

Output	Description
Lamp Parking	Triggers when the car is in normal operation and is parked.
Lamp Sabbath	Activates when the car is in Sabbath operation.
Overloaded	Activates when the car is in an automatic mode of operation and the load weigher has flagged an overloaded state.
Travel Dn	Triggers when the car is moving down.
Travel Up	Triggers when the car is moving up.

*Table 45: Description of Car Call (Front and Rear) Outputs*

Output	Description
Lamp 1-96	Front car call lamps.
Lamp 1-96	Rear car call lamps.

*Table 46: Description of Controller Outputs*

Output	Description
Auto Rescue	Lamp output when auto rescue is active.
Battery Pwr	Output signaling car is on battery power.
BPS Status	Activates when the primary brake pick switch signals the brake is open.
BPS2 Status	Activates when the secondary brake pick switch signals the brake is open.
Brake1 Pick	AC primary brake pick output.
Brake2 Pick	AC secondary brake pick output.
CEDES Fan	CEDES Maintenance Fan output. Blows air at Cedes tape when in motion to clear accumulated dust.
Delta	Output to the Delta relay which picks the Run Contactor in a Wye Delta starter configuration.
Drive HW Enable	Triggers prerun energizing of the DSD DC drive.
Light Fan	Turns on car light and fan hardware.
MR Fan	Fan output that will remain active for an adjustable period of time after each run.
Rec Trv Enable	Enables recommended travel direction of Magnetek drives.
Regen Enable	Activates the regen.
Regen Reset	Triggers a reset of an active regen fault.
Safety Rescue	Triggers manual rescue in event of power loss.
SS Reset	Cycle power to a faulted soft starter.
Start Motor	Signal to start pump motor.
Start Motor 2	Start pump motor (secondary soft starter).
Valve High Down	Triggers the high speed valve in the down direction.
Valve High Up	Triggers the high speed valve in the up direction.

Output	Description
Valve Insp	Signal to blaine valve controller that the car is attempting an inspection run.
Valve Level Down	Triggers the leveling speed valve in the down direction.
Valve Level Up	Triggers the leveling speed valve in the up direction.
Valve Low Down	Triggers the low speed valve in the down direction.
Valve Low Up	Triggers the low speed valve in the up direction.
Valve Mid Down	Triggers the medium speed valve in the down direction.
Valve Mid Up	Triggers the medium speed valve in the up direction.

Table 47: Description of Front Doors Outputs

Output	Description
Arrival Down	Arrival down turns on when the car arrives at a floor then opens its doors and intends to continue moving down.
Arrival Up	Arrival up turns on when the car arrives at a floor then opens its doors and intends to continue moving up.
CAM	Retiring CAM. For swing hall doors and some freight doors, this output controls the hall locks. This output turns on when the car is in motion.
DC	Door close.
DCL	Door closed limit status. This output turns ON when the door closed limit switch signals the door is closed.
DCM	Used by Peelle door operator. Triggers door operator fast open/close where landing and car door movement will occur simultaneously.
DCP	Door close protection.
DO	Door open.
DOL	Door open limit status. This output turns ON when the door open limit switch signals the door is open.
Gate Release	Gate release.
Hold Lamp	Door hold.
NDG	Door nudge. After a specified timeout, if the door has not closed, the doors will move to a nudging state where the PHE is ignored and the nudging output will turn on.
Restrictor	Door restrictor.
Safety Edge	Safety edge broken status. This output turns ON when the safety edge or photoeye is broken.
Test	Used by Peelle light curtain to test for photoeye failure prior to each close attempt.
Warning Buzzer	Used by Peelle door operator. Activates 5 seconds before starting door close and remains on until doors fully closed.



Table 48: Description of Rear Doors Outputs

Output	Description
Arrival Down	Arrival down turns on when the car arrives at a floor then opens its doors and intends to continue moving down.
Arrival Up	Arrival up turns on when the car arrives at a floor then opens its doors and intends to continue moving up.
CAM	Retiring CAM. For swing hall doors and some freight doors, this output controls the hall locks. This output turns on when the car is in motion.
DC	Door close.
DCL	Door closed limit status. This output turns ON when the door closed limit switch signals the door is closed.
DCM	Used by Peelle door operator. Triggers door operator fast open/close where landing and car door movement will occur simultaneously.
DCP	Door close protection.
DO	Door open.
DOL	Door open limit status. This output turns ON when the door open limit switch signals the door is open.
Gate Release	Gate release.
Hold Lamp	Door hold.
NDG	Door nudge. After a specified timeout, if the door has not closed, the doors will move to a nudging state where the PHE is ignored and the nudging output will turn on.
Restrictor	Door restrictor.
Safety Edge	Safety edge broken status. This output turns ON when the safety edge or photoeye is broken.
Test	Used by Peelle light curtain to test for photoeye failure prior to each close attempt.
Warning Buzzer	Used by Peelle door operator. Activates 5 seconds before starting door close and remains on until doors fully closed.

Table 49: Description of Emergency Power Outputs

Output	Description
Lamp On EP	Car is on emergency power operation.
Select 1	Car is on emergency power operation and is recalling or has been released back into automatic operation.
Select 2	Car is on emergency power operation and is recalling or has been released back into automatic operation.
Select 3	Car is on emergency power operation and is recalling or has been released back into automatic operation.
Select 4	Car is on emergency power operation and is recalling or has been released back into automatic operation.
Select 5	Car is on emergency power operation and is recalling or has been released back into automatic operation.
Select 6	Car is on emergency power operation and is recalling or has been released back into automatic operation.
Select 7	Car is on emergency power operation and is recalling or has been released back into automatic operation.
Select 8	Car is on emergency power operation and is recalling or has been released back into automatic operation.

Table 50: Description of Fire/Earthquake Outputs

Output	Description
EQ Slow Lamp	Activates when the car is in EQ Hoistway Scan operation.
Fire I Active	Used by Peelle door operator. Active if Fire Phase 1 is active and recall has not completed.
Fire I Hold	Activates when the car has arrived at the fire recall floor and is on Fire Phase 1.
Fire II Active	Used by Peelle door operator. Active if Fire Phase 2 is active.
Fire II Hold	Used by Peelle door operator. Active if on Fire Phase 2 hold operation.
Fire Shunt	Activates when the car is on fire service and has completed its recall.
Lamp EQ	Turns on when the car is on seismic or counterweight derail modes of operation.
Lamp Fire	Activates when the car is in fire service operation. Depending on the configuration, it will either flash every 500 ms or stay ON the whole time.
Lamp Fire Lobby	Activates when the car is in fire service operation. Depending on the configuration it will either flash every 500 ms or stay ON the whole time.
Lamp Seismic Status	Activates when the car is on Seismic.

Table 51: Description of Inspection Output

Output	Description
Lamp Insp	Signals when the car is on inspection.

Table 52: Description of Safety Outputs

Output	Description
Lamp Flood	Car's flood sensor has detected a flood.
Phone Fail Lamp	Lamp indicating emergency phone has failed.
Phone Fail Buzzer	Buzzer indicating emergency phone has failed.

## 21.5 Invert Inputs

After a type of input has been assigned, the input may need to have the system to monitor the state of the input either to active or inactive. The invert inputs allows for changing the monitoring of the assigned input.

The following procedure describes how to change the state of the input.

1. Navigate to MAIN MENU | SETUP | SETUP I/O. See Figure 54.
2. From the SETUP I/O menu, scroll and select Invert Inputs.

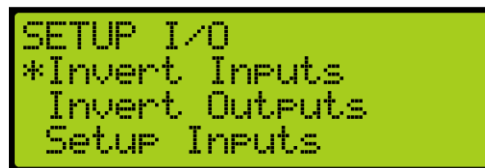


Figure 391: SETUP I/O Menu – Invert Inputs

3. From the SELECT BOARD menu, scroll and select the board that has an assigned input changing states. See Figure 269.

**NOTE:** For this example, the MR board is shown.

4. From the Invert Inputs menu, scroll and select the assigned input and if the input is active (On) or inactive (Off).

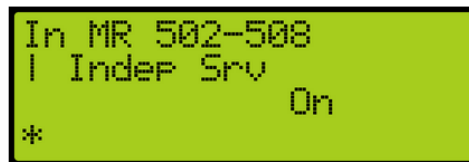


Figure 392: Invert Inputs Menu

5. Scroll right and press Save.

## 21.6 Invert Outputs

Just as invert inputs monitors the state of an assigned input (active low instead of active high), the invert outputs does the same but for an assigned output. After a type of output has been assigned, the output may need to have the system invert the level of the active/inactive output logic. The invert output allows for changing the logic level of the assigned output.

The following procedure describes how to change the state of the output.

1. Navigate to MAIN MENU | SETUP | SETUP I/O. See Figure 54.
2. From the SETUP I/O menu, scroll and select Invert Outputs.

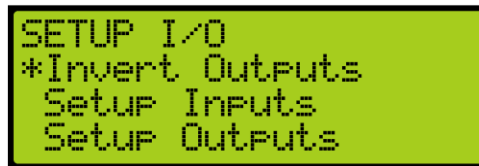


Figure 393: SETUP I/O Menu – Invert Outputs

3. From the SELECT BOARD menu, scroll and select the board that has an assigned output changing states. See Figure 269.

**NOTE:** For this example, the MR board is shown.

4. From the Invert Outputs menu, scroll and select the assigned input and if the input is Active (On) or Inactive (Off).

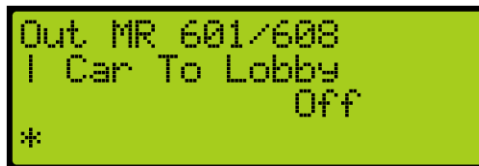


Figure 394: Invert Outputs Menu

## 22 VIP

A car configured for VIP will be selected when this mode of operation is activated by a specially configured Hall board. The car will service all existing car calls and ignore all hall calls until all existing car calls have been serviced. The car now responds to a VIP hall call and opens the doors. There is a minimum of five seconds allowed for a VIP entry for a new car call. Once all car calls have been serviced, the car exits VIP mode.

## 23 Active Shooter

Active Shooter is a type of auto operation that prevents a shooter from having easy access to an additional way to escape. Active shooter is enabled by a key switch.

When Active Shooter is enabled, the car automatically closes the doors, the PI Display alternate between floor label and crisis (CR), and the cars do not respond to any hall or car calls. All cars within the group are recalled to an alternate recall floor, the doors open, and remain open. When Active Shooter is disabled, all cars go back to normal operation.

To set the controller to active shooter, see section 21.1 Adding an Input or Output.

## 24 Marshal Mode

Marshal Mode is a type of auto operation that takes the car out of the group and is enabled via a key switch input. When the key switch is enabled, the car clears all latched car and hall calls, then stops at the next available landing. Both front and rear doors remain closed regardless of people being inside the car.

The car will not respond to any hall calls or car calls and the front and rear door open and close buttons are disabled. When the car stops at the closest available landing, it waits for commands from the marshal using the remote controller.

When the marshal makes a car call, the car will go to the landing corresponding to the car call button. When the car reaches the landing, the doors will remain closed. The marshal needs to hold the door open button until the doors are fully opened otherwise the doors goes back to its closed state. Once the doors are fully open, the doors stays open. To close the doors, the marshal needs to hold the door close button until the doors are fully closed otherwise the doors go back to its opened state.

If the marshal makes multiple car calls, when the car reaches the landing, the car will wait for 10 seconds for the marshal to press and hold the door open button. If the marshal does not press the door open button until the door fully opens within the 10 second timeout, the car will be dispatched to the next latched car call landing. Once the doors are fully open, the car will keep its latched car calls and will not be dispatched to the next latched car call landing. Once the doors are fully closed, the car will be dispatched to the next latched car call landing.

To disable Marshal Mode, the key switch input needs to be off. This will cause the car to join the group and resume normal operation.

To set the controller to Marshall Mode, see section 21.1 Adding an Input or Output.

## 25 Wander Guard

Wander Guard is a security setting for preventing an unauthorized person from using the elevator. The car continues to run in normal operation but skips the floors set up for Wander Guard. In case the car does stop at that floor, the car stays at that floor and the doors remain open.

To set the controller to Wander Guard, see section 21.1 Adding an Input or Output.

## 26 Installing a New Board

If one of the boards become mechanically or electrically faulty, a replacement board is needed. The set parameters (timers, learned floor, etc.) can be retained after the board is replaced.

**NOTE:** Verify that the replacement boards received have the correct version programmed on them.

### 26.1 Retain Parameters for a Replaced MR Board

The following procedure describes how to transfer the parameters from the CT to the replaced MR board.

1. Turn off power to the controller.
2. Install and replace the MR board and reattach the connector terminals.  
**NOTE:** Leave group connections OFF until process is complete.
3. Turn on DIP 5B and DIP 7A.
4. Power up the Controller.
5. On power up, the MR board displays Sync In Progress (the car will be out of service).



Figure 395: Sync In Progress

6. When complete, Sync Complete is displayed.



Figure 396: Sync Complete

7. Turn off the controller.
8. Turn off DIP 5B.
9. Turn on the controller. The car resumes normal operation.

### 26.2 Retain Parameters for a Replaced CT or COP Board

The following procedure describes how to transfer the parameters from the MR board to the replaced CT or COP board.

1. Remove power from the controller.
2. Disconnect the connectors and remove the CT or COP board.

3. Install and replace the CT or COP board and reattach the connector terminals.  
**NOTE:** Ensure all DIP switches are correct.
4. Turn the CT/COP switch to either the CT or COP that is being replaced.  
**NOTE:** The switch is located on the upper right corner of the board.
5. Power up the controller.
6. The Sync Process automatically begins due to a checksum that consistently compares parameters between all three boards.  
**NOTE:** There is no SYN IN PROGRESS displayed.
7. When complete, the CT/COP board is in normal operation with all parameters retained.

## 27 Manual Traction Rescue

The rescue operation safely and securely moves the car to the nearest floor and allow the passengers to exit if the car ever loses power.

The Smartrise C4 Controller uses two forms of rescue:

- **Auto Rescue** – The Auto Rescue is ON and has been implemented into the system (Auto Rescue Operation is an option on the Engineering Data Form). The car automatically moves in the direction of least resistance determined by the system. It moves at leveling speed and stops at the nearest opening.
- **Manual Rescue** – If Auto Rescue is OFF, the car remains faulted until Manual Rescue is initiated.

## 28 Hoistway Access

The hoistway access safely and securely moves the car at the terminal landings to gain access to either the pit or the top of the hoistway. Normally, this is done with a key switch that enables the top or bottom access inputs on the controller. The car will only move if the doors are open.

The following procedure describes how to access the hoistway.

1. Navigate to MAIN MENU | SETUP | HOISTWAY ACCESS. See Figure 57.
2. Is the hoistway being accessed from the top of the hoistway or the pit?
  - a. If the hoistway is being accessed from the top of the hoistway, go to step 3.
  - b. If the hoistway is being accessed from the bottom of the hoistway, go to step 14.
3. From the HOISTWAY ACCESS menu, scroll and select Allowed Distance Top.



Figure 397: HOISTWAY ACCESS – Allowed Distance Top



- From the ALLOWED DISTANCE – TOP menu, scroll and select the distance from the car to the hoistway.



Figure 398: ALLOWED DISTANCE – TOP Menu

- Scroll right and press Save.
- Press the left button until the HOISTWAY ACCESS menu displays.
- From the HOISTWAY ACCESS menu, scroll and select Top Floor.



Figure 399: HOISTWAY ACCESS – Top Floor

- From the TOP FLOOR menu, select the top floor just below the hoistway.



Figure 400: TOP FLOOR Menu

- Scroll right and press Save.
- Press the left button until the HOISTWAY ACCESS menu displays.
- From the HOISTWAY ACCESS menu, scroll and select Top Opening.



Figure 401: HOISTWAY ACCESS – Top Opening

12. From the TOP OPENING menu, scroll and select the top floor the car opens just below the hoistway.



Figure 402: TOP OPENING Menu

13. Scroll right and press Save.
14. Press the left button until the HOISTWAY ACCESS menu displays.
15. From the HOISTWAY ACCESS menu, scroll and select Allowed Distance Bottom.



Figure 403: HOISTWAY ACCESS – Allowed Distance Bottom

16. From the ALLOWED DISTANCE – BOTTOM menu, scroll and select the distance from the car to the pit.



Figure 404: ALLOWED DISTANCE – BOTTOM Menu

17. Scroll right and press Save.
18. Press the left button until the HOISTWAY ACCESS menu displays.
19. From the HOISTWAY ACCESS menu, scroll and select Bottom Floor.

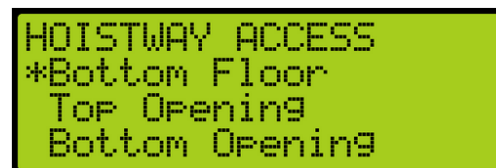


Figure 405: HOISTWAY ACCESS – Bottom Floor

20. From the BOTTOM FLOOR menu, select the bottom floor just above the pit.



Figure 406: BOTTOM FLOOR Menu

21. Scroll right and press Save.

22. Press the left button until the HOISTWAY ACCESS menu displays.

23. From the HOISTWAY ACCESS menu, scroll and select Bottom Opening.



Figure 407: HOISTWAY ACCESS – Bottom Opening

24. From the BOTTOM OPENING menu, scroll and select the bottom floor the car opens just above the pit.



Figure 408: BOTTOM OPENING Menu

25. Scroll right and press Save.

26. Press the left button until the HOISTWAY ACCESS menu displays.

27. From the HOISTWAY ACCESS menu, scroll and select Hoistway Access Slide Distance.

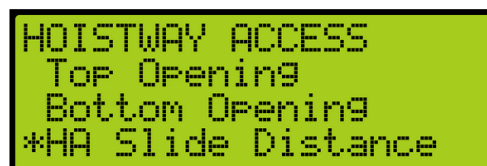


Figure 409: HOISTWAY ACCESS – Hoistway Access Slide Distance

- From the HOISTWAY ACCESS SLIDE DISTANCE, enter the maximum distance the car is allowed to be within the top or bottom door zone.



Figure 410: Hoistway Access Slide Distance

- Scroll right and press Save.

## 28.1 Soft Limit

The soft limit distance sets the distance away from the terminal floor that the car will switch to inspection terminal speed during manual operation.

The following procedure describes how to set the soft limit.

- Navigate to MAIN MENU | SETUP | S-CURVE. See Figure 55.
- From the S-CURVE menu, scroll and select Soft Limit Distance Up or Down.



Figure 411: S-CURVE Menu – Soft Limit Distance (Up or Down)

- From the SOFT LIMIT DISTANCE UP or DOWN menu, scroll and select the distance the top or bottom terminal floor switches to inspection during manual operation.



Figure 412: SOFT LIMIT DISTANCE UP Menu



Figure 413: SOFT LIMIT DISTANCE DOWN Menu

- Scroll right and press Save.

## 29 Miscellaneous

The controller is bound by the set parameters. The miscellaneous parameters are the general parameters to control other variables within the elevator.

### 29.1 Bypass Term Limit

The bypass terminal limit allows the car to go beyond the terminal limits set by the user during inspection mode.

The following procedure describes how to bypass terminal limits.

1. Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 58.
2. From the Miscellaneous menu, scroll and select Bypass Term Limits.

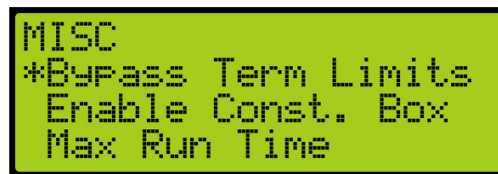


Figure 414: MISCELLANEOUS Menu – Bypass Term Limits

3. From the BYPASS TERM LIMITS menu, scroll and select On to bypass terminal limits.



Figure 415: BYPASS TERM LIMITS Menu

4. Scroll right and press Save.

### 29.2 Enable Construction Box

When the Enable Construction Box is set to enable, the CUP and CDN inputs on the MR Board are used to move the car. Verify 24 VDC is wired directly to the CEN input. If not, then 24VDC must be jumpered to CEN.

The following procedure describes how to enable the construction box.

1. Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 58.

- From the MISCELLANEOUS menu, scroll and select Enable Construction Box.



Figure 416: MISCELLANEOUS Menu – Enable Construction Box

- From the ENABLE CONSTRUCTION BOX menu, scroll and select On to enable the construction box.



Figure 417: ENABLE CONSTRUCTION BOX Menu

- Scroll right and press Save.

## 29.3 Maximum Run Time

The maximum run time is the maximum time that the car can run floor to floor.

The following procedure describes how to set the maximum run time.

- Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 58.
- From the MISCELLANEOUS menu, scroll and select Maximum Run Time.

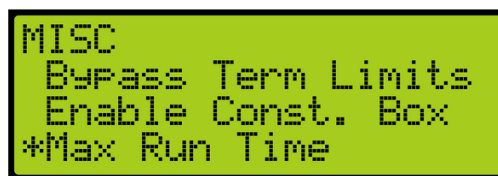


Figure 418: MISCELLANEOUS Menu – Max Run Time

- From the MAXIMUM RUN TIME menu, set the maximum time the car runs before a fault occurs.



Figure 419: MAXIMUM RUN TIME Menu

- Scroll right and press Save.

## 29.4 CT Insp. Req. IC

If required, an IC inspection can be performed prior to CT inspection.

The following procedure describes how to enable the CT inspection.

1. Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 58.
2. From the MISCELLANEOUS menu, scroll and select CT Insp. Req. IC.



Figure 420: MISCELLANEOUS Menu – CT Insp. Req. IC

3. From the IC REQ FOR CT menu, scroll and select On to enable CT inspection.



Figure 421: IC REQ FOR CT Menu

4. Scroll right and press Save.

## 29.5 Dis. IdleTrvArrow

The arrow shown on hall call is dependent upon the idle travel arrow. If it is set to On, the arrow shows the direction that the car traveled to the floor. If set off, the arrow shows the direction of travel.

The following procedure describes how to disable the travel arrow.

1. Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 58.
2. From the MISCELLANEOUS menu, scroll and select Disable IdleTrvArrow.



Figure 422: MISCELLANEOUS Menu – Disable IdleTrvArrow

- From the DISABLE IDLE TRV ARROW menu, scroll and select Off to disable the direction arrow.



Figure 423: DISABLE IDLE TRV ARROW Menu

- Scroll right and press Save.

## 29.6 Enable UI Drive Edit

The drive parameters can be edited by either the MR board UI or the GUI.

The following procedures describe how to allow the user to edit the drive parameters via the MR board UI.

- Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 58.
- From the MISCELLANEOUS menu, scroll and select Enable UI Drive Edit.



Figure 424: MISCELLANEOUS Menu – Enable UI Drive Edit

- From the EN. UI DRIVE EDIT menu, scroll and select On to enable the drive parameter to be edited.



Figure 425: EN. UI DRIVE EDIT Menu

- Scroll right and press Save.

## 29.7 Enable Latches Car Calls

When enabled, the car call button latches a car call.

The following procedure describes how to enable latching to a car call.

- Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 58.



- From the MISCELLANEOUS menu, scroll and select Enable Latches CC.



Figure 426: MISCELLANEOUS Menu – Enable Latches CC

- From the ENABLE LATCHES Car Call menu, scroll and select On to enable car call latching.



Figure 427: ENABLE LATCHES Car Call Menu

- Scroll right and press Save.

## 29.8 Car To Lobby Floor

When the input for Car to Lobby Floor is active, the signal overrides all hall calls and car calls and goes straight to the selected floor.

The following procedure describes how to select the car to lobby floor.

- Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 58.
- From the MISCELLANEOUS menu, scroll and select Car To Lobby Floor.

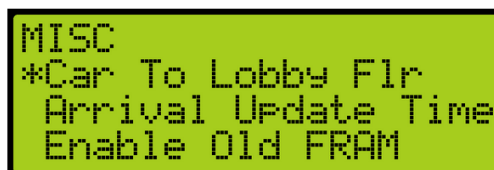


Figure 428: MISCELLANEOUS Menu – Car To Lobby Floor

- From the CAR TO LOBBY FLOOR menu, scroll and select the lobby floor the car automatically travels to.



Figure 429: CAR TO LOBBY FLOOR Menu

- Scroll right and press Save.

## 29.9 Enable Old FRAM

The MR board is configured to work with old ferroelectric random access memory (FRAM) hardware.

The following procedure describes how to enable the MR board to work with old FRAM.

1. Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 58.
2. From the MISCELLANEOUS menu, scroll and select Enable Old FRAM.

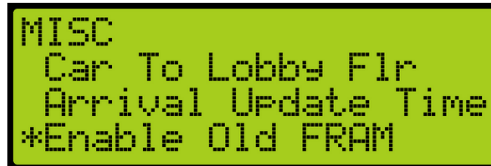


Figure 430: MISCELLANEOUS Menu – Enable Old FRAM

3. From the ENABLE OLD FRAM menu, scroll and select On to enable the MR to work with old FRAM.



Figure 431: ENABLE OLD FRAM Menu

4. Scroll right and press Save.

## 29.10 Enable Pit Inspection

Enables the Pit inspection operation on the controller. Input 501 on the MR board must be used to toggle inspection operation ON/OFF. Dip 4B must also be enabled to use the operation.

The following procedure describes how to enable pit inspection.

1. Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 58.

- From the MISCELLANEOUS menu, scroll and select Enable Pit Inspection.



Figure 432: MISCELLANEOUS Menu – Enable Pit Inspection

- From the ENABLE PIT INSPECTION menu, scroll and select On to enable pit inspection.



Figure 433: ENABLE PIT INSPECTION Menu

- Scroll right and press Save.

## 29.11 Enable Landing Inspection

Enables the landing inspection operation on the controller. Input 502 on the MR board must be used to toggle inspection operation ON/OFF. Dip 3B must also be enabled to use the operation.

The following procedure describes how to enable landing inspection.

- Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 58.
- From the MISCELLANEOUS menu, scroll and select Enable Landing Inspection.



Figure 434: MISCELLANEOUS Menu – Enable Landing Inspection

- From the ENABLE LANDING INSPECTION menu, scroll and select On to enable landing inspection.



Figure 435: ENABLE LANDING INSPECTION Menu

- Scroll right and press Save.

## 29.12 Parking

Parking moves the car to a certain floor after an X amount of time where X is the parking timer

### 29.12.1 GUI Parking

When enabled, dynamic parking is set through the DAD unit using a GUI interface. After a car has been idle for a set period of time, the car travels to a designated floor, according to the hall call history, and parks.. Even though the car is parked, the car immediately answers all hall and car calls.

Dynamic parking can be set for multiple cars within a group. If a rule is set for multiple cars, then there is a primary and secondary designated floor for cars to park. If the car that is parked at a primary floor answers a car or hall call, the car parked at the secondary floor moves to the primary designated floor. If one of the cars within the group remain idle for a set period of time, that car travels to the secondary designated floor.

For more information, see the *C4 GUI Manual*.

The following procedure describes how to enable dynamic parking using the DAD unit.

1. Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 58.
2. From the MISCELLANEOUS menu, scroll and select Parking.



Figure 436: MISCELLANEOUS Menu – Parking

3. From the PARKING menu, scroll and select GUI Parking.

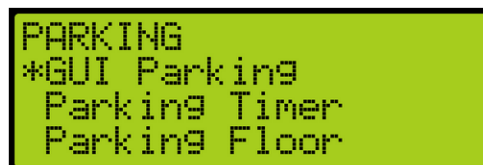


Figure 437: GUI PARKING Menu – GUI Parking

4. From the ENABLE GUI PARKING menu, scroll and select if parking is enabled by the DAD unit.



Figure 438: ENABLE GUI PARKING Menu

5. Scroll right and press Save.

### 29.12.2 Parking Timer

The parking timer is the time a car remains idle with no command before it begins parking.

The following procedure describes how to set the parking timer.

1. Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 58.
2. From the MISCELLANEOUS menu, scroll and select Parking. See Figure 436.
3. From the PARKING menu, scroll and select Parking Timer.

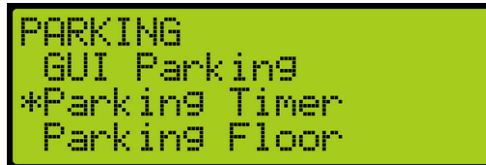


Figure 439: PARKING Menu – Parking Timer

4. From the PARKING TIMER menu, set the time prior to parking.  
**NOTE:** If the timer is set to zero, parking will be disabled.



Figure 440: PARKING TIMER Menu

5. Scroll right and press Save.

### 29.12.3 Parking Floor

The parking floor is the floor that the car is parked on.

The following procedure describes how to assign the floor the car is parked on.

1. Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 58.
2. From the MISCELLANEOUS menu, scroll and select Parking. See Figure 436.
3. From the PARKING menu, scroll and select Parking Floor.

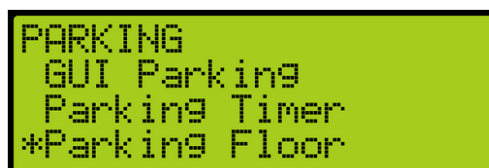


Figure 441: PARKING Menu – Parking Floor

- From the PARKING FLOOR INDEX menu, scroll and select the floor the car parks at.  
**NOTE:** PI Labels allows for displaying floor landing as three characters. See section 29.14 En. 3 Digit PI for more information.



Figure 442: PARKING FLOOR INDEX Menu

- Scroll right and press Save.

### 29.12.4 Parking Door Open

When parked, the car door can stay open or remain closed.

The following procedure describes how to set the doors on a parked car to open.

- Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 58.
- From the MISCELLANEOUS menu, scroll and select Parking. See Figure 436.
- From the PARKING menu, scroll and select Parking Door Open.



Figure 443: PARKING Menu – Parking Door Open

- From the PARKING – DOOR OPEN menu, scroll and select On to have the car door open when parked.



Figure 444: PARKING – DOOR OPEN Menu

- Scroll right and press Save.

## 29.13 OOS

Elevators can be taken out of service (OOS) for maintenance and other situations.

### 29.13.1 Disable OSS

The Disable OOS feature prevents the car from ever going into the Out of Service mode of operation or faulting out with OOS regardless of the Hourly Fault Limit or OOS input being active.

The following procedure describes how to disable OSS.

1. Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 58.
2. From the MISCELLANEOUS menu, scroll and select OOS.



Figure 445: MISCELLANEOUS Menu – OOS

3. From the OOS menu, scroll and select Disable OOS.



Figure 446: OOS Menu – Disable OOS

4. From the DISABLE OOS menu, scroll and select if out of service is disabled.



Figure 447: DISABLE OOS Menu

5. Scroll right and press Save.

### 29.13.2 Hourly Fault Limit

The hourly fault limit is the number of faults allowed per hour prior to the car going out of service. The car remains out of service until the hour window elapses.

The following procedure describes how to set hourly fault limit.

1. Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 58.
2. From the MISCELLANEOUS menu, scroll and select OOS. See Figure 445.

- From the OOS menu, scroll and select Hourly Fault Limit.



Figure 448: OOS Menu – Hourly Fault Limit

- From the HOURLY FAULT LIMIT menu, set the number of logged faults allowed per hour.



Figure 449: HOURLY FAULT LIMIT Menu

- Scroll right and press Save.

### 29.13.3 Maximum Starts Per Minute

The maximum starts per minute is the number of times a car starts a run in automatic operation within the maximum amount of runs per minute. If additional runs are attempted, the car goes out of service until the hour window elapses.

The following procedure describes how to set the maximum starts per minute.

- Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 58.
- From the MISCELLANEOUS menu, scroll and select OOS. See Figure 445.
- From the OOS menu, scroll and select Maximum Starts Per Minute.



Figure 450: OOS Menu – Maximum Starts Per Minute

- From MAXIMUM STARTS PER MINUTE menu, adjust the value as required for the maximum runs per minute.



Figure 451: MAXIMUM STARTS PER MINUTE Menu



5. Scroll right and press Save.

### 29.13.4 Disable PI OOS

When disabled, the OOS does not flash on the PI when the car is out of group.

The following procedure describes how to disable the PI OOS.

1. Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 58.
2. From the MISCELLANEOUS menu, scroll and select OOS. See Figure 445.
3. From the OOS menu, scroll and select Disable PI OOS.



Figure 452: OOS Menu – Disable PI OOS

4. From the DISABLE PI OOS menu, scroll and select the On to disable the PI OOS.



Figure 453: DISABLE PI OOS Menu

5. Scroll right and press Save.

### 29.14 En. 3 Digit PI

The enable 3 Digit PI allows for the use of 3-characters as opposed to the default of 2 characters for displaying PI labels.

The following procedure describes how to enable the PI to display 3-digit increments.

1. Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 58.
2. From the MISCELLANEOUS menu, scroll and select Enable 3 Digit PI.



Figure 454: MISCELLANEOUS Menu – Enable 3 Digit PI

- From the ENABLE 3 DIGIT PI menu, scroll and select On to enable 3-digit PI.



Figure 455: ENABLE 3 DIGIT PI Menu

- Scroll right and press Save.

## 29.15 Payment Passcode

The payment password is the controller password that is required for normal operation.

The following procedure describes how to enter the payment passcode.

- Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 58.
- From the MISCELLANEOUS menu, scroll and Payment Passcode.

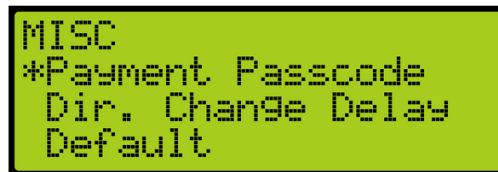


Figure 456: MISCELLANEOUS Menu – Payment Passcode

- From the PAYMENT PASSCODE menu, enter the payment passcode.  
**NOTE:** The passcode will be given after payment has been made.



Figure 457: PAYMENT PASSCODE Menu

- Scroll right and press Save.

## 29.16 Direct Change Delay

The direct change delay is the time before a car begins looking at car calls or hall calls in the opposite direction to allow for the passengers to enter car calls in the same direction the car was traveling.

The following procedure describes how to set the direct change delay.

- Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 58.

- From the MISCELLANEOUS menu, scroll and select Direct Change Delay.

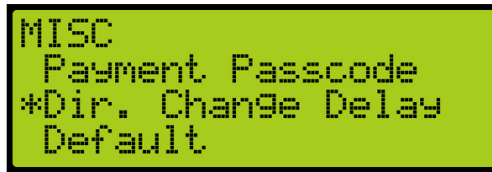


Figure 458: MISCELLANEOUS Menu – Direct Change Delay

- From the DIRECT CHANGE DELAY menu, set the delay time for the car to change directions.



Figure 459: DIRECT CHANGE DELAY Menu

- Scroll right and press Save.

## 29.17 Default

The default settings are the original settings within the controller.

### 29.17.1 Default Floors

The user has the option to restore the original learned floors.

The following procedure describes how to select default floors.

- Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 58.
- From the MISCELLANEOUS menu, scroll and select Default.

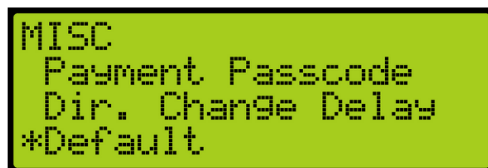


Figure 460: MISCELLANEOUS Menu – Default

- From the DEFAULT menu, scroll and select Default Floors.



Figure 461: DEFAULT Menu – Default Floors

- From the DEFAULT FLOORS menu, select if restoring original learned floors.



Figure 462: DEFAULT FLOORS? Menu

- From the DEFAULT FLOORS? menu, select Yes to default floors.  
**NOTE:** If not defaulting floors, select NO to back out.  
 Only the Learned floor values are defaulted as shown in the figure below.



Figure 463: DEFAULTING PARAMS Menu

- When the system has completed defaulting all parameters, the DEFAULTING PARAMS menu displays Parameters Defaulted as shown in the figure below.



Figure 464: DEFAULTING PARAMS Menu – Parameters Defaulted

## 29.17.2 Default S-Curve

The user has the option restore the original S-Curve.

The following procedure describes how to select default S-Curve.

- Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 58.
- From the MISCELLANEOUS menu, scroll and select Default. See Figure 460.
- From the DEFAULT menu, scroll and select Default S-Curve.



Figure 465: DEFAULT Menu – Default S-Curve

- From the DEFAULT S-CURVE? menu, select if restoring original S-Curve.



Figure 466: DEFAULT S-CURVE? Menu

- From the DEFAULT S-CURVE? menu, select Yes to default S-Curve.  
**NOTE:** If not defaulting S-Curve, select NO to back out.  
 The system automatically defaults all parameters. See Figure 463.
- When the system has completed defaulting all parameters, the DEFAULTING PARAMS menu displays Parameters Defaulted. See Figure 464.

### 29.17.3 Default Run Timers

The user has the option to restore the original run timers.

The following procedure describes how to select default run timers.

- Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 58.
- From the MISCELLANEOUS menu, scroll and select Default. See Figure 460.
- From the DEFAULT menu, scroll and select Default Run Timers.



Figure 467: DEFAULT Menu – Default Run Timers

- From the DEFAULT RUN TIMERS? menu, select if restoring original run timers.



Figure 468: DEFAULT RUN TIMERS? Menu

- From the DEFAULT RUN TIMERS? menu, select Yes to default run timers.  
**NOTE:** If not defaulting run timers, select NO to back out.  
 Only the Learned floor values are defaulted. See Figure 463.
- When the system has completed defaulting all parameters, the DEFAULTING PARAMS menu displays Parameters Defaulted. See Figure 464.

### 29.17.4 Default I/O

The user has the option to restore original inputs and outputs.

The following procedure describes how to select default I/O.

1. Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 58.
2. From the MISCELLANEOUS menu, scroll and select Default. See Figure 460.
3. From the DEFAULT menu, scroll and select Default I/O.



Figure 469: DEFAULT Menu – Default I/O

4. From the DEFAULT I/O? menu, select if restoring original inputs and outputs.

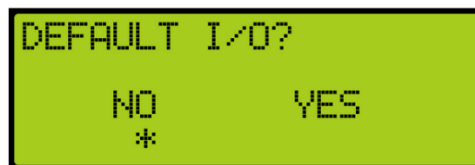


Figure 470: DEFAULT I/O? Menu

5. From the DEFAULT I/O? menu, select Yes to default I/O.  
**NOTE:** If not defaulting I/O, select NO to back out.  
 The system automatically defaults all parameters. See Figure 463.
6. When the system has completed defaulting all parameters, the DEFAULTING PARAMS menu displays Parameters Defaulted. See Figure 464.

### 29.17.5 Default Factory

The user has the option to restore original factory settings.

The following procedure describes how to select default factory.

1. Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 58.
2. From the MISCELLANEOUS menu, scroll and select Default. See Figure 460.
3. From the DEFAULT menu, scroll and select Default Factory.



Figure 471: DEFAULT Menu – Default Factory

- From the DEFAULT FACTORY? menu, select if restoring original factory settings.



Figure 472: DEFAULT FACTORY? Menu

- From the DEFAULT FACTORY? menu, select Yes to default factory.  
**NOTE:** If not defaulting factory, select NO to back out.  
 The system automatically defaults all parameters. See Figure 463.
- When the system has completed defaulting all parameters, the DEFAULTING PARAMS menu displays Parameters Defaulted. See Figure 464.

### 29.17.6 Default FRAM

When Default FRAM is set to On, the FRAM chip automatically resets. This in turn clears the fault and alarm logs, latched faults, emergency bits and run counters.

The following procedure describes how to default FRAM.

- Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 58.
- From the MISCELLANEOUS menu, scroll and select Default. See Figure 460.
- From the DEFAULT menu, scroll and select Default FRAM.

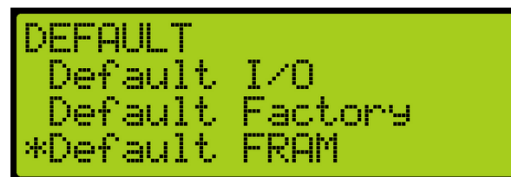


Figure 473: DEFAULT Menu – Default FRAM

- From the DEFAULT FRAM menu, scroll and select On to reset the FRAM chip.



Figure 474: DEFAULT FRAM Menu

- Scroll right and press Save.

## 29.17.7 Default Other

The user has the option of defaulting other parameters within the system back to the original factory settings.

The following procedure describes how to default other parameters.

1. Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 58.
2. From the MISCELLANEOUS menu, scroll and select Default. See Figure 460.
3. From the DEFAULT menu, scroll and select Default Other.



Figure 475: DEFAULT Menu – Default Other

4. From the DEFAULT Other? menu, scroll and select if defaulting other settings.



Figure 476: DEFAULT Other? Menu

5. From the DEFAULT OTHER? menu, select Yes to default other.  
**NOTE:** If not defaulting other, select NO to back out.  
The system automatically defaults all parameters. See Figure 463.
6. When the system has completed defaulting all parameters, the DEFAULTING PARAMS menu displays Parameters Defaulted. See Figure 464.



## 30 Swing Operation

The swing operation takes a car out of the group and allows it to answer calls from the swing riser. The car will complete the car call demand and go to the swing hall call.

### 30.1 Configuring Swing Operation Input

If swing is activated by a switch, the inputs to the controller must be entered for swing operation. The following procedure describes how -to configure the inputs for swing operation.

1. Navigate to MAIN MENU | SETUP | SETUP I/O. See Figure 54.
2. From the SETUP I/O, scroll and select Setup Inputs. See Figure 268.
3. From the SELECT BOARD menu, scroll and select the board that is going to be assigned. See Figure 269.
4. From the Input menu, scroll and select an unused input. See Figure 389.  
**NOTE:** The X input is a representation of a number between 1-8.
5. Scroll right.
6. Scroll and select Auto Operation.

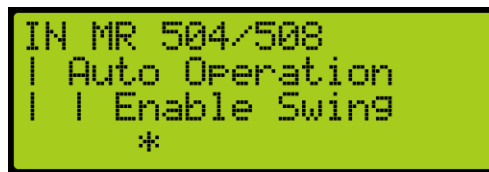


Figure 477: Input Menu – Enable Swing

7. Scroll right.
8. Scroll and select Enable Swing. See Figure 477.
9. Scroll right and press Save.
10. Wire the key switch to the input.

When 24 VDC is supplied to the input, the car enters Swing Operation and takes calls only from the designated riser.

### 30.2 Calls Enable Swing

The following procedure describes how -to configure swing operation to be activated by the swing riser call.

1. Navigate to MAIN MENU | SETUP | SWING. See Figure 61.
2. From the SWING menu, scroll and select Calls Enable Swing.



Figure 478: SWING Menu – Calls Enable Swing

- From the CALLS ENABLE menu, scroll and select On.

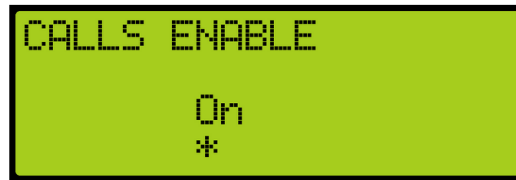


Figure 479: CALLS ENABLE Menu

- Scroll right and press Save.

### 30.3 Swing Opening

A swing door is used when there in a high traffic area. These door can open or closes automatically. Swing openings can be set to active for multiple landings.

The following procedure describes how to set which landings are set for front or rear swing opening.

- Navigate to MAIN MENU | SETUP | DOOR SETUP. See Figure 55.
- From the DOORS menu, scroll and select Swing Openings (Front or Rear).



Figure 480: DOORS Menu – Swing Openings (Front or Rear)

- From the SWING DOOR OPENINGS menu, scroll and select which landings are set for swing opening.



Figure 481: SWING DOOR OPENINGS Menu

- Scroll right and press Save.

### 30.4 Swing Call Mask

Swing call mask identifies which function set of hall boards are seen as special swing hall calls. Swing calls put the swing car on swing operation.

The following procedure describes how to set swing call mask.

- Navigate to MAIN MENU | SETUP | GROUP SETUP. See Figure 60.

- From the GROUP SETUP menu, scroll and select Swing Call Mask.



Figure 482: GROUP SETUP Menu – Swing Call Mask

- From the HALL SWING MASK menu, scroll and select the cars set for swing operation.



Figure 483: HALL SWING MASK Menu

- Scroll right and press Save.

## 30.5 Stay Active in Group

When a car is setup to stay active in the group, the car can be operated by any riser in the system during swing operation. The setup for inputs is required. If the inputs are not setup for the controller, see section 30.1 Configuring Swing Operation Input.

The following procedure describes how to configure the car to stay active in the group.

- Navigate to MAIN MENU | SETUP | SWING. See Figure 61.
- From the Swing menu, scroll and select Stay In Group.



Figure 484: SWING Menu – Stay In Group

- From the STAY IN GROUP menu, scroll and select On.



Figure 485: STAY IN GROUP Menu

- Scroll right and press Save.

## 30.6 Idle Timer

The idle timer is set to depict the amount of time the car stays in swing operation after all calls have been serviced. The setup for inputs is required. If the inputs are not setup for the controller, see section 30.1 Configuring Swing Operation Input.

The following procedure describes how to configure the idle timer.

1. Navigate to MAIN MENU | SETUP | SWING. See Figure 61.
2. From the SWING menu, scroll and select Idle Timer.



Figure 486: SWING Menu – Idle Timer

3. From the IDLE TIMER menu, set the time the car stays idle.



Figure 487: IDLE TIMER Menu

4. Scroll right and press Save.

## 31 Timers

Timers are used for energy conservation.

### 31.1 Fan & Light Timer

The fan and light timer is the amount of time the fan and lights are on.

The following procedure describes how to set the time the fan and lights are on.

1. Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 58.

- From the MISCELLANEOUS menu, scroll and select Fan & Light Timer.



Figure 488: MISCELLANEOUS Menu – Fan & Light Timer

- From the FAN & LIGHT TIMER menu, set the time the fan and lights are on.



Figure 489: FAN & LIGHT TIMER Menu

- Scroll right and press Save.

## 31.2 External Fan Timer

The external fan timer is the time for the fan and lights to be on while the car is idle.

The following procedure describes how to set the time the fan and lights are on.

- Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 58.
- From the MISCELLANEOUS menu, scroll and select External Fan Timer.



Figure 490: MISCELLANEOUS Menu – External Fan Timer

- From the MR FAN TIMER menu, set the time the fan and lights are on while the car is idle.



Figure 491: MR FAN TIMER Menu

- Scroll right and press Save

## 31.3 Arrival Update Time

The arrival update time is the time set to update the lantern outputs prior to arriving at a floor.

The following procedure describes how to set the arrival update time.

1. Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 58.
2. From the MISCELLANEOUS menu, scroll and select Arrival Update Time.

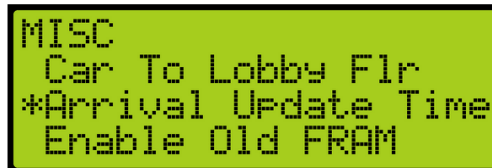


Figure 492: MISCELLANEOUS Menu – Arrival Update Time

3. From the ARRIVAL UPDATE TIME menu, set the time to update lantern outputs.



Figure 493: ARRIVAL UPDATE TIME Menu

4. Scroll right and press Save.

## 32 Safety

Safety measures are taken to prevent personal injury and to protect the equipment.

### 32.1 Speed Deviation

Speed deviation is used to detect the difference between the variation of the actual and expected movement of the car.

#### 32.1.1 Threshold

A designated threshold is set between the detected and expected car speed. If the detected variance is greater than the set threshold, the car shuts down.

The following is an example of setting up the speed deviation threshold.

1. Navigate to MAIN MENU | SETUP | SAFETY. See Figure 54.
2. From the SAFETY menu, scroll and select Speed Deviation.



Figure 494: SAFETY Menu – Speed Deviation

3. From the SPEED DEVIATION menu, scroll and select Threshold.

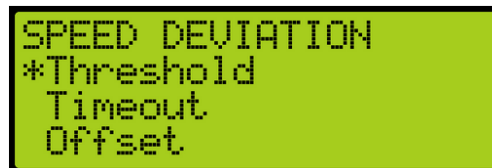


Figure 495: SPEED DEVIATION Menu – Threshold

4. From the THRESHOLD menu, enter the threshold distance.

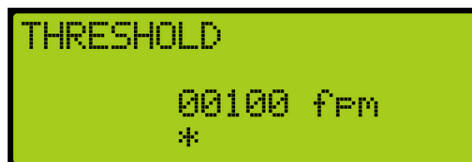


Figure 496: THRESHOLD Menu

5. Scroll right and press Save.

### 32.1.2 Timeout

A designated timer is set between the detected and expected time the car travels. If the detected variance is greater than the set timeout, the car shuts down.

The following is an example of setting up the speed deviation timeout.

1. Navigate to MAIN MENU | SETUP | SAFETY. See Figure 54.
2. From the SAFETY menu, scroll and select Speed Deviation. See Figure 494.
3. From the SPEED DEVIATION menu, scroll and select Timeout.

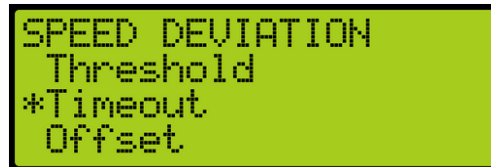


Figure 497: SPEED DEVIATION Menu – Timeout

4. From the TIMEOUT menu, set the time of the threshold.



Figure 498: TIMEOUT Menu

5. Scroll right and press Save.

### 32.1.3 Offset

A designated offset is set between the detected and expected percentage the car travels. If the detected variance is greater than the set offset, the car shuts down.

The following is an example of setting up the speed deviation offset.

1. Navigate to MAIN MENU | SETUP | SAFETY. See Figure 54.
2. From the SAFETY menu, scroll and select Speed Deviation. See Figure 494.
3. From the SPEED DEVIATION menu, scroll and select Offset.

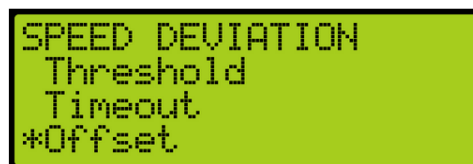


Figure 499: SPEED DEVIATION Menu – Offset



- From the OFFSET menu, set the offset amount for the threshold.



Figure 500: OFFSET Menu

- Scroll right and press Save.

## 32.2 Traction Loss

Traction loss is used to detect the difference between the variation of the actual and expected loss of traction of the car.

### 32.2.1 Threshold

A designated threshold is set between the detected and expected traction loss of the car.

The following is an example of setting up the traction loss threshold.

- Navigate to MAIN MENU | SETUP | SAFETY. See Figure 54.
- From the SAFETY menu, scroll and select Traction Loss.



Figure 501: SAFETY Menu – Traction Loss

- From the TRACTION LOSS menu, scroll and select Threshold.

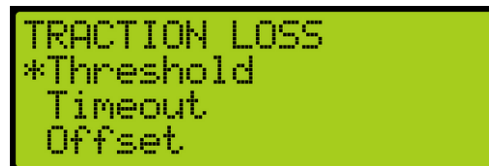


Figure 502: TRACTON LOSS Menu – Threshold

- From the THRESHOLD menu, set the threshold distance. See Figure 496.
- Scroll right and press Save.

### 32.2.2 Timeout

A designated timer is set between the detected and expected traction loss of the car.

The following is an example of setting up the traction loss timeout.

1. Navigate to MAIN MENU | SETUP | SAFETY. See Figure 54.
2. From the SAFETY menu, scroll and select Traction Loss. See Figure 501.
3. From the TRACTION LOSS menu, scroll and select Timeout.



Figure 503: TRACTION LOSS Menu – Timeout

4. From the TIMEOUT menu, set the time of the threshold. See Figure 498.
5. Scroll right and press Save.

### 32.2.3 Offset

A designated offset is set between the detected and expected percentage of the traction loss of the car.

The following is an example of setting up the traction loss offset.

1. Navigate to MAIN MENU | SETUP | SAFETY. See Figure 54.
2. From the SAFETY menu, scroll and select Traction Loss. See Figure 501.
3. From the TRACTION LOSS menu, scroll and select Offset.

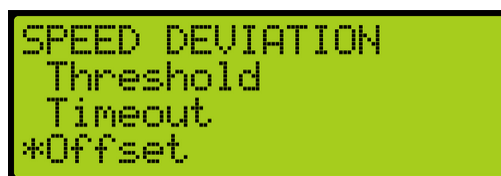


Figure 504: TRACTION LOSS Menu – Offset

4. From the OFFSET menu, enter the offset amount for the threshold. See Figure 500.
5. Scroll right and press Save.

## 32.3 Lock Clip

Lock clip time is the amount of time the controller disregards an open hall lock. This prevents intermittent interlock faults.

The following is an example of setting up lock clip.

1. Navigate to MAIN MENU | SETUP | SAFETY. See Figure 54.

- From the SAFETY menu, scroll and select Lock Clip.



Figure 505: SAFETY Menu – Lock Clip

- From the LOCK CLIP menu, set the time of the lock.



Figure 506: LOCK CLIP Menu

- Scroll right and press Save.

## 32.4 Inspection ODL

Inspection speed is the speed the car travels while in Inspection Mode. When the speed of the car is greater than the normal inspection speed, an inspection overspeed fault occurs. The debounce limit is set to give the brakes time to slow down the car to the maximum normal inspection speed or below. If the speed of the car is still greater than the normal inspection speed, a fault occurs.

The following is an example of setting the inspection ODL.

- Navigate to MAIN MENU | SETUP | SAFETY. See Figure 54.
- From the SAFETY menu, scroll and select Inspection ODL.



Figure 507: SAFETY Menu – Inspection ODL

- From the INSPECTION ODL menu, enter the inspection debounce limit.



Figure 508: INSPECTION ODL Menu

4. Scroll right and press Save.

## 32.5 Door Open ODL

The door open overspeed debounce limit prevents the doors from opening when the car is falling over 150 fpm.

The following is an example of setting the door ODL.

1. Navigate to MAIN MENU | SETUP | SAFETY. See Figure 54.
2. From the SAFETY menu, scroll and select Door Open ODL.



Figure 509: SAFETY Menu – Door Open ODL

3. From the DOOR OPEN ODL menu, enter the door open debounce limit.



Figure 510: DOOR OPEN ODL Menu

4. Scroll right and press Save.

## 32.6 SFP Debounce Limit

The safety processor (SFP) debounce limit sets a delay when a number of minimum events happen at once

The following is an example of setting up the SFP debounce limit ODL.

1. Navigate to MAIN MENU | SETUP | SAFETY. See Figure 54.
2. From the SAFETY menu, scroll and select SFP Debounce Limit.

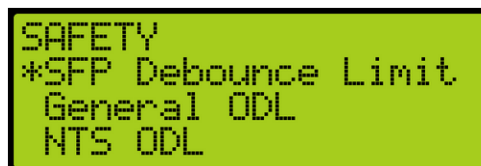


Figure 511: SAFETY Menu – SFP Debounce Limit

- From the SFP DL menu, enter the SFP debounce limit.



Figure 512: SFP DL Menu

- Scroll right and press Save.

## 32.7 General ODL

The general ODL sets the distance for miscellaneous limits.

The following is an example of setting up the general ODL.

- Navigate to MAIN MENU | SETUP | SAFETY. See Figure 54.
- From the SAFETY menu, scroll and select General ODL.



Figure 513: SAFETY Menu – General ODL

- From the GENERAL ODL menu, enter the general debounce limit.



Figure 514: GENERAL ODL Menu

- Scroll right and press Save.

## 32.8 Construction ODL

Construction speed is the speed the car travels while in construction mode. When the speed of the car is greater than the normal construction speed, a construction overspeed fault occurs. The debounce limit is set to give the brakes time to slow down the car to the maximum normal inspection speed or below. If the speed of the car is still greater than the normal construction speed, a fault occurs.

The following is an example of setting up the Const ODL.

- Navigate to MAIN MENU | SETUP | SAFETY. See Figure 54.

- From the SAFETY menu, scroll and select Construction ODL.



Figure 515: SAFETY Menu – Construction. ODL

- From the CONSTRUCTION OVERSPEED DEBOUNCE menu, set the time of the construction overspeed debounce limit.



Figure 516: CONSTRUCTION. OVERSPEED DEBOUNCE Menu

- Scroll right and press Save.

## 32.9 EBrake On Overspeed

The emergency brake on overspeed (ODL) enables the emergency brake for general overspeed faults.

The following is an example of enabling or disabling the emergency brake ODL.

- Navigate to MAIN MENU | SETUP | SAFETY. See Figure 54.
- From the SAFETY menu, scroll and select EBrake On Overspeed.



Figure 517: SAFETY Menu – EBrake On Overspeed

- From the EBRAKE ON OVERSPEED menu, scroll and select if the emergency brake overspeed is enabled or disabled.



Figure 518: EBRAKE ON OVERSPEED Menu

- Scroll right and press Save.

## 32.10 Disable Construction Overspeed

Disable construction overspeed enables or disables the construction overspeed settings.

The following is an example of enabling or disabling the dis. const. overspeed.

1. Navigate to MAIN MENU | SETUP | SAFETY. See Figure 54.
2. From the SAFETY menu, scroll and select Disable Construction Overspeed.



Figure 519: SAFETY Menu – Disable Construction Overspeed

3. From the DISABLE CONSTRUCTION OVERSPEED menu, scroll and select if the disable construction overspeed is enabled or disabled.



Figure 520: DISABLE CONSTRUCTION OVERSPEED Menu

4. Scroll right and press Save.

## 32.11 ETSL

During normal conditions, the normal terminal stopping device stops the car at a certain landing within a set speed and distance. In case of emergencies where the normal terminal stopping device fails, the emergency terminal stopping device stops the car according to the set parameters within the reduced stroke buffer.

### 32.11.1 Enable ETSL

The ETSL enables or disables the emergency terminal safety limit.

1. Navigate to MAIN MENU | SETUP | SAFETY. See Figure 54.
2. From the SAFETY menu, scroll and select ETSL.



Figure 521: SAFETY Menu – ETSL

- From the ETSL menu, scroll and select Enable ETSL.



Figure 522: ETSL Menu – Enable ETSL

- From the ENABLE ETSL menu, scroll and select if the ETSL is enabled or disabled.



Figure 523: ENABLE ETSL Menu

- Scroll right and press Save.

### 32.11.2 Reduced Stroke Buffer

A reduced stroke buffer is a speed limiting device used in case of emergencies. These options need to be set only if the speed rating of the buffer installed is below the elevator contract speed.

The following procedure describes how to verify the speed and distance for the reduced stroke buffer.

- Navigate to MAIN MENU | SETUP | SAFETY. See Figure 54.
- From the SAFETY menu, scroll and select ETSL. See Figure 521.
- From the ETSL menu, scroll and select Rated Buffer Speed.



Figure 524: ETSL Menu – Rated Buffer Speed

- From the RATED BUFFER SPEED menu, enter the rated buffer speed.



Figure 525: RATED BUFFER SPEED Menu



5. Scroll right and press Save.
6. Press the left button until the ETSL menu displays.
7. From the ETSL menu, scroll and select Buffer Distance.



Figure 526: ETSL Menu – Buffer Distance

8. From the Buffer Distance menu, enter buffer distance.



Figure 527: BUFFER DISTANCE Menu

9. Scroll right and press Save.

### 32.11.3 ETSL ODL

The ETSL ODL is used to set the sensitivity of ETSL device. The ETSL ODL setting is increased only to avoid tripping.

The following procedure describes how to set the ETSL ODL.

1. Navigate to MAIN MENU | SETUP | SAFETY. See Figure 54.
2. From the SAFETY menu, scroll and select ETSL. See Figure 521.
3. From the ETSL menu, scroll and select ETSL ODL.



Figure 528: ETSL Menu – ETSL ODL

4. From the ETSL ODL menu, set the time for the ETSL open door limit.



Figure 529: ETSL ODL Menu

5. Scroll right and press Save.

### 32.11.4 Slide Distance

It has to be ensured that the car stops even when both brakes are applied during emergency situation. To account for this, a slide test is performed to verify how far the car travels after both brakes have been applied. Once the test has been completed, a load test has to be performed.

The following procedure describes how to set the slide distance.

1. Navigate to MAIN MENU | SETUP | SAFETY. See Figure 54.
2. From the SAFETY menu, scroll and select ETSL. See Figure 521.
3. From the ETSL menu, scroll and select Slide Distance.



Figure 530: ETSL Menu – Slide Distance

4. From the SLIDE DISTANCE menu, enter the distance of the slide.



Figure 531: SLIDE DISTANCE Menu

5. Scroll right and press Save.

### 32.11.5 Camera Offset

The camera offset is the distance between the main camera and the ETSL camera.

The following procedure describes how to set the camera offset.

1. Navigate to MAIN MENU | SETUP | SAFETY. See Figure 54.
2. From the SAFETY menu, scroll and select ETSL. See Figure 521.
3. From the ETSL menu, scroll and select Camera Offset.



Figure 532: ETSL Menu – Camera Offset

- From the CAMERA OFFSET Menu, scroll and select the offset.



Figure 533: CAMERA OFFSET Menu

- Scroll right and press Save.

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## 33 Emergency

Emergency situations can occur due to natural or other conditions.

### 33.1 Emergency Power

Emergency power is activated when mainline power is interrupted and generator power allows elevators to continue operation. During emergency power, the S-Curve is set to the emergency power profile.

Parameter 08-0145 defines if the emergency group priority is running on a single group or multiple group operation. For the list of parameters, see the *C4 Parameter List*.

The table below lists the Inputs Used by the Controller for Emergency Power.

*Table 53: Inputs Used by the Controller for Emergency Power*

Option	Description
On Emergency Power	Signals the controller that the car is on emergency power. When this input is active, the controller stops the car until the Generator Up to Speed is active.
Generator Up to Speed	Signals the controller that the generator is supplying the power to operate the car(s). When this input is active, the car goes into normal operation if selected by the user or dispatcher.
Pre-Transfer	Changes from generator power to normal power or vice versa. When this input is active, the controller comes to a stop to the nearest landing and opens the door.

#### 33.1.1 Earthquake Modes

Earthquake events are the highest priority during emergency situations. The enable earthquake can be enabled for when seismic activity is high.

The earthquake events are:

- Earthquake Seismic Event
- Earthquake Counter-Weight Derail Event

See section 33.2 Earthquake for more information.

#### 33.1.2 Privileged Modes

Each car operates independently. If a car remains idle during recall, the car is put out of service (OOS) until the emergency power service cycle is complete. Privileged modes of car operation can postpone car recalls until they become idle for 2-3 minutes set by parameter 08-0232. If emergency power recall is repeated for any reason, privileged cars which have already

postponed the original recall cycle, will not be delayed again. For the list of parameters, see the *C4 Parameter List*.

The following is a list of privileged modes in order of operation:

- Fire Phase 1 and Phase 2 Operation
- EMS Phase 1 and Phase 2 Operation
- Cars in Manual Modes of Operation (Inspection states)
- Independent Service Operation
- Attendant Operation

### **33.1.2.1 Fire Phase 1 and Phase 2 Operation**

Fire Phase 1 and Phase 2 are modes of operation when smoke or heat is detected. See section 33.3 Fire for more information.

### **33.1.2.2 EMS Phase 1 and Phase 2 Operation**

EMS Phase 1 and Phase 2 are modes of operation to allow for medical personnel to take control of the elevator during a medical emergency. See section 33.5 EMS for more information.

### **33.1.2.3 Cars in Manual Modes of Operation (Inspection States)**

Cars are idle for 2-3 minutes from the time emergency power has been activated. Once a car is switched from or to (MR, CT, IC, HA) inspection while emergency power is active, the whole emergency power recall and allocation process is repeated using the new car configuration.

### **33.1.2.4 Independent/Attendant Service Operation**

Independent/Attendant service operation cars remain idle for 2-3 minutes from when the emergency power cycle began. The cars are not recalled but are considered normal cars when allocated. If allocated, these cars return to their original mode of operation.

## **33.1.3 Other Modes**

**Cars OOS** – When a car is OOS, the car is temporarily removed from service. The OOS condition can occur if the doors remain open for a longer period of allotted time. If the OOS condition is safety related, the car is treated as earthquake mode cars in which a car moves to the nearest landing, open the doors, and then shuts down. These cars are not recalled. If the OOS condition is caused by a switch, the car will still recall.

**Normal Allocated Cars** – After all recalls are complete, these cars close their doors and respond to hall and car calls normally. While emergency power is active, their movement is restricted to the defined emergency power speed.

**Cars Not Allocated** – Cars that are not allocated for normal operation leave the car on the recall landing with the doors open.

### 33.1.4 Single Group Operation

When the system is running on emergency power, each car within a single car group is individually recalled to a defined recall floor. Once all active cars have been recalled, a defined number of cars (set by parameter 08-0186), are placed back into operation at the defined emergency power speed. For the list of parameters, see the *C4 Parameter List*.

#### 33.1.4.1 Number of Active Cars

A selected number of cars are set to operate during emergency power.

The following procedure describes how to set the number of active cars.

1. Navigate to MAIN MENU | SETUP | E-Power. See Figure 62.
2. From the E-POWER menu, scroll and select Number Active Cars.

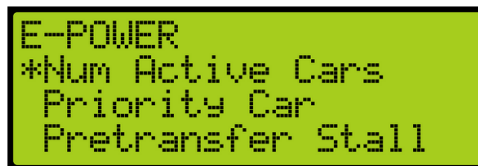


Figure 534: E-POWER Menu – Number Active Cars

3. From the NUMBER ACTIVE CARS menu, scroll and select the number of active cars.



Figure 535: Number Active Cars Menu

4. Scroll right and press Save.

### 33.1.5 Multiple Group Operation

Emergency power handles the car recalls and the number of cars placed into normal operation across multiple interconnected groups. The multiple group operation works the same as the single group during emergency power whereas a group of cars are given a priority assignment (set by parameter 08-0129) and a limited number of cars per group (set by parameter 08-0186) that can be activated for normal operation. Parameter 08-0230 sets the number of cars that can be activated for normal operation across all groups. For the list of parameters, see the *C4 Parameter List*.

Car recalls, privileged mode cars and earthquake operations, and cars placed into operation are coordinated between the groups. This coordination limits the number of active cars which can be in motion. These operations are restricted based on the number of cars allowed to run.

Positioning of cars are resolved within all groups. As cars complete their movement, car operations are adjusted so that more cars can be repositioned.

All groups wait for cars with privileged modes to be idle for the allotted 2-3 minutes before performing any recalls. Recalls are performed one car at a time in ascending order starting with the first group. When all cars have been recalled, cars can be allocated for normal operation. Normal operations are assigned based on the following sequence:

- Privileged mode cars
- Maximum number of cars within an interconnecting group
- Individual group

If the overall allocation count is reached, the groups with higher group priority values may not be able to assign any cars.

### 33.1.5.1 Priority Car

A main car is set to run during emergency power.

The following procedure describes how to set the priority car.

1. Navigate to MAIN MENU | SETUP | E-Power. See Figure 62.
2. From the E-POWER menu, scroll and select the Priority Car.

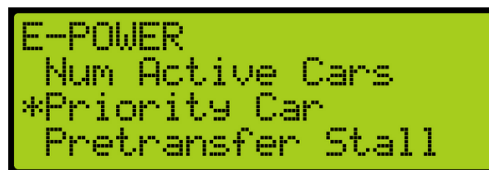


Figure 536: E-POWER Menu – Priority Car

3. From the PRIORITY CAR menu, scroll and select the priority car.



Figure 537: PRIORITY CAR Menu

4. Scroll right and press Save.



### 33.1.6 Recall

Cars that are not in any of the above modes of operations are recalled to their recall landing. If during recall, the car does not move for 30 seconds, the recall is transferred to another car.

The recall landing is also affected by the presence of a flood sensor. If this sensor is active and the recall floor is below the defined flood floor, the cars are recalled to the flood floor. See section 33.4 Flood for more information.

After all recalls have been completed, cars are allocated for normal operation.

#### 33.1.6.1 Pretransfer Stall

During emergency power and pretransfer stall enabled, the car stops at the current position. If disabled, the car stops at the nearest landing.

The following procedure describes how to enable or disable the pretransfer stall.

1. Navigate to MAIN MENU | SETUP | E-POWER. See Figure 62.
2. From the E-POWER MENU, scroll and select the Pretransfer Stall.

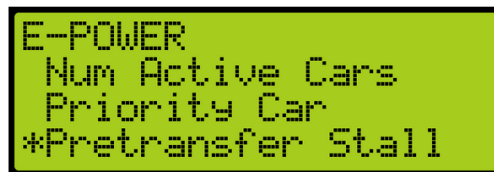


Figure 538: E-POWER Menu – Pretransfer Stall

3. From the PRETRANSFER STALL menu, scroll and select if the pretransfer stall is enabled or disabled.



Figure 539: PRETRANSFER STALL Menu

4. Scroll right and press Save.

#### 33.1.6.2 Recall Failure

If a car is given a recall command, a timer is started on the car. This timer accumulates the time in which the car does not move during recall. If this idle time is more than 30 seconds, the car is placed OOS and a recall is attempted on another car. The recall process continues to all other cars regardless of a single or multiple group configuration prior to going back to the cars that failed recall. Once all recall attempts have been made, the car which failed recall is given a second chance. If the car fails recall a second time, the car is placed OOS and not allowed to operate.

### 33.1.7 Intergroup Communication

Communication between groups is facilitated by the addition of a Riser board configured as Riser 4. The Riser 4 board DIP switches 1, 2, and 8 are on.

CAN 1 of a Riser 4 board is connected to the car-group GROUP network.

CAN 2 of a Riser 4 board is connected in parallel to another CAN 2 of a Riser 4 board in each of the interconnected groups. This is referred to as the Intergroup network.

During emergency power, the Riser 4 board turns off all hall network traffic on CAN 2 and only maintains the Intergroup network.

The Riser 4 board continues to communicate with other Riser 4 boards from other groups and is notified when another group has gone offline. If the group does not respond within 30 seconds, the system marks that group as offline.

If a group is added to the Intergroup during emergency power, all groups repeat the recall process.

## 33.2 Earthquake

The Earthquake Seismic Event and Earthquake Counter-Weight Derail Event resolve the car position based on the event.

Cars that need to move to a landing during Emergency Power operation cannot all move at once. The number of cars that can move at one time is limited only by the specified number of cars. As cars reach their landing, the doors open and other cars can be recalled.

### 33.2.1 Enable Earthquake

When seismic activity has been detected, the car stops at the nearest floor to allow passengers to safely exit the car.

The following procedure describes how to enable earthquake mode.

1. Navigate to MAIN MENU | SETUP | EARTHQUAKE. See Figure 58.
2. From the EARTHQUAKE menu, scroll and select Enable EQ.



Figure 540: EARTHQUAKE Menu – Enable EQ

- From the ENABLE EQ menu, scroll and select enable earthquake.



Figure 541: ENABLE EQ Menu

- Scroll right and press Save.

### 33.2.2 Set CW Position

Counterweights are used to provide an equal and opposite force to the weight of a payload. The position of the counterweight is set for the mid-point location of the hoistway.

The following procedure describes how to set the counterweight position.

- Manually move the car to the mid-point location.
- Navigate to MAIN MENU | SETUP | EARTHQUAKE. See Figure 58.
- From the Earthquake menu, scroll and select Set CW POS.



Figure 542: EARTHQUAKE Menu – Set CW POS

- From the Save CW Position? menu, scroll and select the position. This will store the current position of the elevator as the mid-point.  
**NOTE:** Place the car in CT Inspection Mode and move the car so it overlaps with the center of the counterweight.



Figure 543: Save CW Position? Menu

- Scroll right and press Save.

### 33.2.3 Earthquake Status

The status of the fire and earthquake display the input status for the selected fire, smoke, and earthquake options.

The following procedure describes how to view the fire/earthquake status.

1. Navigate to MAIN MENU | STATUS | INPUTS. See Figure 45.
2. From the INPUTS BY FUNCTION menu, scroll and select Fire/Earthquake.



Figure 544: INPUTS BY FUNCTION Menu – Fire/Earthquake

3. From the FIRE/EARTHQUAKE menu, view the status of all selected fire and earthquake emergency services.

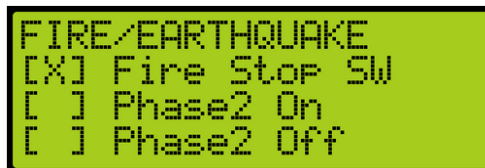


Figure 545: FIRE/EARTHQUAKE Menu

## 33.3 Fire

Fire Phase 1 and Phase 2 allows for controlling a car(s) during a fire situation.

Fire Phase 1 – Smoke has been detected and Fire Phase 1 is activated manually (by key or switch) or automatically (smoke sensor). The car(s) moves to a designated landing with car doors open. If the landing is where the smoke is detected, the car(s) moves to an alternate landing. In case the fire is in the machine room, the shunt operation removes main power to the controller. The MR board activates an external shunt disconnect device after the car has moved to the designated recall floor and doors are open.

The shunt operation is as follows:

- Smoke sensor activates.
- The car(s) move to the recall floor and open the doors.
- The shunt output activates and opens the Shunt Bypass switch, removing power to the main disconnect.

Fire Phase 2 – A key switch is used to allow fire fighters or emergency personnel to gain control from inside the elevator.

### 33.3.1 Main Recall

The main recall is where the car is recalled to a main recall floor during a fire.

#### 33.3.1.1 Main Recall Floor

The following procedure describes how to set the designated landing.

1. Navigate to MAIN MENU | SETUP | FIRE. See Figure 57.
2. From the FIRE SERVICE menu, scroll and select Main Recall.



Figure 546: FIRE SERVICE Menu – Main Recall

3. From the MAIN RECALL menu, scroll and select Floor.



Figure 547: MAIN RECALL Menu – Floor

4. From the MAIN RECALL FLOOR menu, enter the recall floor.



Figure 548: MAIN RECALL FLOOR Menu

5. Scroll right and press Save.

#### 33.3.1.2 Main Recall Door

The following procedure describes how to set which door opens during a fire.

1. Navigate to MAIN MENU | SETUP | FIRE. See Figure 57.
2. From the FIRE SERVICE menu, scroll and select Main Recall. See Figure 546.

- From the MAIN RECALL menu, scroll and select Opening.



Figure 549: MAIN RECALL Menu – Opening

- From the MAIN: USE REAR DOOR menu, enable or disable rear door.



Figure 550: MAIN: USE REAR DOOR Menu

- Scroll right and press Save.

### 33.3.2 Alternate Recall

Sensors indicate if the fire is at the designated main recall floor. If the fire is on that floor, the car then travels to a designated alternate landing.

#### 33.3.2.1 Alternate Recall Floor

The following procedure describes how to set the designated landing.

- Navigate to MAIN MENU | SETUP | FIRE. See Figure 57.
- From the FIRE SERVICE menu, scroll and select Alt Recall.



Figure 551: FIRE SERVICE Menu – Alt Recall

- From the ALT RECALL menu, scroll and select Floor.

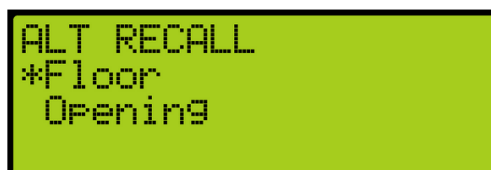


Figure 552: ALT RECALL Menu – Floor

- From the ALT RECALL FLOOR menu, enter the recall floor.



Figure 553: ALT RECALL FLOOR Menu

- Scroll right and press Save.

### 33.3.2.2 Alternate Recall Door

The following procedure describes how to set the alternate recall door.

- Navigate to MAIN MENU | SETUP | FIRE. See Figure 57.
- From the FIRE SERVICE menu, scroll and select Alt Recall. See Figure 551.
- From the ALT RECALL menu, scroll and select Opening.

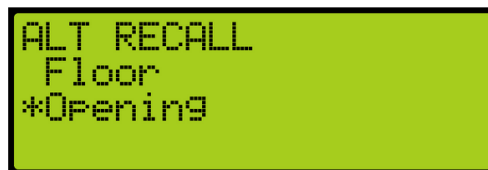


Figure 554: ALT RECALL Menu – Opening

- From the ALT: USE REAR DOOR menu, enable or disable rear door.



Figure 555: ALT: USE REAR DOOR Menu

- Scroll right and press Save.

### 33.3.3 Main Smoke

The main smoke is where the car is recalled to a designated landing when smoke has been detected in the main lobby.

### 33.3.3.1 Main or Alternate

The car travels to the main landing when smoke has been detected. If configured and the smoke is on that floor, the car travels to an alternated landing.

The following procedure describes if the car travels to the main or alternate designated landing when smoke has been detected.

1. Navigate to MAIN MENU | SETUP | FIRE. See Figure 57.
2. From the FIRE SERVICE menu, scroll and select Main Smoke.



Figure 556: FIRE SERVICE Menu – Main Smoke

3. From the MAIN SMOKE menu, scroll and select Main or Alt.



Figure 557: MAIN SMOKE Menu – Main or Alt

4. From the MAIN: USE ALT FLOOR menu, scroll and select if the alternate floor is configured for main smoke.



Figure 558: MAIN: USE ALT FLOOR Menu

5. Scroll right and press Save.

### 33.3.3.2 Flash Fire Hat

If the fire flash hat been enabled during main smoke, a fire hat symbol on the panel flashes when smoke has been detected.

The following procedure describes how to enable the flash fire hat.

1. Navigate to MAIN MENU | SETUP | FIRE. See Figure 57.
2. From the FIRE SERVICE menu, scroll and select Main Smoke. See Figure 556.



- From the MAIN SMOKE menu, scroll and select Flash Fire Hat.



Figure 559: MAIN SMOKE Menu – Flash Fire Hat

- From the MAIN: FLASH FIRE HAT menu, scroll and select On.



Figure 560: MAIN: FLASH FIRE HAT Menu

- Scroll right and press Save.

### 33.3.3.3 Shunt Trip

A shunt output is designed to trip a breaker shutting off the main power to the controller in case of a fire in the main lobby.

The following procedure describes how to set up the parameters in case smoke is detected in the main lobby.

- Navigate to MAIN MENU | SETUP | FIRE. See Figure 57.
- From the FIRE SERVICE menu, scroll and select Main Smoke. See Figure 556.
- From the MAIN SMOKE menu, scroll and select Shunt Trip.



Figure 561: MAIN SMOKE Menu – Shunt Trip

- From MAIN: SHUNT ON RECALL menu, scroll and select On.



Figure 562: MAIN: SHUNT ON RECALL Menu

- Scroll right and press Save.

### 33.3.4 Alternate Smoke

The alternate smoke is where the car is recalled to an alternate designated landing when smoke has been detected in the main lobby.

#### 33.3.4.1 Main or Alternate

The car travels to the main landing when smoke has been detected. If configured and the smoke is on that floor, the car travels to an alternated landing.

The following procedure describes if the car travels to the main or alternate designated landing when smoke has been detected.

1. Navigate to MAIN MENU | SETUP | FIRE. See Figure 57.
2. From the FIRE SERVICE menu, scroll and select Alt Smoke.

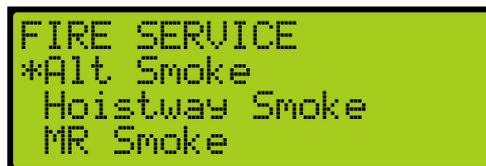


Figure 563: FIRE SERVICE Menu – Alt Smoke

3. From the ALT SMOKE menu, scroll and select Main or Alt.



Figure 564: ALT SMOKE Menu – Main or Alt

4. From the ALT: USE ALT FLOOR menu, scroll and select if the alternate floor is configured for alternate smoke.



Figure 565: ALT: USE ALT FLOOR Menu

5. Scroll right and press Save.

### 33.3.4.2 Flash Fire Hat

If the fire flash hat been enabled during alternate smoke, a fire hat symbol on the panel flashes when smoke has been detected.

The following procedure describes how to enable the flash fire hat.

1. Navigate to MAIN MENU | SETUP | FIRE. See Figure 57.
2. From the FIRE SERVICE menu, scroll and select Alt Smoke. See Figure 563.
3. From the ALT SMOKE menu, scroll and select Flash Fire Hat.



Figure 566: ALT SMOKE Menu – Flash Fire Hat

4. From the ALT: FLASH FIRE HAT menu, scroll and select On.



Figure 567: ALT: FLASH FIRE HAT Menu

5. Scroll right and press Save.

### 33.3.4.3 Shunt Trip

A shunt output is designed to trip a breaker shutting off the main power to the controller in case of a fire in the main lobby.

The following procedure describes how to set up the parameters in case smoke is detected in the main lobby.

1. Navigate to MAIN MENU | SETUP | FIRE. See Figure 57.
2. From the FIRE SERVICE menu, scroll and select Alt Smoke. See Figure 563.
3. From the ALT SMOKE menu, scroll and select Shunt Trip.



Figure 568: ALT SMOKE Menu – Shunt Trip

- From ALT: SHUNT ON RECALL menu, scroll and select On.



Figure 569: ALT: SHUNT ON RECALL Menu

- Scroll right and press Save.

### 33.3.5 Hoistway Smoke

The hoistway smoke is where the car is recalled to a designated landing when smoke has been detected in the hoistway.

#### 33.3.5.1 Main or Alternate

The car travels to the main landing when smoke has been detected. If configured and the smoke is on that floor, the car travels to an alternated landing.

The following procedure describes if the car travels to the main or alternate designated landing when smoke has been detected.

- Navigate to MAIN MENU | SETUP | FIRE. See Figure 57.
- From the FIRE SERVICE menu, scroll and select Hoistway Smoke.

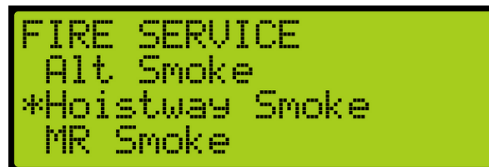


Figure 570: FIRE SERVICE Menu – Hoistway Smoke

- From the HOISTWAY SMOKE menu, scroll and select Main or Alt.



Figure 571: HOISTWAY SMOKE Menu – Main or Alt

- From the MR: USE ALT FLOOR menu, scroll and select On.



Figure 572: MR: USE ALT FLOOR Menu

- Scroll right and press Save.

### 33.3.5.2 Flash Fire Hat

If the fire flash hat been enabled during hoistway smoke, a fire hat symbol on the panel flashes when smoke has been detected.

The following procedure describes how to enable the flash fire hat.

- Navigate to MAIN MENU | SETUP | FIRE. See Figure 57.
- From the FIRE SERVICE menu, scroll and select Hoistway Smoke. See Figure 570.
- From the HOISTWAY SMOKE menu, scroll and select Flash Fire Hat.



Figure 573: HOISTWAY SMOKE Menu – Flash Fire Hat

- From H: FLASH FIRE HAT menu, scroll and select On.



Figure 574: H: FLASH FIRE HAT Menu

- Scroll right and press Save.

### 33.3.5.3 Shunt Trip

A shunt output is designed to trip a breaker shutting off the main power to the controller in case of a fire in the hoistway.

The following procedure describes how to set up the parameters in case smoke is detected in the hoistway.

- Navigate to MAIN MENU | SETUP | FIRE. See Figure 57.
- From the FIRE SERVICE menu, scroll and select Hoistway Smoke. See Figure 570.

- From the HOISTWAY SMOKE menu, scroll and select Shunt Trip.



Figure 575: HOISTWAY SMOKE Menu – Shunt Trip

- From the H: SHUNT ON RECALL menu, scroll and select On.



Figure 576: H: SHUNT ON RECALL Menu

- Scroll right and press Save.

### 33.3.6 MR Smoke

The MR smoke is where the car is recalled to a designated landing when smoke has been detected in the machine room.

#### 33.3.6.1 Main or Alternate

The car travels to the main landing when smoke has been detected. If configured and the smoke is on that floor, the car travels to an alternated landing.

The following procedure describes if the car travels to the main or alternate designated landing when smoke has been detected.

- Navigate to MAIN MENU | SETUP | FIRE. See Figure 57.
- From the FIRE SERVICE menu, scroll and select MR Smoke.



Figure 577: FIRE SERVICE Menu – MR Smoke

- From the MR SMOKE menu, scroll and select Main or Alt.



Figure 578: MR SMOKE Menu – Main or Alt

- From the MR: USE ALT FLOOR menu, scroll and select On.



Figure 579: MR: USE ALT FLOOR Menu

- Scroll right and press Save.

### 33.3.6.2 Flash Fire Hat

If the fire flash hat been enabled during MR smoke, a fire hat symbol on the panel flashes when smoke has been detected.

The following procedure describes how to enable the flash fire hat.

- Navigate to MAIN MENU | SETUP | FIRE. See Figure 57.
- From the FIRE SERVICE menu, scroll and select MR Smoke. See Figure 577.
- From the MR SMOKE menu, scroll and select Flash Fire Hat.



Figure 580: MR SMOKE Menu – Flash Fire Hat

- From the MR: FLASH FIRE HAT menu, scroll and select On.



Figure 581: MR: FLASH FIRE HAT Menu

- Scroll right and press Save.

### 33.3.6.3 Shunt Trip

A shunt output is designed to trip a breaker shutting off the main power to the controller in case of a fire in the machine room.

The following procedure describes how to set up the parameters in case smoke is detected.

1. Navigate to MAIN MENU | SETUP | FIRE. See Figure 57.
2. From the FIRE SERVICE menu, scroll and select MR Smoke. See Figure 577.
3. From the MR SMOKE menu, scroll and select Shunt Trip.



Figure 582: MR SMOKE Menu – Shunt Trip

4. From MR: SHUNT ON RECALL menu, scroll and select On.



Figure 583: MR: SHUNT ON RECALL Menu

5. Scroll right and press Save.

### 33.3.7 Recall Key

The recall key is the key that is used on the panel inside the car and in the hall usually in the main lobby that is used for fire service to control the emergency landing. If the fire flash hat been enabled when using the recall key, a fire hat symbol on the panel flashes on panel.

The following procedure describes how to enable the flash fire hat.

1. Navigate to MAIN MENU | SETUP | FIRE. See Figure 57.
2. From the FIRE SERVICE menu, scroll and select Recall Key.



Figure 584: FIRE SERVICE Menu – Recall Key



- From the RECALL KEY menu, scroll and select Flash Fire Hat.



Figure 585: RECALL KEY Menu – Flash Fire Hat

- From the FLASH FIRE HAT menu, scroll and select On.



Figure 586: FLASH FIRE HAT Menu

- Scroll right and press Save.

### 33.3.8 PIT Smoke

The PIT smoke is where the car is recalled to a designated landing when smoke has been detected in the pit.

#### 33.3.8.1 Main or Alternate

The car travels to the main landing when smoke has been detected. If configured and the smoke is on that floor, the car travels to an alternated landing.

The following procedure describes if the car travels to the main or alternate designated landing when smoke has been detected.

- Navigate to MAIN MENU | SETUP | FIRE. See Figure 57.
- From the FIRE SERVICE menu, scroll and select PIT Smoke.



Figure 587: FIRE SERVICE Menu – PIT Smoke

- From the PIT SMOKE menu, scroll and select Main or Alt.



Figure 588: PIT SMOKE Menu – Main or Alt

- From the PIT: USE ALT FLOOR menu, scroll and select if the main or alternate floor is used.



Figure 589: PIT: USE ALT FLOOR Menu

- Scroll right and press Save.

### 33.3.8.2 Flash Fire Hat

If the fire flash hat been enabled during PIT smoke, a fire hat symbol on the panel flashes when smoke has been detected.

The following procedure describes how to enable the flash fire hat.

- Navigate to MAIN MENU | SETUP | FIRE. See Figure 57.
- From the FIRE SERVICE menu, scroll and select PIT Smoke. See Figure 587.
- From the PIT SMOKE menu, scroll and select Flash Fire Hat.



Figure 590: PIT SMOKE Menu – Flash Fire Hat

- From the PIT: FLASH FIRE HAT menu, scroll and select On.



Figure 591: PIT: FLASH FIRE HAT Menu

- Scroll right and press Save.

### 33.3.8.3 Shunt Trip

A shunt output is designed to trip a breaker shutting off the main power to the controller in case of a fire in the machine room.

The following procedure describes how to set up the parameters in case smoke is detected.

1. Navigate to MAIN MENU | SETUP | FIRE. See Figure 57.
2. From the FIRE SERVICE menu, scroll and select PIT Smoke. See Figure 587.
3. From the PIT SMOKE menu, scroll and select Shunt Trip.



Figure 592: PIT SMOKE Menu – Shunt Trip

4. From the PIT: SHUNT ON RECALL menu, scroll and select On.



Figure 593: PIT: SHUNT ON RECALL Menu

5. Scroll right and press Save.

### 33.3.9 Alt Machine Room

Alternate machine room parameters are set when a group of elevators have split machine room and hoistway.

#### 33.3.9.1 Enable Alternate Machine Room

When secondary machine room operation is required, the alternate machine room smoke needs to be enabled.

The following procedure describes how to enable the alternate machine room smokes.

1. Navigate to MAIN MENU | SETUP | FIRE. See Figure 57.

- From the FIRE SERVICE menu, scroll and select Alt. Machine Room.



Figure 594: FIRE SERVICE Menu – Alt. Machine Room

- From the ALT MACHINE ROOM menu, scroll and select Enable Alt. MR.



Figure 595: ALT MACHINE ROOM Menu – Enable Alt. MR

- From the ENABLE ALT MR menu, scroll and select On.



Figure 596: ENABLE ALT MR Menu

- Scroll right and press Save.

### 33.3.9.2 Hoistway 2 Smoke

When a group of elevators have a split hoistway, the options for secondary hoistway smoke needs to be enabled.

#### 33.3.9.2.1 Main or Alternate

The following procedure describes how to select if the car goes to main or alternate landing when the HW 2 smoke is triggered.

- Navigate to MAIN MENU | SETUP | FIRE. See Figure 57.
- From the FIRE SERVICE menu, scroll and select Alt. Machine Room. See Figure 594.
- From the ALT MACHINE ROOM menu, scroll and select HW 2 Smoke.

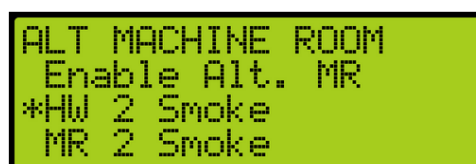


Figure 597: ALT MACHINE ROOM Menu – HW 2 Smoke

- From the HOISTWAY 2 SMOKE menu, scroll and select Main or Alt.



Figure 598: HOISTWAY 2 SMOKE Menu – Main or Alt

- From the USE ALT FLOOR menu, scroll and select On to go to alternate landing and OFF for main recall landing.



Figure 599: USE ALT FLOOR Menu

- Scroll right and press Save.

### 33.3.9.2.2 Flash Fire Hat

The following procedure describes how to flash the fire hat when the alternate hoistway smoke is triggered.

- Navigate to MAIN MENU | SETUP | FIRE. See Figure 57.
- From the FIRE SERVICE menu, scroll and select Alt. Machine Room. See Figure 594.
- From the ALT MACHINE ROOM menu, scroll and select HW 2 Smoke. See Figure 597.
- From the HOISTWAY 2 SMOKE menu, scroll and select Flash Fire Hat.



Figure 600: HOISTWAY 2 SMOKE Menu – Flash Fire Hat

- From the FLASH FIRE HAT menu, scroll and select On. See Figure 586.
- Scroll right and press Save.

### 33.3.9.2.3 Shunt Trip

A shunt output is designed to trip a breaker shutting off the main power to the controller in case of a fire in the machine room.

The following procedure describes how to set up shunt trip when the alternate hoistway smoke is triggered.

- Navigate to MAIN MENU | SETUP | FIRE. See Figure 57.

2. From the FIRE SERVICE menu, scroll and select Alt. Machine Room. See Figure 594.
3. From the ALT MACHINE ROOM menu, scroll and select HW 2 Smoke. See Figure 597.
4. From the HOISTWAY 2 SMOKE menu, scroll and select Shunt Trip.



Figure 601: HOISTWAY 2 SMOKE Menu – Shunt Trip

5. From the SHUNT ON RECALL menu, scroll and select On.



Figure 602: SHUNT ON RECALL Menu

6. Scroll right and press Save.

### 33.3.9.3 MR 2 Smoke

The MR 2 smoke is the smoke sensor located in the secondary machine room.

#### 33.3.9.3.1 Main or Alt

The following procedure describes how to select if the car goes to main or alternate landing when the MR 2 smoke is triggered.

1. Navigate to MAIN MENU | SETUP | FIRE. See Figure 57.
2. From the FIRE SERVICE menu, scroll and select Alt. Machine Room. See Figure 594.
3. From the ALT MACHINE ROOM menu, scroll and select MR 2 Smoke.

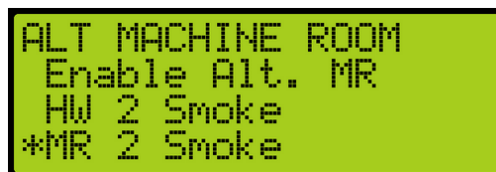


Figure 603: ALT MACHINE ROOM Menu – MR 2 Smoke

- From the MR 2 SMOKE menu, scroll and select Main or Alt.



Figure 604: MR 2 SMOKE Menu – Main or Alt

- From the USE ALT FLOOR menu, scroll and select On. See Figure 599.
- Scroll right and press Save.

### 33.3.9.3.2 Flash Fire Hat

The following procedure describes how to flash the fire hat when the alternate Machine room smoke is triggered.

- Navigate to MAIN MENU | SETUP | FIRE. See Figure 57.
- From the FIRE SERVICE menu, scroll and select Alt. Machine Room. See Figure 594.
- From the ALT MACHINE ROOM menu, scroll and select MR2 Smoke. See Figure 603.
- From the MR 2 SMOKE menu, scroll and select Flash Fire Hat.



Figure 605: MR 2 SMOKE Menu – Flash Fire Hat

- From the FLASH FIRE HAT menu, scroll and select On. See Figure 586.
- Scroll right and press Save.

### 33.3.9.3.3 Shunt Trip

A shunt output is designed to trip a breaker shutting off the main power to the controller in case of a fire in the machine room.

The following procedure describes how to set up shunt trip when the alternate Machine room smoke is triggered.

- Navigate to MAIN MENU | SETUP | FIRE. See Figure 57.
- From the FIRE SERVICE menu, scroll and select Alt. Machine Room. See Figure 594.
- From the ALT MACHINE ROOM menu, scroll and select MR2 Smoke. See Figure 603.

4. From the MR 2 SMOKE menu, scroll and select Shunt Trip.



Figure 606: MR 2 SMOKE Menu – Shunt Trip

5. From the SHUNT ON RECALL menu, scroll and select On. See Figure 602.
6. Scroll right and press Save.

### 33.3.10 Advanced Configs

Advanced configuration is a simple way to configure specific fire parameters within the system. For a description of each parameter, see the *C4 Parameter List*.

The following is a list of the specific parameters that can be configured.

- RESET TO EXIT PHASE 1
- DIS RSTCTR ON PHASE 2
- PHASE 2 SWING REOPEN DISABLED
- EXIT PHASE 2 ONLY AT RECALL FLOOR
- IGNORE LOCKS JUMPED ON PHASE 2
- FIRE STOP SWITCH KILLS DOOR OPERATOR
- DOL TO EXIT PHASE 2
- EXIT PHASE 1 AT MAIN RECALL ONLY
- OK TO STOP OUTSIDE DOOR ZONE
- ALLOW RESET WITH ACTIVE SMOKE
- HAT FLASH IGNORE ORDER
- MOMEMNTARY DOOR CLOSE BUTTON
- FLASH LOBBY FIRE LAMP
- REMOTE AND MAIN TO OVERRIDE SMOKE
- ENABLE PHE ON PH2
- DOOR OPEN ON HOLD

The following procedure describes how to configure specific parameters listed in Advanced Configuration.

1. Navigate to MAIN MENU | SETUP | FIRE. See Figure 57.



- From the FIRE SERVICE menu, scroll and select Advanced Configuration.



Figure 607: FIRE SERVICE Menu – Advance Configurations

- From the SMOKE CONFIGURATION menu, scroll and select if the parameter is ON or OFF.

**NOTE:** The name of the parameter scrolls to the left.

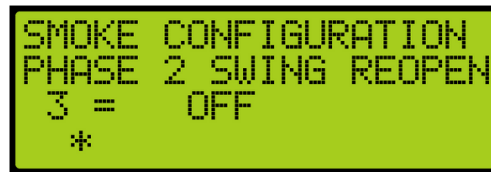


Figure 608: SMOKE CONFIGURATION Menu

- Scroll right and press Save.

## 33.4 Flood

Flooding can occur due to natural disasters or under other occurrences, for example, broken pipes. When a sensor detects flooding, an alarm is set off and logged.

If this sensor is active, the elevator is limited to traveling to floors above the flood floor set by the user.

### 33.4.1 Number of Floors

When flooding has been detected, the parameter set for the flood sensor switch sends a signal to notify the controller of the floors to avoid during operation.

The following procedure describes how to set the number of floors the elevator is to avoid from the bottom landing.

- Navigate to MAIN MENU | SETUP | FLOOD. See Figure 60.
- From the FLOOD menu, scroll and select Number of Floors.



Figure 609: FLOOD Menu – Number of Floors

- From the NUMBER OF FLOOD FLOORS menu, set the number of floors to avoid. For example, a value of 001 would cause the elevator to avoid the bottom landing.



Figure 610: NUMBER OF FLOOD FLOORS MENU

- Scroll right and press Save.

### 33.4.2 Okay to Run

The okay to run allows the elevator to continue running in automatic operation above the floors that are flooded.

The following procedure describes how to allow the elevator to continue running above flooded floors.

- Navigate to MAIN MENU | SETUP | FLOOD. See Figure 60.
- From the FLOOD menu, scroll and select Okay To Run.



Figure 611: FLOOD Menu – Okay To Run

- From the OKAY TO RUN menu, scroll and select On to continue running in automatic operation.



Figure 612: OKAY TO RUN Menu

- Scroll right and press Save.

### 33.4.3 Override Fire

In emergency situations, it may be necessary to have flooding operation override fire operation.

The following procedure describes how to have flooding override fire.

- Navigate to MAIN MENU | SETUP | FLOOD. See Figure 60.

- From the FLOOD menu, scroll and select Override Fire.

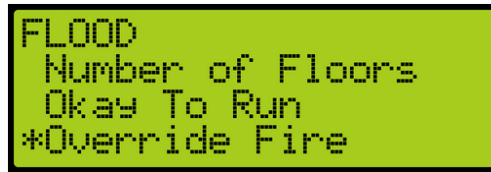


Figure 613: FLOOD Menu – Override Fire

- From the OVERRIDE FIRE menu, scroll and select On for flooding to override fire.



Figure 614: OVERRIDE FIRE Menu

- Scroll right and press Save.

## 33.5 EMS

EMS Phase 1 and Phase 2 services allows for operation during medical emergencies.

- EMS Phase 1 – Allows for emergency medical personnel via a key switch to make a hall call. The car skips all floors and goes directly to the designated landing. If a key is not used within the set Phase 1 Exit Delay time (see section 33.5.4 Ph1 Exit Delay) to switch from EMS Phase 1 to EMS Phase 2, the car goes back to normal operation. If a fire occurs, Fire Phase 1 overrides EMS Phase 1.
- EMS Phase 2 – A key switch is used to hold the door open according to the set Phase 2 Exit Delay time (see 33.5.5 Ph2 Exit Delay) to allow for the emergency medical team to remove the patient from the car.

### 33.5.1 AllowPh2WithoutPh1

Medical personnel can set the car to EMS Phase 2 without ever placing the car in Phase 1.

The following procedure describes how to set the AllowPh2WithoutPh1.

- Navigate to MAIN MENU | SETUP | EMS. See Figure 60.
- From the EMS menu, scroll and select AllowPh2WithoutPh1.

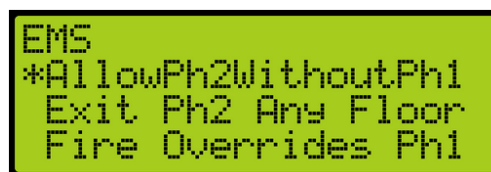


Figure 615: EMS Menu – AllowPh2WithoutPh1

- From the ALLOWPH2WITHOUTPH1 menu, scroll and select if the car is set to run in a medical emergency.



Figure 616: ALLOWPH2WITHOUTPH1 Menu

- Scroll right and press Save.

### 33.5.2 Exit Ph2 Any Floor

When Exit Ph2 any floor is active, the controller can exit EMS phase 2 at any floor. If set to On, the car can only exit EMS Phase 2 on the floor where it entered EMS Phase 2.

The following procedure describes how the settings to allow for exit phase 2 at any floor.

- Navigate to MAIN MENU | SETUP | EMS. See Figure 60.
- From the EMS menu, scroll and select Exit Ph2 Any Floor.

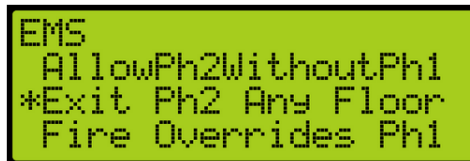


Figure 617: EMS Menu – Exit Ph2 Any Floor

- From the EXIT PH2 ANY FLOOR menu, scroll and select if the controller can exit phase 2 on any floor.



Figure 618: EXIT PH2 ANY FLOOR Menu

- Scroll right and press Save.

### 33.5.3 Fire Overrides Ph1

The following procedure describes how to allow fire to override Phase 1 EMS operation.

- Navigate to MAIN MENU | SETUP | EMS. See Figure 60.

- From the EMS menu, scroll and select Fire Overrides Ph1.

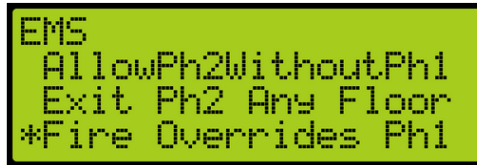


Figure 619: EMS Menu – Fire Overrides Ph1

- From the FIRE OVERRIDES PH1 menu, scroll and select if a fire override Phase 1 EMS operation.



Figure 620: FIRE OVERRIDES PH1 Menu

- Scroll right and press Save.

### 33.5.4 Ph1 Exit Delay

Phase 1 exit delay is the time a car remains in EMS Phase 1 (due to an emergency medical hall call) prior to returning to normal operation.

The following procedure describes how to set the time a car returns to normal operation from EMS Phase 1.

- Navigate to MAIN MENU | SETUP | EMS. See Figure 60.
- From the EMS menu, scroll and select Ph1 Exit Delay.



Figure 621: EMS Menu – Ph1 Exit Delay

- From the PH1 EXIT DELAY menu, set the time the car remains at a landing prior to normal operation.



Figure 622: PH1 EXIT DELAY Menu

- Scroll right and press Save.

### 33.5.5 Ph2 Exit Delay

Phase 2 exit delay is the time a car remains in EMS Phase 2 before exiting.

The following procedure describes how to set the EMS Phase 2 exit delay.

- Navigate to MAIN MENU | SETUP | EMS. See Figure 60.
- From the EMS menu, scroll and select Ph2 Exit Delay.



Figure 623: EMS Menu – Ph2 Exit Delay

- From the PH2 EXIT DELAY menu, set the delay time prior to the doors closing.



Figure 624: PH2 EXIT DELAY Menu

- Scroll right and press Save.

## 34 Status

The status of each functionality can be viewed to determine which functions are active.

### 34.1 Input Status

The Input status displays the status for the configured inputs to the MR board.

The following procedure describes how to view the status of the inputs.

1. Navigate to MAIN MENU | STATUS | INPUTS. See Figure 45.
2. From the INPUTS BY FUNCTION menu, scroll and select the type of input.



Figure 625: INPUTS BY FUNCTION Menu –Inspection

3. From the INSPECTION menu, view the status of the configured input.



Figure 626: INSPECTION Menu

### 34.2 Output Status

The Output status displays the status for the configured outputs from the MR board.

The following procedure describes how to view the status of the inputs.

1. Navigate to MAIN MENU | STATUS | OUTPUTS. See Figure 45.
2. From the OUTPUTS BY FUNCTION menu, scroll and select the type of output.



Figure 627: OUPUTS BY FUNCTION Menu –Controller

3. From the CONTROLLER menu, view the status of the configured output.



```
CONTROLLER
[ ] Auto Rescue
[ ] MR Fan
[ ] Start Motor
```

Figure 628: CONTROLLER Menu

### 34.3 Brake Status

The brake status displays the status of the Brake board.

The following procedure describes how to view the brake status.

1. Navigate to MAIN MENU | STATUS | BRAKE STATUS. See Figure 45.
2. From the BRAKE STATUS menu, view the status of the Brake board.



```
BRAKE STATUS
State: Idle
Error: None
Volt FB: 0
```

Figure 629: BRAKE STATUS Menu

### 34.4 EBrake Status

The EBrake status displays the status of the secondary Brake board. The state and error displays unknown when there is no secondary Brake board connected in the controller.

The following procedure describes how to view the EBrake status.

1. Navigate to MAIN MENU | STATUS | EBRAKE STATUS. See Figure 46.
2. From the EBRAKE STATUS menu, view the status of the Brake board.



```
EBRAKE STATUS
State: Unknown
Error: Unknown
Volt FB: 0
```

Figure 630: EBRAKE STATUS Menu

### 34.5 Expansion Status

The Expansion status displays the input/output of an expansion board in-service. The “In:” and “OUT:” display any active inputs or outputs on the board.

The following procedure describes how to view the expansion status.

1. Navigate to MAIN MENU | STATUS | EXPANSION STATUS. See Figure 46.



- From the EXPANSION STATUS menu, scroll and select which expansion board group is being viewed.  
**NOTE:** Expansion boards are set in groups of 8. If a 24 input board is used, only the first expansion would show online.



Figure 631: EXPANSION STATUS Menu – Expansion Group

- From the EXPANSION Status menu, view the status of an Expansion board.



Figure 632: Active Expansion Board Status



Figure 633: Inactive Expansion Board Status

The Expansion Board Status menu displays the following:

- Expansion Board Activity** – Displays the connection status of the board.
- In** – Shows active inputs.
- Out** – Shows active outputs.
- Error** – If a red LED is lit, the Expansion Board status shows an error.

### 34.6 Riser Board Status

The Riser board status displays the activity of the hall network and if there are any errors.

The following procedure describes how to view the Riser board status.

- Navigate to MAIN MENU | STATUS | RISER BOARD STATUS. See Figure 46.
- From the Riser board menu, view the Riser board status.

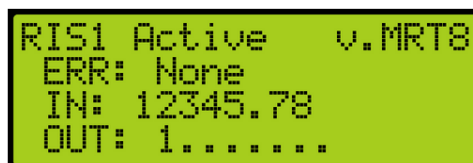


Figure 634: Active Riser Board Status



```

RIS1 Inactive v.MRT8
ERR: Unknown
IN: .....
OUT: .....

```

Figure 635: Inactive Riser Board Status

The Riser Board Status menu displays the following:

- **Riser Board Activity and Version** – Displays the version software of the Riser board in the top right and activity. If the Riser board is online, it shows active but, if the Riser board is offline, it shows inactive.
- **Error** – If a red LED is lit, the Riser Board status shows an error.
- **In** – Shows active inputs.
- **Out** – Shows active outputs.

## 34.7 CPLD

The CPLD status displays the current CPLD software version, faults, commands, and type of input during preflight operation.

The following procedure describes how to view the MR CPLD status.

1. Navigate to MAIN MENU | STATUS | CPLD STATUS. See Figure 49.
2. From the CPLD STATUS menu, scroll and select the (MR, CT, or COP) CPLD.



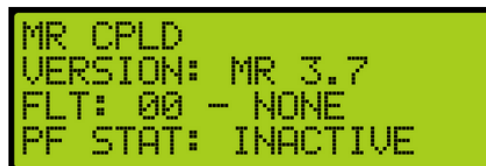
```

CPLD STATUS
MR CPLD
CT CPLD
COP CPLD

```

Figure 636: CPLD STATUS Menu – MR, CT, COP CPLD

3. From the CPLD menu, view the CPLD status.  
**NOTE:** Scroll down to see additional information.



```

MR CPLD
VERSION: MR 3.7
FLT: 00 - NONE
PF STAT: INACTIVE

```

Figure 637: MR CPLD Menu

```
PF CMD: INACTIVE
PFE: 00
INPUTS:
RELAY C SFP [S][M]
```

Figure 638: MR CPLD Menu Continued

```
CT CPLD
VERSION: CT 3.7
FLT: 00 - NONE
PF STAT: INACTIVE
```

Figure 639: CT CPLD Menu

```
PF CMD: INACTIVE
PFE: 00
INPUTS:
CT SW [S][M]
```

Figure 640: CT CPLD Menu Continued

```
COP CPLD
VERSION: COP 3.7
FLT: 00 - NONE
PF STAT: INACTIVE
```

Figure 641: COP CPLD Menu

```
PF CMD: INACTIVE
PFE: 00
INPUTS:
HA INSP [ ][ ]
```

Figure 642: COP CPLD Menu Continued

The status as seen by the CPLD (safety processor) are marked by a “S” in the first bracket when the input is active. The status as seen by the MR, CT, or COP boards are marked by a “M” in the second bracket when the input is active.

The table below lists the CPLD menu description.

Table 54: CPLD Menu Description

CPLD Menu	Description
CPLD	Displays the type of CPLD being viewed.
VERSION	Displays the CPLD version software.
PFE	Displays the preflight failure number of the CPLD.
FLT	Displays a fault code for an existing fault. If there is no fault, the status is shown as None.

CPLD Menu	Description
PF STAT	Displays a check performed at the end of runs where safety critical inputs are toggled to confirm hardware functionality.
PF CMD	Displays the EB relay commands to the MR board as part of the preflight process. This field is not used by the CT and COP boards.
INPUTS	Status of signals read by both the CPLD and the MR, CT, or COP board.

The table below lists CPLD faults.

Table 55: CPLD Fault

Fault Number	Fault Name	Description
0	NONE	None
MR Board		
1	STARTUP MR	MR processor has reset.
2	STARTUP CT	CT processor has reset.
3	STARTUP COP	COP processor has reset.
4	UNINT MOV	Missing a lock and a Gate switch and falling edge of either door zone signal detected. This fault is latching until reset. If the COMM LOSS CT fault is active when the UNINTENDED MOV fault conditions are met. Then the UNINTENDED MOV fault should not be flagged.
5	COMM LOSS CT	Communication with the CT CPLD lost. If the COMM LOSS CT fault is active when the UNINTENDED MOV fault conditions are met. Then the UNINTENDED MOV fault should not be flagged.
6	COMM LOSS COP	Communication with the COP CPLD lost. Detected and notified by CT CPLD.
7	120VAC LOSS	120 VAC supply monitoring pin is low.
8	GOV LOSS	GOV input lost. But 120VAC is present. This fault is latching until reset.
9	CAR BYP SW	Car door bypass switch is on and car is not on IC or CT inspection.
10	HALL BYP SW	Hall door bypass switch is on and car is not on in car or car top inspection.
11	SFM LOSS	MR SFM input lost.
12	SFH LOSS	MR SFH input lost.
13	PIT LOSS	MR PIT input lost.
14	BUF LOSS	MR BUF input lost.
15	TFL LOSS	MR TFL input lost.

Fault Number	Fault Name	Description
16	BFL LOSS	MR BFL input lost.
17	CT SW LOSS	CT Switch input (SF1) lost.
18	ESC HATCH LOSS	CT Escape Hatch input (SF2) lost.
19	CAR SAFE LOSS	CT Car Safeties input (SF3) lost.
20	IC STOP SW	COP IC Stop input (SF2) lost.
21	FIRE STOP SW	COP Fire Stop Switch input (SF3) lost.
22	INSP	MR board will not fault. It will either refuse to run and issue an alarm, or the car mode will be Invalid Insp.
23	ACCESS	Attempt to move on hoistway access inspection is invalid combination of locks open and access switches, or multiple access switches are active at the same time.
24	LFT	Lock input lost, door zone input lost, and locks are not bypassed due to hoistway access or Hall Bypass switch.
25	LFM	Lock input lost, door zone input lost, and locks are not bypassed due to hoistway access or Hall Bypass switch.
26	LFB	Lock input lost, door zone input lost, and locks are not bypassed due to hoistway access or Hall Bypass switch.
27	LRT	Lock input lost, door zone input lost, and locks are not bypassed due to hoistway access or Hall Bypass switch.
28	LRM	Lock input lost, door zone input lost, and locks are not bypassed due to hoistway access or Hall Bypass switch.
29	LRB	Lock input lost, door zone input lost, and locks are not bypassed due to hoistway access or Hall Bypass switch.
30	GSWF	Gate switch input lost, door zone input lost, and car doors are not bypassed due to hoistway access or Car Door Bypass switch.
31	GSWR	Gate switch input lost, door zone input lost, and car doors are not bypassed due to hoistway access or Car Door Bypass switch.
32	PF PIT INSP	Preflight failed for the MR 501 (Pit Inspection) input.
33	PF LND INSP	Preflight failed for the MR 502 (Landing Inspection) input.
34	PF BFL	Preflight failed for MR BFL input.
35	PF TFL	Preflight failed for MR TFL input.

Fault Number	Fault Name	Description
36	PF BUF	Preflight failed for MR BUF input.
37	PF PIT	Preflight failed for MR PIT input.
38	PF GOV	Preflight failed for MR GOV input.
39	PF SFH	Preflight failed for MR SFH input.
40	PF SFM	Preflight failed for MR SFM input.
41	PF LFT	Preflight failed for MR LFT input.
42	PF LFM	Preflight failed for MR LFM input.
43	PF LFB	Preflight failed for MR LFB input.
44	PF LRT	Preflight failed for MR LRT input.
45	PF LRM	Preflight failed for MR LRM input.
46	PF LRB	Preflight failed for MR LRB input.
47	PF BYP H	Preflight failed for MR Hall Door Bypass input.
48	PF BYP C	Preflight failed for MR Car Door Bypass input.
49	PF MR INSP	Preflight failed for MR Inspection input.
50	PF CPLD PICK BYP	Preflight after failing to pick CPLD bypass relay (EB3).
51	PF MCU PICK BYP	Preflight after failing to pick MR Bypass relay (EB4).
52	PF MCU DROP GRIP	Preflight after failing to drop MR Rope Gripper relay (EB2).
53	PF CPLD DROP GRIP	Preflight after failing to drop CPLD Rope Gripper relay (EB1).
54	PF CPLD PICK GRIP	Preflight after failing to pick Rope Gripper relay (EB1).
55	PF MCU PICK GRIP	Preflight after failing to pick MR Rope Gripper relay (EB2).
56	PF MCU DROP BYP	Preflight after failing to drop MR Bypass Relay (EB4).
57	PF CPLD DROP BYP	Preflight after failing to drop CPLD Bypass Relay (EB3).
CT Board		
1	STARTUP	CT processor has reset.
2	PF CT SW	Preflight failed for the CT-SF1 (Car top switch) input.
3	PF ESC HATCH	Preflight failed for the CT-SF2 (Escape hatch switch) input.
4	PF CAR SAFE	Preflight failed for the CT-SF3 (Car safeties) input.
5	PF CT INSP	Preflight failed for the CT-SF4 (CT inspection) input.

Fault Number	Fault Name	Description
6	PF GSWF	Preflight failed for the CT 501 (Gate switch front) input.
7	PF GSWR	Preflight failed for the CT 502 (Gate switch rear) input.
8	PF DZF	Preflight failed for the CT 503 (Door zone front) input.
9	PF DZR	Preflight failed for the CT 504 (Door zone rear) input.
COP Board		
1	STARTUP	COP processor has reset.
2	PF HA INSP	Preflight failed for the COP-SF1 (Hoistway Access inspection) input.
3	PF IC ST	Preflight failed for the COP-SF2 (IC Stop switch) input.
4	PF FSS	Preflight failed for the COP-SF3 (Fire Stop switch) input.
5	PF IC INSP	Preflight failed for the COP-SF4 (IC Inspection) input.

The table below lists CPLD Preflight status.

*Table 56: CPLD Preflight Status*

Number	Name	Description
0	INACTIVE	Preflight not in progress.
1	ACTIVE	Preflight check is in progress.
2	PASS	Preflight has completed and detected no errors.
3	FAIL	Preflight has completed and detected errors.

The table below lists CPLD Preflight command.

*Table 57: CPLD Preflight Command*

Number	Name	Description
0	INACTIVE	No commands issued the EB relays.
4	PICK BYP	CPLD issuing override command to pick the EB4 relay.
5	DROP RG	CPLD issuing override command to drop the EB2 relay.
6	PICK RG	CPLD issuing override command to pick the EB2 relay.
7	DROP BYP	CPLD issuing override command to drop the EB4 relay.

The table below lists CPLD inputs.

Table 58: CPLD Inputs

Name	Description
MR Board	
RELAY C SFP	Control signal to the SFP relay
RELAY M SFP	Status signal of the SFP relay
RELAY C SFM	Control signal to the SFM relay
RELAY M SFM	Status signal of the SFM relay
RELAY C EB1	Control signal of the EB1 relay
RELAY M EB1	Status signal of the EB1 relay
RELAY C EB2	Control signal of the EB2 relay
RELAY M EB2	Status signal of the EB2 relay
RELAY C EB3	Control signal of the EB3 relay
RELAY M EB3	Status signal of the EB3 relay
RELAY C EB4	Control signal of the EB4 relay
RELAY M EB4	Status signal of the EB4 relay
PIT INSP	Status of the Pit Inspection input
LND INSP	Status of the Landing Inspection input
MR INSP	Status of the MR Inspection input
ATU	Status of the Access Top Up input
ATD	Status of the Access Top Down input
ABU	Status of the Access Bottom Up input
ABD	Status of the Access Bottom Down input
MM	Status of the Mechanics Mode input
BYP H	Status of the Bypass Hoistway Door switch
BYP C	Status of the Bypass Car Door switch
LRT	Status of the Rear Top Lock input
LRM	Status of the Rear Middle Lock input
LRB	Status of the Rear Bottom Lock input
LFT	Status of the Front Top Lock input
LFM	Status of the Front Middle Lock input
LFB	Status of the Front Bottom Lock input
120VAC	Status of the 120 VAC Source input
GOV	Status of the Governor input
PIT	Status of the Pit input
BUF	Status of the Buffer input
TFL	Status of the Top Final Limit input
BFL	Status of the Bottom Final Limit input
SFH	Status of the SFH Safety input
SFM	Status of the SFM Safety input
DIP 1B-8B	Status of DIP 1-8 switches



Name	Description
NTS	Status of the MR board NTS output
CT Board	
CT SW	Status of the CT switch
ESC HATCH	Status of the CT Escape Hatch input
CAR SAFE	Status of the CT Car Safeties input
CT INSP	Status of the CT Inspection input
GSWF	Status of the Front Gate switch input
GSWR	Status of the Rear Gate switch input
DZF	Status of the Front Door Zone input
DZR	Status of the Rear Door Zone input
DIP 1B-8B	Status of DIP 1-8 switches
COP Board	
HA INSP	Status of the Hoistway Access Inspection input
IC ST	Status of the IC Stop switch input
FSS	Status of the Fire stop switch input
IC INSP	Status of the IC Inspection input
DIP 1B-8B	Status of DIP 1-8 switches

### 34.8 Load Weighing Status

The load weighing status displays the weight and torque of the car. See *C4 Load Weighing Device* document for more information.

### 34.9 E-Power Status

The E-Power status displays if the car is running off emergency power.

The following procedure describes how to view which car is on emergency power. If the command is off, then the car is not running on emergency power.

1. Navigate to MAIN MENU | STATUS | E-POWER STATUS. See Figure 49.
2. From the E-POWER COMMAND menu, view the cars running on emergency power.



Figure 643: E-POWER COMMAND Menu



Figure 644: E-POWER COMMAND Menu Continued

The E-Power Command menu displays the status for each car within the group and the mode of operation.

The following is a list of Car Commands (Status) within the E-POWER COMMAND Menu.

- **Off** – Emergency power is not active.
- **Precall** – Command is issued briefly to check the car’s underlying mode of operation. It should prevent the car from moving. This command is issued to allow the car to report its mode during E-Power OOS operations.
- **Recall** – The car is being commanded to go to its recall floor and remain there with doors open.
- **Auto** – The car is being commanded to run normally, for example, the car is selected to run.
- **OOS** – The car is being commanded to emergency stop if in motion and remain faulted where it is until further commands are issued. This command is issued when a car is awaiting recall or has failed to recall. It is also issued if the up to speed input is missing.
- **Pretransfer** – The car is being commanded to ramp down to the nearest landing if in motion and remain there with doors open until further commands are issued. This is issued when the pretransfer input is active.

The following is a list of Group State (mode) within the E-POWER COMMAND Menu. This section of the menu can be viewed when scrolling down.

- **Off** – The car group is not on emergency power.
- **On** – Group cars are being held out of service, awaiting the signals necessary to begin recall.
- **Recall** – Group cars are being recalled.
- **Run Car** – Group cars are being selected to run.
- **Pretransfer** - Group is in a pretransfer state due to the pretransfer input being active. Typically used to stop cars prior to transferring from generator power back to main line power.

## 34.10 EMS Status

The emergency medical services (EMS) status displays the status of communication on a hall board when a car is set for EMS.

The following procedure describes how to view the EMS status.

1. Navigate to MAIN MENU | STATUS | EMS STATUS. See Figure 50.

- From the EMS STATUS menu, scroll and view the status of the EMS hall calls assigned to the cars. An EMS hall call is assigned to the nearest car configured to take these calls.  
**NOTE:** If a car is not assigned as EMS, the communication status displays NONE.

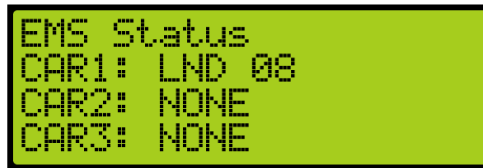


Figure 645: EMS STATUS Menu – Car 1 Assigned



Figure 646: EMS STATUS Menu – No Cars Assigned

### 34.11 Hall Call Status

The Hall Call status displays the direction of the car when a hall call is placed.

The following procedure describes how to view all up or down calls.

- Navigate to MAIN MENU | STATUS | HALL CALL STATUS. See Figure 48.
- From the HALL CALL STATUS menu, scroll and select Up or Down Calls.



Figure 647: HALL CALL STATUS Menu –Up or Down Calls

- From the UP CALLS or DOWN CALLS menu, scroll and view hall calls with the car moving up or down.



Figure 648:UP CALLS Menu



Figure 649: DOWN CALLS Menu

## 34.12 Virtual Inputs

Virtual inputs display the status of inputs virtually instead of the main screens on the MR, CT, or COP boards.

### 34.12.1 Remote Commands

The remote commands are the commands and have parameters that have been sent remotely to the controller. The remote commands display the status of commands that would be sent by remote access.

#### 34.12.1.1 Car Call Security

The car call security displays the Hall security mask set via remote monitoring. Each bit represents a set of four floors. For example, if floors 1 and 4 are set for security access, then the display shows 00000009. If just floor 1 was set for security access, then the displays shows 00000001. If no floors are set for security access, then the display shows 00000000.

The following procedure describes how to view the car call security status for front or rear doors.

1. Navigate to MAIN MENU | STATUS | VIRTUAL INPUTS. See Figure 50.
2. From the REMOTE COMMANDS menu, scroll and select Car Call Security.



Figure 650: REMOTE COMMANDS Menu – Car Call Security

3. From the SECURE CAR CALLS menu, select either the front or rear car calls.



Figure 651: SECURE CAR CALLS Menu – Front or Rear

- From the Secure Car menu, view the status of front or rear car doors that require security access.



Figure 652: Secure Car Front Menu



Figure 653: Secure Car Rear Menu

### 34.12.1.2 Hall Call Security

The hall call security displays the status of the hall call security mask set on the remote monitoring system. Each bit represents a set of four floors. For example, if floors 1 and 4 are set for security access, then the display shows 00000009. If just floor 1 was set for security access, then the displays shows 00000001. If no floors are set for security access, then the display shows 00000000.

The following procedure describes how to view the hall call security status for front or rear doors.

- Navigate to MAIN MENU | STATUS | VIRTUAL INPUTS. See Figure 50.
- From the REMOTE COMMANDS menu, scroll and select Hall Call Security.



Figure 654: REMOTE COMMANDS Menu – Hall Call Security

- From the SECURE HALL CALLS menu, select either the front or rear hall calls.



Figure 655: SECURE HALL CALLS Menu – Front or Rear

- From the Secure (Front or Rear) Hall Call menu, view the status of front or rear car doors that require security access.

```
Secure Front HC
FLR 1-32 :00000011
FLR 33-64:00000000
FLR 65-96:00000000
```

Figure 656: Secure Front Hall Call Menu

```
Secure Rear HC
FLR 1-32 :00000001
FLR 33-65:00000010
FLR 66-96:00000000
```

Figure 657: Secure Rear Hall Call Menu

### 34.12.1.3 Virtual Input

The recall input displays the status of inputs set through the remote monitoring system.

The following procedure describes how to view the status of the auto operation input.

- Navigate to MAIN MENU | STATUS | VIRTUAL INPUTS. See Figure 50.
- From the REMOTE COMMANDS menu, scroll and select Virtual Inputs.

```
REMOTE COMMANDS
  Car Call Security
  Hall Call Security
*Virtual Inputs
```

Figure 658: REMOTE COMMANDS Menu – Virtual Inputs

- From the Virtual Input menu, view the status of auto operation inputs that are active.

```
Virtual Input
[ ] Latch New CC
[ ] E-Power Manual
[ ] E-Power Select 1
```

Figure 659: Virtual Input Menu

### 34.12.1.4 Recall Input

The recall input displays the status of which floor a car is recalled to and whether the front or rear door opens when recalled through the remote monitoring system.

The following procedure describes how to view the status of the recall floor and door that opens during an emergency.

1. Navigate to MAIN MENU | STATUS | VIRTUAL INPUTS. See Figure 50.
2. From the REMOTE COMMANDS menu, scroll and select Recall Input.



Figure 660: REMOTE COMMANDS Menu – Recall Input

3. From the Recall Floor/Door menu, view the floor the car is recalled and which door opens.



Figure 661: Recall Floor/Door Menu

### 34.12.1.5 Door Command Landing

The door command landing displays the status of the doors that have been set to land at a designated floor.

The following procedure describes how to view the status of a door set to land at a designated floor.

1. Navigate to MAIN MENU | STATUS | VIRTUAL INPUTS. See Figure 50.
2. From the REMOTE COMMANDS menu, scroll and select Door Command Landing.



Figure 662: REMOTE COMMANDS Menu – Door Command Landing

- From the Door Command Landing menu, view the designated landing of the car.



Figure 663: Door Command Landing Menu

### 34.13 DIP Status

The DIP status displays the DIP switches on the MR, CT, or COP board that are ON.

The following procedure describes how to view which DIP switches are ON.

- Navigate to MAIN MENU | STATUS | DIP STATUS. See Figure 50.
- From the DIP STATUS menu, select MR, CT, or COP DIP.

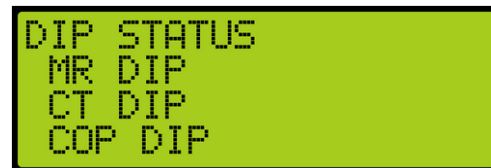


Figure 664: DIP STATUS Menu – MR, CT, or COP DIP

- From the DIP SWITCHES menu, view the DIP switches that are on for the MR, CT, or COP board.



Figure 665: DIP SWITCHES Menu

### 34.14 Door Status

The door status displays the input status of a front or rear door.

The following procedure describes how to view the status of the doors.

- Navigate to MAIN MENU | STATUS | DOOR STATUS (Front or Rear). See Figure 51.
- From the Door Status menu, view the input status of the door.



Figure 666: Door Status Menu



## 35 Group Setup

Group setup are the rules for a set of cars within the group. Each group can consist of the maximum of eight cars.

### 35.1 Group Car Index

The group car index is the car ID in the group.

The following procedure describes how to set the group car index.

1. Navigate to MAIN MENU | SETUP | GROUP SETUP. See Figure 60.
2. From the GROUP SETUP menu, scroll and select Group Car Index.



Figure 667: GROUP SETUP Menu – Group Car Index

3. From the GROUP CAR INDEX menu, enter the car ID.



Figure 668: GROUP CAR INDEX Menu

4. Scroll right and press Save.

### 35.2 Group Landing Offset

The group landing offset sets the number of floors below the car’s lowest served floor that are serviced by other groups. This allows calls between different cars to be aligned so they refer to the same landing and is vital to proper dispatching.

The following procedure describes how to set the group landing offset.

1. Navigate to MAIN MENU | SETUP | GROUP SETUP. See Figure 60.

- From the GROUP SETUP menu, scroll and select Group Landing Offset.



Figure 669: GROUP SETUP Menu – Group Landing Offset

- From the GROUP LANDING OFFSET menu, set the number of floors below a group that are serviced by another group.



Figure 670: GROUP LANDING OFFSET Menu

- Scroll right and press Save.

### 35.3 Dispatch Timeout

The dispatch timeout is a set time a car has to answer a hall call. If time has elapsed, the car is taken out of group and the call is reassigned to another car.

The following procedure describes how to set the dispatch timeout.

- Navigate to MAIN MENU | SETUP | GROUP SETUP. See Figure 60.
- From the GROUP SETUP menu, scroll and select Dispatch Timeout.



Figure 671: GROUP SETUP Menu – Dispatch Timeout

- From the DISPATCHING TIMEOUT menu, set the time the car has to answer a car call prior to another car responding. A setting of 0 disables this feature.



Figure 672: DISPATCHING TIMEOUT Menu

- Scroll right and press Save.

## 35.4 Dispatch Offline Timeout

The dispatch offline timeout sets the time a car is out of the group due to not responding to a hall call.

The following procedure describes how to set the dispatch offline timeout.

1. Navigate to MAIN MENU | SETUP | GROUP SETUP. See Figure 60.
2. From the GROUP SETUP menu, scroll and select Dispatch Offline Timeout.



Figure 673: GROUP SETUP Menu – Dispatch Offline Timeout

3. From the DISPATCHING OFFLINE menu, set the time the car is out of the group. If set to zero, this feature is disabled.



Figure 674: DISPATCHING OFFLINE Menu

4. Scroll right and press Save.

## 36 XREG

Cross registration allows for the C4 controller dispatching system to interface with non-Smartrise controllers.

### 36.1 XReg Cars

Cross registration cars set the number of cars from the legacy system to be included for dispatching.

The following procedure describes how to set XREG cars.

1. Navigate to MAIN MENU | SETUP | GROUP SETUP. See Figure 60.

- From the GROUP SETUP menu, scroll and select XReg Cars.



Figure 675: GROUP SETUP Menu – XREG Cars

- From the NUMBER OF XREG CARS menu, enter the number of cars from the legacy system.



Figure 676: NUMBER OF XREG CARS Menu

- Scroll right and press Save.

## 36.2 XReg Dest Timeout

If a car has been assigned a cross registration destination and does not answer within in a period of time, the car is taken out of the group until the cross-registration timeout has elapsed.

The following procedure describes the how to set the cross-registration timeout.

- Navigate to MAIN MENU | SETUP | GROUP SETUP. See Figure 60.
- From the GROUP SETUP menu, scroll and select XReg Destination Timeout.



Figure 677: GROUP SETUP Menu – XReg Destination Timeout

- From the XREG DESTINATION TIMEOUT menu, set the time for a cross registration car to answer a car call prior to another car responding. If set to zero, this feature is disabled.



Figure 678: XREG DESTINATION TIMEOUT Menu

- Scroll right and press Save.

### 36.3 XReg Dest Offline Timeout

The cross registration offline timeout is the time a car is out of the group due to not answering hall calls.

The following procedure describes cross registration destination offline timeout.

- Navigate to MAIN MENU | SETUP | GROUP SETUP. See Figure 60.
- From the GROUP SETUP menu, scroll and select XReg Destination Offline Timeout.



Figure 679: GROUP SETUP Menu – XReg Destination Offline Timeout

- From the XREG DESTINATION OFFLINE TIMEOUT menu, set the time a cross registration car is out of the group. If set to zero, this feature is disabled.



Figure 680: XREG DESTINATION OFFLINE TIMEOUT Menu

- Scroll right and press Save.

### 36.4 XReg Destination

The destination for each car call and hall call within the group is monitored in the system. The display shows the type of call and whether it's for a front or rear opening. If a hall call is placed, then the mask will reflect the mask for the hall call being answered. To view the destination of each individual car within the group, press the up or down button.

The following procedure describes how to view the car call destination.

1. Navigate to MAIN MENU | DEBUG | XREG DESTINATION. See Figure 68.
2. From the DESTINATION menu, view the destination of the car within the group.

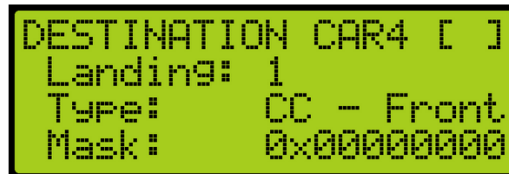


Figure 681: DESTINATION Menu

## 36.5 XReg Data

Cross registration data displays additional information about the status of each Alien Car.

The following procedure describes how to view the status of the car.

1. Navigate to MAIN MENU | DEBUG | XREG DATA. See Figure 68.
2. From the Car Data Overview Status (see Figure 352), press the right button.
3. From the Hall Mask Status (see Figure 353), press the right button.
4. From the Front Opening Map Status (see Figure 354), view the status and press the right button.
5. From the Rear Opening Map Status (see Figure 355), view the status and press the right button.
6. From the Emergency Power Status, view the status and press the right button.



Figure 682: Emergency Power Status Menu

7. From the Fire Emergency Power Status, view the status.



Figure 683: Fire Emergency Power Status Menu

## 37 PI Labels

The position indicator (PI) label allows the user to label any landing with a 2-digit alpha-numeric identifier. To allow for 3-digit alpha-numeric identifiers, see section 29.14 En. 3 Digit PI.

The following procedure describes how to set the position indicator labels.

1. Navigate to MAIN MENU | SETUP | PI LABELS. See Figure 59.
2. From the SET PI LABEL menu, scroll and select the floor indicator label.



Figure 684: SET PI LABEL Menu

3. Scroll right and press Save.

## 38 Attendant

Attendant operation is an automatic mode of operation in which an attendant manually operates the car. The attendant has an up and down lamp in the car indicating if there are hall calls latched above or below the car's current floor. The attendant uses these lamps, and as well as UP and DOWN direction buttons, which control the next direction of the car, to pick up passengers and drop them off at their desired location. When stopped at a landing, the car doors will manually open at a floor and must be manually closed by the attendant via the door close button.

### 38.1 Dispatch Timeout

Each car is set to answer hall call for a set time. If a car in the group does not answer a hall call, the call is reassigned to another car.

The following procedure describes how to set the dispatch timeout.

1. Navigate to MAIN MENU | SETUP | ATTENDANT. See Figure 60.
2. From the ATTENDANT menu, scroll and select Dispatch Timeout.



Figure 685: ATTENDANT Menu – Dispatch Timeout

3. From the DISPATCH TIMEOUT menu, set the time for another car to take over the hall call.



Figure 686: DISPATCH TIMEOUT Menu

4. Scroll right and press Save.

## 38.2 Buzzer Time

A buzzer may sound for a period of time after a hall call is placed.

The following procedure describes how to set the time a buzzer rings after a hall call is placed.

1. Navigate to MAIN MENU | SETUP | ATTENDANT. See Figure 60.
2. From the ATTENDANT menu, scroll and select Buzzer Time.



Figure 687: ATTENDANT Menu – Buzzer Time

3. From the BUZZER TIME menu, set the time the buzzer rings after a hall call has been requested.



Figure 688: BUZZER TIME Menu

4. Scroll right and press Save.



## 39 Real-Time Clock

The real-time clock keeps track of the current time and date. Only the MASTER car has the option to change the Real-Time Clock. All other cars will say go to master to set time.

The following procedure describes how to set real-time.

1. Navigate to MAIN MENU | SETUP | REAL-TIME CLOCK. See Figure 59.
2. From the Real-Time Clock menu, set the date and time.

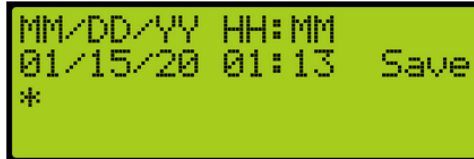


Figure 689: Real-Time Clock Menu

3. Scroll right and press Save.

### 39.1 Clock Status

The clock status displays real-time and date.

The following procedure describes how to view the real-time and date.

1. Navigate to MAIN MENU | STATUS | CLOCK. See Figure 48.
2. From the Clock menu, view real-time and date.

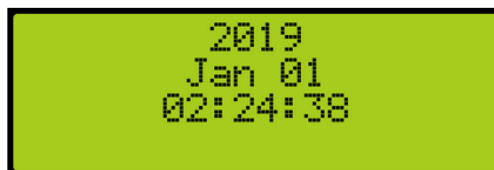


Figure 690: Clock Menu

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## 40 Debug

The Debug menu allows for viewing various statuses.

### 40.1 View Debug

The View Debug Data menu can be used to view important debugging information passed from the main system processors MR, CT and COP boards and can be navigated to view from each board's UI.

The View Debug Data menu (see Figure 691) displays the number of bus errors detected since startup. It also displays a rough estimate of the percentage of bus throughput currently in use. This data can be used to diagnose communication issues caused by transmission problems and excessive bus traffic.

The following procedure describes how to view the debug data.

1. Navigate to MAIN MENU | DEBUG | VIEW DEBUG DATA. See Figure 65.
2. From the View Debug Data menu, scroll and select the Debug Data of the system to be viewed.

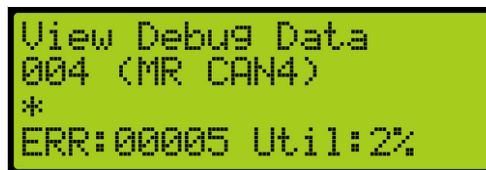


Figure 691: View Debug Data Menu

The table below lists the data index for MR, CT, and COP board communication.

Table 59: Data Index for MR, CT, and COP Board Communication

Data Index	Name	Description
1	MR CAN 1	MR board CAN1, Car Network (CN1+/-).
2	MR CAN 2	MR board CAN2, Brake Network (BN+/-).
3	MR CAN 3	MR board CAN3, Aux Network (AN+/-).
4	MR CAN 4	MR board CAN 4, Group Network (GN+/-).
5	MR A NET	MR board A processor RS232 Network. Shows errors in packets received by the A processor, sent by the B processor.
6	MR B NET	MR board B processor RS232 Network. Shows errors in packets received by the B processor, sent by the A processor.
7	MR RS485	MR board RS485 Drive network (RX+/-).
8	CT CAN 1	CT board CAN1, Car Network (CN1+/-).
9	CT CAN 2	CT board CAN2, CEDES camera channel 2.
10	CT CAN 3	CT board CAN3, Aux Network (C3H/L).

Data Index	Name	Description
11	CT CAN 4	CT board CAN4, CEDES camera channel 1.
12	CT A NET	CT board A processor RS232 Network. Shows errors in packets received by the A processor, sent by the B processor.
13	CT B NET	CT board B processor RS232 Network. Shows errors in packets received by the B processor, sent by the A processor.
14	CT RS485	CT board RS485 network.
15	COP CAN 1	COP board CAN1, Car Network (CN1+/-).
16	COP CAN 2	COP board CAN2, CEDES camera #2 channel 2.
17	COP CAN 3	COP board CAN3, Aux Network (C3H/L).
18	COP CAN 4	COP board CAN4, CEDES camera #2 channel 1.
19	COP A NET	COP board A processor RS232 Network. Shows errors in packets received by the A processor, sent by the B processor.
20	COP B NET	COP board B processor RS232 Network. Shows errors in packets received by the B processor, sent by the A processor.
21	COP RS485	COP board RS485 Network.
22	Run Signal	Displays car run signals as a string of binary digits. From right to left, functions are mapped to this list, from top to bottom: <ul style="list-style-type: none"> <li>• Destination Chosen, Run Requested</li> <li>• Car Doors Closed</li> <li>• Hall Locks Closed</li> <li>• Motion Run Flag ON</li> <li>• DSD Drive HW Enable</li> <li>• Pick M Contactor</li> <li>• M Contactor Feedback</li> <li>• Drive Energize Commanded</li> <li>• Pick B Contactor</li> <li>• Serial Speed Reg Rls</li> <li>• Brake Pick Command</li> <li>• BPS (Software)</li> <li>• E-Brake Pick Command</li> <li>• E-BPS (Software)</li> <li>• Command Speed Nonzero</li> <li>• Camera Speed Nonzero</li> </ul>
23	Last Stop Pos	Displays the position the car stopped at last run. Only records for normal run stops at the start of the brake drop stop sequence state.
24	MRA Vers.	Displays the third segment of the processor A software version number on the MR board up to 4 characters.

Data Index	Name	Description
25	MRB Vers.	Displays the third segment of the processor B software version number on the MR board up to 4 characters.
26	CTA Vers.	Displays the third segment of the processor A software version number on the CT board up to 4 characters.
27	CTB Vers.	Displays the third segment of the processor B software version number on the CT board up to 4 characters.
28	COPA Vers.	Displays the third segment of the processor A software version number on the COP board. Up to 4 characters.
29	COPB Vers.	Displays the third segment of the processor B software version number on the COP board. Up to 4 characters.
30	Dir. Change Count	Displays the number of times the car has changed direction of movement since controller startup. To reset this count, trigger a FRAM default via SETUP   MISCELLANEOUS   DEFAULT   DEFAULT FRAM, turn to ON. See 29.17.6 Default FRAM.
31	RIS1 CAN1	Displays the error count seen on Riser 1's CAN1 network.
32	RIS2 CAN1	Displays the error count seen on Riser 2's CAN1 network.
33	RIS3 CAN1	Displays the error count seen on Riser 3's CAN1 network.
34	RIS4 CAN1	Displays the error count seen on Riser 4's CAN1 network.
35	RIS1 CAN2	Displays the error count seen on Riser 1's CAN2 network.
36	RIS2 CAN2	Displays the error count seen on Riser 2's CAN2 network.
37	RIS3 CAN2	Displays the error count seen on Riser 3's CAN2 network.
38	RIS4 CAN2	Displays the error count seen on Riser 4's CAN2 network.
39	DEST CURRENT	Displays information on the current and next destination in the currently serviced direction as seen by MRA.
40	DEST NEXT	Displays information on the next proposed destination in the direction opposite the currently serviced direction as seen by MRA.
41	IDLE TIME	Displays the different idle timers used by the system.
42	DRV SPD	Displays the drive's reported speed (DRV), the commanded speed (CMD), and the camera speed (SPD).
43	DOOR DATA F	Displays front door state machine and timer data.
44	DOOR DATA R	Displays rear door state machine and timer data.
45	N/A	Reserved for viewing data via the STATUS   CPLD STATUS screen.
46	N/A	Reserved for viewing data via the STATUS   CPLD STATUS screen.
47	N/A	Reserved for viewing data via the STATUS   CPLD STATUS screen.

## 40.2 Enter Car Calls

Enter Car Calls allows the user to enter a car call from the MR, CT, or COP board. The front door or rear door opens, if available, to the selected door and floor. Entering car calls from here will bypass all forms of security.

**NOTE:** The rear car calls display when there are latched rear doors.

The following procedure describes how to set up a car call.

1. Navigate to MAIN MENU | DEBUG | ENTER CAR CALLS. See Figure 63.
2. From the ENTER CAR CALLS menu, scroll and select Front or Rear.



Figure 692: ENTER CAR CALLS Menu – Front or Rear

3. From THE ENTER CAR CALL menu, scroll to view the latched car calls.

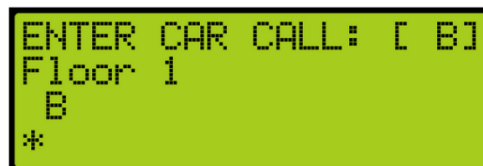


Figure 693: ENTER CAR CALL Menu

## 40.3 Enter Hall Calls

Enter Hall Call allows the user to enter Hall Calls to the group from the MR board.

The following procedure describes how to enter hall calls.

1. Navigate to MAIN MENU | DEBUG | ENTER HALL CALLS. See Figure 63.
2. From the HALL CALL menu, enter hall call.



Figure 694: Hall Call Menu

The Hall Call Mask menu allows:

- **Landing** – The user to select the landing (this is not based on PI Labels, but landing-based as in 1 is the first floor, 2 is the second floor, etc.

- **Dir** – The controller to know which direction the request is made for (DN for Down, UP for Up).
- **Mask Value** – The mask of the function the user wants. For example, by default all jobs use a mask value of 1 for front hall calls. The user will change the mask value to 1 to initiate a front hall call. When these three are set (Land, Dir, Mask), the user must press the middle/enter button to send the information.
- **Latched** – Shows what mask value has been accepted into the dispatching.

## 40.4 Enter Door Command

The Enter Door Command allows the user to assert a Door Open, Door Close, or Nudge commands from any of the MR, CT, or COP boards if the car is idle, unfaulted, and safe.

1. Navigate to MAIN MENU | DEBUG | ENTER DOOR COMMAND. See Figure 63.
2. From the Enter Door Command menu, the user can assert a command to either close, open, or nudge a door.

**NOTE:** The display shows an option for front and rear doors when configured for rear doors. If there are only front doors, then the display does not show an option for the type of door.



Figure 695: Enter Door Command Menu (Front and Rear Doors)



Figure 696: Enter Door Command Menu (Front Doors Only)

## 40.5 View Network Packet

The view network packet allows the user to view the raw data and receive counts of packets sent between the MR, CT, and COP boards.

The following procedure describes how to view the network packet.

1. Navigate to MAIN MENU | DEBUG | VIEW NETWORK PACKET. See Figure 64.

2. View the Network Packet.

```

(LSB) 07 05 00 00
      85 85 93 D8
PACKET 100
      *   RX: 00051

```

Figure 697: Network Packet

## 40.6 View Group Packet

The view group packet page allows the user to view the raw data and receive counts of packets sent between group cars via the GN ± network.

The following procedure describes how to view group packets.

1. Navigate to MAIN MENU | DEBUG | VIEW GROUP PACKET. See Figure 64.
2. View the Group Packet.

```

(LSB) 00 00 00 00
      00 00 00 00
PACKET 000
      *   RX: 00000

```

Figure 698: Group Packet

## 40.7 Acceptance Test

The acceptance test allows for verification testing. See *C4 Testing Procedure* for more information.

The following procedure describes how to view the selected acceptance test.

1. Navigate to MAIN MENU | DEBUG | ACCEPTANCE TEST. See Figure 65.
2. View the SELECT ACCEPTANCE TEST menu.

```

Select Acceptance Te
Idle
Inactive
*
```

Figure 699: SELECT ACCEPTANCE TEST Menu



## 40.8 Emergency Bitmap

The emergency bitmap displays the type of emergency.

The following procedure describes how to view emergencies.

1. Navigate to MAIN MENU | DEBUG | EmergencyBitmap. See Figure 65.
2. From the EMERGENCY STATUS menu, view the type of emergency that has an X by the name.



Figure 700: EMERGENCY STATUS Menu

## 40.9 Module Statuses

The module status displays the current status of various functions.

### 40.9.1 Motion Status

The motion status displays the current motion of the car, the start and stop condition, and the type of profile. See section 9 S-Curve.

The following procedure describes how to view the status of the motion for the car.

1. Navigate to MAIN MENU | DEBUG | Module Statuses. See Figure 66.
2. From the MODULE STATUS menu, scroll and select Motion Status.



Figure 701: MODULE STATUS Menu – Motion Status

3. From the Motion Status menu, scroll and view the Motion Status information.



Figure 702: Motion Status Menu

```

State:  Stopped
Start:  PrepareToRun
Stop:   Ramp To Zero
Pattern: Very Short

```

Figure 703: Motion Status Menu Continued

## 40.9.2 Pattern Data

The pattern data is the information used to determine traffic.

The following procedure describes how to view the pattern data for the car.

1. Navigate to MAIN MENU | DEBUG | Module Statuses. See Figure 66.
2. From the MODULE STATUS menu, scroll and select Pattern Data.

```

MODULE STATUS
Motion Status
*Pattern Data
Auto Status

```

Figure 704: Module Status Menu – Pattern Data

3. From the PATTERN DATA menu, view the Pattern Data.

```

PATTERN DATA
RampUP: 0
Slowdown: 0
A. Dest: 0

```

Figure 705: PATTERN DATA Menu Part 1 of 2

```

RampUP: 0
Slowdown: 0
A. Dest: 0
R. Dest: 0

```

Figure 706: PATTERN DATA Menu Part 2 of 2

## 40.9.3 Auto Status

The auto status displays the status of automatic operation.

The following procedure describes how to view the automatic status.

1. Navigate to MAIN MENU | DEBUG | Module Statuses. See Figure 66.

- From the MODULE STATUS menu, scroll and select Auto Status.



Figure 707: MODULE STATUS Menu – Auto Status

- From the Auto Operation Status menu, view the state of operation.



Figure 708: Auto Operation Status Menu

#### 40.9.4 Recall Status

The recall status displays the current state of the car. If car is recalled to a specific landing, the state changes to:

- **Unknown** – The car is not attempting to recall.
- **Moving** – The car is attempting to recall and is in motion or trying to move.
- **Stopped** – The car is attempting to recall but is currently stopped at a non-recall floor.
- **Recall Finished** – The car is stopped at the requested recall floor and its doors are in a requested state.

The following procedure describes how to view the recall status.

- Navigate to MAIN MENU | DEBUG | Module Statuses. See Figure 66.
- From the MODULE STATUS menu, scroll and select Recall Status.



Figure 709: MODULE STATUS Menu – Recall Status

- From the Recall Status menu, view the state of the recall status.



Figure 710: Recall Status Menu

## 40.9.5 Fire Status

The Fire Status displays if Fire Phase 1 and 2 are active.

The following procedure describes how to view the fire status.

1. Navigate to MAIN MENU | DEBUG | MODULE STATUS. See Figure 66.
2. From the MODULE STATUS menu, scroll and select Fire Status.



```
MODULE STATUS
Recall Status
*Fire Status
Counterweight Statu
```

Figure 711: MODULE STATUS Menu – Fire Status

3. From the Fire Status menu, view if the fire operation is active.



```
Fire Status
Active: Fire I
FireII: Off
```

Figure 712: Fire Status Menu

## 40.9.6 Counterweight Status

The counterweight status displays the status of the counterweight derailment. The state of the counterweight is unknown unless the mode of operation is CW Derail where the state changes to GoingToNearestDestination. Upon arriving at the destination and with the doors open, the state shows no state.

The following procedure describes how to view the counterweight status.

1. Navigate to MAIN MENU | DEBUG | Module Statuses. See Figure 66.
2. From the Module Status menu, scroll and select Counterweight Status.



```
MODULE STATUS
Recall Status
Fire Status
*Counterweight Statu
```

Figure 713: MODULE STATUS Menu – Counterweight Status

- From the Counterweight Status menu, view the status of the counterweight.



Figure 714: Counterweight Status Menu

### 40.9.7 Floor Learn Status

The floor learning status displays if the state of the car is learning or not.

The following procedure describes how to view if a car is learning.

- Navigate to MAIN MENU | DEBUG | MODULE STATUSES. See Figure 66.
- From the MODULE STATUS menu, scroll and select Floor Learn Status.



Figure 715: MODULE STATUS Menu – Floor Learn Status

- From the Floor Learn Status menu, view if the status of the car is learning or not.

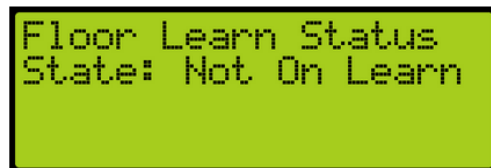


Figure 716: Floor Learn Status Menu

### 40.10 Car Destination

The car destination displays the status of a car in the group.

The following procedure describes how to view the car destination status.

- Navigate to MAIN MENU | DEBUG | CAR DESTINATIONS. See Figure 67.

- From the DESTINATION menu, view the car destination information.



Figure 717: DESTINATION Menu

The Destination menu displays the following:

- **Landing** – The landing number of the car’s current destination. The bottom landing appears as 1.
- **Type** – The destination assignment’s call type.
  - CC – F: Car call at front opening.
  - CC – R: Car call at rear opening.
  - CC – B: Car call at both front and rear openings.
  - DIR UP – F: Hall call up or consecutive calls above at front opening.
  - DIR UP – R: Hall call up or consecutive calls above at rear opening.
  - DIR UP – B: Hall call up or consecutive calls above at both openings.
  - DIR DN – F: Hall call down or consecutive calls below at front opening.
  - DIR DN – R: Hall call down or consecutive calls below at rear opening.
  - DIR DN – B: Hall call down or consecutive calls below at both openings.
- **Mask** – The hall call mask for the car’s current destination assignment based on the car’s current hall destination mask front (HMF)/rear (HMR) fields. The hall call mask of the calls are cleared when the car arrives at the destination floor. See section 19.4 Errors.

## 40.11 Run Counter

The run counter displays the total number of runs.

The following procedure describe how to view the run counter.

- Navigate to MAIN MENU | DEBUG | RUN COUNTER. See Figure 67.
- From the RUN COUNTER menu, view the number of runs the car has completed.



Figure 718: RUN COUNTER Menu

## 40.12 DebugRuns

The debugruns is where a random car and hall calls can be placed into the system.

### 40.12.1 Dwell Time

The dwell time is the time between debug test runs.

The following procedure describes how to set the dwell time.

1. Navigate to MAIN MENU | DEBUG | DEBUGRUNS. See Figure 67.
2. From the DEBUGRUNS menu, scroll and select Dwell Time.



Figure 719: DEBUGRUNS Menu – Dwell Time

3. From the TEST RUN DWELL TIME menu, set the time between test runs.



Figure 720: TEST RUN DWELL TIME Menu

4. Scroll right and press Save.

### 40.12.2 Terminal to Terminal

The terminal to terminal allows for the car to run from the bottom to top terminal landing.

The following procedure describes how to set the car to run terminal to terminal.

1. Navigate to MAIN MENU | DEBUG | DEBUGRUNS. See Figure 67.
2. From the DEBUGRUNS menu, scroll and select Terminal to Terminal.

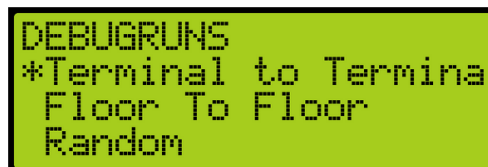


Figure 721: DEBUGRUNS Menu – Terminal to Terminal

- From the TERMINAL TO TERMINAL menu, scroll and select if the front or rear doors open while running terminal to terminal.



Figure 722: TERMINAL TO TERMINAL Menu – Front or Rear

- From the TERMINAL TO TERMINAL (FRONT or REAR) menu, scroll and select if enabling the car to stop at the other terminal with the doors that only open from the front or rear.



Figure 723: TERMINAL TO TERMINAL Menu

- Scroll right and press Save.

### 40.12.3 Floor to Floor

The floor to floor allows the car to stop at each floor that have doors that open from the front or doors that open from the rear.

The following procedure describes how to set the car to stop at each floor.

- Navigate to MAIN MENU | DEBUG | DEBUGRUNS. See Figure 67.
- From the DEBUGRUNS menu, scroll and select Floor To Floor.

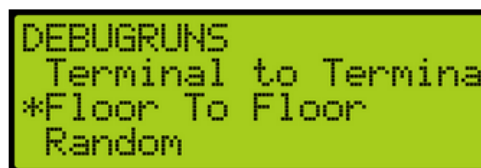


Figure 724: DEBUGRUNS Menu – Floor To Floor

- From the FLOOR TO FLOOR menu, scroll and select if checking front or rear doors.



Figure 725: FLOOR TO FLOOR Menu – Front or Rear



- From the FLOOR TO FLOOR (FRONT or REAR) menu, scroll and select if enabling the car to stop at each floor with the doors that only open from the front or rear.



Figure 726: FLOOR TO FLOOR Front Menu



Figure 727: FLOOR TO FLOOR REAR Menu

#### 40.12.4 Random

Random calls are calls that are selected randomly. The random runs allow for the car to land at various floors in an arbitrary pattern.

The following procedure describes how to set the car to stop randomly at different landings.

- Navigate to MAIN MENU | DEBUG | DEBUGRUNS. See Figure 67.
- From the DEBUGRUNS menu, scroll and select Random.

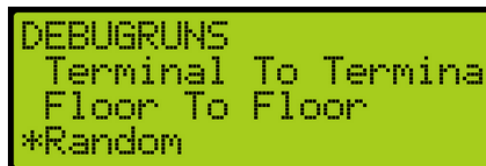


Figure 728: DEBUGRUNS Menu – Random

- From the RANDOM menu, scroll and select if checking front or rear doors during a random run.



Figure 729: RANDOM Menu – Front or Rear

- From the RANDOM RUNS (FRONT or REAR) menu, scroll and select if enabling the car to stop at random floors with the doors that only open from the front or rear.



Figure 730: RANDOM RUNS FRONT Menu



Figure 731 RANDOM RUNS REAR Menu

- Scroll right and press Save.

#### 40.12.5 Hall Random Runs

Hall random runs allow random hall calls to be initiated. The mask set in this menu is used to generate hall calls to simulate hall board requests. See section 18.7 Hall Call Mask.

The following procedure describes how to set the car to stop on a floor by the randomly selected hall call.

- Navigate to MAIN MENU | DEBUG | DEBUGRUNS. See Figure 67.
- From the DEBUGRUNS menu, scroll and select Hall Random Runs.



Figure 732: DEBUGRUNS Menu – Hall Random Runs

- From the HALL RANDOM RUNS menu, scroll and if hall calls are made randomly.



Figure 733: HALL RANDOM RUNS Menu

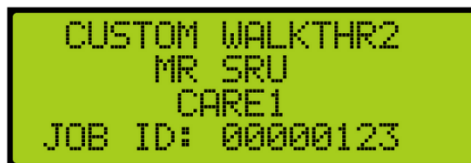
## 41 About

The About menu displays the following:

- Job Name
- Board Type
- Car Label
- Job Id
- Group Number
- Software Version

The following procedure describes how to view the job information.

1. Navigate to MAIN MENU | ABOUT. See Figure 44.
2. View the JOB ID information.



*Figure 734: JOB ID*

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## 42 Faults

The Faults menu shows the faults reported by the software and hardware.

### 42.1 Active Faults

When a fault occurs, the description of the type of fault is displayed in Active Faults. Active faults can stop the car from running.

The following procedure describes how to view the list of active faults.

1. Navigate to MAIN MENU | FAULTS | ACTIVE. See Figure 52.
2. From the ACTIVE FAULTS menu, view the list of faults that are preventing operation.



Figure 735: Active Faults Menu

3. From the Active Faults menu, scroll and press the right button for more description of the fault. See *C4 Faults and Alarms* for more information.

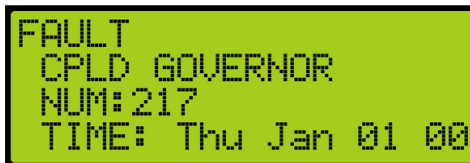


Figure 736: Fault Part 1 of 3



Figure 737: Fault Part 2 of 3

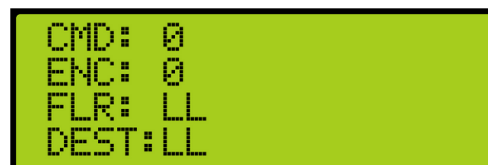


Figure 738: Fault Part 3 of 3

## 42.2 Logged Faults

All faults that have occurred are logged. The Logged Faults displays a history of the last 32 faults.

The following procedure describes how to view the list of logged faults.

1. Navigate to MAIN MENU | FAULTS | LOGGED. See Figure 52.
2. From the FAULT LOG menu, view the list of faults of faults that have occurred.



Figure 739: FAULT LOG Menu

## 42.3 Cleared Faults

Cleared faults deletes the history of recorded faults.

The following procedure describes how to clear the log.

1. Navigate to MAIN MENU | FAULTS | CLEAR LOG. See Figure 52.
2. From the CLEAR FAULT LOG? menu, press the right button and select Yes.



Figure 740: CLEAR FAULT LOG? Menu

The table below lists the faults reported by software or hardware.

Table 60: Faults Reported by Software or Hardware

Option	Description
CPLD	Depicts faults generated by hardware system.
MRA	Depicts faults generated on processor A of the MR board.
MRB	Depicts faults generated on processor B of the MR board.
CTA	Depicts faults generated on processor A of the CT board.
CTB	Depicts faults generated on processor B of the CT board.
COPA	Depicts faults generated on processor A of the COP board.

Option	Description
COPB	Depicts faults generated on processor B of the COP board.

## 43 Alarms

The Alarms menu shows the alarms reported by the hardware.

### 43.1 Active Alarms

When an alarm occurs, the description of the type of alarm is displayed in Active Alarms.

The following procedure describes how to view the list of active faults.

1. Navigate to MAIN MENU | ALARMS | ACTIVE. See Figure 53.
2. From the Active Alarms menu, view the list of faults that are preventing operation.



Figure 741: Active Alarms Menu

3. From the Active Alarms menu, scroll and press the right button for more description of the alarm. See *C4 Faults and Alarms* for more information.

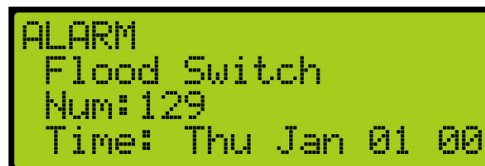


Figure 742: Alarm Part 1 of 2

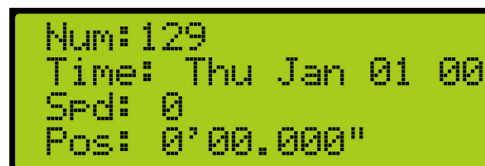


Figure 743: Alarm Part 2 of 2

## 43.2 Logged Alarms

All alarms that have occurred are logged. The Logged Alarms displays a history of the last 32 alarms.

The following procedure describes how to view the list of logged alarms.

1. Navigate to MAIN MENU | ALARMS | LOGGED. See Figure 53.
2. From the ALARM LOG menu, view the list of faults of faults that have occurred.

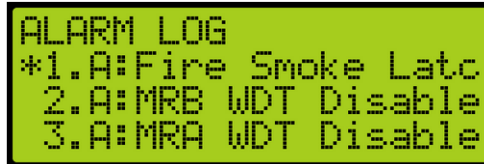


Figure 744: ALARM LOG Menu

## 43.3 Cleared Alarms

Cleared alarms deletes the history of recorded alarms.

The following procedure describes how to clear the alarm log.

1. Navigate to MAIN MENU | ALARMS | CLEAR LOG. See Figure 53.
2. From the CLEAR ALARM LOG? menu, press the right button and select Yes.



Figure 745: CLEAR ALARM LOG? Menu