HYDRO : EVOLVED

USER MANUAL

VERSION 1 . 3

SMARTRISE

Document History

Date	Version	Summary of Changes
September 9, 2021	1.0	Initial Release
October 20, 2021	1.1	Add 24 Input Board
Jul 21, 2022	1.2	Update Adaptive Slowdown™ system (U.S. Patent Pending)
October 2022	1.2a	Update Hydro Slowdown

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Table of Contents

List of Figures

List of Tables

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1 Hydro:Evolved Controller

The Hydro:Evolved controller is used on buildings that have up to ten landings and runs at 200 fpm.

1.1 Overview

The Hydro:Evolved Controller is built to learn and adapt.

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

- Hydro:Evolved User Manual – A detailed description of the Hydro:Evolved Controller including step by step procedures on how to configure the system.
- Hydro:Evolved Faults and Alarms – A list of faults codes, alarm codes, and resolutions.
- Hydro:Evolved Testing Procedures – Step by step procedure on how to test the Hydro:Evolved Controller.
- Hydro:Evolved Soft Starter Startup – Describes how to setup various soft starters that may be used within the Hydro:Evolved Controller. The following is a list of soft starters that can be used on the controller:
    - Siemens
    - Sprecher + Schuh
- Hydro:Evolved GUI Manual – An in-depth description of how to use the Graphical User Interface to configure the controller.
- Hydro:Evolved Parameter List – A detailed list of values that define the set conditions for the controller. The parameters are job configurable.
- Quickstart Smart Battery Lowering Device – Describes functionality, wiring, and maintenance.

1.2 Controller Components

The controller consists of the following:

Hydro:Evolved Controller – Performs serial data exchange between the machine room, the top of the car, and the car panel.

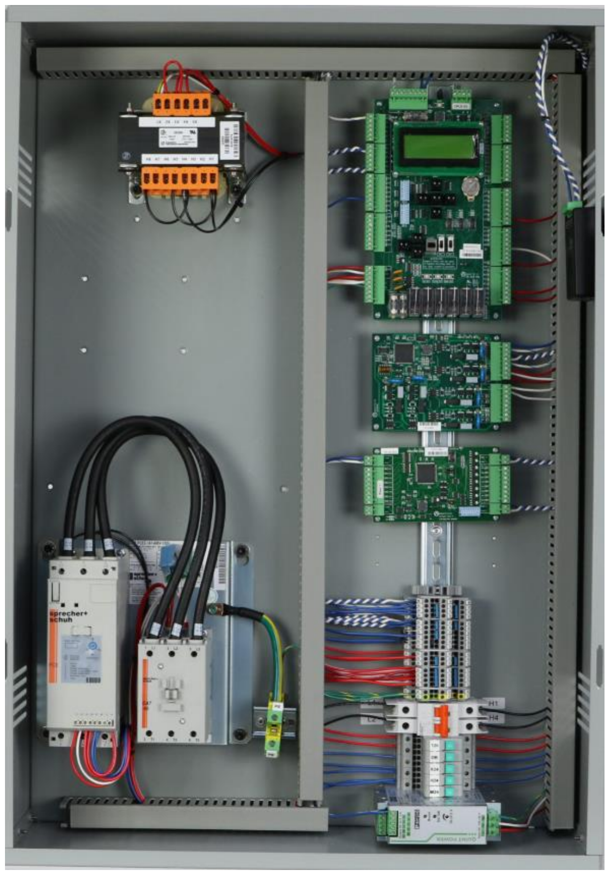

Figure 1: Hydro:Evolved Controller

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

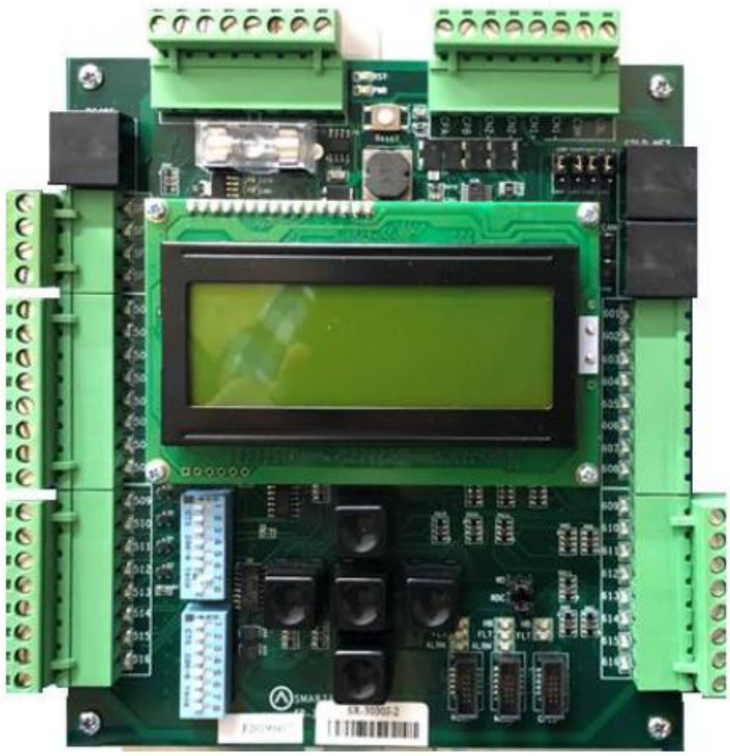

Figure 2: Car Operating Panel Controller

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.

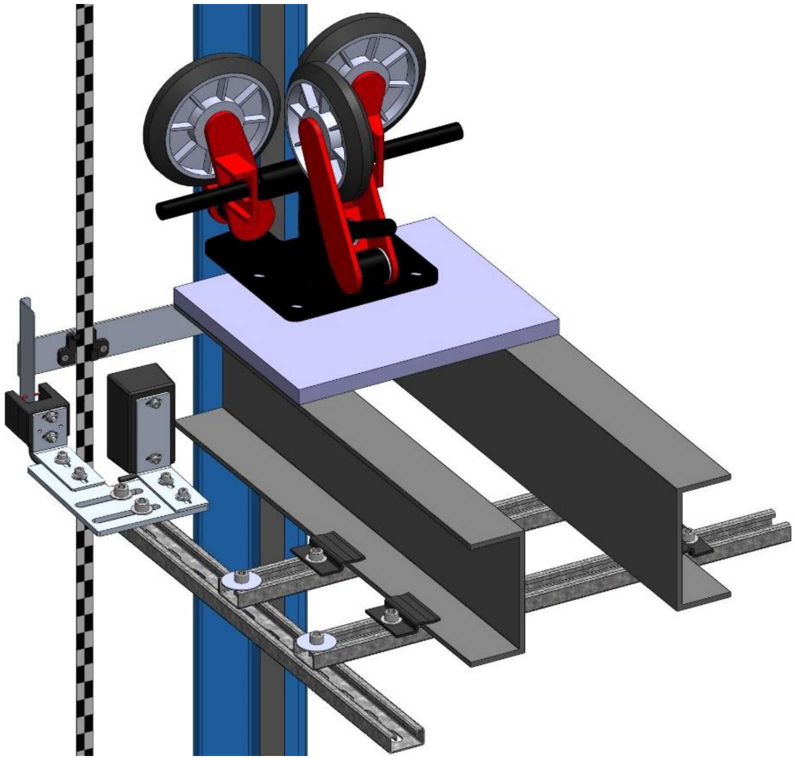

Figure 4: SmartPositioning Landing System (Left)

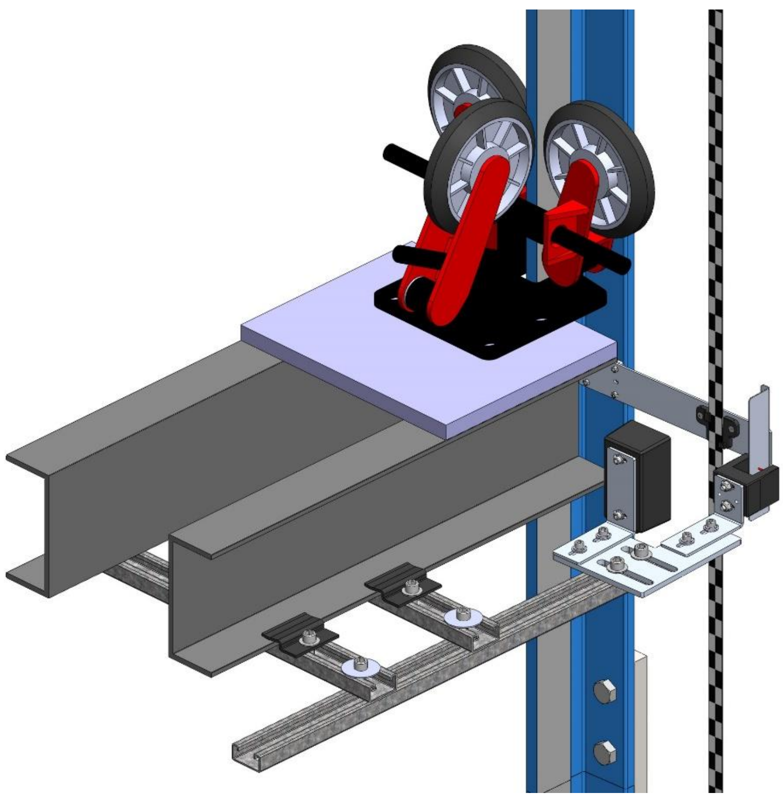

Figure 5: SmartPositioning Landing System (Right)

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, governor (if applicable), 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 electrical noise to earth 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 CT/COP board - SR3030
- I/O board (Riser board) - SR 3031
- Hall board - SR1060
- Valve board - SR3045

2.1 MR Board SR3032

The MR board is the main interface in the controller.

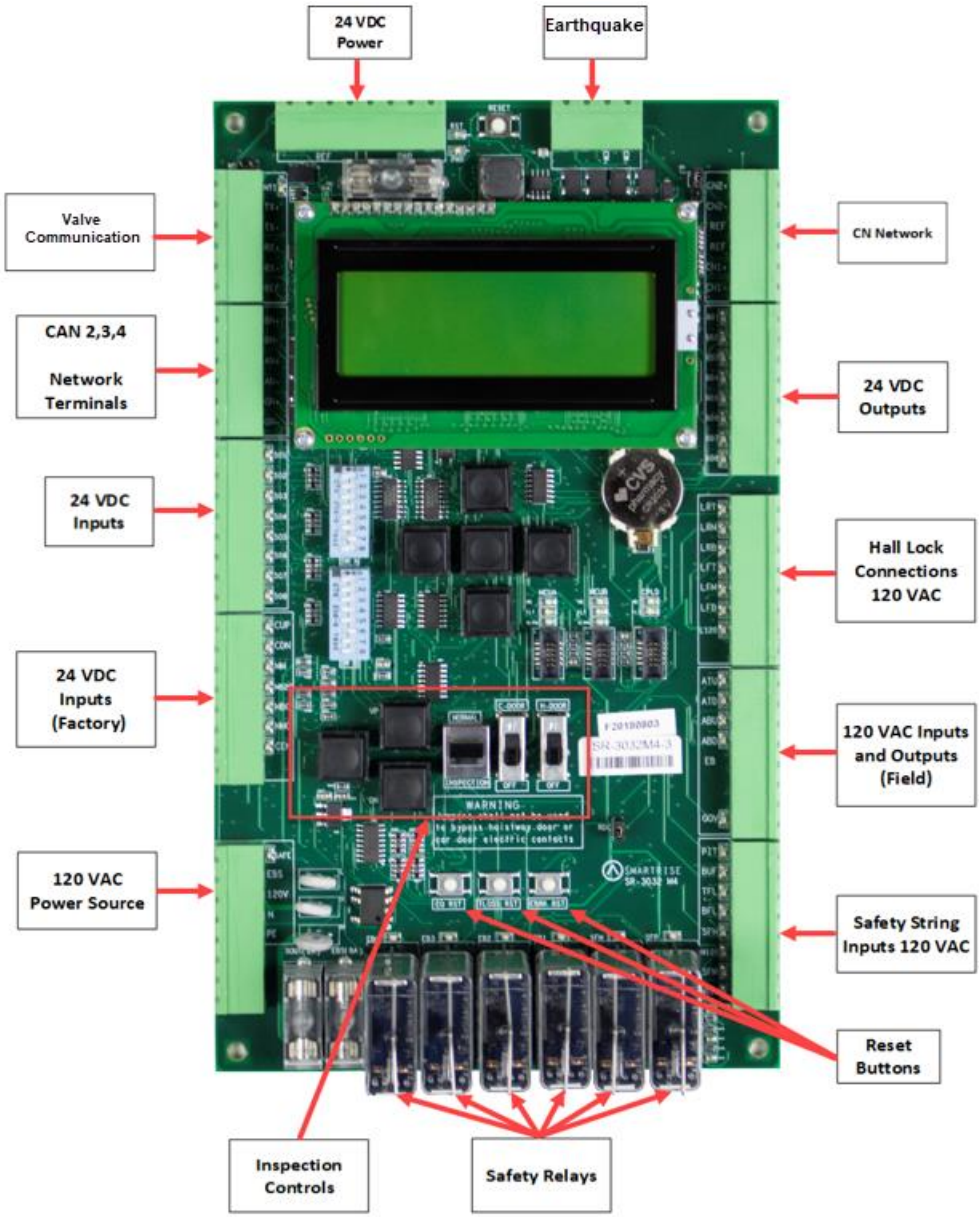

Figure 7: MR Board SR3032

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 parameter 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 fire 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	Must be set to ON. The NTS output is always an 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.

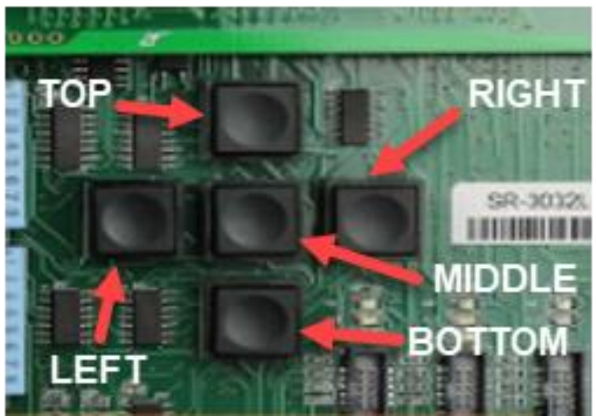

Figure 8: Navigation Buttons

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	Progresses to additional menus if applicable
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.

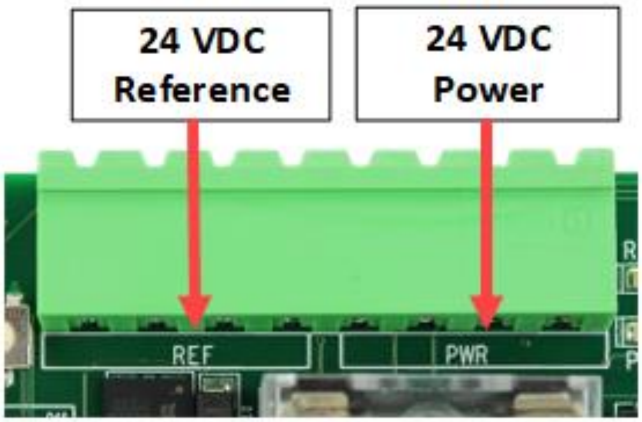

Figure 10: 24 VDC Connector

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

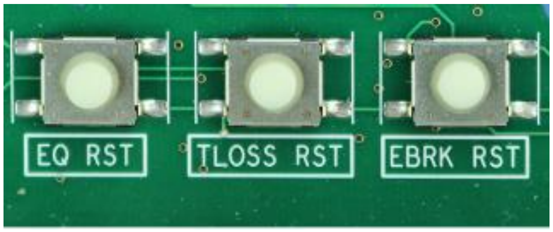

Figure 11: Reset Switches

2.1.4 NTS

The NTS connector triggers the Normal Terminal Stop (NTS) operation.

Figure 12: NTS Connector

NTS Terminal – NTS output from MR board to Valve board to control the operation of the high UH/DH valves. If NTS is active, the valves are cutoff and the car goes from high speed to leveling speed.

See *Hydro:Evolved Controller* sheet *5 MR Board* 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

Valve Network (BN) Terminals – Communication between the MR board and the Valve 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 – SAFE output from MR board to Valve board to activate the UH/DH valves.

See *Hydro:Evolved Controller* sheet *5 MR Board* for wiring information.

EBS Terminal – Input neutral voltage from main line.

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 *Hydro:Evolved Controller* sheet *5 MR Board* 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 *Hydro:Evolved Controller* sheet *5 MR Board* for wiring information.

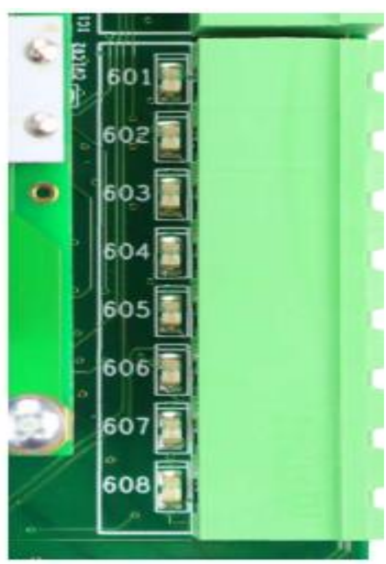

Figure 17: 24 VDC Output Connector

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.

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 *Hydro:Evolved Controller* sheet *5 MR Board* for wiring information.

SFM Terminal – Termination for all Machine Room safety devices that do not have a dedicated input, for example, Run/Stop switch. All additional devices are wired in series and terminated to the SFM, for example, relays (EB1-EB4) check if it is safe to run the motor.

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 *Hydro:Evolved Controller* sheet *5 MR Board* for wiring information.

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

See *Hydro:Evolved Controller* sheet *5 MR Board* 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 *Hydro:Evolved Controller* sheet *5 MR Board* 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

The following is an output terminal.

EB Terminal – Connects the neutral voltage to the Valve board. The EB terminal will not output voltage until all safety checks have been completed. See *Hydro:Evolved Controller* sheet *5 MR Board* for wiring information.

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.

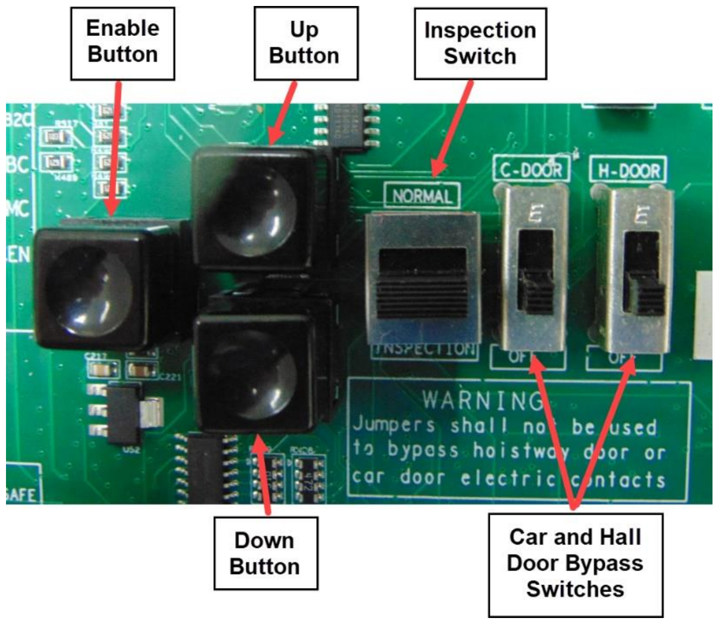

Figure 22: MR Board SR3032 Inspection Control

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 valves.

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 valves.

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.

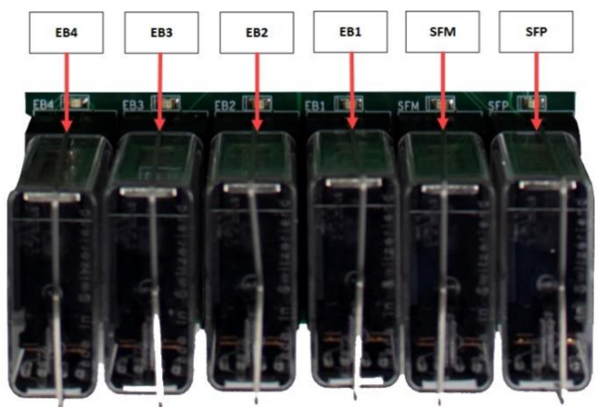

Figure 23: MR Board SR3032 Safety Relays

2.2 CT/COP Board SR3030

The LEDs on the CT/COP 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 CT/COP 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 OUPUT TERMINAL WITHOUT A CURRENT LIMITING DEVICE. THIS WILL CAUSE DAMAGE TO THE OUTPUT TRANSISTORS.

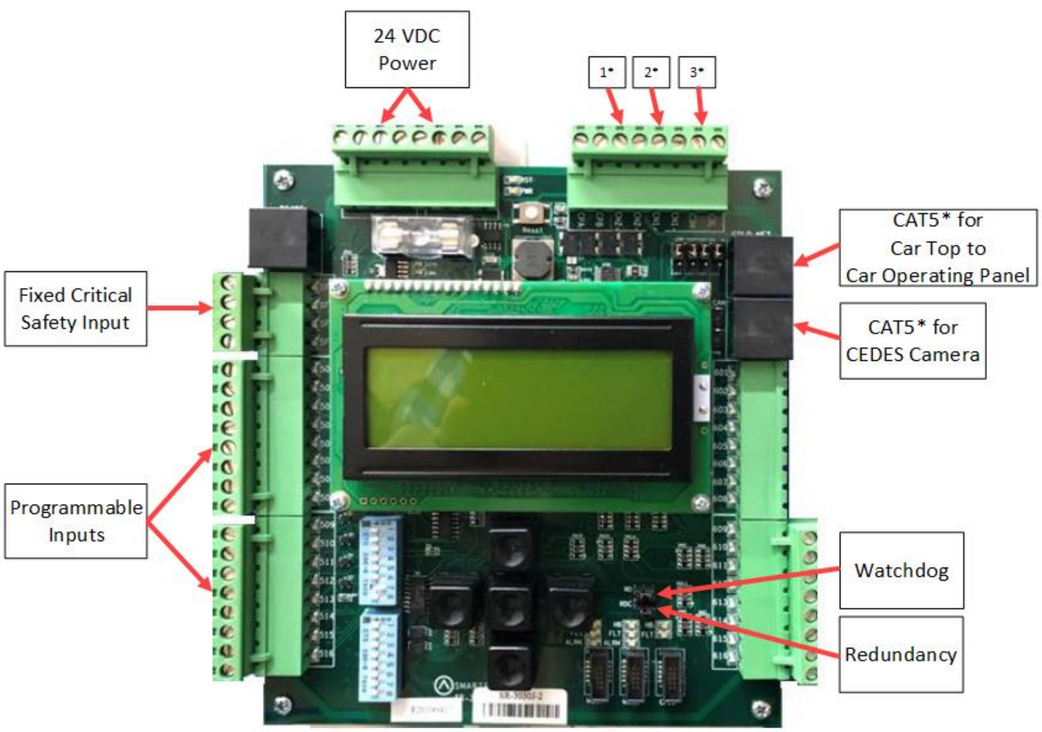

Figure 24: SRU Board SR3030

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 CT/COP board SR3030 Bank A DIP switch settings.

Table 4: CT/COP 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 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 CT/COP board SR3030 Bank B DIP switch settings.

Table 5: CT/COP 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.

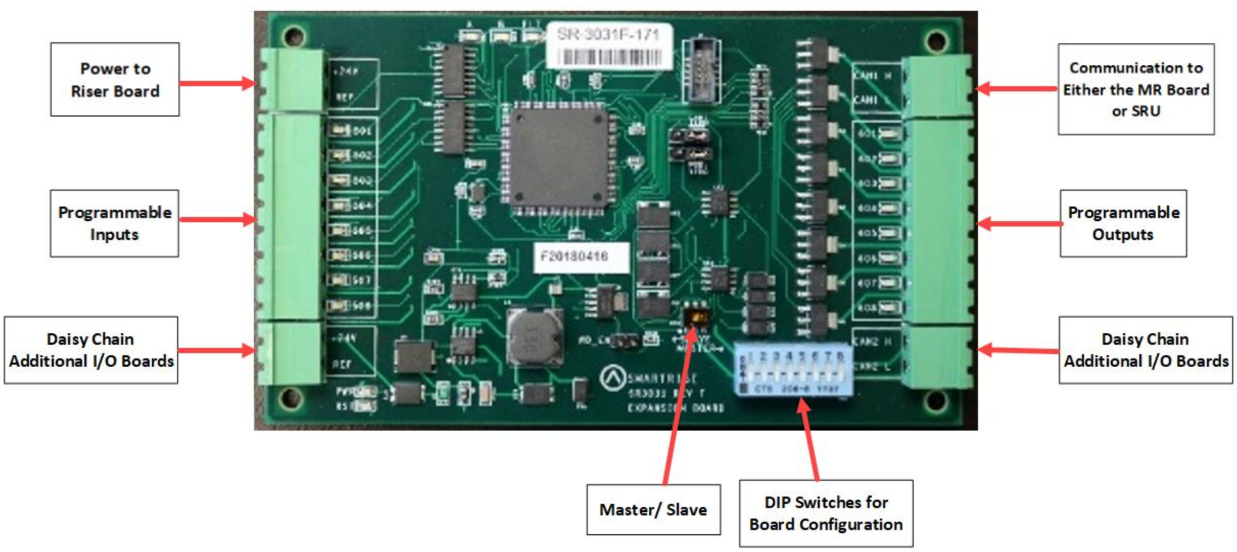

Figure 25: I/O Board/Riser Board SR3031

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 Switch	Functionality
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.

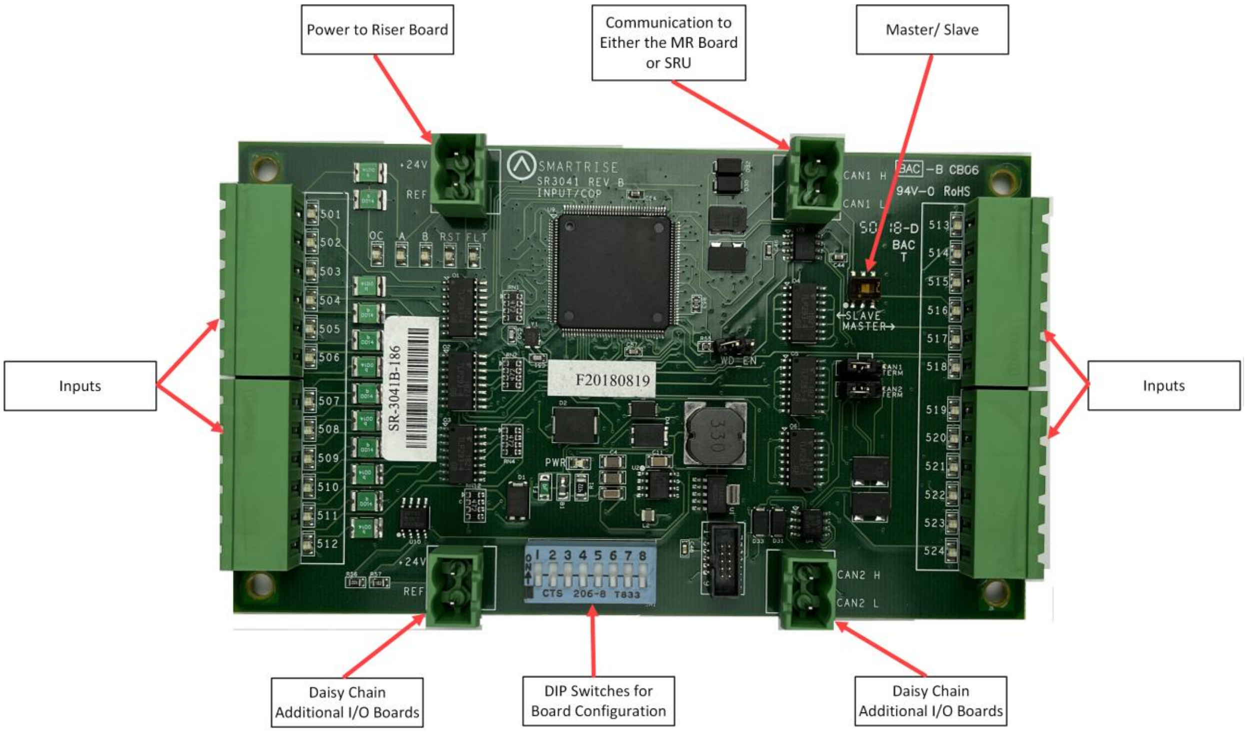

Figure 26: 24 Input Board SR3041

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 controller configuration, a 10 DIP or 12 DIP switch Hall board is used. See Table 10 and Table 11 for switch settings.

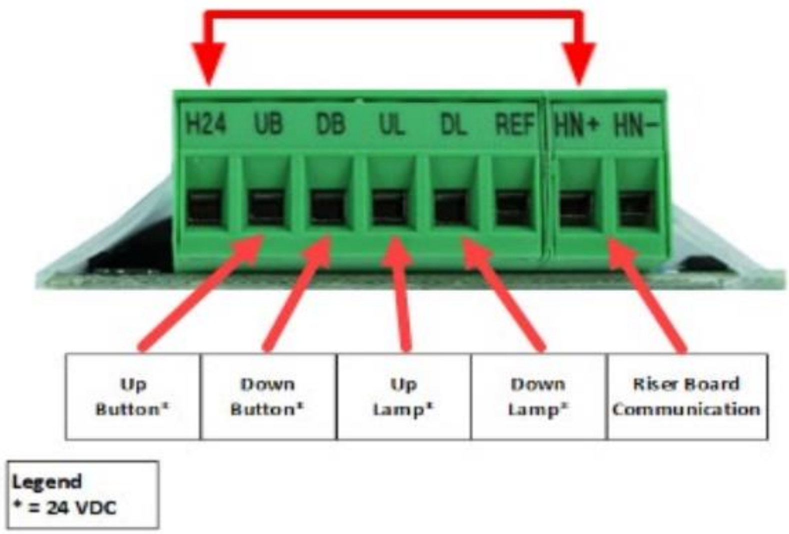

Figure 27: 10 DIP Hall Board SR1060-E

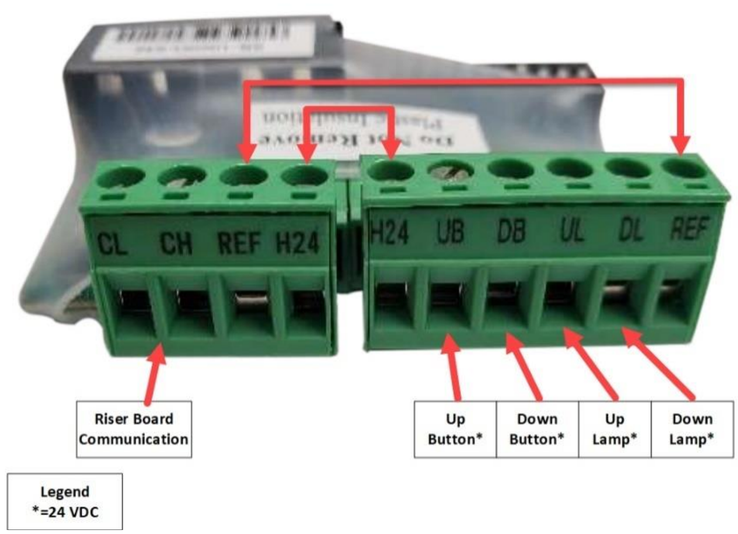

Figure 28: 12 DIP Hall Board SR1060-G

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 Valve Board SR3045

The Neutral input signal comes from the EB output from the MR board to the Valve board which controls when to either open or close the valves.

When valves are open, the oil flows from the cylinder and allows the car to move in either an up or down direction.

The Valve board controls the amount of oil that flows in to the cylinders that is used to move the car to the selected floor.

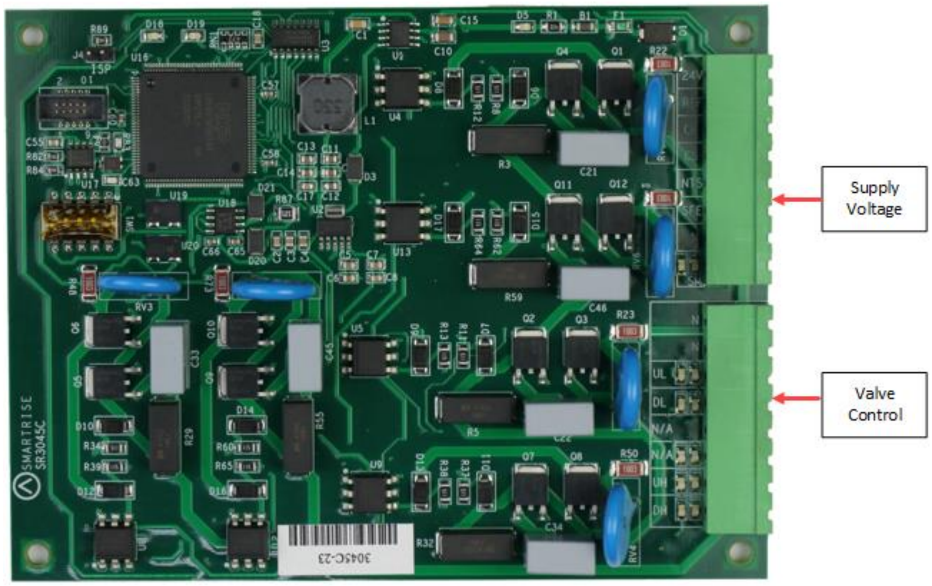

Figure 29: Valve Board SR3045

UL – Control signal to the valve when the car is moving at leveling speed in the up direction.

DL – Control signal to the valve when the car is moving at leveling speed in the down direction.

UH – Control signal to the valve when the car is moving at high speed in the up direction.

DH – Control signal to the valve when the car is moving at high speed in the down direction.

CH and CL – Communication between the Valve board and the MR board.

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3 Menu Structure

The following figures display the menu options for the HYDRO: EVOLVED.

NOTE: The navigation for the menu structure is set to where a specific output from a set of menus leads to an input with additional options.

3.1 Status

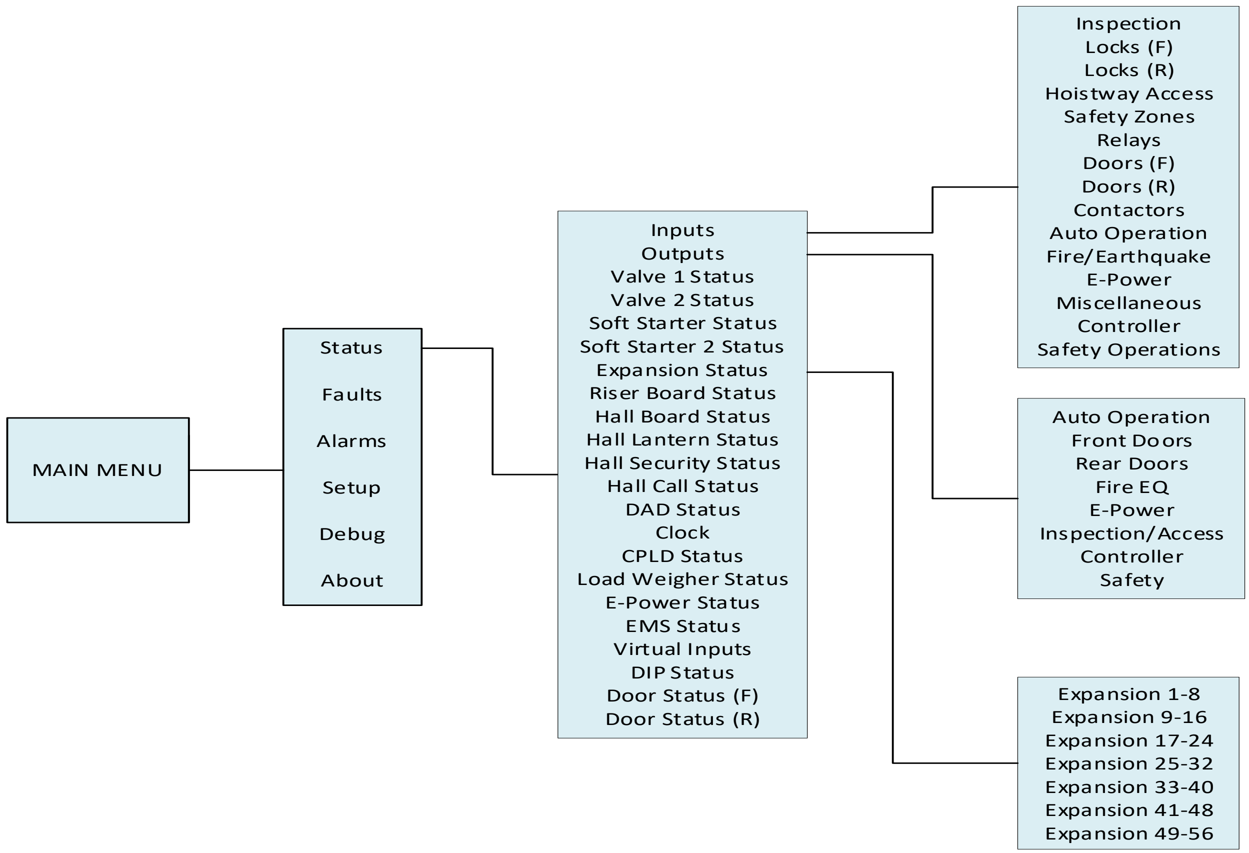

Figure 30: Status – Inputs, Outputs, and Expansion Status Menus

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

Table 12: 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
Valve 1 Status	Shows the status of the Valve board
Valve 2 Status	Shows the status of the secondary Valve board
Soft Starter Status	Shows the status of the soft starter
Soft Starter 2 Status	Shows the status of the secondary soft starter
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 (F)	Shows the status of the front locks
Locks (R)	Shows the status of the rear door 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 (F)	Shows the status of the front door operator signals
Doors (R)	Shows the status of the rear door operator 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
Controller	Shows the status of the control inputs
Safety Operation	Shows the status of safety conditions
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

Menu	Description
Safety	Shows the status of safety outputs
Expansion Status	
Expansion 1-8	Shows the communication status for Expansion group 1
Expansion 9-16	Shows the communication status for Expansion group 2
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

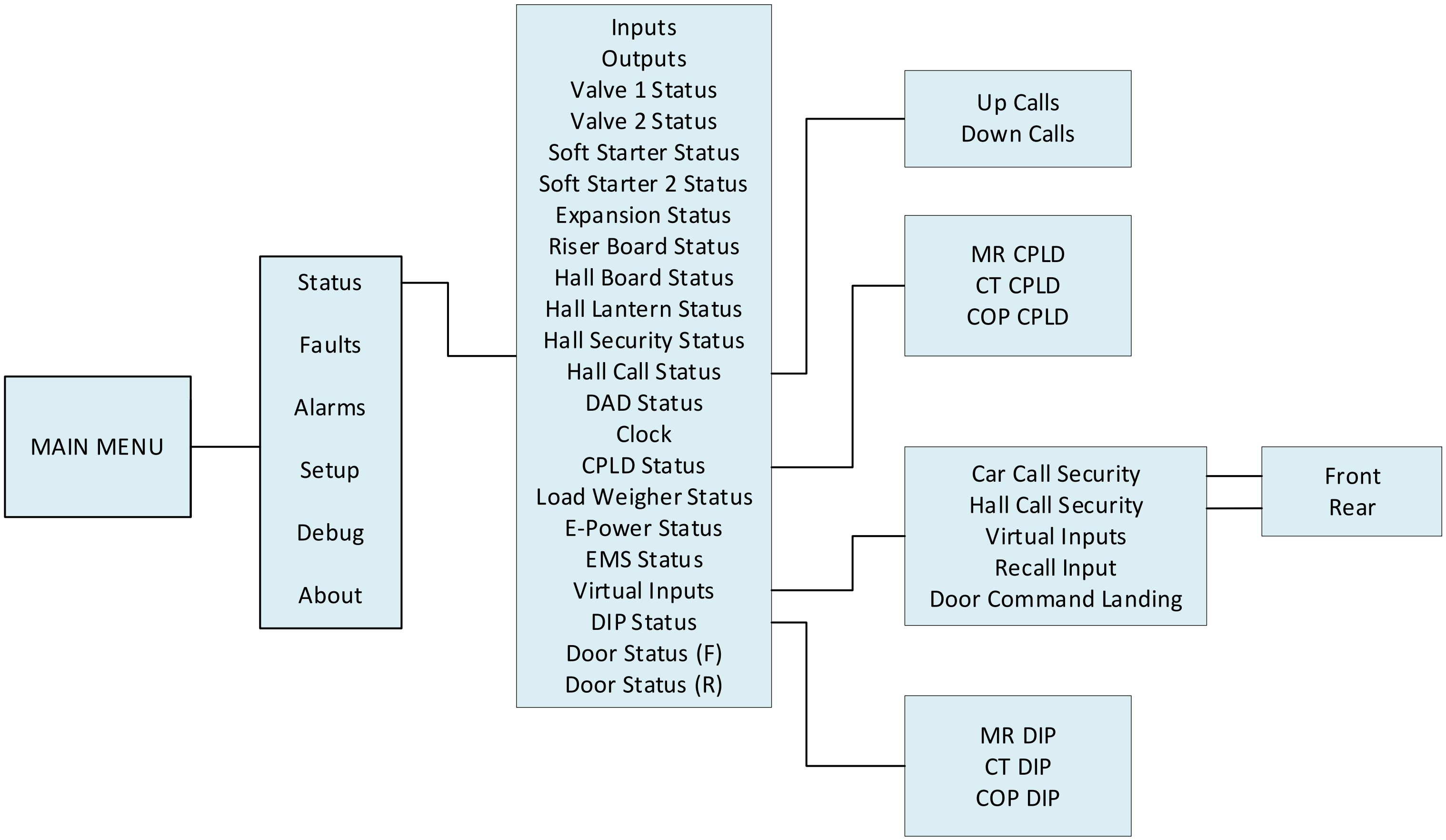

Figure 31: Status – Hall Call Status, CPLD Status, Virtual Inputs, and DIP Status Menus

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

Table 13: Status – Hall Call Status, CPLD Status, Virtual Inputs, and DIP Status Menu Structures

Menu	Description
Status	
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 status of a front door
Door Status (R)	Shows the status of a rear door
Hall Call Status	
Up Calls	Shows list of latched up hall calls per car
Down Calls	Shows list of latched down hall calls per car
CPLD Status	
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
Virtual Inputs	
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
DIP Status	
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

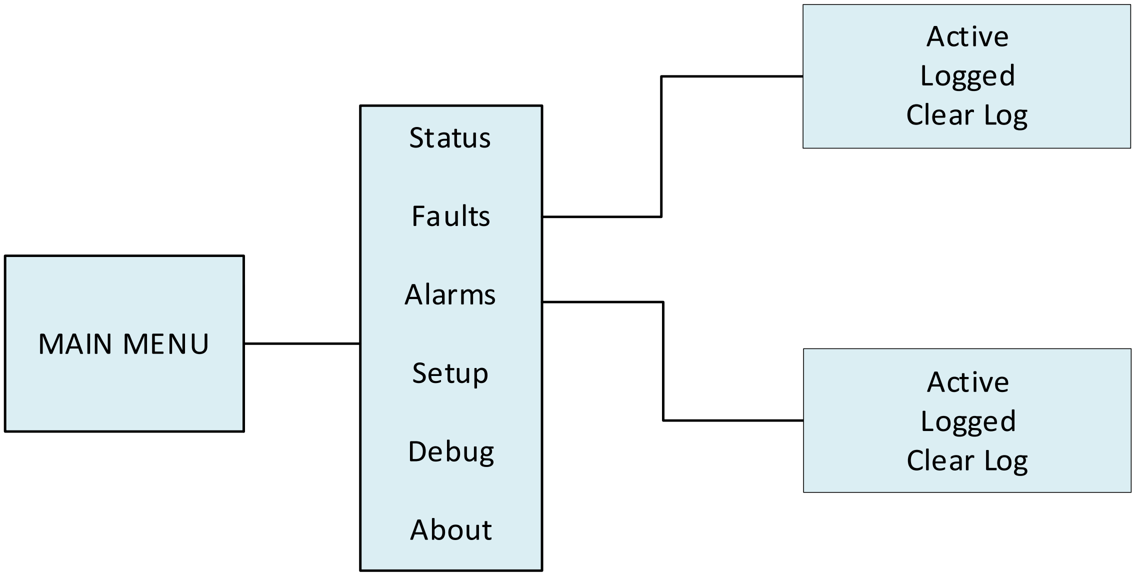

Figure 32: Faults and Alarms Menus

The table below lists the Faults and Alarms menu structures.

Table 14: 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

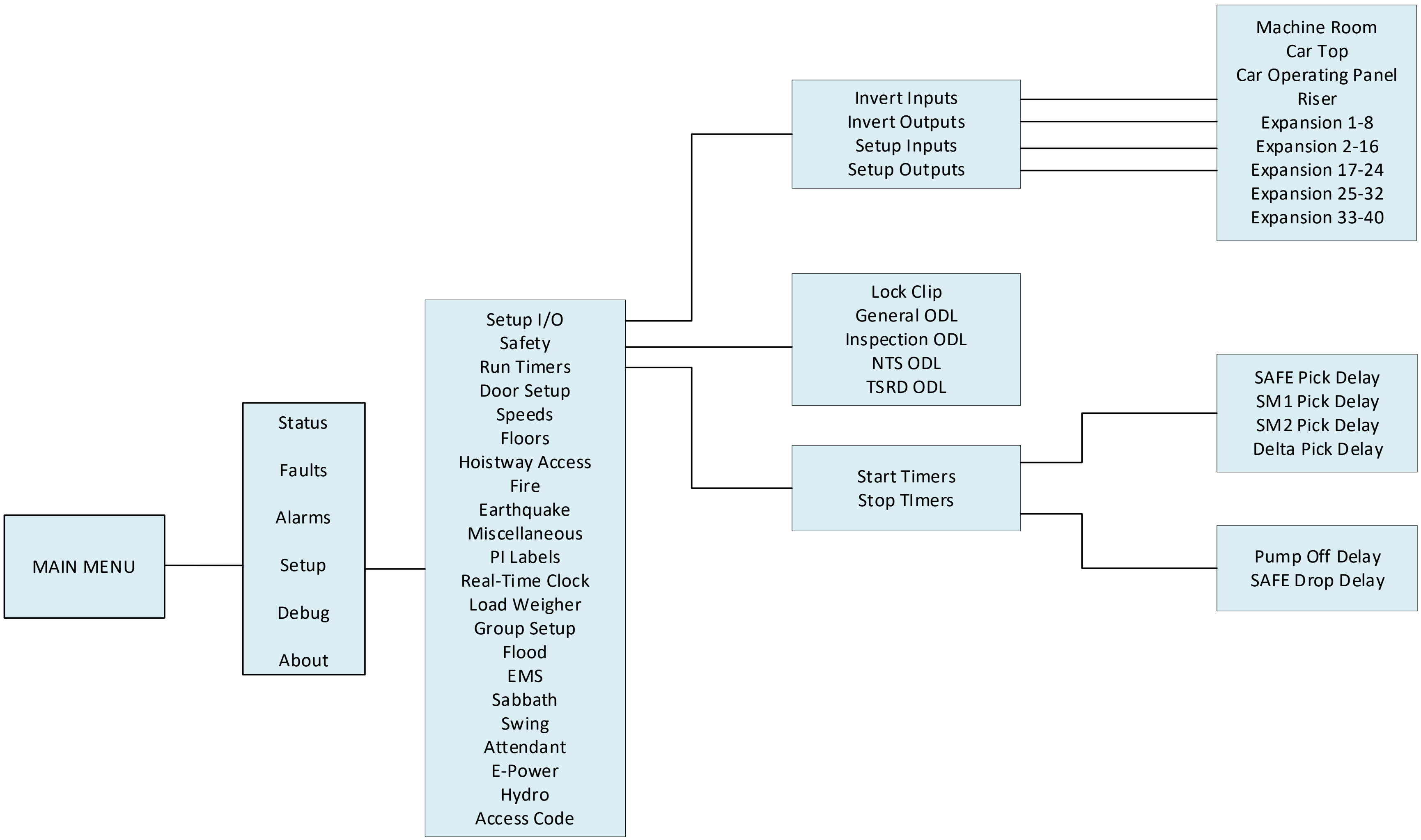

Figure 33: Setup – Setup I/O, Safety, and Run Timers Menus

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

Table 15: 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

Menu	Description
Expansion 9-16	Assign inputs to the Expansion 9-16 boards
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
Setup Outputs	
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
Safety	
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
General ODL	General overspeed debounce limit
Inspection ODL	Inspection overspeed debounce limit
NTS ODL	NTS overspeed debounce limit
TSRD ODL	Terminal Speed Reducing Device overspeed debounce limit
Run Timers	
Start Timers	Timers used for motion start sequence
Stop Timers	Timers used for motion stop sequence
Start Timers	
SAFE Pick Delay	Sets the delay between activating the MR SAFE output and activating the primary start motor output when moving in the up direction. Sets delay between activating the SAFE output and activating the valve when moving in the down direction.
SM1 Pick Delay	Sets delay between activating the primary start motor output and activating the valve when moving in the up direction.
SM2 Pick Delay	Sets delay between activating the secondary start motor output and activating the valve when moving in the up direction.
Delta Pick Delay	Sets delay between activating the Delta output and activating the valve outputs
Stop Timers	
Pump Off Delay	Sets delay between how long the pump motor continues to run after closing the Up valves
Safe Drop Delay	Sets delay between the time between deactivating the pump motor and turning off the MR-SAFE output

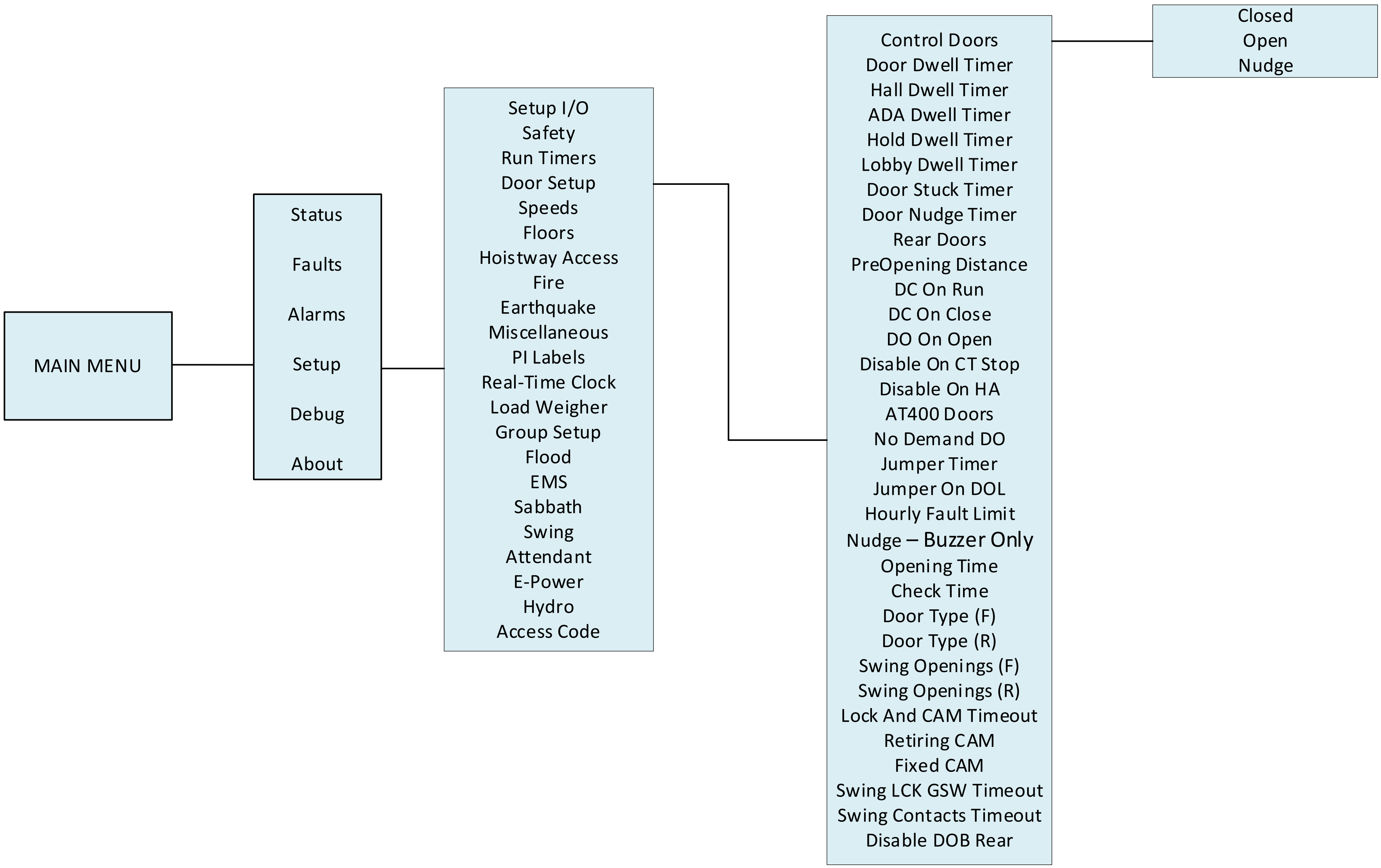

Figure 34: Setup – Door Setup Menu

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

Table 16: 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 answering 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
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

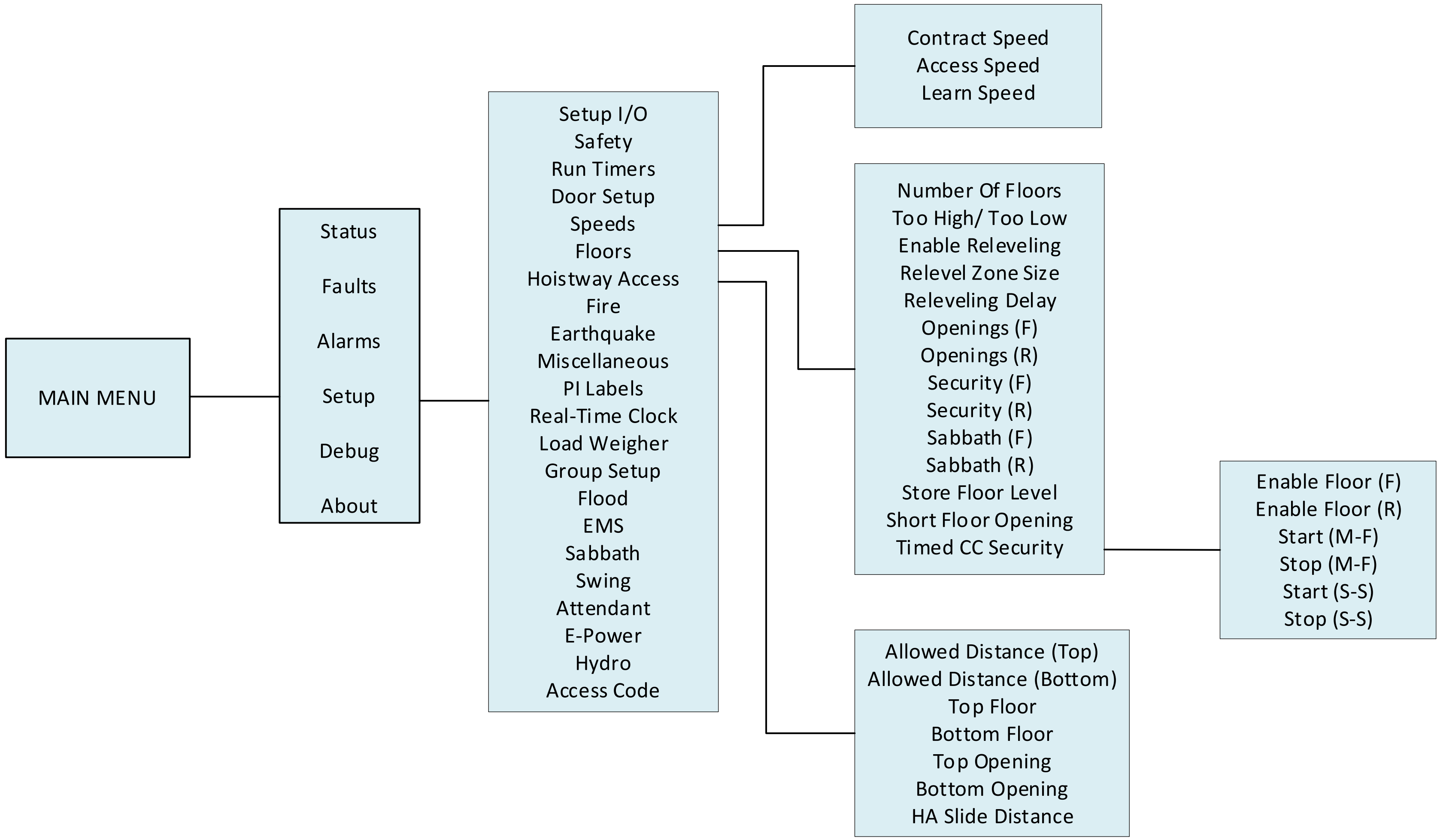

Figure 35: Setup – Speeds, Floors, and Hoistway Access Menus

The table below lists the Setup – Speeds, Floors, and Hoistway Access menu structures.

Table 17: Setup – Speeds, Floors, and Hoistway Access Menu Structures

Menu	Description
Setup	
Speeds	Configure speed parameters
Floors	Configure floor related parameters
Hoistway Access	Hoistway access setup menu
Speeds	
Contract Speed	Maximum speed of the elevator
Inspection speed	Set the speed at which the car runs for all inspection modes
Leveling Speed	Sets the speed used in automatic operation when leveling into a floor. If leveling distance is zero, this has no effect.
Test Buffer Speed	Sets the speed used during buffer test
Floors	
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	Sets the size of the releveling zone (dead zone)
Releveling 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)
Time CC Security	Allows for setting security for specific times
Time CC 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

Menu	Description
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	Distance from the door zone the car can move when on HA mode

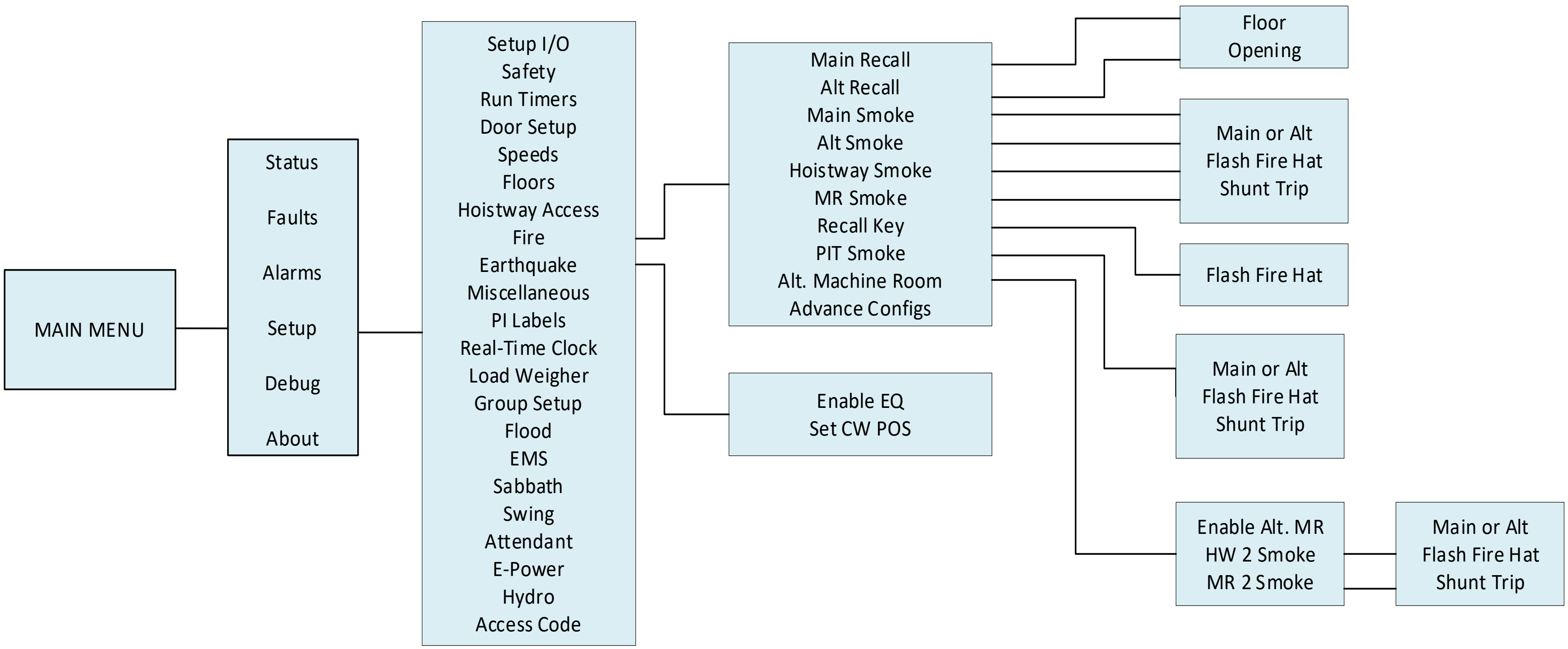

Figure 36: Setup – Fire and Earthquake Menus

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

Table 18: Setup – Fire and Earthquake Menu Structures

Menu	Description
Setup	
Fire	Fire operation setup menu
Earthquake	Earthquake operation setup menu
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
PIT Smoke	Pit smoke options
Recall Key	Key to recall to service floor
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
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

Menu	Description
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
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
Recall Key	
Flash Fire Hat	Flash fire hat when recall key is turned to the ON position
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
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

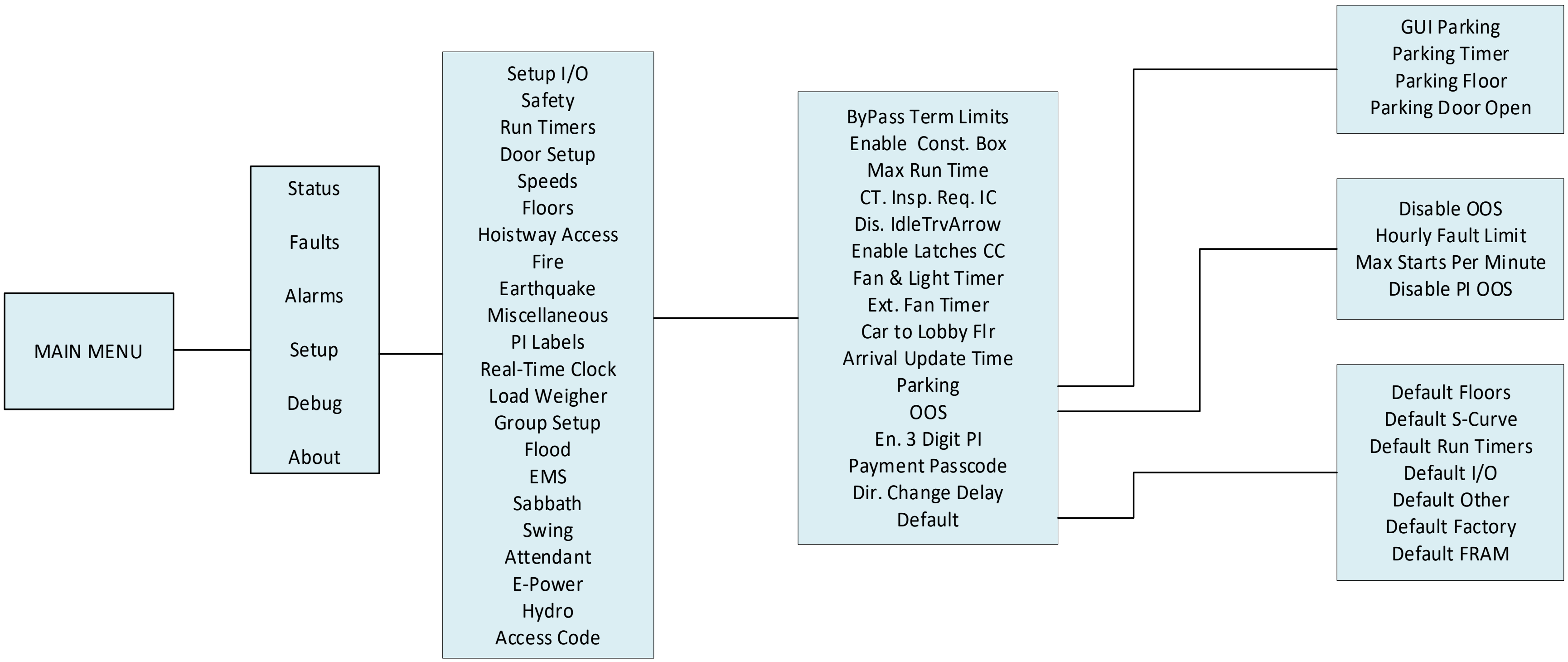

Figure 37: Setup – Miscellaneous Menus

The table below lists the Setup – Miscellaneous menu structure.

Table 19: Setup – Miscellaneous Menu Structure

Menu	Description
Setup	
Miscellaneous	Miscellaneous menu options
PI Labels	Set Position Indicator labels
Real-Time Clock	Set internal clock time for fault identification
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.
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.
Parking	Parking options
OOS	Car out of service options
En. 3 Digit PI	Enables 3-digit PI
Payment Passcode	Controller passcode
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

Menu	Description
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 Other	Defaults all miscellaneous values
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.

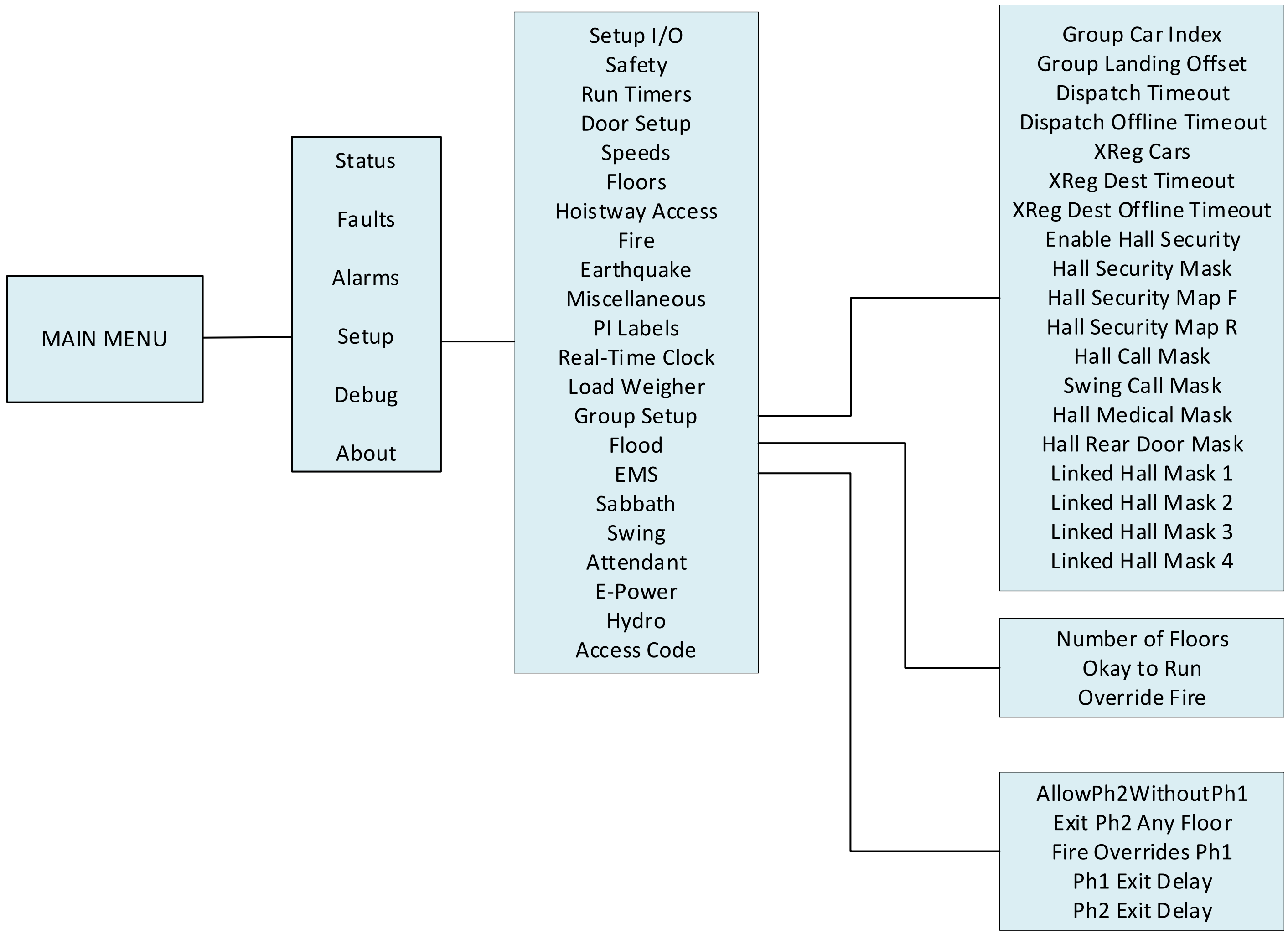

Figure 38: Setup – Group Setup, Flood, and EMS Menus

The table below lists the Setup – Group Setup, Flood, and EMS menu structures.

Table 20: Setup – Group Setup, Flood, and EMS Menu Structures

Menu	Description
Setup	
Group Setup	Group setup parameters
Flood	Flood options
EMS	Emergency medical service options
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.
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.
Enable Hall Security	Enables hall call security
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

Menu	Description
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.
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.

Menu	Description
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.

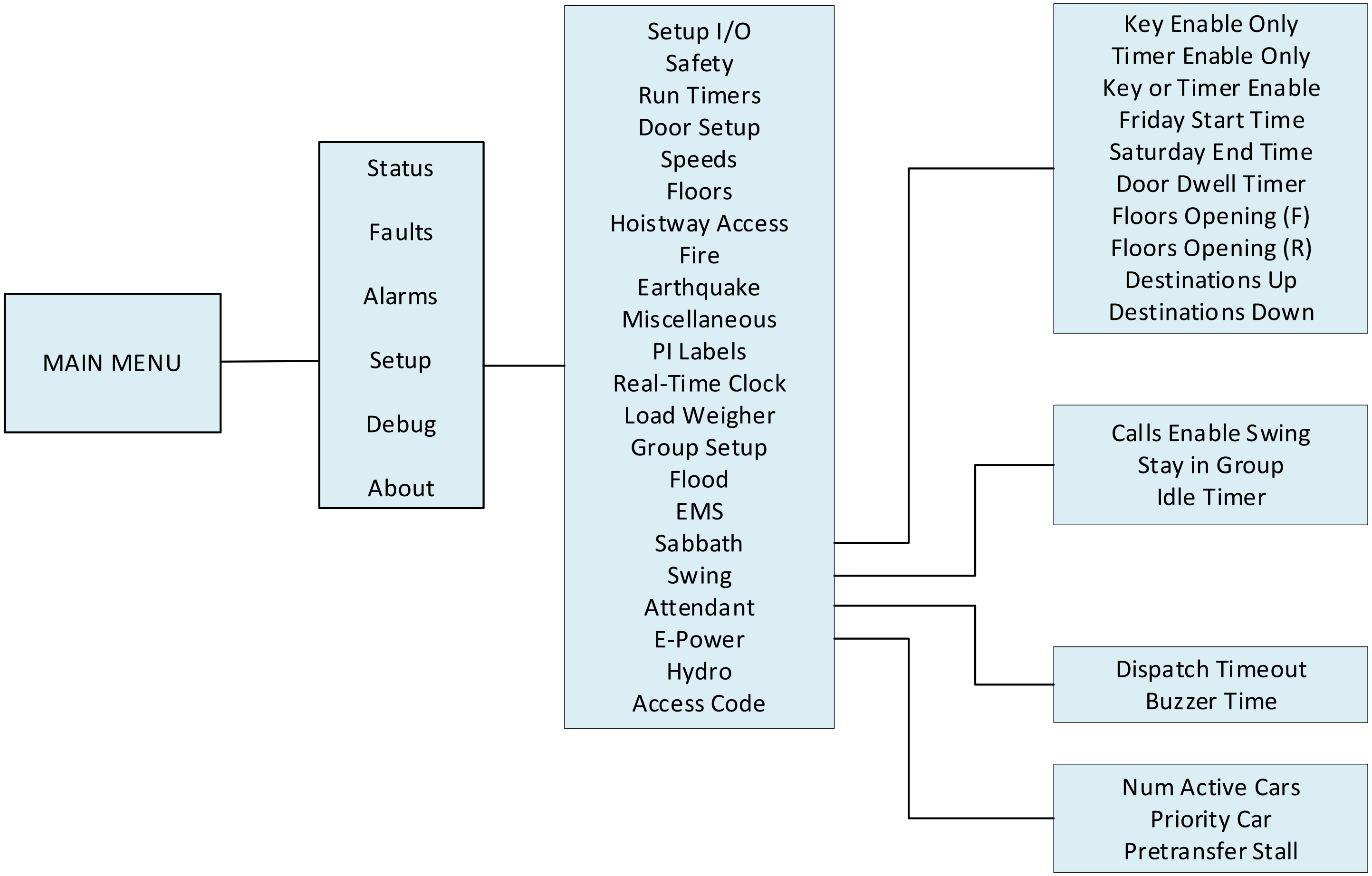

Figure 39: Setup – Sabbath, Swing, Attendant, and E-Power Menus

The table below lists the Setup – Sabbath, Swing, Attendant, and E-Power menu structures.

Table 21: Setup – Sabbath, Swing, Attendant, and E-Power Menu Structures

Menu	Description
Setup	
Sabbath	Sabbath operation options
Swing	Swing operation options
Attendant	Attendant service options
E-Power	Emergency power options
Sabbath	
Key Enable Only	When set ON, Sabbath operations is only activated by keyswitch input.
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
Floors Opening (F)	Sets the front opening floors to be serviced during Sabbath operation
Floors Opening (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
Swing	
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.

Menu	Description
Attendant	
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
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.

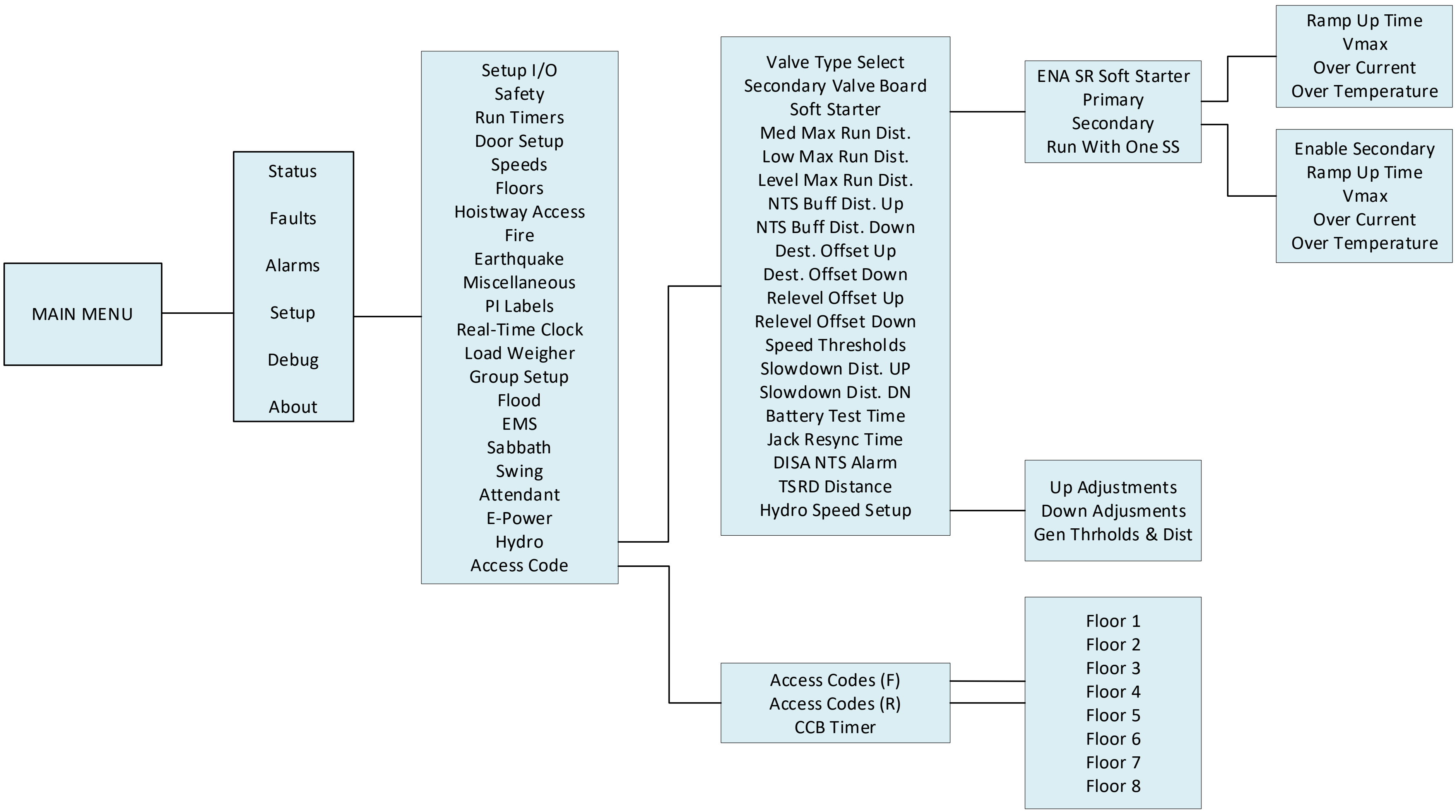

Figure 40: Setup – Hydro and Access Menus

The table below lists the Setup – Hydro and Access menu structures.

Table 22: Setup – Hydro and Access Menu Structures

Menu	Description
Setup	
Hydro	Hydro options
Access Code	Access code options
Hydro	
Valve Type Select	Allows the user to choose the type of valve used in the system
Secondary Valve Board	Checks for secondary Valve board when set to ON at startup
Soft Starter	Allows the user to select soft starter options
Med Max Run Dist.	Sets the maximum run distance when the medium valve speed run is selected. Longer runs will use the next higher speed valve. When set to zero, the valve is disabled.
Low Max Run Dist.	Sets the maximum run distance when the low valve speed run is selected. Longer runs will use the next higher speed valve. When set to zero, the valve is disabled.
Level Max Run Dist.	Sets the maximum run distance when the level valve speed run is selected. Longer runs will use the next higher speed valve. When set to zero, the valve is disabled.
NTS Buffer Dist. Up	Distance added to the slowdown distance to cut off high valves in the up direction
NTS Buffer Dist. Down	Distance added to the slowdown distance to cut off high valves in the down direction
Dest. Offset Up	Distance from the destination position that the car cuts its leveling valve when moving in the up direction on a non-releveling run
Dest. Offset Down	Distance from the destination position that the car cuts its leveling valve when moving in the down direction on a non-releveling run
Relevel Offset Up	Distance from the destination position that the car cuts its leveling valve when moving in the up direction on a releveling run
Relevel Offset Down	Distance from the destination position that the car cuts its leveling valve when moving in the down direction on a releveling run
Speed Thresholds	Positioning system speed feedback is used for this comparison
Slowdown Dist. UP	Distance when the car starts slowing down on a normal run while moving in up direction

Menu	Description
Slowdown Dist. DN	Distance when the car starts slowing down on a normal run while moving in down direction
Battery Test Time	Sets the time to check the battery board
Jack Resync Time	Sets the time to trigger Jack Resync
DISA NTS Alarm	Disables NTS alarms
TSRD Distance	Sets the distance to prevent car from hitting the buffer
Soft Starter	
ENA SR Soft Starter	Enables soft starter board
Primary	Enables primary soft starter
Secondary	Enables secondary soft starter
Run With One SS	When set to ON, if two soft starters are supported, and only one of those soft starters is faulted, the car will still be allowed to run.
Primary	
Ramp Up Time	Sets the primary soft starter time to ramp up to V-Max
Vmax	Sets the primary soft starter percentage of input AC voltage used for ramp up
Over Current	Sets the primary soft starter overcurrent limit in amps
Over Temperature	Sets the primary soft starter over temperature limit in degrees Fahrenheit counts
Secondary	
Enable Secondary	Enables secondary soft starter
Ramp Up Time	Sets the secondary soft starter time to ramp up to V-Max
Vmax	Sets the secondary soft starter percentage of input AC voltage used for ramp up
Over Current	Sets the secondary soft starter overcurrent limit in amps
Over Temperature	Sets the secondary soft starter over temperature limit in degrees Fahrenheit counts
Hydro Speed Setup	
Up Adjustments	Adjust speed when transitioning from contract speed to leveling speed in the up direction
Down Adjustment	Adjust speed when transitioning from contract speed to leveling speed in the down direction
Generate Thresholds and Distance	Updates threshold and slowdown distances based on adjustment settings
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

Menu	Description
Access Code (F)	
Floor 1	Set access code for front floor 1 door car call
Floor 2	Set access code for front floor 2 door car call
Floor 3	Set access code for front floor 3 door car call
Floor 4	Set access code for front floor 4 door car call
Floor 5	Set access code for front floor 5 door car call
Floor 6	Set access code for front floor 6 door car call
Floor 7	Set access code for front floor 7 door car call
Floor 8	Set access code for front floor 8 door car call
Access Code (R)	
Floor 1	Set access code for rear floor 1 door car call
Floor 2	Set access code for rear floor 2 door car call
Floor 3	Set access code for rear floor 3 door car call
Floor 4	Set access code for rear floor 4 door car call
Floor 5	Set access code for rear floor 5 door car call
Floor 6	Set access code for rear floor 6 door car call
Floor 7	Set access code for rear floor 7 door car call
Floor 8	Set access code for rear floor 8 door car call

3.4 Debug and About

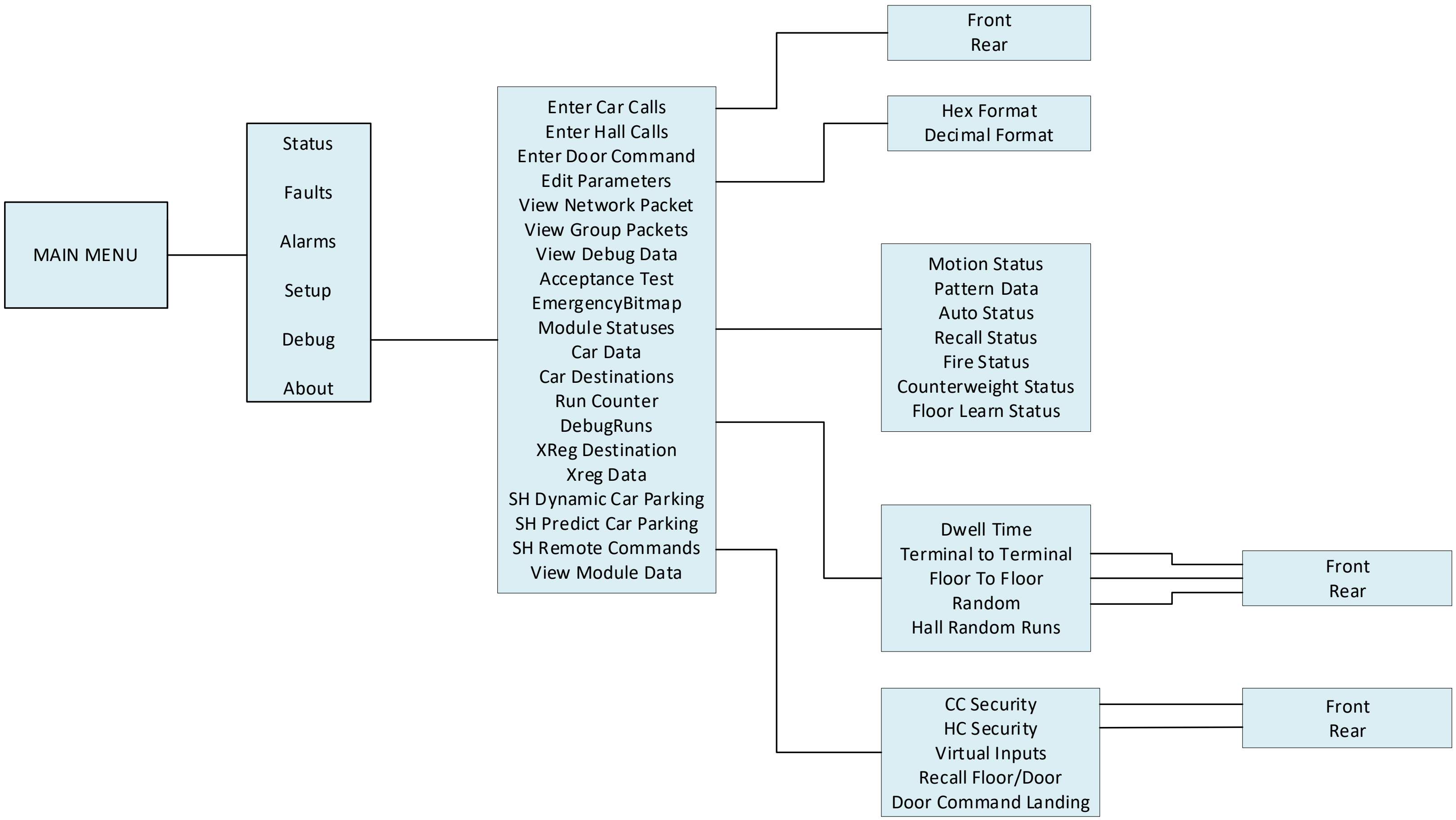

Figure 41: Debug and About Menus

The table below lists the Debug and About menu structures.

Table 23: 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
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 input for debugging purpose
View Module Data	Runtime modules for processors MRA, MRB, CTA, CTB, COPA, and COPB can be viewed
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
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
Hall Random Runs	Generates random hall calls
Terminal to Terminal	
Front	Enables front door terminal to terminal runs
Rear	Enables rear door terminal to terminal runs
Floor to Floor	
Front	Enables front door floor to floor calls
Rear	Enables rear door floor to floor calls
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

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 Hydro:Evolved Controller.

Figure 42: MAIN MENU – Status, Faults, Alarms

Figure 43: MAIN MENU – Setup, Debug, About

4.2 Status

The STATUS menus display the current status of various functions.

Figure 44: STATUS Menu – Inputs, Outputs, Valve 1 Status

Figure 45: STATUS Menu – Valve 2 Status, Soft Starter Status, Soft Starter 2 Status

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

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

Figure 48: STATUS Menu – DAD Status, Clock, CPLD Status

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

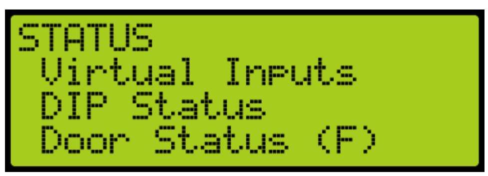

Figure 50: STATUS Menu – Virtual Inputs and DIP Status

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

4.3 Faults

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

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, Speeds, Floors

Figure 56: SETUP Menu – Hoistway Access, Fire, Earthquake

Figure 57: SETUP Menu – Miscellaneous, PI Labels, Real-Time Clock

Figure 58: SETUP Menu – Load Weigher, Group Setup, Flood

Figure 59: SETUP Menu – EMS, Sabbath, Swing

Figure 60: SETUP Menu – Attendant, E-Power, Hydro

Figure 61: SETUP Menu – Access Code

4.6 Debug

The DEBUG menu allows for testing the system.

Figure 62: DEBUG Menu – Enter Car Calls, Enter Hall Calls, Enter Door Command

Figure 63: DEBUG Menu – Edit Parameters, View Network Packet, View Group Packets

Figure 64: DEBUG Menu – View Debug Data, Acceptance Test, EmergencyBitmap

Figure 65: DEBUG Menu – Module Statuses, Car Data, Car Destinations

Figure 66: DEBUG Menu – Run Counter, DebugRuns, XReg Destination

Figure 67: DEBUG Menu – XReg Data, SH Dynamic Car Parking, SH Predict Car Parking

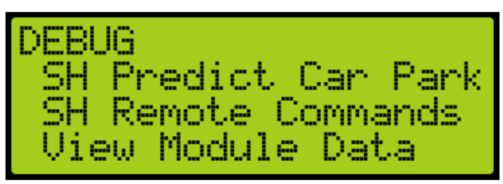

Figure 68: DEBUG Menu – SH Remote Commands and View Module Data

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 63.
2. From the PARAMETER EDIT menu, scroll and select Hexadecimal Format or Decimal Format.

Figure 69: PARAMETER EDIT Menu – Hexadecimal or Decimal Format

3. From the EDIT menu, edit the address.

Figure 70: EDIT AS BINARY Menu Hexadecimal or Decimal Format

Figure 71: EDIT AS HEXADECIMAL Menu

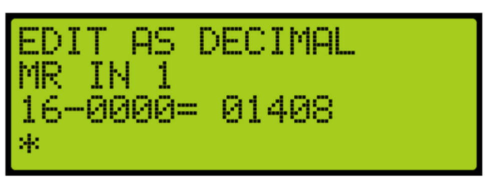

Figure 72: EDIT AS DECIMAL Menu

4. Scroll right and press Save.

6 Construction Mode

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

6.1 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 73: Breakers in the OFF Position

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

Figure 74: L1/L2 Breaker

4. Connect main line power L1/L2/L3 to soft starter and motor.
5. Connect the ground wire to the green terminal screw on the soft starter mounting plate.
6. Connect the Valve board to the soft starter.

6.2 Construction Mode

All connections regarding safety are functional during Construction Mode.

See the *Hydro:Evolved Soft Starter Startup Manual* provided with your controller to show how to wire the Construction Box.

6.3 Soft Starter Setup

The soft starter is connected to the Valve board and the motor.

The three common I/O to the soft starter are:

- Neutral – The Neutral signal comes through the fault contactor to the soft starter to control the torque to the motor.
- SM (Start Motor) – The SM signal comes from the Valve board to enable the soft starter to activate. The soft starter then provides a ramp up voltage to the motor.
- SS Fault – The soft start outputs a fault notification to the MR board when a fault occurs within the soft starter.

See *Hydro:Evolved* sheet *8 Soft Starter* for wiring information.

7 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 *Hydro:Evolved Controller* sheet *5 MR Board*, sheet *13 Traveler/Safety String,* sheet *13 CT board and* sheet *17 COP Board* for wiring information.

7.1 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 75: MR INSPECTION Switch

CT Inspection it 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 76: 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.

7.2 Inspection Run Options and Adjustments

The 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 150fpm.

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 77: 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 ≤ 150 fpm. If the inspection speed is less than the contract speed the car will move at low speed depending on how the leveling valves are set. If the inspection speed matches the contract speed the car will move with at high speed.

Figure 78: INSPECTION SPEED Menu

4. Scroll right and press Save.

8 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.

SM1 Pick Delay – Delays the time between activating the primary start motor output and activating a valve when the car is moving in the up direction.

If the SM1 Pick Delay is greater than required when the primary motor starts up, there may be no oil to pump into the valve. This will cause an initial jerking motion during startup.

If the SM1 Pick Delay is less than required when the primary motor starts up, the motor and valve activation may occur at the same time. This will cause a jerking motion due to the increased amount of oil within the pump.

The adjustment range is from: 0 – 12.75 seconds.

- Default = 50 ms
- Units of Measure: ms

SM2 Pick Delay – Delays the time between activating the secondary start motor output and primary start motor output. This delay is skipped if the secondary soft starter is not used.

If the SM2 Pick Delay is greater than required when the secondary motor starts up, the car can either start slowly or not at all. The secondary motor also draws more current.

If the SM2 Pick Delay is less than required when the secondary motor starts up, there may be an initial jerking motion at startup.

The adjustment range is from: 0 – 12.75 seconds.

- Default = 50 ms
- Units of Measure: ms

Delta Pick Delay – Delays the time between activating the delta output and activating the valve outputs.

The adjustment range is from: 0 – 12.75 seconds.

Pump Off Delay – Delays the time between deactivating the valves and turning off the start pump motor outputs.

If the pump off delay is greater than required, the motor would be on even when there is no oil to pump.

If the pump off delay is less than required or set to zero, the motor would turn off and there will be residual oil left in the pump.

The adjustment range is from: 0 – 12.75 seconds.

- Default = 50 ms
- Units of Measure: ms

Safe Drop Delay - Delays the time between deactivating the pump motor and the SAFE output from the MR board.

The adjustment range is from: 0 – 12.75 seconds.

- Default = 50 ms
- Units of Measure: ms

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 79: TIMERS Menu – Start Timers or Stop Timers

   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 SM Pick Delay or Delta Pick Delay, select the timer being adjusted and adjust the value. Go to step 5.

Figure 80: START TIMERS Menu

4. If adjusting Pump Off Delay or SAFE Drop Delay, select the timer being adjusted and adjust the value.

Figure 81: STOP TIMERS Menu

5. Scroll right and press Save.

9 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

9.1 Coded Tape

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

Figure 82: Coded Tape

WARNING

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

Figure 83: 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.

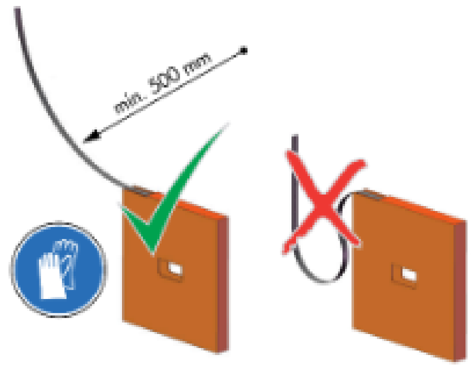

Figure 84: Tape Minimum Bend Radius

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.

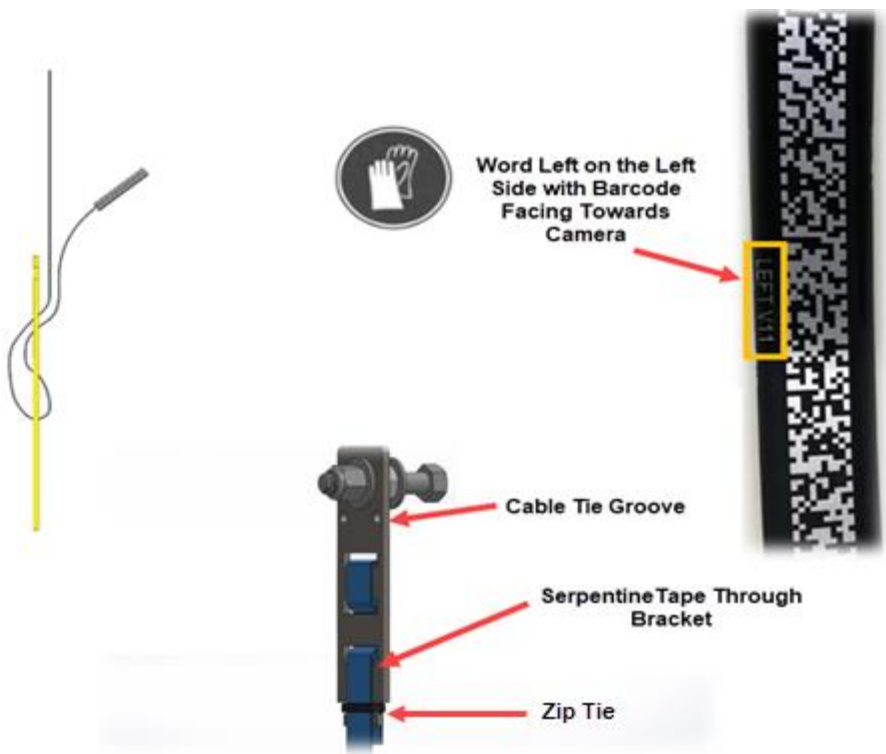

Figure 85: Routing Tape

9.2 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 86.

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

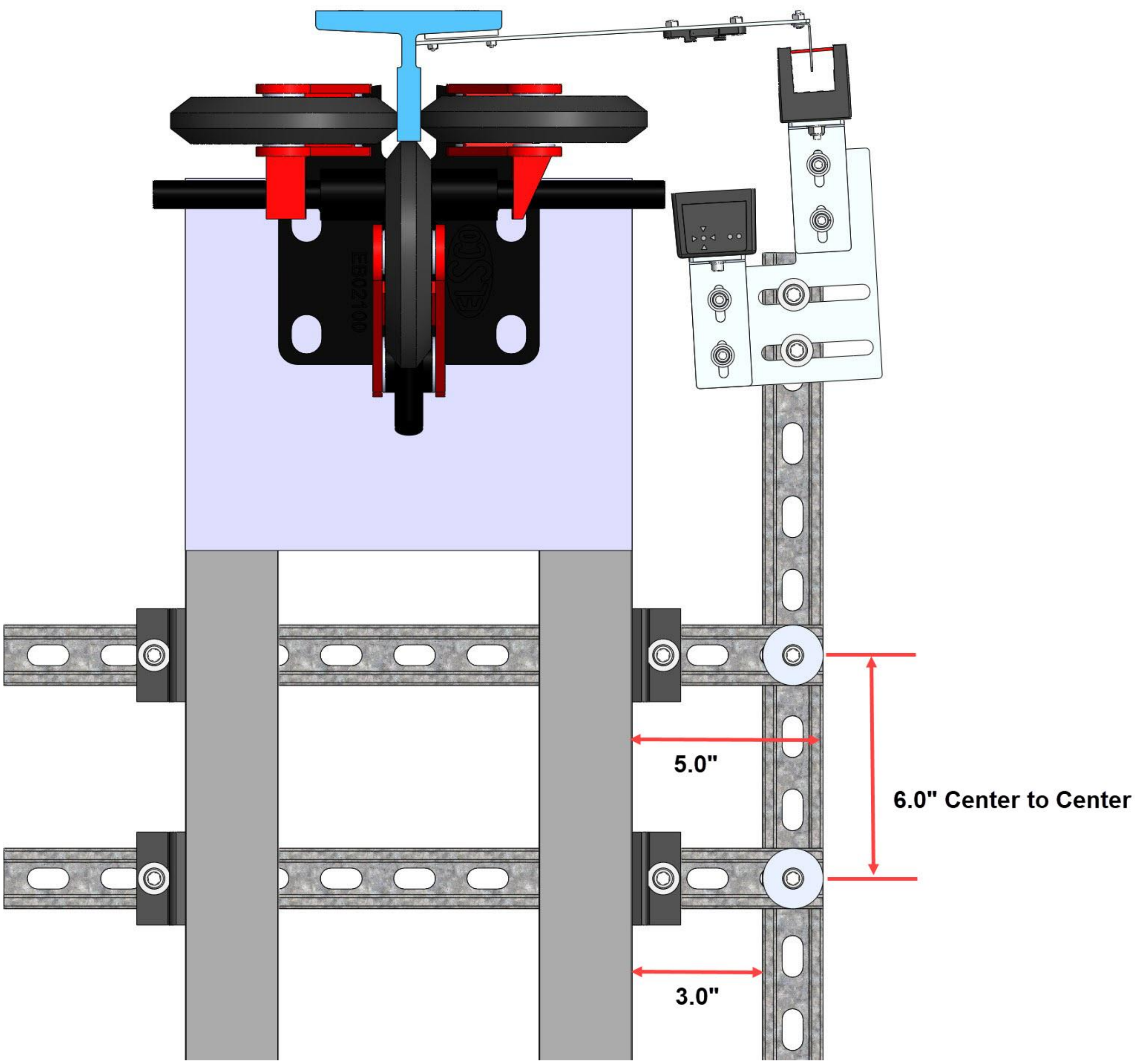

Figure 86: Unistrut Installation

3. Bolt the 24” length of Unistrut to the two 18” lengths of Unistrut. See Figure 86.
   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.

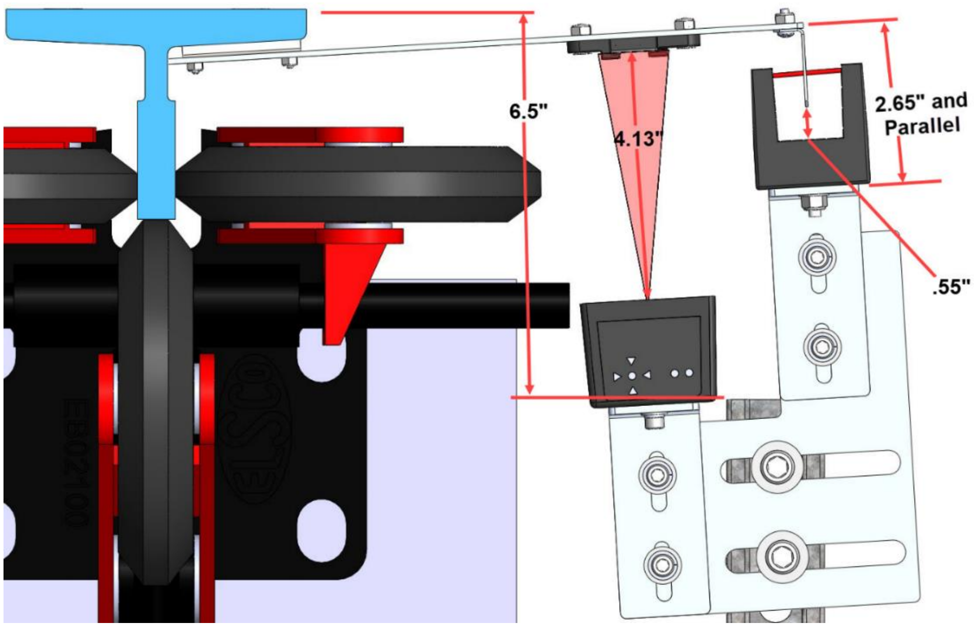

Figure 87: Sensor Array Assembly Positioning

5. Set the end of the 24” length Unistrut at 6.5” from the rear surface of the guide rail. See Figure 87.
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 87.
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 9.8 Fine Tune.

9.3 Upper Tape Mount Assembly

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

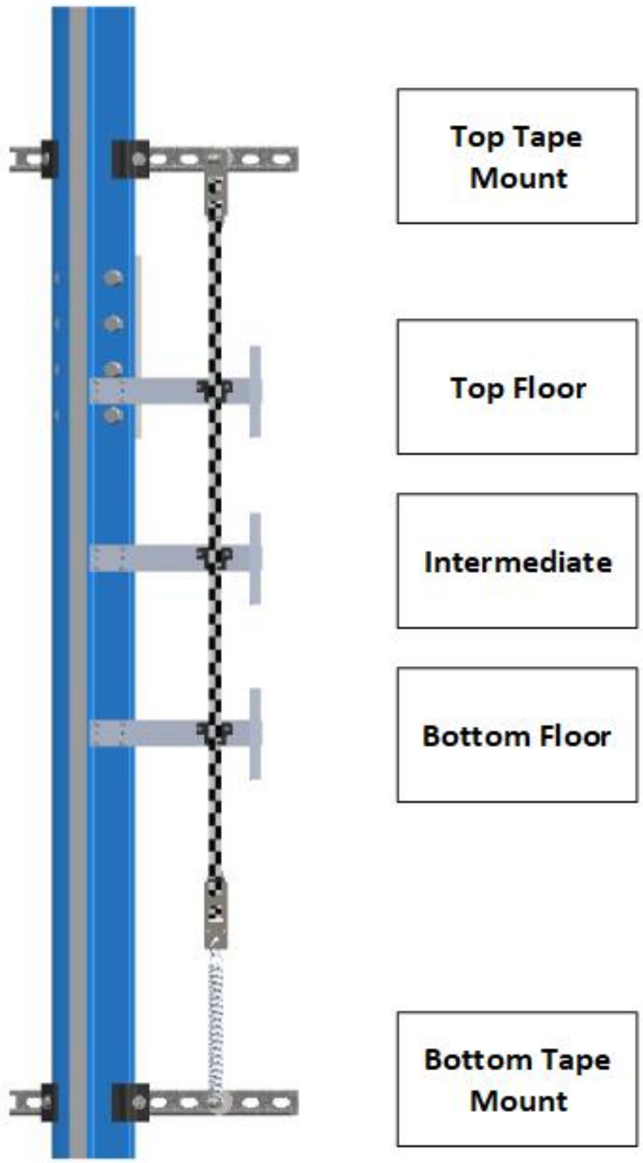

Figure 88: Location of Tape Mount Assemblies

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.

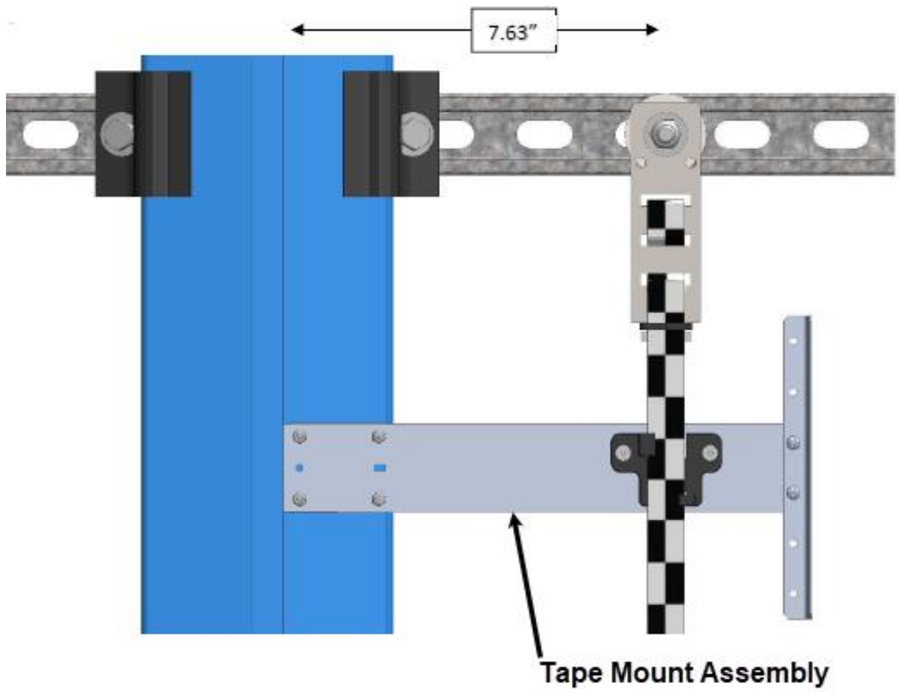

Figure 89: Upper Tape Unistrut Installation

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

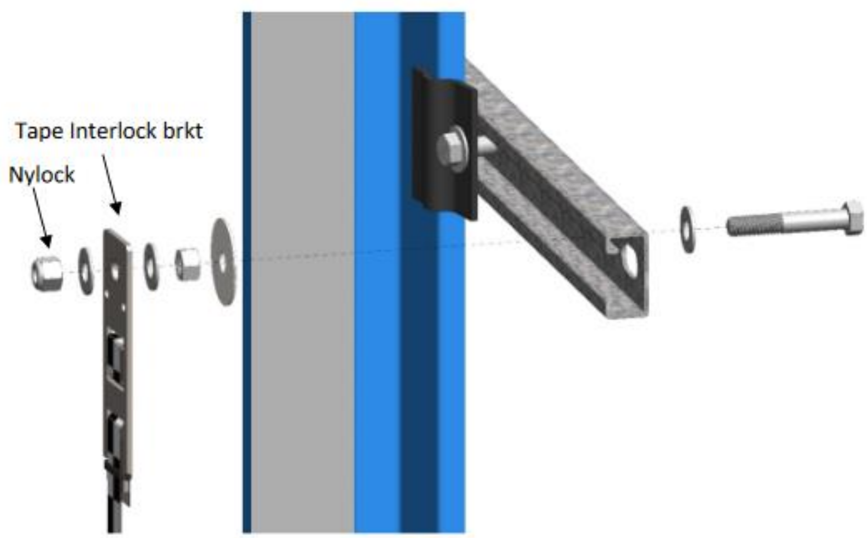

Figure 90: Hardware

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 89.
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.

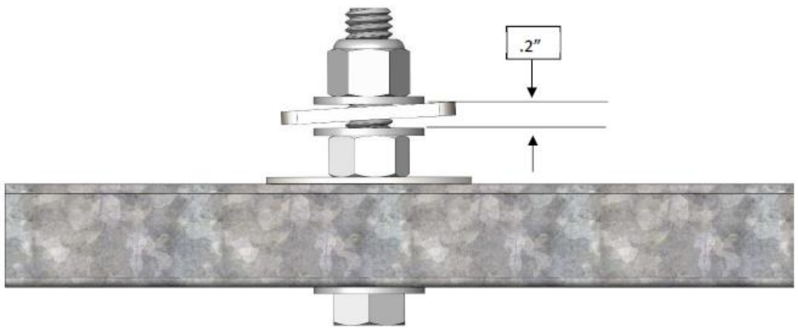

Figure 91: Gap Verification

9.4 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)

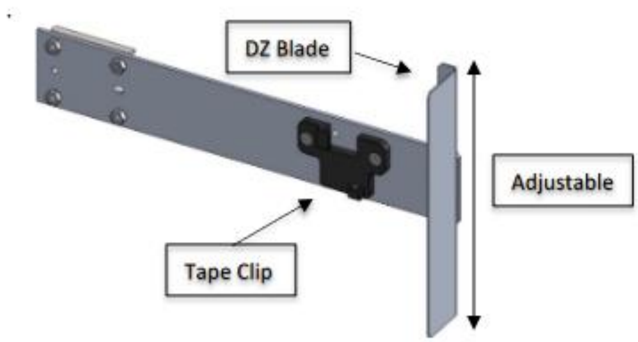

Figure 92: Tape Clip Assembly

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.

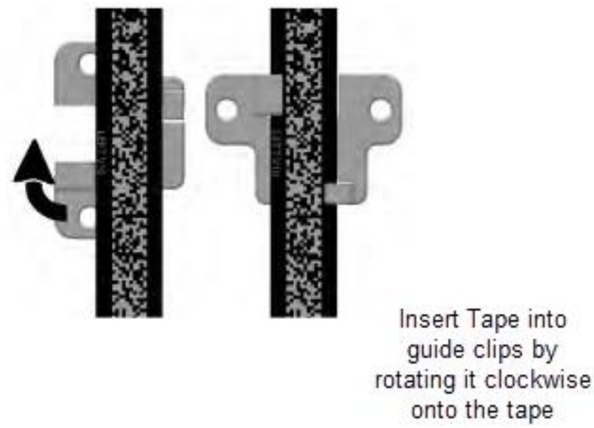

Figure 93: Tape Clip Insertion

4. 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.

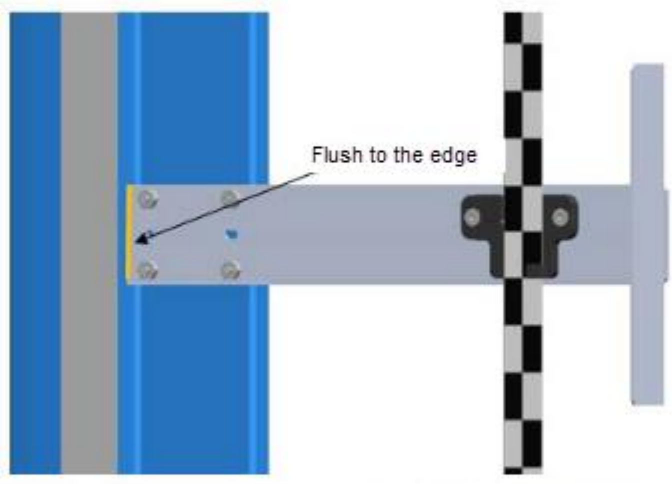

Figure 94: Tape Clip Assembly Alignment

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

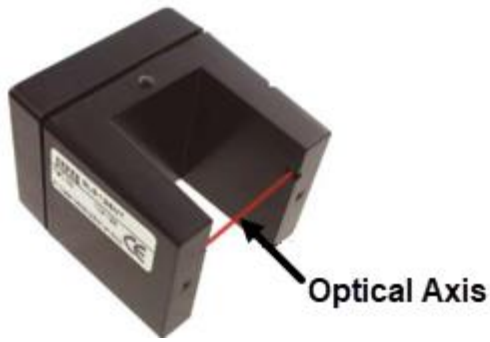

Figure 95: Optical Axis

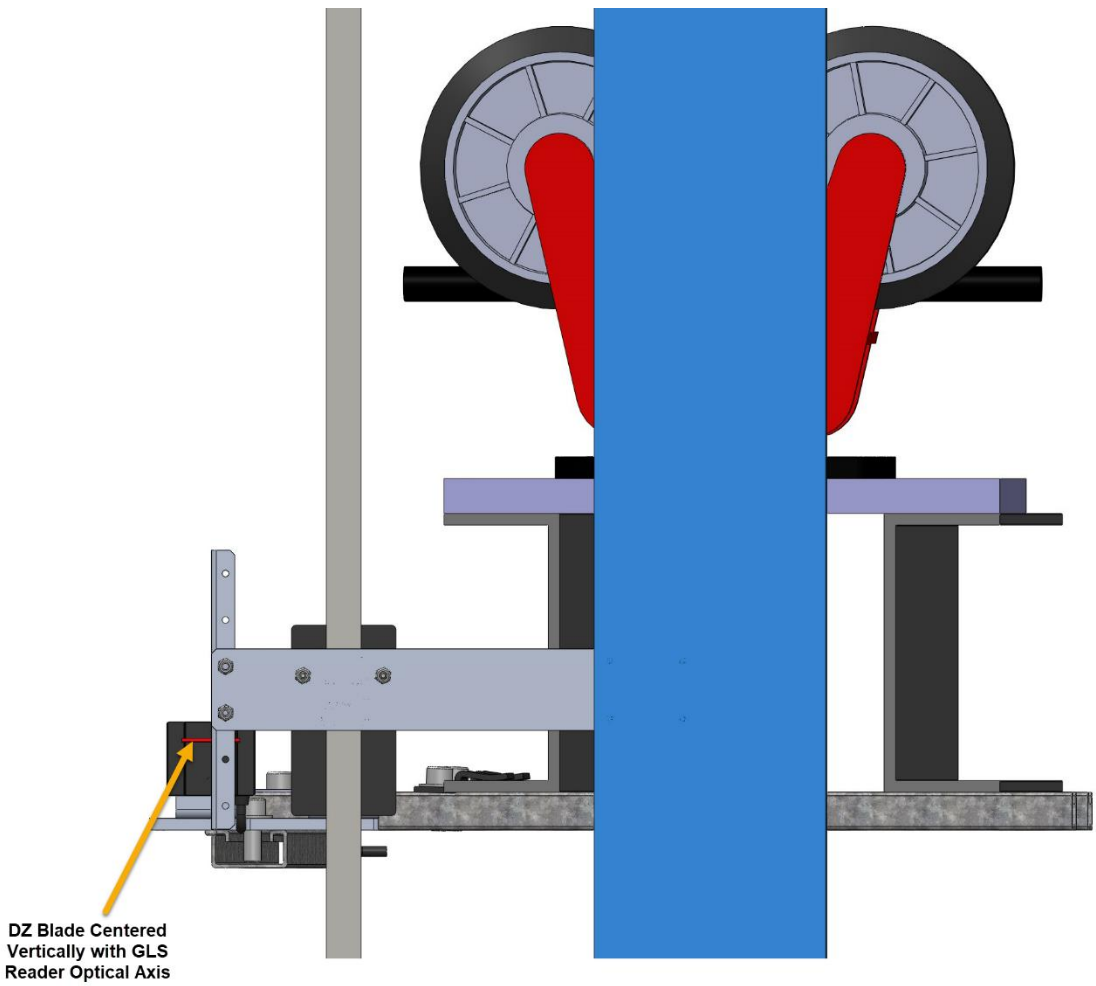

Figure 96: Tape Clip Assembly Placement (Rear View)

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 97.
    - 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.

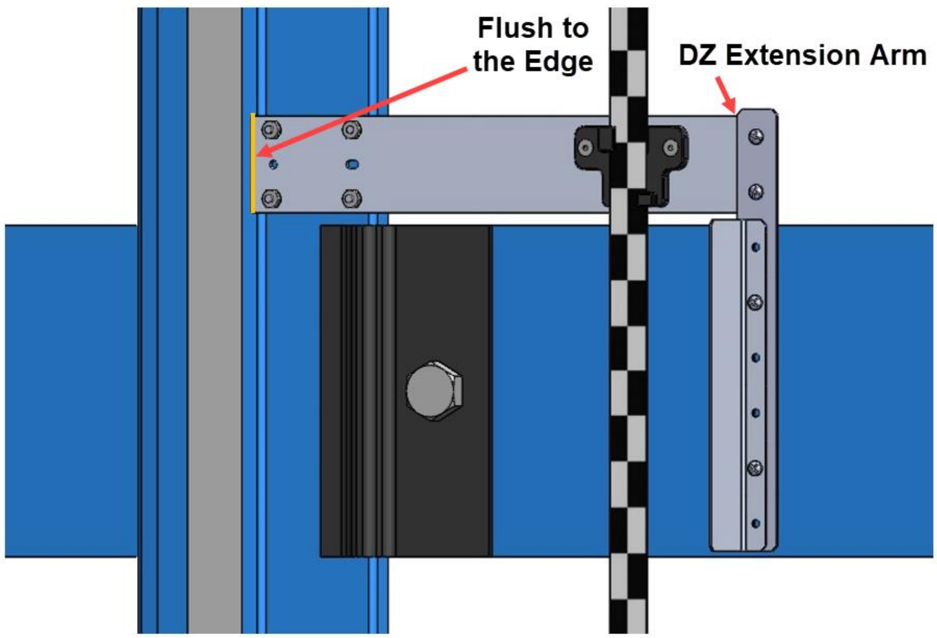

Figure 97: Tape Clip Assembly Alignment

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

9.5 Lower Tape Mount Assembly

See Figure 88 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.

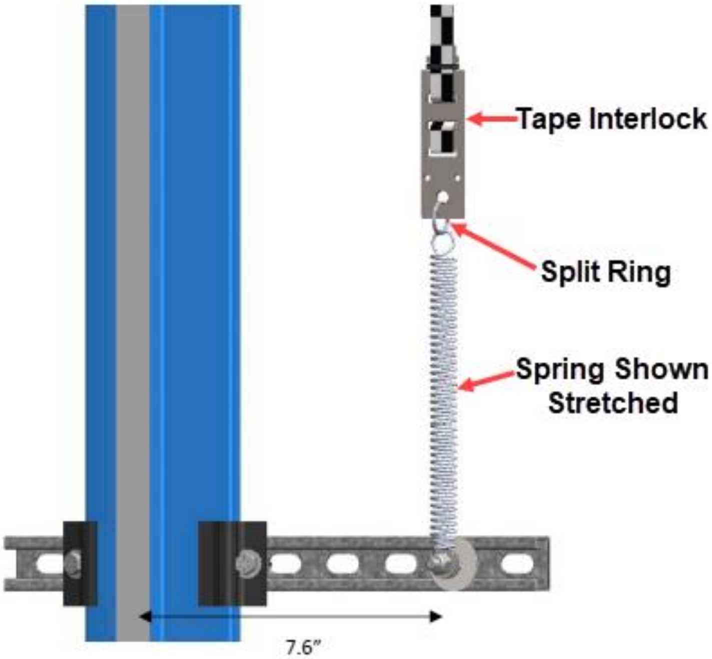

Figure 98: Lower Tape Mount Assembly

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

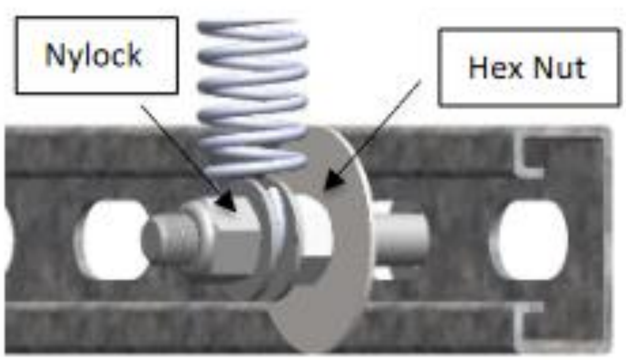

Figure 99: Hardware to Lower Tape Mount Assembly

3. 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 98.
4. Tighten the first hex nut to secure the Lower Tape Mount Assembly in place.
5. 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.

6. Connect the spring to the tape interlock bracket using the split ring. See Figure 98.
7. Adjust the spring tension by raising or lowering the Unistrut mounting point so that the spring is stretched to approximately 3".

9.6 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.

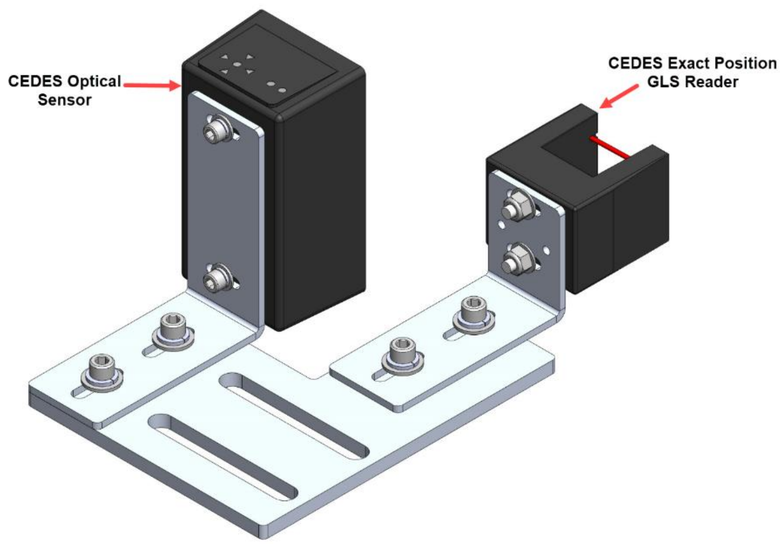

Figure 100: Sensor Array Assembly

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.

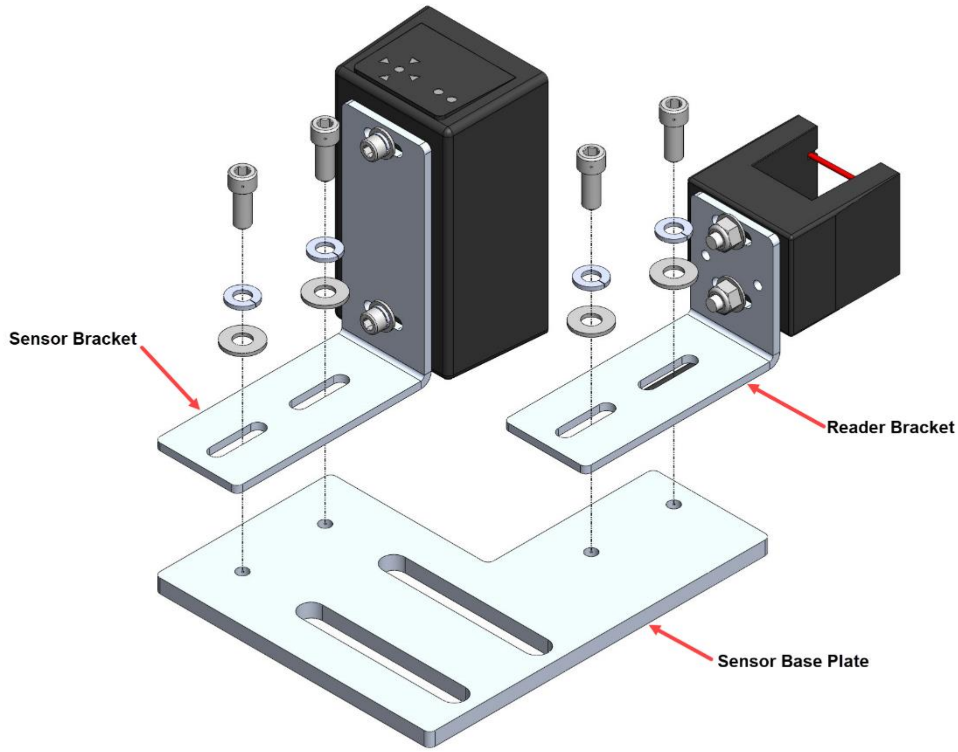

Figure 101: Sensor Array Assembly (Right Side)

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.

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

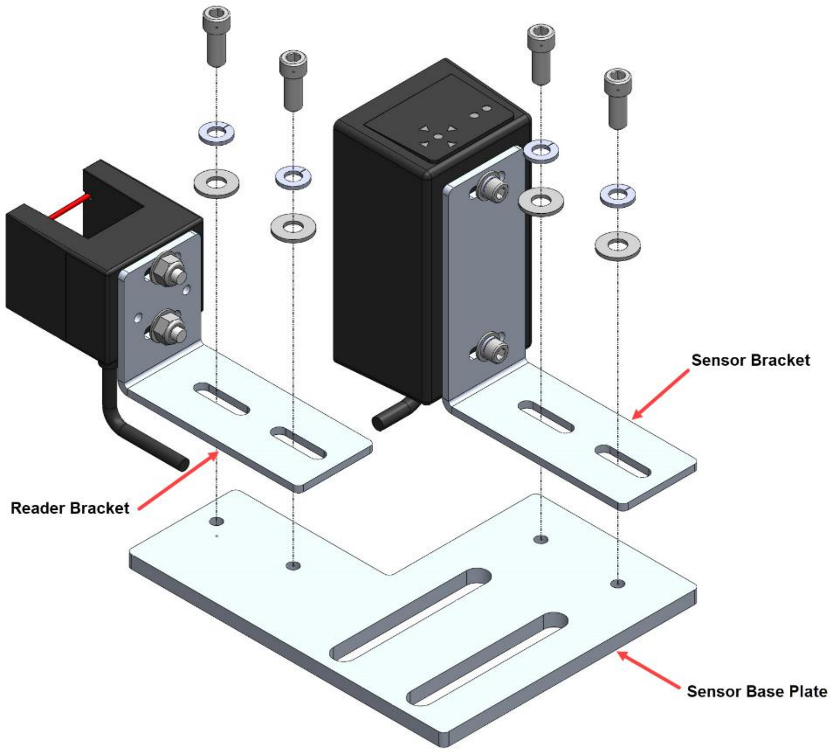

Figure 102: Sensor Array Assembly (Left Side)

A Dual Sensor Array Assembly can be installed if applicable.

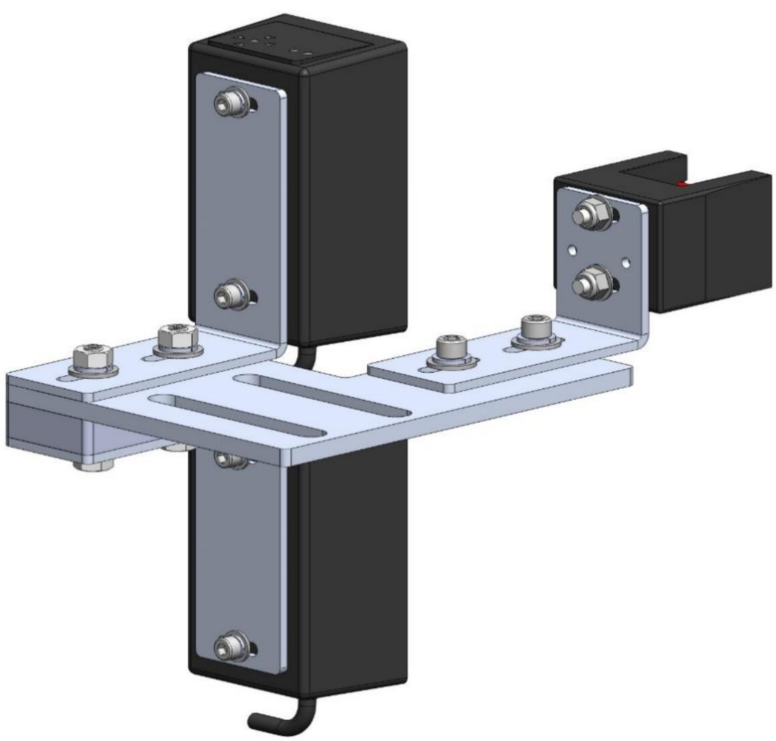

Figure 103: Dual Sensor Array Assembly

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.

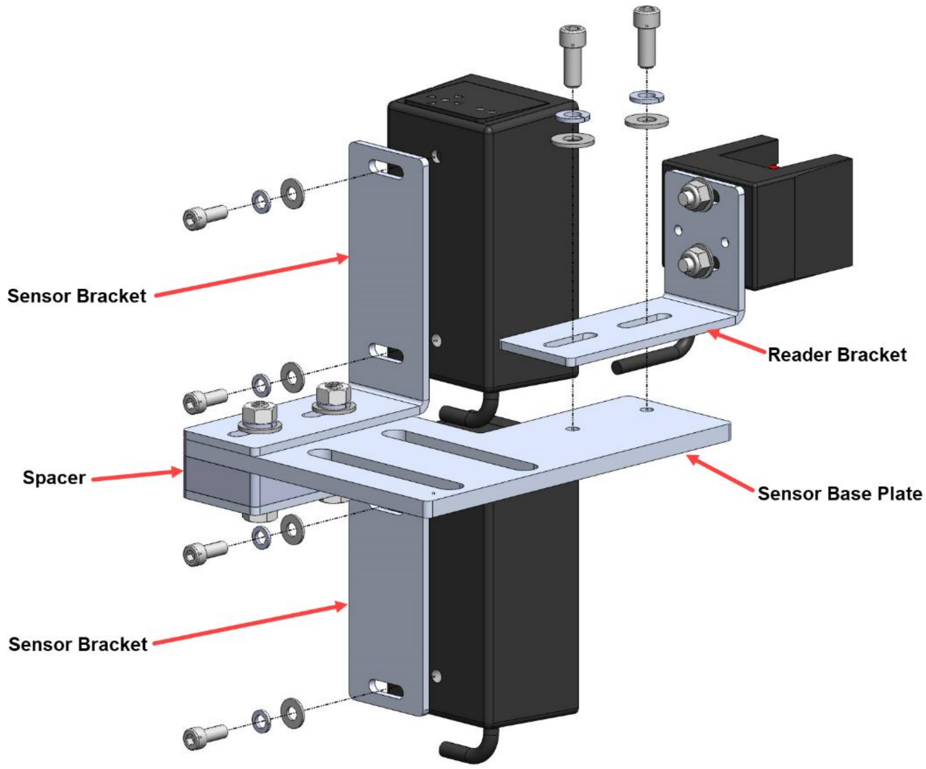

Figure 104: Dual Sensor Array Assembly (Right Side)

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

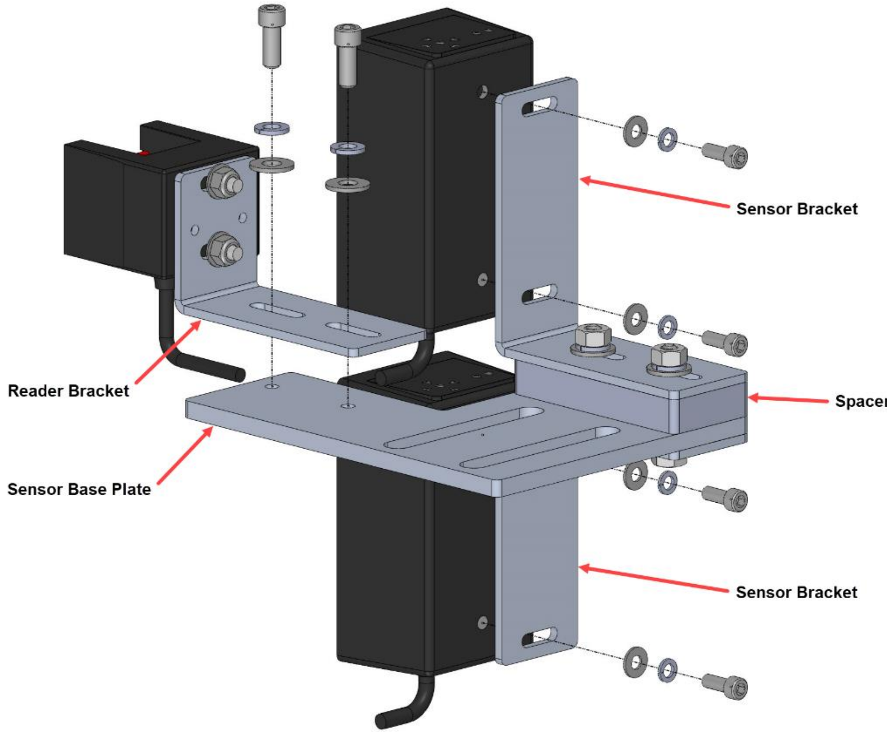

Figure 105: Dual Sensor Array Assembly (Left Side)

9.7 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.

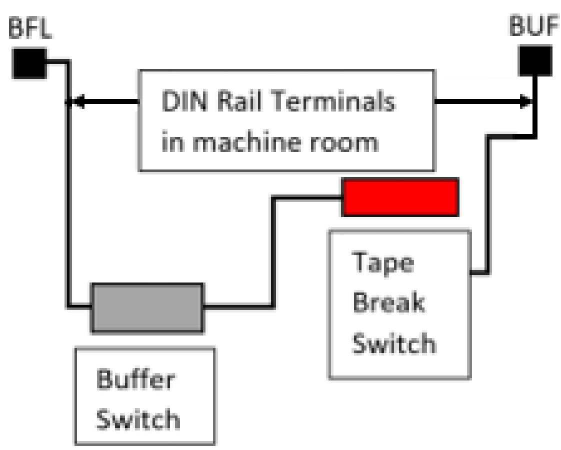

Figure 106: Emergency Tape Break Switch in Series with Buffer Switch

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 108.

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.

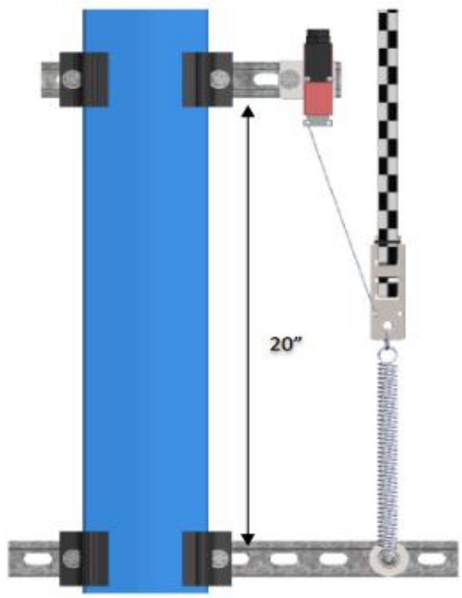

Figure 107: Unistrut to Lower Tape Mount Assembly

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.

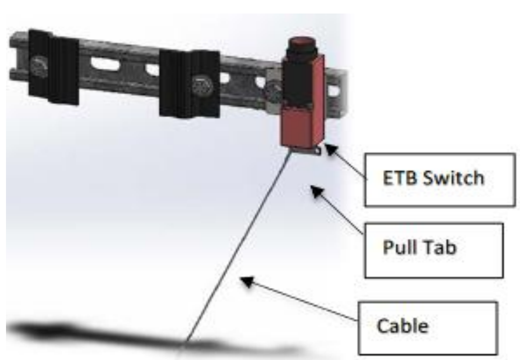

Figure 108: Emergency Tape Break Switch

9.8 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 ±1 cm from the tape and parallel to the tape clip mounting brackets. See Figure 87.

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

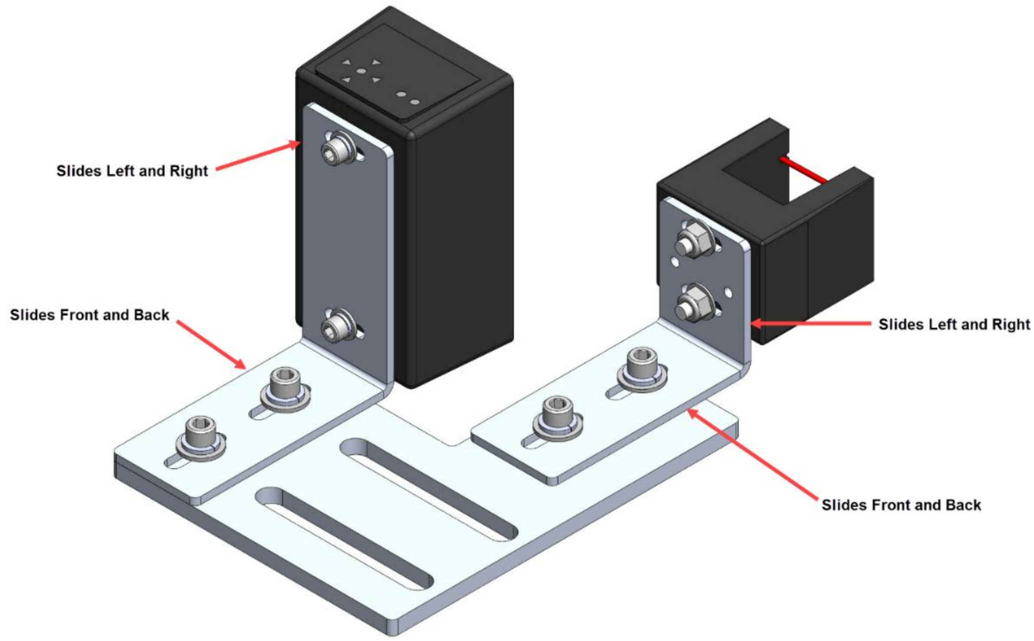

Figure 109: Sensor Array Assembly Adjustment

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.

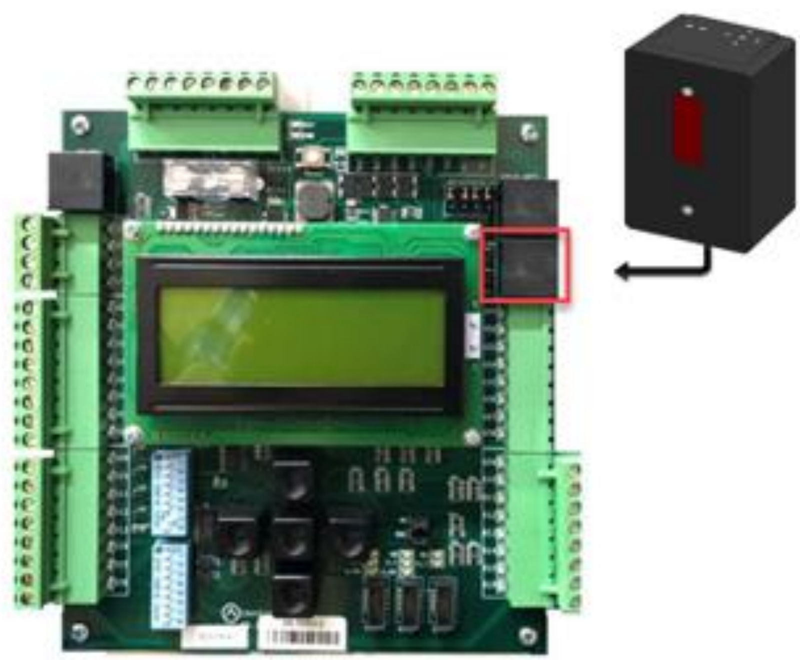

Figure 110: RJ45 Connection

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.

9.9 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.

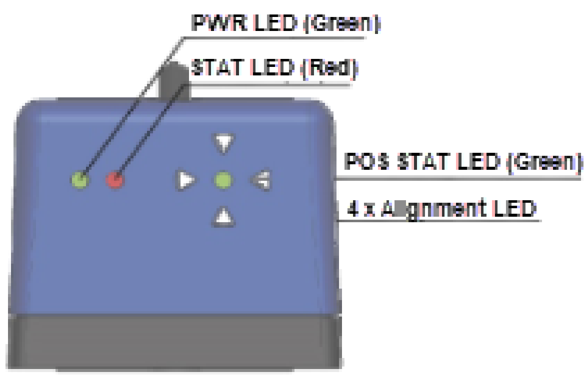

Figure 111: Optical Sensor LEDs

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.

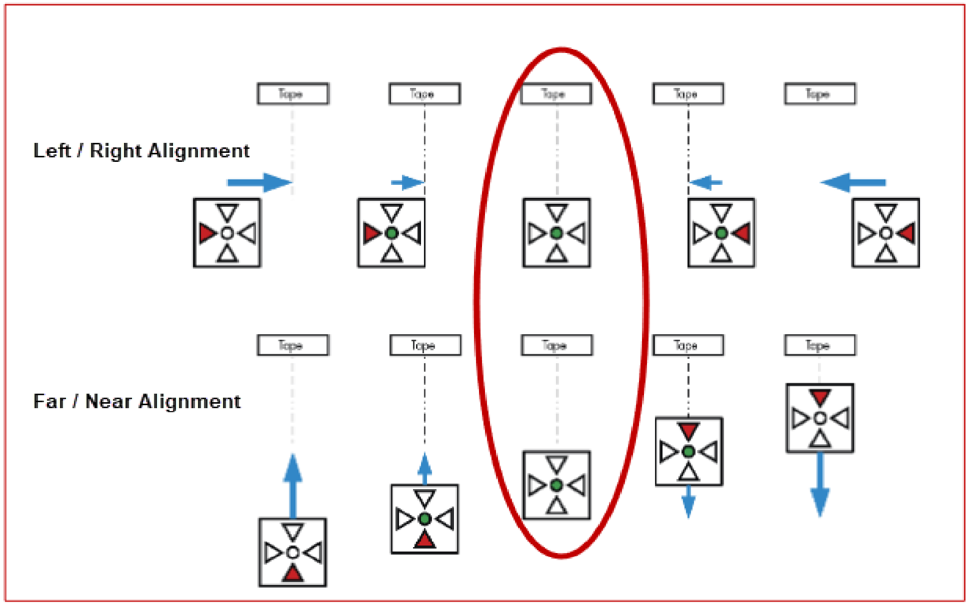

Figure 112: Alignment Arrows

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 in 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.

Page intentionally left

10 Learning The Hoistway

Prior to learning the hoistway, verify the number of floors and openings are correct. See section 12.8 Floor Openings.

The following procedure describes how to learn the hoistway.

1. Bring the car to the top or bottom floor terminal.
2. Check the top right corner of the Main screen to verify the DZ input to the CT board is high by.

Figure 113: Check Status by Main Screen Method

3. On the MR board, turn on DIP 5A.
4. 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 114: Normal to Hold UP/DN To Start

5. 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.
6. When the car stops, the screen shows Learn Complete.

Figure 115: Learn Complete

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

11 Speeds

Individual speed profiles can be set to operate the car.

11.1 Contract Speed

Contract speed should be set as the maximum speed the car is running at with an empty load. This helps to determine the factor which calculates the slowdown distance for different speed threshold.

The adjustment range is from 10-200 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 116: SPEEDS Menu – Contract Speed

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

Figure 117: CONTRACT SPEED Menu

4. Scroll right and press Save.

11.2 Leveling Speed

Leveling speed is the steady state of the car when it moves at low speed with only the leveling valve active. The speed will be determined by how the leveling valves are adjusted. As the weights in the car increases, the leveling speed might decrease and the steady state of the car during leveling would be longer if the valves are unregulated.

11.3 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 in high speed.
- If the speed is anything else than contract speed, the car will move at leveling speed.

NOTE: Maximum speed is 200 fpm.

The following procedure describes how to set the test buffer speed.

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

Figure 118: SPEEDS Menu – Test Buffer Speed

3. From the BUFFER SPEED menu, set the speed when leveling a car to a floor.

Figure 119: BUFFER SPEED Menu

4. Scroll right and press Save.

12 Floors

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

12.1 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 55.
2. From the FLOORS menu, scroll and select Number of Floors.

Figure 120: 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.

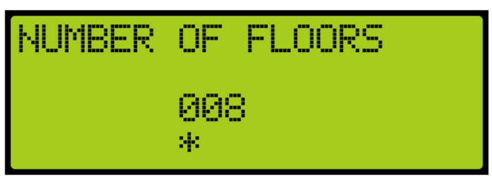

Figure 121: NUMBER OF FLOORS Menu

4. Scroll right and press Save.

12.2 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.

12.2.1 Car is Too Low or Too High

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

- If the car stops before floor level, increase the distance by the amount the car needs to move up.
- If the car stops above floor level, decrease the distance by the amount the car needs to move down.

The following procedure describes how to adjust the floor level.

1. Navigate to MAIN MENU | SETUP | FLOORS. See Figure 55.
2. From the FLOORS menu, scroll and select Too High/ Too Low.

Figure 122: 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 123: 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 124: ADJUST FLOORS Menu – Too High

6. Scroll right and press Save.

12.3 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 mask 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 *Hydro:Evolved Parameter List*.

NOTE: The security input must be assigned prior to setting up which floors require security access. See section 19 Error! Bookmark not defined..

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

1. Navigate to MAIN MENU | SETUP | FLOORS. See Figure 55.
2. From the FLOORS menu, scroll and select, Security (Front or Rear).

Figure 125: 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 126: SECURITY FLOORS Menu

4. Scroll right and press Save.

12.4 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.

12.4.1 Front and Rear Access

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

1. Navigate to MAIN MENU | SETUP | ACCESS CODE. See Figure 61.
2. From the ACCESS CODE menu, scroll and select Access Codes (Front or Rear).

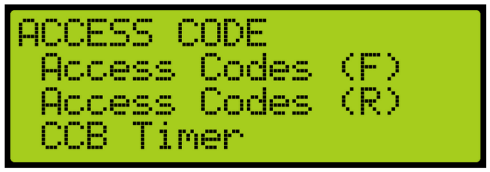

Figure 127: ACCESS CODE Menu – Access Codes (Front or Rear)

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

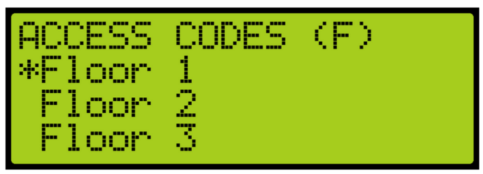

Figure 128: ACCESS CODE FRONT Menu – Floor Number

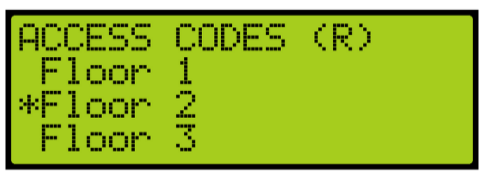

Figure 129: ACCESS CODE REAR Menu – Floor Number

4. 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 130: No Access Code

5. 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 131: FRONT ACCESS CODE Menu

Figure 132: REAR ACCESS CODE Menu

Figure 133: 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.

12.4.2 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 61.

2. From the ACCESS CODE menu, scroll and select CCB Timer.

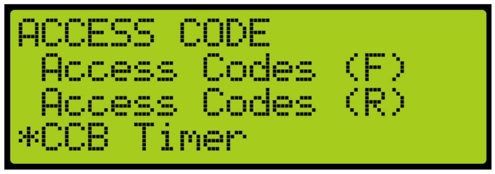

Figure 134: ACCESS CODE Menu – CCB Timer

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

Figure 135: CCB TIMER Menu

4. Scroll right and press Save.

12.5 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.

1. Navigate to MAIN MENU | SETUP | FLOORS. See Figure 55.
2. From the FLOORS menu, scroll and select Enable Releveling.

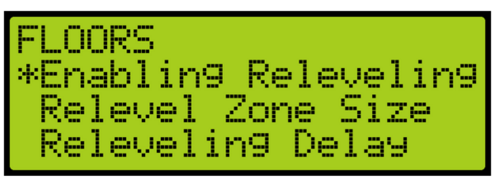

Figure 136: FLOORS Menu – Enable Releveling

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

Figure 137: ENABLE RELEVELING Menu

4. Scroll right and press Save.

12.6 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 55.
2. From the FLOORS menu, scroll and select Relevel Zone Size.

Figure 138: FLOORS Menu – Relevel Zone Size

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

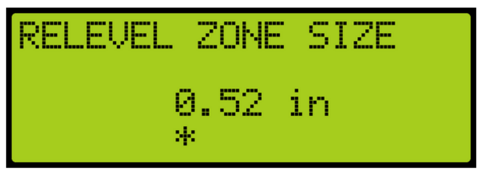

Figure 139: RELEVEL ZONE SIZE Menu

4. Scroll right and press Save.

12.7 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 55.
2. From the FLOORS menu, scroll and select Releveling Delay.

Figure 140: FLOORS Menu – Releveling Delay

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

Figure 141: RELEVELING DELAY Menu

4. Scroll right and press Save.

12.8 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 *Hydro:Evolved Parameter List.*

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

1. Navigate to MAIN MENU | SETUP | FLOORS. See Figure 55.
2. From the FLOOR menu, scroll and select Openings (Front or Rear).

Figure 142: FLOOR Menu – Openings (Front or Rear)

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 143: FLOOR OPENING Menu

4. Scroll right and press Save.

12.9 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 55.
2. From the FLOORS menu, scroll and select Store Floor Level.

Figure 144: FLOORS Menu – Store Floor Level

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

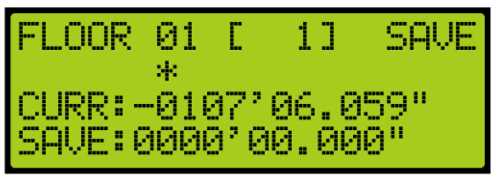

Figure 145: STORE FLOORS Menu

4. Scroll right and press Save.

12.10 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.

1. Navigate to MAIN MENU | SETUP | FLOORS. See Figure 55.
2. From the FLOORS menu, scroll and select Short Floor Opening.

Figure 146: FLOORS Menu – Short Floor Opening

3. From the Short Floor Opening menu, scroll and select the short floor door zone.

Figure 147: SHORT FLOOR OPENING Menu

4. Scroll right and press Save.

12.11 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 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 55.
2. From the FLOOR menu, scroll and select Timed Car Call Security.

Figure 148: FLOOR Menu – Timed Car Call Security

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

Figure 149: TIMED CC SECURITY Menu – Enable Floor (Front or Rear)

4. From the SECURITY FLOORS menu, select the secured floor. See Figure 126.
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 (see Figure 149) and go to step 7.
   b. If setting the security floor for the weekend, scroll back to Timed Car Call Security menu (see Figure 149) and go to step 14.

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

Figure 150: 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 151: 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 152: 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 153: 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).

Figure 154: 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 155: 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 156: TIMED CAR CALL SECURITY Menu – Stop (S-S)

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

Figure 157: WEEKEND STOP TIME Menu

20. Scroll right and press Save.

13 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 *Hydro:Evolved Parameter List*.

The following procedure describes how to set the Sabbath operation.

1. Navigate to MAIN MENU | SETUP. See Figure 43.
2. Is the Sabbath operation being setup by Key Enable Only, Timer Enable Only, or Key 0r 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.

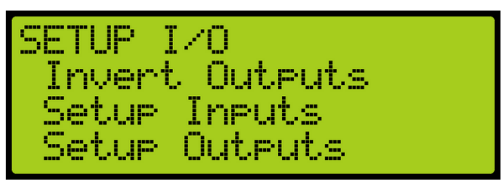

Figure 158: SETUP I/O Menu – Setup Inputs

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

Figure 159: 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 160: Input Menu

7. Scroll right.
8. Scroll and select Auto Operation. See Figure 160.
9. Scroll right.
10. Scroll and select Sabbath. See Figure 160.
11. Scroll right and press Save.
12. Press the left button and navigate to SETUP | SABBATH. See Figure 59.
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 161: SABBATH Menu – Key Enable Only

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

Figure 162: 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 163: 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 164: 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 165: 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 166: 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 167: 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 168: 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 169: SABBATH Menu – Destinations Down

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

Figure 170: DOWN DESTINATION Menu

32. Is the Sabbath Operation being setup for Key Enable Only, Timer Enable Only, or Key or Timer Enable?
    a. If the Sabbath Operation is being setup for Key Enable Only, go to step 34.
    b. If the Sabbath Operation is being setup for Timer Enable Only, go to step 34.
    c. 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 59.

36. From the Sabbath menu, scroll and select Timer Enable Only.

Figure 171: SABBATH Menu – Timer Enable Only

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

Figure 172: 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 173: SABBATH Menu – Friday Start Time

41. Set the time the Sabbath starts.

Figure 174: 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 175: SABBATH Menu – SATURDAY END Time

45. Set the time the Sabbath ends.

Figure 176: 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 177: SABBATH Menu – Door Dwell Timer

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

Figure 178: DOOR DWELL TIMER Menu

50. Scroll right and press Save. Go to step 17.
51. Navigate to SETUP | SABBATH. See Figure 59.
52. From the Sabbath menu, scroll and select Key or Timer Enable.

Figure 179: SABBATH Menu – Key or Timer Enable

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

Figure 180: 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.

14 Doors

The table below lists door symbols for each state.

Table 24: 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	“[>!<]”

14.1 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.

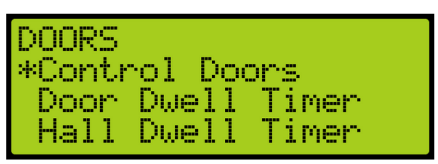

Figure 181: DOORS Menu – Control Doors

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 182: CONTROL DOORS Menu

14.2 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.

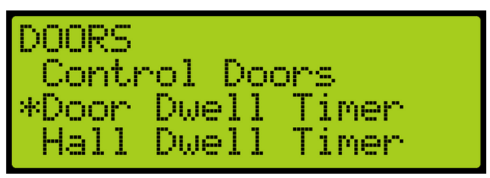

Figure 183: DOORS Menu –Door Dwell Timer

3. From the DWELL TIMER menu, set the time the doors stay open. See Figure 178.
4. Scroll right and press Save.

14.3 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.

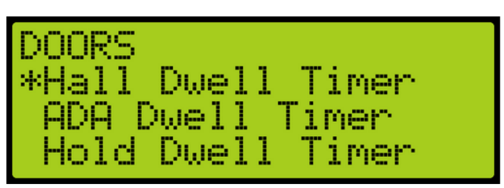

Figure 184: DOORS Menu – Hall Dwell Timer

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

Figure 185: HALL DWELL TIMER Menu

4. Scroll right and press Save.

14.4 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.

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

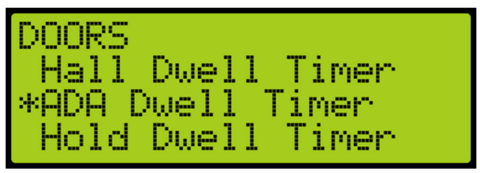

Figure 186: DOORS Menu – ADA Dwell Timer

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

Figure 187: ADA DWELL TIMER Menu

4. Scroll right and press Save.

14.5 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.

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

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

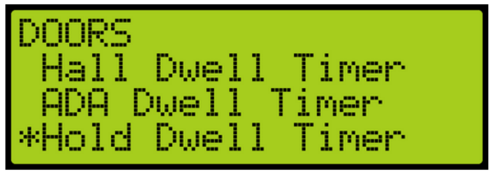

Figure 188: DOORS Menu – Hold Dwell Timer

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

Figure 189: HOLD DWELL TIMER Menu

4. Scroll right and press Save.

14.6 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.

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

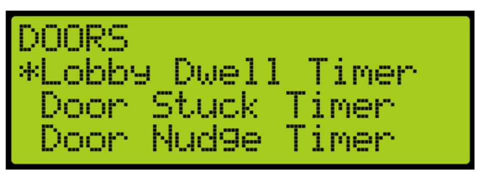

Figure 190: DOORS Menu – Lobby Dwell Timer

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

Figure 191: LOBBY DWELL TIMER Menu

4. Scroll right and press Save.

14.7 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.

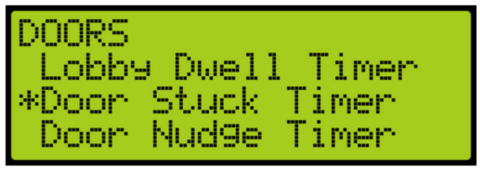

Figure 192: DOORS Menu – Door Stuck Timer

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

Figure 193: DOOR STUCK TIMER Menu

4. Scroll right and press Save.

14.8 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.

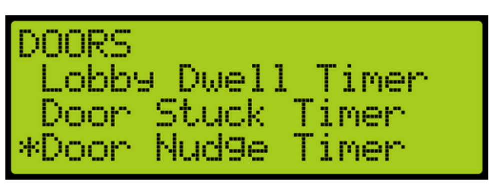

Figure 194: DOORS Menu – Door Nudge Timer

3. 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 195: Door Nudge Timer

4. Scroll right and press Save.

14.9 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.

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

Figure 196: DOORS Menu – Rear Doors

3. 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 197: REAR DOORS Menu

4. Scroll right and press Save.

14.10 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 198: DOORS Menu – PreOpening Distance

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

Figure 199: PREOPENING Distance Menu

4. Scroll right and press Save.

14.11 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 200: 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 201: DC ON RUN Menu

4. Scroll right and press Save.

14.12 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 202: DOORS Menu – DC On Close

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

Figure 203: DC ON DOOR CLOSE Menu

4. Scroll right and press Save.

14.13 DO On Open

The DO 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.

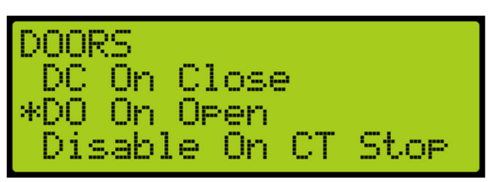

Figure 204: DOORS Menu – DO On Open

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

Figure 205: DO ON DOOR OPEN Menu

4. Scroll right and press Save.

14.14 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.

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

Figure 206: DOORS Menu – Disable On CT Stop

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

Figure 207: DISABLE DOOR ON CT STOP Menu

4. Scroll right and press Save.

14.15 Disable on HA

Door outputs are disabled when the hoistway access is active.

The following procedure describes how to disable all door outputs.

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

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

Figure 208: DOORS Menu – Disable On HA

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

Figure 209: DISABLE DOOR ON HA Menu

4. Scroll right and press Save.

14.16 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.

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

Figure 210: DOORS Menu – AT400 Doors

3. From the ENABLE AT400 DOOR menu, scroll and select ON.

Figure 211: ENABLE AT400 DOOR Menu

4. Scroll right and press Save.

14.17 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 212: 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 213: NO DEMAND DOORS OPEN Menu

4. Scroll right and press Save.

14.18 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 214: DOORS Menu – Jumper Timer

3. From the JUMPER TIMEOUT menu, set the time to verify there are no jumpers attached to the GSW or door locks.

Figure 215: JUMPER TIMEOUT Menu

4. Scroll right and press Save.

14.19 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.

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

Figure 216: DOORS Menu – Jumper On DOL

3. From the LOCK JUMPED ON DOL menu, scroll and select ON to verify jumpers are detected on the DOL.

Figure 217: LOCK JUMPED ON DOL Menu

4. Scroll right and press Save.

14.20 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 218: DOORS Menu – Hourly Fault Limit

3. From the HOURLY FAULT LIMIT menu, set the number of logged faults allowed per hour before the car goes out of service.

Figure 219: HOURLY FAULT LIMIT Menu

4. Scroll right and press Save.

14.21 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 220: DOORS Menu – Nudge – Buzzer Only

3. From the NUDGE – BUZZER ONLY menu, scroll and select ON if the buzzer sounds when nudging.

Figure 221: NUDGE – BUZZER ONLY Menu

4. Scroll right and press Save.

14.22 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.

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

Figure 222: DOORS Menu – Opening Time

3. From the OPENING TIME menu, set the time for the doors to fully open.

Figure 223: OPENING TIME Menu

4. Scroll right and press Save.

14.23 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.

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

2. From the DOORS menu, scroll and select Check Time.

Figure 224: DOORS Menu – Check Time

3. From the CHECK TIME menu, set the time to check if the doors are considered safe.

Figure 225: CHECK TIME Menu

4. Scroll right and press Save.

14.24 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.

1. Navigate to MAIN MENU | SETUP | DOOR SETUP. See Figure 55.
2. From the DOORS menu, scroll and select Door Type (Front or Rear).

Figure 226: DOORS Menu – Door Type (Front or Rear)

3. From the DOOR TYPE SELECT menu, select the type of door used on the front and rear landing as applicable.

Figure 227: DOOR TYPE Menu

4. Scroll right and press Save.

14.25 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.

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

Figure 228: DOORS Menu – Lock and CAM Timeout

3. From the TIMEOUT LOCK AND CAM menu, set the amount of time for the timeout.

Figure 229: TIMEOUT LOCK AND CAM Menu

4. Scroll right and press Save.

14.26 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.

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

2. From the DOORS menu, scroll and select Retiring CAM.

Figure 230: DOORS Menu – Retiring CAM

3. From the RETIRING CAM menu, scroll and select ON.

Figure 231: RETIRING CAM Menu

4. Scroll right and press Save.

14.27 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.

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

Figure 232: DOORS Menu – Fixed CAM

3. From the FIXED CAM menu, scroll and select ON.

Figure 233: FIXED CAM Menu

4. Scroll right and press Save.

14.28 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 234: DOORS Menu – Swing Lock GSW Timeout

3. From the SWING LOCK GSW TIMER menu, set the amount of time for the Swing Lock Gate switch will timeout.

Figure 235: SWING LOCK GSW TIMER Menu

4. Scroll right and press Save.

14.29 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 236: DOORS Menu – Swing Contacts Timeout

3. From the SWING CONTACTS TIMER menu, set the amount of time for the swing contacts to timeout.

Figure 237: SWING CONTACTS TIMER Menu

4. Scroll right and press Save.

14.30 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.

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

Figure 238: DOORS Menu – Disable DOB Rear

3. From the DISABLE REAR DOB menu, scroll and select ON to disable rear door.

Figure 239: DISABLE REAR DOB Menu

4. Scroll right and press Save.

14.31 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.

1. Navigate to MAIN MENU | DEBUG | VIEW DEBUG DATA. See Figure 64.
2. From the View Debug Data menu, press the right button.

3. Scroll down and right until code 043 is displayed.

Figure 240: 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 24.
- Current Door Command – The current door command being issued to the door module. See Table 25.
- Last Door Command – The last door command issued to the door module. See Table 25.
- 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 25: 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

14.32 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 64.
2. From the View Debug Data menu, press the right button.
3. Scroll down and right until code 044 is displayed.

Figure 241: VIEW DEBUG DATA Menu – Rear Door

4. View the state of the rear door.

See section 14.31 Front Door State for the door state, commands, and command descriptions.

15 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.

15.1 Car Data Overview

The following procedure describes how to view the car status overview.

1. Navigate to MAIN MENU | DEBUG | CAR DATA. See Figure 65.
2. View the Car Data Overview.

Figure 242: Car Data Overview

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 with current slowdown distance and valve set up.

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 26: 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_2T	Go to Terminal
L-SSD	Saving Slowdown Points Down
L-LSD	Learning Slowdown Points Down
L-BHA	Bypass Term Limits
L-RHA	Ready Hoistway Learn
L-SSU	Saving Slowdown Points Up
L-LSU	Learning Slowdown Points Up
L-LHU	Learning Hoistway Up
L-LHD	Learning Hoistway Down
L-SHU	Saving Hoistway Up
L-SHD	Saving Hoistway Down
L-CMP	Learn Complete
Automatic	
A-UNK	Unknown
A-NON	None
A-NORM	Normal
A-FIR_1	Fire Phase 1
A-FIR_2	Fire Phase 2
A-EMS_1	EMS Phase 1
A-EMS_2	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-PRS_1	Prison Transport 1
A-PRS_2	Prison Transport 2
A-INV	Invalid
A-WG	Wander Guard
A-HUGS	HUGS
A-CSW	Invalid
A-TEST	Test Mode

Code	Description
A-WIND	Wind Operation
A-FLD	Flood Operation
A-SWING	Swing Operation
A-CUST	Custom Operation
A-ACTS	Active Shooter
A-MARS	Marshall Mode
A-VIP	VIP Mode
A-T2T	Terminal to Terminal Auto Dispatch
A-F2F	Floor to Floor Auto Dispatch
A-RAND	Random Floor Auto Dispatch
A-LOIL	Low Oil
A-VISC	Viscosity
A-RESY	Jack Resync
A-LWPR	Low Pressure
A-MOVH	Motor Overheat
A-PHSE	Phase Fault

15.2 Hall Mask Status

Hall 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 65.
2. From the Car Data Overview (see Figure 242), press the right button .
3. View the Hall Mask Status.

Figure 243: Hall Mask Status

The table below lists the Hall Mask Status definitions.

Table 27: 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

15.3 Opening Map Status

The opening map status displays which landings have front or rear openings enabled.

15.3.1 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 65.
2. From the Car Data Overview (see Figure 242), click the right button.
3. From the Hall Mask Status (see Figure 243), press the right button.
4. View the Front Opening Map Status.

Figure 244: Front Opening Map Status

15.3.2 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 65.
2. From the Car Data Overview (see Figure 242), press the right button.
3. From the Hall Mask Status (see Figure 243), press the right button.
4. From the Front Opening Map Status (see Figure 244), press the right button.
5. View the Rear Opening Map Status.

Figure 245: Rear Opening Map Status

15.4 Security Map Status

The security map status displays the status of secure landings.

15.4.1 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 65.
2. From the Car Data Overview (see Figure 242), press the right button.
3. From the Hall Mask Status (see Figure 243), press the right button.
4. From the Front Opening Map Status (see Figure 244), press the right button.

5. From the Rear Opening Map Status (see Figure 245), press the right button.
6. View the Front Security Map Status.

Figure 246: Front Security Map Status

15.4.2 Rear Security Map Status

To following procedure describes how to view the rear security map status.

1. Navigate to MAIN MENU | DEBUG | CAR DATA. See Figure 65.
2. From the Car Data Overview (see Figure 242), press the right button.
3. From the Hall Mask Status (see Figure 243), press the right button.
4. From the Front Opening Map Status (see Figure 244), press the right button.
5. From the Rear Opening Map Status (see Figure 245), press the right button.
6. From the Front Security Map Status (see Figure 246), press the right button.
7. View the Rear Security Map Status.

Figure 247: Rear Security Map Status

15.5 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 *Hydro:Evolved Parameter List.*

The linked hall mask status displays which Hall board outputs are tied together.

The following procedure describes how to view the linked hall mask status.

1. Navigate to MAIN MENU | DEBUG | CAR DATA. See Figure 65.
2. From the Car Data Overview (see Figure 242), press the right button.
3. From the Hall Mask Status (see Figure 243), press the right button.
4. From the Front Opening Map Status (see Figure 244), press the right button.
5. From the Rear Opening Map Status (see Figure 245), press the right button.
6. From the Front Security Map Status (see Figure 246), press the right button.
7. From the Rear Security Map Status (seeFigure 247), 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 248: Linked Hall Mask Status

15.6 Hall Security Map Status

The hall security mask status displays the front and rear openings that require hall security.

15.6.1 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 65.
2. From the Car Data Overview (see Figure 242), press the right button.
3. From the Hall Mask Status (see Figure 243), press the right button.
4. From the Front Opening Map Status (see Figure 244), press the right button.
5. From the Rear Opening Map Status (see Figure 245), press the right button.
6. From the Front Security Map Status (see Figure 246), press the right button.
7. From the Rear Security Map Status (seeFigure 247), press the right button.
8. From the Linked Hall Mask Status (see Figure 248), press the right button.
9. View the Front Hall Security Map Status.

Figure 249: Front Hall Security Map Status

15.6.2 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 65.
2. From the Car Data Overview (see Figure 242), press the right button.
3. From the Hall Mask Status (see Figure 243), press the right button.
4. From the Front Opening Map Status (see Figure 244), press the right button.
5. From the Rear Opening Map Status (see Figure 245), press the right button.
6. From the Front Security Map Status (see Figure 246), press the right button.
7. From the Rear Security Map Status (seeFigure 247), press the right button.

8. From the Linked Hall Mask Status (see Figure 248), press the right button.
9. From the Front Hall Security Map Status (see Figure 249), press the right button.
10. View the Rear Hall Security Map Status.

Figure 250: Rear Hall Security Map Status

15.7 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 *Hydro:Evolved Parameter List.*

The following procedure describes how to view the hall security mask status.

1. Navigate to MAIN MENU | DEBUG | CAR DATA. See Figure 65.
2. From the Car Data Overview (see Figure 242), press the right button.
3. From the Hall Mask Status (see Figure 243), press the right button.
4. From the Front Opening Map Status (see Figure 244), press the right button.
5. From the Rear Opening Map Status (see Figure 245), press the right button.
6. From the Front Security Map Status (see Figure 246), press the right button.
7. From the Rear Security Map Status (seeFigure 247), press the right button.
8. From the Linked Hall Mask Status (see Figure 248), press the right button.
9. From the Front Hall Security Map Status (see Figure 249), press the right button.
10. From the Rear Hall Security Map Status (see Figure 250), press the right button.
11. View the Front and Rear Hall Security Mask Status.

Figure 251: Front and Rear Hall Security Mask Status

15.8 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 65.

2. From the Car Data Overview (see Figure 242), press the right button.
3. From the Hall Mask Status (see Figure 243), press the right button.
4. From the Front Opening Map Status (see Figure 244), press the right button.
5. From the Rear Opening Map Status (see Figure 245), press the right button.
6. From the Front Security Map Status (see Figure 246), press the right button.
7. From the Rear Security Map Status (seeFigure 247), press the right button.
8. From the Linked Hall Mask Status (see Figure 248), press the right button.
9. From the Front Hall Security Map Status (see Figure 249), press the right button.
10. From the Rear Hall Security Map Status (see Figure 250), press the right button.
11. From the Hall Security Mask Status (see Figure 251), press the right button.
12. View the Dispatching Timers Status.

Figure 252: Dispatching Timers Status

The Dispatching Timers Status menu displays the following:

- **F2F:** The car's estimated floor to floor (worst-case) time.
- **CCD:** The period the doors remain open when responding to car calls. See section 14.2 Door Dwell Timer.
- **HCD**: The period the doors remain open when responding to hall calls. See section 14.3 Hall Dwell Timer.

15.9 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 65.
2. From the Car Data Overview (see Figure 242), press the right button.
3. From the Hall Mask Status (see Figure 243), press the right button.
4. From the Front Opening Map Status (see Figure 244), press the right button.
5. From the Rear Opening Map Status (see Figure 245), press the right button.
6. From the Front Security Map Status (see Figure 246), press the right button.
7. From the Rear Security Map Status (seeFigure 247), press the right button.
8. From the Linked Hall Mask Status (see Figure 248), press the right button.
9. From the Front Hall Security Map Status (see Figure 249), press the right button.
10. From the Rear Hall Security Map Status (see Figure 250), press the right button.
11. From the Hall Security Mask Status (see Figure 251), press the right button.
12. From the Dispatching Timers Status (see Figure 252), press the right button.

13. View the VIP Flags Status.

Figure 253: VIP Flags Status

The VIP Flags menu displays the following:

- **bVIP:** When 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.

15.10 VIP Masks

The VIP masks displays 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 65.
2. From the Car Data Overview (see Figure 242), press the right button.
3. From the Hall Mask Status (see Figure 243), press the right button.
4. From the Front Opening Map Status (see Figure 244), press the right button.
5. From the Rear Opening Map Status (see Figure 245), press the right button.
6. From the Front Security Map Status (see Figure 246), press the right button.
7. From the Rear Security Map Status (seeFigure 247), press the right button.
8. From the Linked Hall Mask Status (see Figure 248), press the right button.
9. From the Front Hall Security Map Status (see Figure 249), press the right button.
10. From the Rear Hall Security Map Status (see Figure 250), press the right button.
11. From the Hall Security Mask Status (see Figure 251), press the right button.
12. From the Dispatching Timers Status (see Figure 252), press the right button.
13. From the VIP Flags Status (see Figure 253, press the right button.
14. View the VIP (Front and Rear) Mask Status.

Figure 254: VIP Mask Status Menu

15.11 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.

15.11.1 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 65.
2. From the Car Data Overview (see Figure 242), press the right button.
3. From the Hall Mask Status (see Figure 243), press the right button.
4. From the Front Opening Map Status (see Figure 244), press the right button.
5. From the Rear Opening Map Status (see Figure 245), press the right button.
6. From the Front Security Map Status (see Figure 246), press the right button.
7. From the Rear Security Map Status (seeFigure 247), press the right button.
8. From the Linked Hall Mask Status (see Figure 248), press the right button.
9. From the Front Hall Security Map Status (see Figure 249), press the right button.
10. From the Rear Hall Security Map Status (see Figure 250), press the right button.
11. From the Hall Security Mask Status (see Figure 251), press the right button.
12. From the Dispatching Timers Status (see Figure 252), press the right button.
13. From the VIP Flags Status (see Figure 253), press the right button.
14. View the VIP (Front and Rear) Mask Status (see Figure 254), press the right button.
15. View the Front Car Call Enable Bitmap Status.

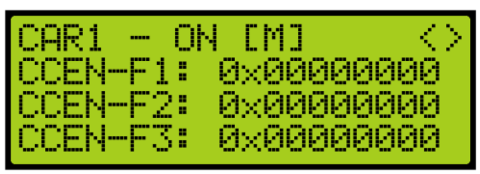

Figure 255: Front Car Call Enable Bitmap Status

15.11.2 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 65.
2. From the Car Data Overview (see Figure 242), press the right button.
3. From the Hall Mask Status (see Figure 243), press the right button.
4. From the Front Opening Map Status (see Figure 244), press the right button.
5. From the Rear Opening Map Status (see Figure 245), press the right button.
6. From the Front Security Map Status (see Figure 246), press the right button.
7. From the Rear Security Map Status (seeFigure 247), press the right button.
8. From the Linked Hall Mask Status (see Figure 248), press the right button.
9. From the Front Hall Security Map Status (see Figure 249), press the right button.
10. From the Rear Hall Security Map Status (see Figure 250), press the right button.
11. From the Hall Security Mask Status (see Figure 251), press the right button.
12. From the Dispatching Timers Status (see Figure 252), press the right button.

13. From the VIP Flags Status (see Figure 253), press the right button.
14. View the VIP (Front and Rear) Mask Status (see Figure 254), press the right button.
15. From the Front Car Call Enable Bitmap Status (see Figure 255), press the right button.
16. View the Rear Car Call Enable Bitmap Status.

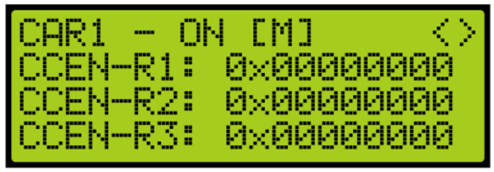

Figure 256: Rear Car Call Enable Bitmap Status

15.12 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 65.
2. From the Car Data Overview (see Figure 242), press the right button.
3. From the Hall Mask Status (see Figure 243), press the right button.
4. From the Front Opening Map Status (see Figure 244), press the right button.
5. From the Rear Opening Map Status (see Figure 245), press the right button.
6. From the Front Security Map Status (see Figure 246), press the right button.
7. From the Rear Security Map Status (seeFigure 247), press the right button.
8. From the Linked Hall Mask Status (see Figure 248), press the right button.
9. From the Front Hall Security Map Status (see Figure 249), press the right button.
10. From the Rear Hall Security Map Status (see Figure 250), press the right button.
11. From the Hall Security Mask Status (see Figure 251), press the right button.
12. From the Dispatching Timers Status (see Figure 252), press the right button.
13. From the VIP Flags Status (see Figure 253), press the right button.
14. View the VIP (Front and Rear) Mask Status (see Figure 254), press the right button.
15. From the Front Car Call Enable Bitmap Status (see Figure 255), press the right button.
16. From the Rear Car Call Enable Bitmap Status (see Figure 256), press the right button.
17. View the Emergency Medical Call Mask and Landing Status.

Figure 257: Emergency Medical Call Mask and Landing

The 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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16 Hall Network

The hall network is a group of Hall boards connected by a CAN bus.

16.1 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.

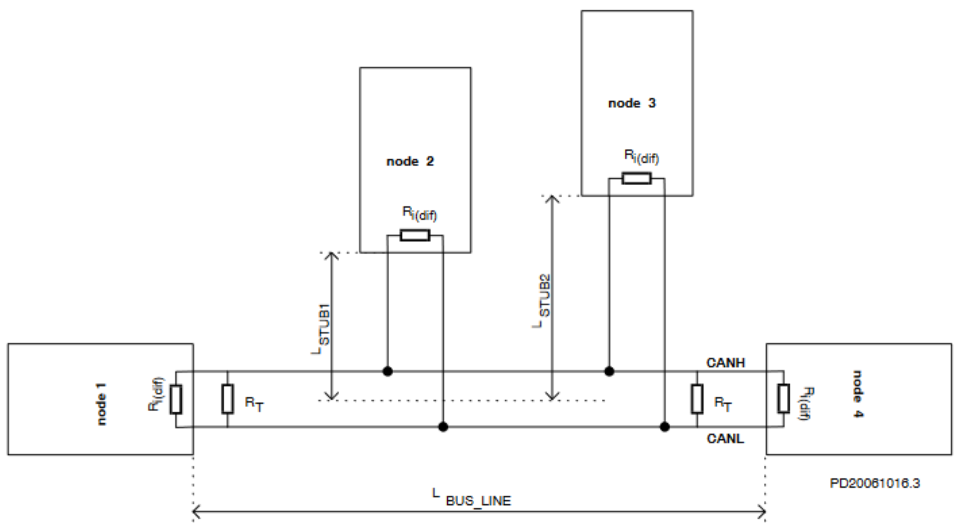

Figure 258: Standard CAN Bus[1]

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.

[1] See https://www.onsemi.com/pub/Collateral/AND8376-D.PDF for CAN Bus with Unterminated Stubs

NOTE: For most Hydro:Evolved 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 258.

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.

16.2 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 46.
2. The example below shows the Status of the Hall board.

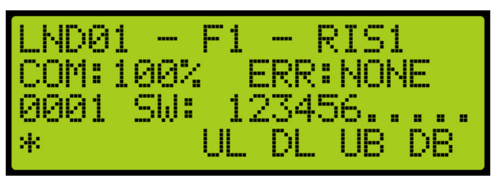

Figure 259: Hall Board Status

The Hall Board Status 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.

The figure below shows an example of the status of an uninitialized Hall board.

Figure 260: 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.

16.3 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 | GROUP SETUP. See Figure 58.
2. From the GROUP SETUP menu, scroll and select Enable Hall Security.

Figure 261: GROUP SETUP Menu – Enable Hall Security

3. From the ENABLE HALL SECURITY menu, scroll and select ON to enable hall security.

Figure 262: ENABLE HALL SECURITY Menu

4. Scroll right and press Save.

16.4 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 *Hydro:Evolved 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 58.

2. From the GROUP SETUP menu, scroll and select Linked Hall Mask.

Figure 263: 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 264: LINKED HALL MASK 1 Menu

4. Scroll right and press Save.

16.5 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 16-0940 to 16-0945 and the rear hall security map parameters are 16-1035 to 16-1040. For the list of parameters, see the *Hydro:Evolved Parameter List.*

The following procedure describes how to set hall security map.

1. Navigate to MAIN MENU | SETUP | GROUP SETUP. See Figure 58.
2. From the GROUP SETUP menu, scroll and select Hall Security Map (Front or Rear).

Figure 265: GROUP SETUP Menu – Hall Security Map (Front or Rear)

3. 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 266: HALL SECURITY MAP FRONT Menu

Figure 267: HALL SECURITY MAP REAR Menu

4. Scroll right and press Save.

16.6 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 16.10 Hall Rear Door Mask). The hall security mask parameter is 08-0208. For the list of parameters, see the *Hydro:Evolved Parameter List*.

The following procedure describes how to set Hall Security Mask.

1. Navigate to MAIN MENU | SETUP | GROUP SETUP. See Figure 58.
2. From the GROUP SETUP menu, scroll and select Hall Security Mask.

Figure 268: GROUP SETUP Menu – Hall Security Mask

3. From the HALL SECURITY MASK menu, scroll and turn ON the Hall board functions that need to be secured.

Figure 269: HALL SECURITY MASK Menu

4. Scroll right and press Save.

16.7 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 259.

16.8 Hall Call Masks

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 *Hydro:Evolved Parameter List.*

The following procedure describes how to set hall call mask.

1. Navigate to MAIN MENU | SETUP | GROUP SETUP. See Figure 58.
2. From the GROUP SETUP menu, scroll and select Hall Call Mask.

Figure 270: GROUP SETUP Menu – Hall Call Mask

3. From the HALL CALL MASK menu, scroll and select if the function is enabled.

Figure 271: 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 28: 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 29: 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

16.9 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 58.
2. From the GROUP SETUP menu, scroll and select Hall Medical Mask.

Figure 272: 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 273: HALL MEDICAL MASK Menu

4. Scroll right and press Save.

16.10 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 58.
2. From the GROUP SETUP menu, scroll and select Hall Rear Door Mask.

Figure 274: 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 275: HALL REAR DOOR MASK Menu

4. Scroll right and press Save.

16.11 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.

16.12 Compatibility

The Hydro:Evolved Hall board and V2 Hall board are NOT compatible. The Hydro:Evolved Hall boards have 10 or 12 DIP switches (depending on the configuration), while the V2 Hall board has 8 DIP switches.

17Serial 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.

17.1 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.

17.2 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 28 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 28 or Table 29 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 *Hydro:Evolved Parameter List*

17.3 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.

Figure 276: Hall Lantern Status

The figure below shows an example of the status of an uninitialized Hall Lantern Status.

Figure 277: Uninitialized Hall Lantern Status

17.4 Errors

For Serial Hall Lanterns errors, see section 16.11 Errors.

18 Hydro

Hydraulic elevators are powered by a piston that travels inside a cylinder. Electrical valves control the release of the oil which makes the car moves in either direction.

18.1 Valve Type Select

The valve type allows the user to select which type of valve is being used on the system.

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

1. Navigate to MAIN MENU | SETUP | HYDRO. See Figure 60.
2. From the HYDRO SETUP menu, scroll and select Valve Type Select.

Figure 278: HYDRO SETUP Menu – Valve Type Select

3. From the VALVE TYPE SELECT menu, scroll and select the type of valve being used on the system.

Figure 279: VALVE TYPE Menu

4. Scroll right and press Save.

18.2 Secondary Valve Board

A secondary valve can be used on the system for when there is a requirement for a high capacity elevator which uses dual motor. Only the SR Valve type is supported for secondary valve control.

Perform the following procedure to enable the secondary Valve board.

1. Navigate to MAIN MENU | SETUP | HYDRO. See Figure 60.
2. From the HYDRO SETUP menu, scroll and select Secondary Valve Board.

Figure 280: HYDRO SETUP Menu – Secondary Valve Board

3. From the SECONDARY VALVE BOARD menu, select ON to enable the Valve board.

Figure 281: SECONDARY VALVE BOARD Menu

4. Scroll right and press Save.

18.3 Soft Starter

A soft starter provides phase, over-voltage, and under-voltage protection. This protection helps prevent the motor during phase loss and enhances motor life.

18.3.1 ENA Serial Soft Starter

The soft starter has to be enabled.

Perform the following to enable the soft starter.

1. Navigate to MAIN MENU | SETUP | HYDRO. See Figure 60.
2. From the HYDRO SETUP menu, scroll and select Soft Starer.

Figure 282: HYDRO SETUP Menu –Soft Starter

3. From the SOFT STARTER menu, scroll and select Enable SR Soft Starter.

Figure 283: SOFT STARTER Menu – Enable SR Soft Starter

4. From the ENABLE SR SOFT STARTER menu, select ON to enable the soft starter.

Figure 284: ENABLE SR SOFT STARTER Menu

5. Scroll right and press Save.

18.3.2 Primary

The primary soft starter must have the ramp up, over voltage, over current, over temperature configured.

18.3.2.1 Ramp Up Time

The ramp up time is the time it takes for the primary soft starter to ramp up to full voltage that eventually increases the amount of current applied to the motor to reduce torque.

The following procedure describes how to set the soft starter ramp up time.

1. Navigate to MAIN MENU | SETUP | HYDRO. See Figure 60.
2. From the HYDRO SETUP menu, scroll and select Soft Starter. See Figure 282.

3. From the SOFT STARTER menu, scroll and select Primary.

Figure 285: SOFT STARTER Menu – Primary

4. From the PRIMARY menu, scroll and select Ramp Up Time.

Figure 286: PRIMARY Menu – Ramp Up Time

5. From the RAMP UP TIME menu, set the time for the soft starter to ramp up to full voltage.

Figure 287: RAMP UP TIME Menu

6. Scroll right and press Save.

18.3.2.2 Vmax

Maximum voltage is the percentage of voltage that is allowed to limit the amount of current and torque to the motor.

The following procedure describes how to set the maximum voltage.

1. Navigate to MAIN MENU | SETUP | HYDRO. See Figure 60.
2. From the HYDRO SETUP menu, scroll and select Soft Starter. See Figure 282.
3. From the SOFT STARTER menu, scroll and select Primary. See Figure 285.
4. From the PRIMARY menu, scroll and select Vmax.

Figure 288: PRIMARY Menu – Vmax

5. From the VMAX AC VOLTAGE menu, set the percentage of the maximum voltage.

Figure 289: VMAX AC VOLTAGE Menu

6. Scroll right and press Save.

18.3.2.3 Over Current

Current limitations are set to prevent the motor from overheating. See the manufacturers *Soft Starter User Manual* for more information.

The following procedure describes how to set the overcurrent limit.

1. Navigate to MAIN MENU | SETUP | HYDRO. See Figure 60.
2. From the HYDRO SETUP menu, scroll and select Soft Starter. See Figure 282.
3. From the SOFT STARTER menu, scroll and select Primary. See Figure 285.
4. From the PRIMARY menu, scroll and select Over Current.

Figure 290: PRIMARY Menu – Over Current

5. From the OVERCURRENT menu, enter the maximum current allowed.

Figure 291: OVERCURRENT Menu

6. Scroll right and press Save.

18.3.2.4 Over Temperature

When an over temperature condition occurs, the soft starter goes into recovery mode. This will in turn shut down the motor to prevent internal damage to the motor.

The following procedure describes how to set the over temperature limit.

1. Navigate to MAIN MENU | SETUP | HYDRO. See Figure 60.
2. From the HYDRO SETUP menu, scroll and select Soft Starter. See Figure 282.

3. From the SOFT STARTER menu, scroll and select Primary. See Figure 285.
4. From the PRIMARY menu, scroll and select Over Temperature.

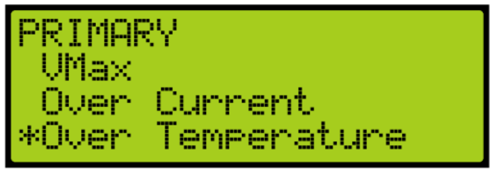

Figure 292: PRIMARY Menu – Over Temperature

5. From the OVERTEMPERATURE LIMIT menu, enter the maximum temperature.

Figure 293: OVERTEMPERATURE LIMIT Menu

6. Scroll right and press Save.

18.3.3 Secondary

If a secondary soft starter is available, the soft starter must be configured.

18.3.3.1 Enable Secondary

When enabled, the secondary soft starter is used to when a dual motor is required to lift a car with a high capacity load.

The following procedure describes how to enable the secondary soft starter.

1. Navigate to MAIN MENU | SETUP | HYDRO. See Figure 60.
2. From the HYDRO SETUP menu, scroll and select Soft Starter. See Figure 282.
3. From the SOFT STARTER meu, scroll and select Secondary.

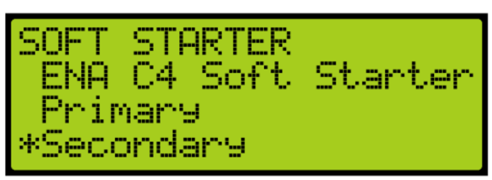

Figure 294: SOFT STARTER Menu – Secondary

4. From the SECONDARY menu, scroll and select Enable Secondary.

Figure 295: SECONDARY Menu – Enable Secondary

5. From the ENABLE SECONDARY SOFT STARTER menu, select ON to enable the secondary soft starter.

Figure 296: ENABLE SECONDARY SOFT STARTER Menu

6. Scroll right and press Save.

18.3.3.2 Ramp Up Time

The ramp up time is the time it takes for the secondary soft starter to ramp up to full voltage, that eventually increases the amount of current applied to the motor to reduce torque.

The following procedure describes how to set the soft starter ramp up time.

1. Navigate to MAIN MENU | SETUP | HYDRO. See Figure 60.
2. From the HYDRO SETUP menu, scroll and select Soft Starter. See Figure 282.
3. From the SOFT STARTER menu, scroll and select Secondary. See Figure 294.
4. From the SECONDARY menu, scroll and select Ramp Up Time.

Figure 297: SECONDARY Menu – Ramp Up Time

5. From the RAMP UP TIME menu, set the time for the soft starter to ramp up to full voltage. See Figure 287.
6. Scroll right and press Save.

18.3.3.3 Vmax

Maximum voltage is the percentage of voltage that is allowed to limit the amount of current and torque to the motor for the secondary soft starter.

The following procedure describes how to set the maximum voltage.

1. Navigate to MAIN MENU | SETUP | HYDRO. See Figure 60.
2. From the HYDRO SETUP menu, scroll and select Soft Starter. See Figure 282.
3. From the SOFT STARTER menu, scroll and select Secondary. See Figure 294.
4. From the SECONDARY menu, scroll and select Vmax.

Figure 298: SECONDARY Menu – VMax

5. From the VMAX AC VOLTAGE menu, set the percentage of the maximum voltage. See Figure 289.
6. Scroll right and press Save.

18.3.3.4 Over Current

Current limitations for the secondary soft starter are set to prevent the motor from overheating. See the manufacturers *Soft Starter User Manual* for more information.

The following procedure describes how to set the overcurrent limit.

1. Navigate to MAIN MENU | SETUP | HYDRO. See Figure 60.
2. From the HYDRO SETUP menu, scroll and select Soft Starter. See Figure 282.
3. From the SOFT STARTER menu, scroll and select Secondary. See Figure 294.
4. From the SECONDARY menu, scroll and select Over Current.

Figure 299: SECONDARY Menu – Over Current

5. From the OVERCURRENT menu, enter the maximum current allowed. See Figure 291.
6. Scroll right and press Save.

18.3.3.5 Over Temperature

When an over temperature condition occurs in the secondary soft starter, the soft starter goes into recovery mode. This will in turn shut down the motor to prevent internal damage to the motor.

The following procedure describes how to set the over temperature limit.

1. Navigate to MAIN MENU | SETUP | HYDRO. See Figure 60.
2. From the HYDRO SETUP menu, scroll and select Soft Starter. See Figure 282.
3. From the SOFT STARTER menu, scroll and select Secondary. See Figure 294.
4. From the SECONDARY menu, scroll and select Over Temperature.

Figure 300: SECONDARY Menu – Over Temperature

5. From the OVERTEMPERATURE LIMIT menu, enter the maximum temperature. See Figure 293.
6. Scroll right and press Save.

18.3.4 Run With One Soft Starter

When a particular job supports two soft starters, and this parameter is ON, the car will be allowed to run even if one of the soft starter is faulted, only if the faults are not soft starter specific. In this situation, soft starter faults will instead be asserted as alarms. This option is only available if the secondary soft starter is enabled.

The following procedure describes how to run the elevator with one soft starter.

1. Navigate to MAIN MENU | SETUP | HYDRO. See Figure 60.
2. From the HYDRO SETUP menu, scroll and select Soft Starter. See Figure 282.
3. From the SOFT STARTER menu, scroll and select Run With One Soft Starter.

Figure 301: SOFT STARTER Menu – Run With One Soft Starter

4. From RUN WITH ONE SOFT STARTER menu, select ON to run with only one soft starter.

Figure 302: Run With One Soft Starter Menu

5. Scroll right and press Save.

18.4 Slowdown

Several peripherals affect the acceleration rate, deceleration rate, and speed of the car in the up or down direction which includes, the temperature and viscosity of the oil, and weight.

Once all faults and alarms have been resolved during Construction and Inspection Mode, place the DZ magnet 2” above the floor level for the bottom floor and 2” below the floor level for the top floor. This creates an extra precaution for the car not to hit the ring buffer while travelling in up direction and car buffer when traveling in down direction to avoid any unexpected scenarios.

For proper operation, the controller and valves must be configured so the car has the proper acceleration and slowdown time.

For a better/faster performance, the acceleration time should be less than 1 second.

If the deceleration rate of the car is slow and the car hits the Terminal Stopping Distance (TSRD), reduce the deceleration rate of the valve (transition rate from High valve to Leveling valve).

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

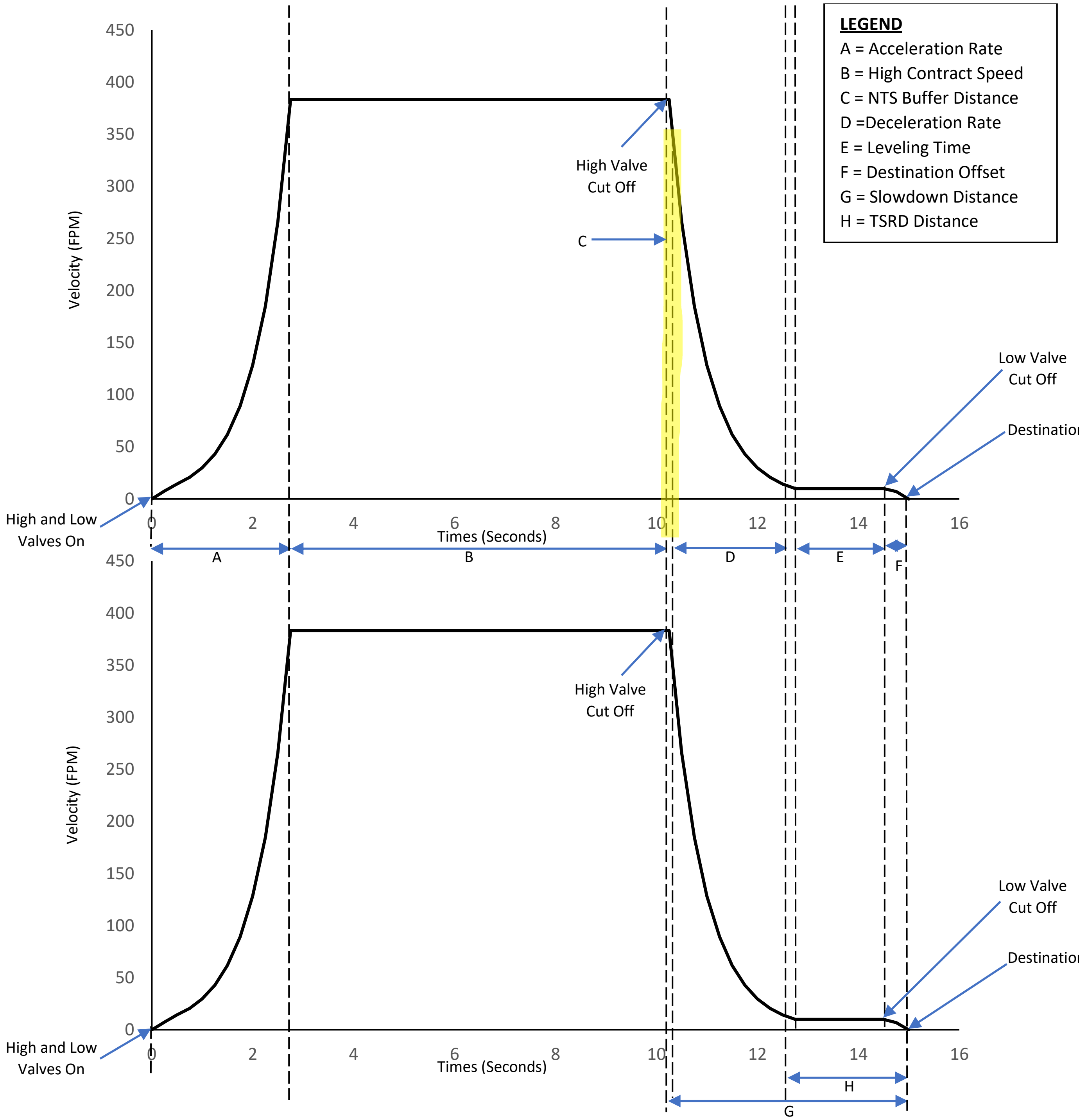

Figure 303: Slowdown Distance

A. **Acceleration Rate -** Rate at which the car accelerates before reaching maximum speed.

B. **High Contract Speed -** The maximum speed the car will achieve based on the contract speed setting and the high valve setting.

C. **NTS Buffer Distance:** The distance added to the slowdown distance to cut off the high valves.

D. **Deceleration Rate -** Rate at which the car decelerates after it reaches maximum speed.

E. **Leveling Time** - The duration the car moves during level speed before reaching the destination.

F. **Destination Offset -** The distance from the destination position that the car will cut its leveling valve when moving on a non-releveling run/correction run.

G. **Slowdown Distance -** Sets the distance from its destination where the car must cut its high-speed valves when moving at a speed above the speed threshold.

H. **TSRD Distance -** The safe distance from the top and bottom floor level for a car to stop before it hits the buffer. If the car is traveling more than 50 fpm within this distance, a TSRD fault occurs and the car performs an emergency stop.

Place the car in Normal Operation. Prior to learning the hoistway verify the number of floors and openings are correct. Learning the hoistway allows for learning the positioning of all floors.

18.4.1 Level Maximum Run Distance

Set the maximum run distance where level valve speed run is allowed. Longer runs outside of door zones may start with a higher speed valve. When set to zero, a short distance run will start with the higher valve and have a high likelihood of overshooting the destination.

The following procedure describes how to set the level maximum run distance.

1. Navigate to MAIN MENU | SETUP | HYDRO. See Figure 60.
2. From the HYDRO SETUP menu, scroll and select Level Maximum Run Distance.

Figure 304: HYDRO SETUP Menu – Level Maximum Run Distance

3. From LEVEL MAXIMUM RUN DISTANCE menu, enter the maximum run distance.

Figure 305: LEVEL MAXIMUM RUN DISTANCE Menu

4. Scroll right and press Save.

18.4.2 NTS Buffer Distance Up and Down

An NTS alarm may be generated in any direction during normal mode of operation. When this occurs, the NTS buffer distance needs to be increased

The following procedure describes how to set the NTS buffer distance up and down.

1. Navigate to MAIN MENU | SETUP | HYDRO. See Figure 60.
2. From the HYDRO SETUP menu, scroll and select NTS Buffer Distance Up or NTS Buffer Distance Down.

Figure 306: HYDRO SETUP Menu – NTS Buffer Distance Up or Down

3. From the NTS BUFFER DISTANCE UP or NTS BUFFER DISTANCE DOWN menu, enter the buffer distance.

Figure 307: NTS BUFFER DISTANCE UP Menu

Figure 308: NTS BUFFER DISTANCE DOWN Menu

4. Scroll right and press Save.

18.4.3 Destination and Relevel Offsets

There is some delay at the end of a run between cutting the leveling speed valve and the coming to a stop. By default, the user may see the car overshoot its destinations and relevel back. To address this situation, the car's destination offset has to be adjusted. The offset destinations cause the car to stop its run shy of the ON position in order to compensate for the movement that occurs after the leveling valve is cut.

18.4.3.1 Destination Offset

The destination offset determines when to cut the leveling valves, when the car is leveling towards the destination landing. This is the sliding distance after the leveling valves are cut and the car comes to a stop to the destination landing.

If the car has a proper steady state leveling time but still overshoots the learned floor position and stops outside the dead zone and relevels, set the destination offset up or destination offset down depending on which direction the car is moving.

Perform the following procedure to set the up or down offset.

1. Navigate to MAIN MENU | SETUP | HYDRO. See Figure 60.
2. From the HYDRO SETUP menu, scroll and Destination Offset Up or Down. The values are set after determing how far the cars have overshot the landing.

Figure 309: HYDRO SETUP Menu – Destination Offset (Up or Down)

3. Does the car stop outside the dead zone?
   a. If the car is moving in up direction and stops outside the dead zone, got to step 4.
   b. If the car is moving in down direction and stops outside the dead zone, go to step 5.
4. Increase the up offset by 0.5in. Go to step 6.

Figure 310: DESTINATION OFFSET UP Menu

5. Increase the down offset by 0.5in.

Figure 311: DESTINATION OFFSET Down Menu

6. Scroll right and press Save.

18.4.3.2 Relevel Offset

Relevel Offset is the distance from the destination position that the car cuts its leveling valve when moving in the up or down direction on a releveling run.

Perform the following procedure to set the up or down offset.

1. Navigate to MAIN MENU | SETUP | HYDRO. See Figure 60.
2. From the HYDRO SETUP menu, scroll and Relevel Offset Up or Down. The values are set after determing how far the cars have overshot the landing.

Figure 312: HYDRO SETUP Menu – Relevel Offset (Up or Down)

3. From the RELEVEL OFFSET UP or RELEVEL OFFSET DOWN menu, enter the offset. The values are set after determing how far the cars have overshot the landing.

Figure 313: RELEVEL OFFSET UP Menu

Figure 314: Relevel Offset Down Menu

4. Scroll right and press Save.

18.4.4 Speed Thresholds

The speed threshold is compared to the current speed to determine the slowdown distance used to reach the destination. This distance determines when to slow the car in either the up or down direction.

The following procedure describes how to set the speed threshold.

1. Navigate to MAIN MENU | SETUP | HYDRO. See Figure 60.

2. From the HYDRO SETUP menu, scroll and select Speed Thresholds

Figure 315: HYDRO SETUP Menu – Speed Thresholds

3. From the SPEED THRESHOLD menu, scroll and select the slowdown distance.

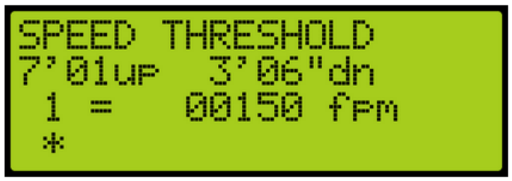

Figure 316: SPEED THRESHOLD Menu

4. Scroll right and press Save.

18.4.5 Slowdown Distance

The slowdown distance is the distance in which the car transitions from high speed to leveling speed in the up or down direction. If adjusting the Slowdown Distance when weights are added to the car, see section 18.4.10

Monitoring Adaptive Slowdown™ system (U.S. Patent Pending)

The actual slowdown average distances can be monitored by navigating to MAIN MENU | DEBUG | VIEW DEBUG DATA |, Indexes 070 (UP) and 071 (DN).

These displays are updates at the end of each run. The Up distance average appear under index 070. The Down distance average appear under index 071.

These distances will increase after TSRD or NTS events.

NOTE: If the distances are not stable, the car may be experiencing NTS alarms at the terminal landings. Check the Leveling Time distances (Section 7). If the average distances on the Debug Data screens drop too far below the Leveling Time distances, the system may trigger NTS alarms. To correct this either decrease the Leveling Time setting (Section 7) or increase the NTS timeout at MAIN MENU | SAFETY | NTS ODL.

18.4.6 Slowdown Distance After Adjustments

The following procedure describes how to set the slowdown distance.

1. Navigate to MAIN MENU | SETUP | HYDRO. See Figure 60.

2. From the HYDRO SETUP menu, scroll and select Slowdown Distance UP or DOWN.

Figure 317: HYDRO SETUP Menu – Slowdown Distance UP or DOWN

3. From the SLOWDOWN DISTANCE UP or SLOWDOWN DISTANCE DOWN menu, scroll and select the slowdown distance.

Figure 318: SLOWDOWN DISTANCE UP Menu

Figure 319: SLOWDOWN DISTANCE DOWN Menu

4. Scroll right and press Save.

18.4.7 Hydro Speed Setup

The Hydro Speed Setup takes the slowdown factor of the distance and time relative to the speed to generate the slowdown distances and threshold for each landing. The up and down adjustments depend upon the selected factor in which the greater the factor the greater the distance. For example, if the factor is 1 second, the slowdown distance will be 2’ 1” where as if the factor is 1.78 seconds, the slowdown distance will be 3’ 8”. Depending upon the high speed and type of valve setup, the factor can be determined.

To have a proper slowdown for up or down direction, adjust the up and down time.

Note: Changes made on Up Adjustment and Down Adjustment will not take affect while Adaptive Slowdown™ system (U.S. Patent Pending) is active, turn off Adaptive Slowdown™ system (U.S. Patent Pending) before proceeding.

1. Navigate to MAIN MENU | SETUP | HYDRO | HYDRO SPEED SETUP | UP and DOWN ADJUSTMENT (need to set both).

Figure 320: HYDRO SETUP Menu – Hydro Speed Setup

2. From the Up Distance or Down Distance menu, select the time for which the car is expected to transition from high speed to low speed.

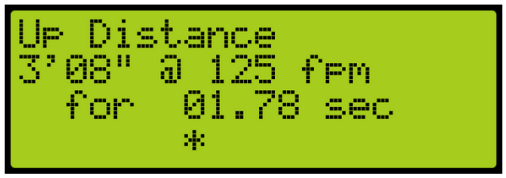

Figure 321: Up Distance Menu

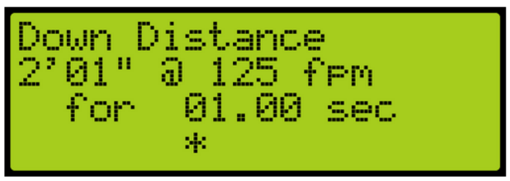

Figure 322: Down Distance Menu

3. Scroll back to GENERATE THRESHOLDS AND DISTANCES and select YES. If YES is not selected, new thresholds and slowdowns are not generated.

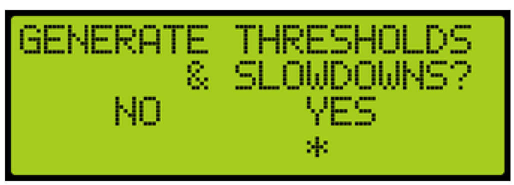

Figure 323: GENERATE THRESHOLDS AND SLOWDOWNS? Menu

4. Selecting yes will generate the values for slowdown distance up, slow down distance down, and threshold.
    a. if overshooting occurs, following instructions on for Car Overshooting and repeat step 1-4.
    b. If leveling time is too long or short, follow instructions for Adjust Leveling Time and repeat step 1 - 4.

18.4.7.1 Car Overshooting

Overshooting is where the car goes beyond floor level. To prevent overshooting, increase the time. This causes the car to slow down sooner which increases the slowdown distance.

The following procedure describes how to resolve car steady state if overshooting occurs:

1. Navigate to Adjustments and adjust the up or down distance by increasing the time. Increasing the time causes the car to slow down sooner which increases the slowdown distance.

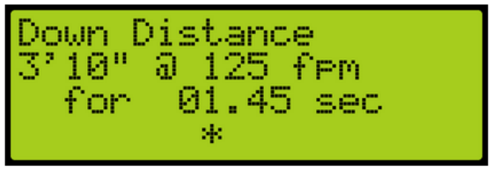

Figure 324: Down Distance Menu – Overshooting Adjustment

Figure 325: Up Distance Menu – Overshooting Adjustment

2. Scroll back to GENERATE THRESHOLDS AND DISTANCES and select YES. If YES is not selected, new thresholds and slowdowns are not generated.

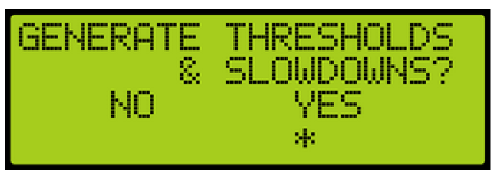

Figure 326: Generate Thresholds

18.4.7.2 Adjust Leveling Time

When weight is added to the car, it might take longer than normal (three to five seconds) for the car to level. Decreasing the slowdown distance decreases the time it takes for the car to level. The speed threshold to adjust is dependent upon the speed the car is traveling.

The following procedure describes how to resolve car steady state if leveling is longer:

1. Navigate to Adjustments and adjust the up or down distance by decreasing the time.
2. Decreasing the time causes the car to have a shorter slow down period which decreases the slowdown distance.

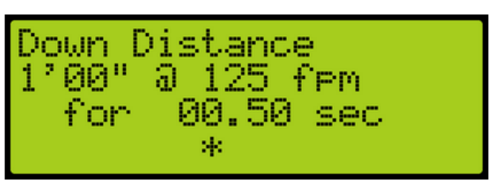

Figure 327: Down Distance Menu – Steady State of Leveling Longer Adjustment

Figure 328: Up Distance Menu – Steady State of Leveling Longer Adjustment

3. Scroll back to GENERATE THRESHOLDS AND DISTANCES and select YES. If YES is not selected, new thresholds and slowdowns are not generated.

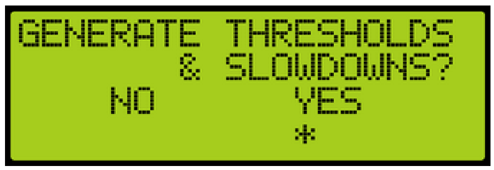

Figure 329: Generate Thresholds

18.4.8 Adaptive Slowdown™ system (U.S. Patent Pending)

The following feature operates on top of the Hydro Evolved Setup Slowdown Distance instructions. When active, the Adaptive Slowdown™ system (U.S. Patent Pending) monitors the operation of each run. After each run, the software adjusts a reference slowdown distance variable based on previous runs so that subsequent runs result in leveling times closer to the target Leveling Time selected. Run-to-run variances in elevator operations will not have a significant effect on the reference slowdown distance.

18.4.8.1 Procedure

Complete the following steps after successfully setting the adjusted slow down distance:

1. Measure the Leveling Time from when the car reaches the level speed until the car stops. The measured Leveling Time will be used as the base line for the Target Time used on step 2.
2. Navigate to MAIN MENU | SETUP | HYDRO | ADAPTIVE SLOWDOWN™ SYSTEM (U.S. PATENT PENDING) | LEVELING TARGET |, set the Slowdown Target Time to the measured time on step 1 then select save.

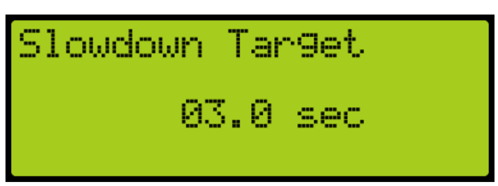

Figure 330: LEVELING TARGET Menu – Slowdown Target

3. Navigate to MAIN MENU | SETUP | HYDRO | ADAPTIVE SLOWDOWN™ SYSTEM (U.S. PATENT PENDING) |ENABLE SLOWDOWN |, set to ON.

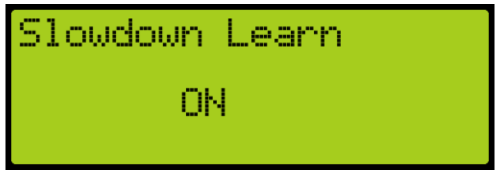

Figure 331: ENABLE SLOWDOWN Menu – Slowdown Learn

4. Allow the car to run from Floor to Floor for 2 full cycles to adjust the slowdown distance. It is recommended to run the car empty during the first 2 cycles to allow the car to measure the slowdown distance accurately.

18.4.8.2 Troubleshoot Adaptive Slowdown™ system (U.S. Patent Pending)

The following steps are used to troubleshoot the car based on different occurrences:

- **The car is overshooting the landing** - Overshooting occurs if the leveling time is set too short to allow for the weight fluctuation in slowdown distance, then car will take a significant step back by increasing the slowdown distance. the Adaptive Slowdown™ system (U.S. Patent Pending) will decrease the distance until an overshoot occurs.
    - Increase the Target Time in increments of .5 seconds and repeat step 4 of the procedure.

Figure 332: Slowdown Target-increase

- **Car is taking too long arriving to the landing** – The car will decrease the leveling time in increments of .1 seconds based on the initial Hydro Speed Setup until the Target Time on Adaptive Slowdown™ system (U.S. Patent Pending) is met and will continue to fluctuate between the range. Decreasing the range will decrease the fluctuation of the learning distance.
    - Decrease the Target Time in increments of .5 seconds and repeat step 4 of the procedure.

Figure 333: Slowdown Target-Decrease

- **The car is misaligned with the landing** – The car is at the door zone, but slightly above or below the landing.

- Follow instructions on the for Floor Adjustment to adjust the floor height to align the car with the landing.

- **Car is getting a TSRD fault when you are reaching the landing –** Fault occurs when the range of the TSRD distance to the landing is too high for the Slow Down Distance.
  - Navigating to MAIN MENU | SETUP | HYDRO | TSRD DISTANCE

Figure 334: HYDRO SETUP-TSRD Distance

  - Decrease the TSRD Distance to a lower value and repeat step 4 of the procedure.

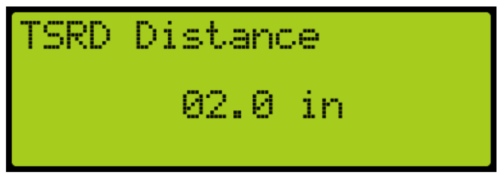

Figure 335: TSRD Distance

18.4.8.3 Monitoring Adaptive Slowdown™ system (U.S. Patent Pending)

The actual slowdown average distances can be monitored by navigating to MAIN MENU | DEBUG | VIEW DEBUG DATA |, Indexes 070 (UP) and 071 (DN).

These displays are updates at the end of each run. The Up distance average appear under index 070. The Down distance average appear under index 071.

These distances will increase after TSRD or NTS events.

NOTE: If the distances are not stable, the car may be experiencing NTS alarms at the terminal landings. Check the Leveling Time distances (Section 7). If the average distances on the Debug Data screens drop too far below the Leveling Time distances, the system may trigger NTS alarms. To correct this either decrease the Leveling Time setting (Section 7) or increase the NTS timeout at MAIN MENU | SAFETY | NTS ODL.

18.4.9 Slowdown Distance After Adjustments

Once initial setup has been completed for an empty car, weights have to be added to verify leveling under a full load.

The same settings for the slowdown distance and speed of an empty car are used with a car which has various amounts of load added until the car is fully loaded.

To verify the slowdown distance and speed of a car with a load, add a 500 pound load to the car. Place a car call for one floor and a multi floor run in both directions. Observe if the car overshoots and relevels or has a long leveling time. If the valves are not regulated, the deceleration rate or the steady state of leveling are affected. The deceleration rate will increase or the leveling speed will decrease as the weight of the car increases.

There are three conditions which can occur while adding weights:

- If the car overshoots, increase the slowdown distance.
- If the leveling time is too long, decrease the slowdown distance. I
- If the valves are not regulated and leveling time is longer, do not change the slowdown distance.

DO NOT generate the threshold and distance after fine tuning the slowdown distance. This will override the fine tuning values and generate new slowdowns depending on the factor in the up/down adjustments.

For fine tuning the slow down distance, observe what is the maximum speed of the car before it starts slowing down.

The following procedure describes how to view maximum speed of the car.

1. Navigate to MAIN MENU | SETUP | HYDRO. See Figure 60.
2. From the HYDRO SETUP menu, scroll and select Slowdown Distance UP or DOWN. See Figure 317.
3. Due to multiple speed thresholds and slowdown distances, select the slowdown distance for the speed the car is running at.

Figure 336: View Slowdown Distance Up

Figure 337:View Slowdown Distance Down

If adjusting the car for a different threshold with weights added and the car is overshooting or the leveling time is greater than the empty car, increase or decrease the slowdown distance.

There are seven speed thresholds and slowdown distances. Select the correct speed threshold to adjust so the speed of the car matches high speed.

18.4.9.1 Overshooting

The slowdown distance is dependent upon the speed of the car. As more weight is added to the car, the speed and the slow down time of the car may decrease. If the car overshoots, the slow down distance needs to increase to give the car more time to slow down. If the valves are regulated, the speed of the car may not change.

The following procedure describes how to resolve car overshooting.

1. Navigate to MAIN MENU | SETUP | HYDRO. See Figure 60.
2. From the HYDRO SETUP menu, scroll and select Slowdown Distance Up. See Figure 317.
3. Select the slowdown distance for the speed the car is running at. Scroll to find the correct slowdown distance to adjust. See Figure 318.
4. The high speed of the car must be less than the speed threshold. For example, after adding weights the high speed of the car is 100 fpm, select the speed threshold with speed of 105 fpm.
5. Increase the slowdown distance up from 2’ 09” to 3’ 02”. Place a car calls in up direction and see if the car still overshoots the floor. Repeat these steps if the car still overshoots the floor.

Figure 338: SLOWDOWN DISTANCE UP – Adjustment

6. Scroll right and press Save.

Continue adding a load to the car and verifying the slowdowns until the car is fully loaded.

18.4.9.2 Steady State of Leveling is Longer

When weight is added to the car, it might take longer than normal for the car to level. Decreasing the slowdown distance decreases the time it takes for the car to level. The speed threshold too adjust is dependent upon the speed the car is traveling.

The following procedure describes how to resolve car steady state of leveling is longer.

1. Navigate to MAIN MENU | SETUP | HYDRO. See Figure 60.
2. From the HYDRO SETUP menu, scroll and select Slowdown Distance Down. See Figure 317.
3. Select the slowdown distance for the speed the car is running at. Scroll to find the correct slowdown distance to adjust. See Figure 319.
4. The high speed of the car must be less than the speed threshold. For example, after adding weights the high speed of the car is 100 fpm, select the speed threshold with speed of 105 fpm.

5. Decrease the slowdown distance up from 3’ 06” to 2’ 09”. Place a car calls in down direction and see if the car still has longer steady state of leveling to the floor. Repeat these steps , if the car still has longer steady state of leveling to the floor.

Figure 339: SLOWDOWN DISTANCE DOWN – Adjustment

Continue adding a load to the car and verifying the slowdowns until the car is fully loaded.

18.4.10 TSRD Distance

The TSRD is the safe distance from the top and bottom floor level for a car to stop before it hits the ring buffer in the up direction and the buffer in the down direction. If the car is traveling for more than 50 fpm within this distance, a TSRD fault occurs and the car performs an emergency stop.

The following procedure describes how to set the TSRD Distance from the learned position.

1. Navigate to MAIN MENU | SETUP | HYDRO. See Figure 60.
2. From the HYDRO SETUP menu, scroll and select TSRD Distance.

Figure 340: HYDRO SETUP Menu – TSRD Distance

3. From the TSRD Distance menu, set the distance.

Figure 341: TSRD Distance Menu

18.5 Battery Test Time

The battery test time is the time of day the controller searches for a battery fault signal and creates an emergency battery fault if the fault occurs for three consecutive days.

The following procedure describes how to set the time the batteries.

1. Navigate to MAIN MENU | SETUP | HYDRO. See Figure 60.

2. From the HYDRO SETUP menu, scroll and select Battery Test Time.

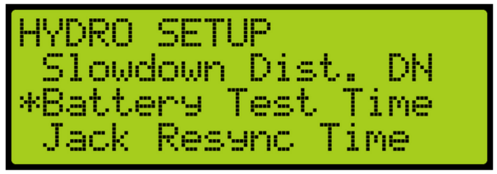

Figure 342: HYDRO SETUP Menu – Battery Test Time

3. From the BATTERY TEST TIME menu, enter the time the controller searches for a battery fault.

Figure 343: Battery Test Time Menu

4. Scroll right and press Save.

18.6 Jack Resync Time

Jack resync is required for hydro elevators that have dual jacks. Over time, the jacks can get out of sync, causing one to be higher than the other and making the car off level. A resync operation is done to remove all the oil from both jack cylinders which synchronizes the plungers back to the same level.

This is normally done as a timed operation. The mechanic sets a time (for example, 3:00 AM) when the car shall perform a resync operation.

The following procedure describes how to set the jack resync time.

1. Navigate to MAIN MENU | SETUP | HYDRO. See Figure 60.
2. From the HYDRO SETUP menu, scroll and select Jack Resync Time.

Figure 344: HYDRO SETUP Menu – Jack Resync Time

3. From the JACK RESYNC TIME menu, enter the time jack resync is performed.

Figure 345: JACK RESYNC TIME Menu

4. Scroll right and press Save.

18.7 Disable NTS Alarm

By default, the NTS alarm is disabled. The NTS alarm is enabled during the NTS acceptance test.

The following procedure describes how to disable the NTS alarm.

1. Navigate to MAIN MENU | SETUP | HYDRO. See Figure 60.
2. From the HYDRO SETUP menu, scroll and select Disable NTS Alarm.

Figure 346: HYDRO SETUP Menu – Disable NTS Alarm

3. From the DISABLE NTS ALARM menu, select ON to disable the alarm.

Figure 347: DISABLE NTS ALARM Menu

4. Scroll right and press Save.

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19Data Acquisition Device Unit

Each Smartrise 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 Hydro:Evolved *GUI Manual* for more information.

19.1 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.

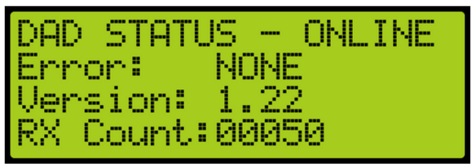

Figure 348: DAD STATUS Menu

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.

20Assigning Inputs and Outputs

Like previous Smartrise controllers, the Hydro: Evolved controller 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.

20.1 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 158.
3. From the SELECT BOARD menu, select which board the input or output is assigned to. See Figure 159.
4. Press the up button until there is an unused input/output available.
   NOTE: For this example, we are showing the input.

Figure 349: 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 349 shows an example of an unused input.
- 503 is the input that is currently being viewed.
- 508 states how may inputs there are for that specific board.

5. Scroll right.
6. Scroll and select the desired category of the input or output. See Table 30 and Table 40 for types of inputs and outputs.
   NOTE: The category is the second line.

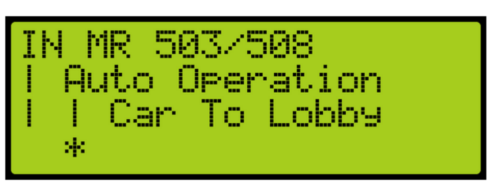

Figure 350: Category and Input

7. Scroll right.
8. Scroll and select the desired input or output. Figure 350 shows the Auto Operation category to assign Car to Lobby to an unused input.
9. Scroll right and press Save.

20.2 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 33.
2. From the SETUP I/O menu, select Setup Inputs or Setup Outputs. See Figure 158.
   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 159.
4. Scroll and select the input or output to be removed. See Figure 350.
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.

20.3 Types of Inputs

The tables below list the definitions for the types of inputs per category.

Table 30: 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.
Attendant DN	Sets the next direction the car will try to move in the down direction when doors are closed on attendant operation.
Attendant ON	Puts the car on attendant operation.
Attendant 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.
Chime DISA	Disables passing chime when active.
Custom	Puts car on custom operation mode.
DISA ALL HC	Disables all hall calls on the car when active.

Input	Description
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 Button	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.
ENA ALL CC	Bypasses car call security on all floors.
ENA All CC F	Enables all car call front buttons, bypassing car call security on all front car call buttons.
ENA All CC R	Enables all car call rear buttons, bypassing car call security on all rear car call buttons.
ENA All HC	Bypasses hall call security on all landings.
Independent Service	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.
Swing ENA	Puts car on swing operation, removing the car from regular group calls and allowing it to take swing hall calls.
Wander Guard	Puts the car on wander guard operation.

Table 31: 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 32: Description of Car Call (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 33: 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 indicating 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.
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.
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.
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.
Starter OVLD	Feedback input from the contactor starter overload relay. Used for jobs with a contactor starter.

Input	Description
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 34: Description of Emergency Power Inputs

Input	Description
Auto Select	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.
E-Power 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.
Select 1	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.
Select 2	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.
Select 3	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.
Select 4	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.
Select 5	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.
Select 6	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.
Select 7	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.
Select 8	After all cars have completed their recall, a preconfigured number of cars are released to go back in to automatic operation. These

Input	Description
	cars are manually selected via the select inputs if Auto Select is inactive.
UP to Speed	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 35: Description of Fire/Earthquake Inputs

Input	Description
EQ HW Scan	Initiates the hoistway scan for earthquake at low speed.
Fire RCL Off	Car is being commanded to go on Fire Phase 1 recall via the main keyswitch.
Fire RCL RST	Car is commanded to exit Fire Phase 1 recall via the main keyswitch.
Marsh Fire OVRD	When active, prevents the elevator from going to the recall floor on fire recall. Used during prison operation.
Phase2 Cancel	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.
Phase2 Hold	In car Fire Phase 2 keyswitch is in the HOLD position.
Phase2 Off	In car Fire Phase 2 keyswitch is in the OFF position.
Phase2 On	In car Fire Phase 2 keyswitch is in the ON position.
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 36: 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

Input	Description
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.
Door 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.
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.
PHE2	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 37: 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.
Door 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.

Input	Description
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.
PHE2	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 rear opening are closed.

Table 38: Description of Inspection Inputs

Input	Description
LD DN	Moves the car down when on landing inspection mode.
LD UP	Moves the car up when on landing inspection mode.
PT DN	Moves the car down when on pit inspection mode.
PT UP	Moves the car up when on pit inspection mode.

Table 39: 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.
PhoneFailActive	Indicates if in car emergency phone has failed.
PhoneFailReset	Resets the emergency phone failure buzzer.
Viscosity	N/C input signals cold oil.

20.4 Types of Outputs

The tables below list the definitions for the types of outputs per category.

Table 40: 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.
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.
Group Redundant	Switches power to a redundant set of Riser boards.
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.

Output	Description
Lamp Alt 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.
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 41: 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 42: 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 ENA.	Enables recommended travel direction of Magnetek drives.
Regen ENA.	Activates the regen.

Output	Description
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 DN	Triggers the high speed valve in the down direction.
Valve High Up	Triggers the high speed valve in the up direction.
Valve Insp	Signal to blaine valve controller that the car is attempting an inspection run.
Valve Level DN	Triggers the leveling speed valve in the down direction.
Valve Level UP	Triggers the leveling speed valve in the up direction.
Valve Low DN	Triggers the low speed valve in the down direction.
Valve Low UP	Triggers the low speed valve in the up direction.
Valve Mid DN	Triggers the medium speed valve in the down direction.
Valve Mid UP	Triggers the medium speed valve in the up direction.

Table 43: 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 44: 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.

Output	Description
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.
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.
Seismic Status	Activates when the car is on Seismic.

Table 45: Description of 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.

Output	Description
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 46: 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.

Output	Description
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 47: Description of Inspection Outputs

Output	Description
Lamp Insp	Signals when the car is on inspection.

Table 48: 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.

20.5 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.

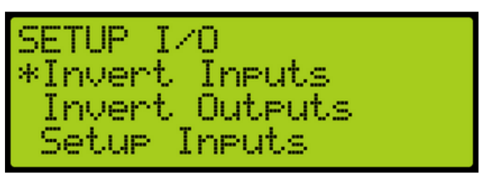

Figure 351: SETUP I/O Menu – Invert Inputs

3. From the SELECT BOARD menu, scroll and select the board that has an assigned input changing states. See Figure 159.
   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 352: Invert Inputs Menu

5. Scroll right and press Save.

20.6 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.

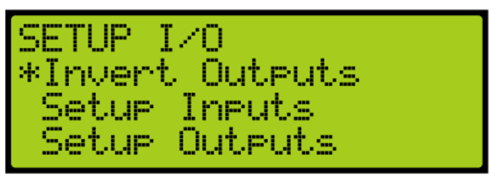

Figure 353: SETUP I/O Menu – Invert Outputs

3. From the SELECT BOARD menu, scroll and select the board that has an assigned output changing states. See Figure 159.
   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).

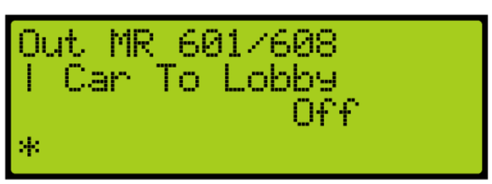

Figure 354: Invert Outputs Menu

21VIP

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.

22Active 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 20.1 Adding an Input or Output.

23Marshal 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 20.1 Adding an Input or Output.

24Wander 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 20.1 Adding an Input or Output.

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25Installing 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.

25.1 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 355: SYNC IN PROGRESS

6. When complete, SYNC COMPLETE is displayed.

Figure 356: SYNC COMPLETE

7. Turn off the controller.
8. Turn off DIP 5B.
9. Turn on the controller. The car resumes normal operation.

25.2 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.

26Hoistway 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 following procedure describes how to access the hoistway.

1. Navigate to MAIN MENU | SETUP | HOISTWAY ACCESS. See Figure 56.
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 357: HOISTWAY ACCESS – Allowed Distance Top

4. From the ALLOWED DISTANCE TOP menu, scroll and select the distance from the car to the hoistway.

Figure 358: ALLOWED DISTANCE TOP Menu

5. Scroll right and press Save.
6. Press the left button until the HOISTWAY ACCESS menu displays.

7. From the HOISTWAY ACCESS menu, scroll and select Top Floor.

Figure 359: HOISTWAY ACCESS – Top Floor

8. From the TOP FLOOR menu, select the top floor just below the hoistway.

Figure 360: TOP FLOOR Menu

9. Scroll right and press Save.
10. Press the left button until the HOISTWAY ACCESS menu displays.
11. From the HOISTWAY ACCESS menu, scroll and select Top Opening.

Figure 361: HOISTWAY ACCESS – Top Opening

12. From the TOP OPENING menu, scroll and select the top floor the car opens just below the hoistway.

Figure 362: 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 363: HOISTWAY ACCESS – Allowed Distance Bottom

16. From the ALLOWED DISTANCE BOTTOM menu, scroll and select the distance from the car to the pit.

Figure 364: 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 365: HOISTWAY ACCESS – Bottom Floor

20. From the BOTTOM FLOOR menu, select the bottom floor just above the pit.

Figure 366: 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 367: HOISTWAY ACCESS – Bottom Opening

24. From the BOTTOM OPENING menu, scroll and select the bottom floor the car opens just above the pit.

Figure 368: BOTTOM OPENING Menu

25. Scroll right and press Save.
26. Press the left button until the HOISTWAY ACCESS menu displays.
27. From the HOISTWAY ACESS menu, scroll and select Hoistway Access Slide Distance.

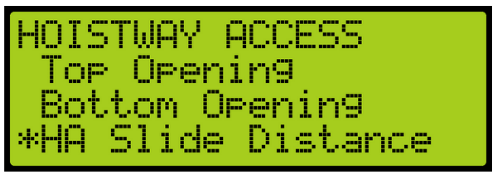

Figure 369: HOISTWAY ACCESS – HA Slide Distance

28. From the HOISTWAY ACCESS SLIDE DISTANCE, enter the maximum distance the car is allowed to be within the top or bottom door zone.

Figure 370: HOISTWAY ACCESS Slide Distance

29. Scroll right and press Save.

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27 Miscellaneous

The controller is bound by the set parameters. The miscellaneous parameters are the general parameters to control other variables within the elevator.

27.1 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 57.
2. From the MISCELLANEOUS menu, scroll and select Bypass Term Limits.

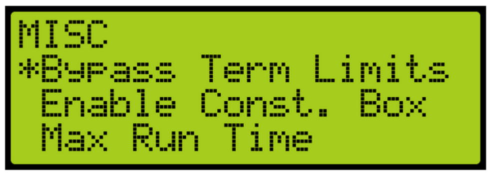

Figure 371: MISCELLANEOUS Menu – Bypass Term Limits

3. From the BYPASS TERM LIMITS menu, scroll and select On to bypass terminal limits.

Figure 372: BYPASS TERM LIMITS Menu

4. Scroll right and press Save.

27.2 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 57.

2. From the MISCELLANEOUS menu, scroll and select Enable Construction Box.

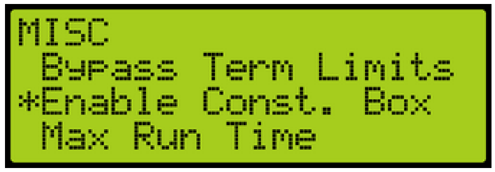

Figure 373: MISCELLANEOUS Menu – Enable Construction Box

3. From the ENABLE CONSTRUCTION BOX menu, scroll and select ON to enable the construction box.

Figure 374: ENABLE CONSTRUCTION BOX Menu

4. Scroll right and press Save.

27.3 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.

1. Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 57.
2. From the MISCELLANEOUS menu, scroll and select Maximum Run Time.

Figure 375: MISCELLANEOUS Menu – Max Run Time

3. From the MAXIMUM RUN TIME menu, set the maximum time the car runs before a fault occurs.

Figure 376: MAXIMUM RUN TIME Menu

4. Scroll right and press Save.

27.4 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 57.
2. From the MISCELLANEOUS menu, scroll and select CT Insp. Req. IC.

Figure 377: MISCELLANEOUS Menu – CT Insp. Req. IC

3. From the IC REQ FOR CT menu, scroll and select ON to enable CT inspection.

Figure 378: IC REQ FOR CT Menu

4. Scroll right and press Save.

27.5 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 57.
2. From the MISCELLANEOUS menu, scroll and select Disable IdleTrvArrow.

Figure 379: MISCELLANEOUS Menu – Disable. IdleTrvArrow

3. From the DISABLE IDLE TRV ARROW menu, scroll and select OFF to disable the direction arrow.

Figure 380: DISABLE IDLE TRV ARROW Menu

4. Scroll right and press Save.

27.6 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.

1. Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 57.
2. From the MISCELLANEOUS menu, scroll and select Enable Latches Car Call.

Figure 381: MISCELLANEOUS Menu – Enable Latches Car Call

3. From the ENABLE LATCHES CAR CALL menu, scroll and select ON to enable car call latching.

Figure 382: ENABLE LATCHES CAR CALL Menu

4. Scroll right and press Save.

27.7 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.

1. Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 57.

2. From the MISCELLANEOUS menu, scroll and select Car To Lobby Floor.

Figure 383: MISCELLANEOUS Menu – Car To Lobby Floor

3. From the CAR TO LOBBY FLOOR menu, scroll and select the lobby floor the car automatically travels to.

Figure 384: CAR TO LOBBY FLOOR Menu

4. Scroll right and press Save.

27.8 Parking

Parking moves the car to a certain floor after an X amount of time where X is the parking timer

27.8.1 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 Hydro:Evolved *GUI Manual*.

The following procedure describes how to enable dynamic parking using the DAD unit.

1. Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 57.
2. From the MISCELLANEOUS menu, scroll and select Parking.

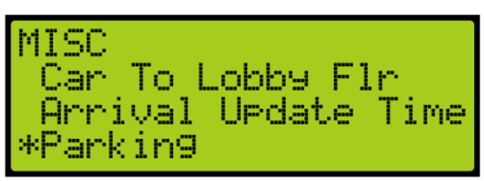

Figure 385: MISCELLANEOUS Menu – Parking

3. From the PARKING menu, scroll and select GUI Parking.

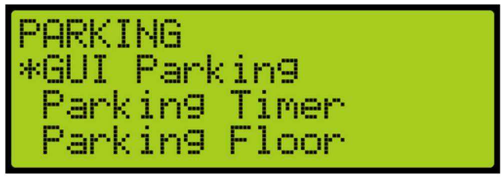

Figure 386: PARKING Menu – GUI Parking

4. From the ENABLE GUI PARKING menu, scroll and select if parking is enabled by the DAD unit.

Figure 387: ENABLE GUI PARKING Menu

5. Scroll right and press Save.

27.8.1 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 57.
2. From the MISCELLANEOUS menu, scroll and select Parking. See Figure 385.
3. From the PARKING menu, scroll and select Parking Timer.

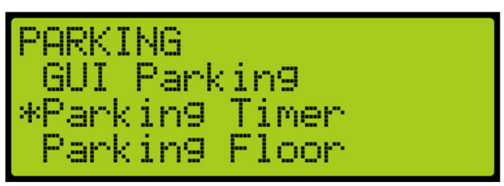

Figure 388: PARKING Menu – Parking Timer

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 389: PARKING TIMER Menu

5. Scroll right and press Save.

27.8.2 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 57.
2. From the MISCELLANEOUS menu, scroll and select Parking. See Figure 385.
3. From the PARKING menu, scroll and select Parking Floor.

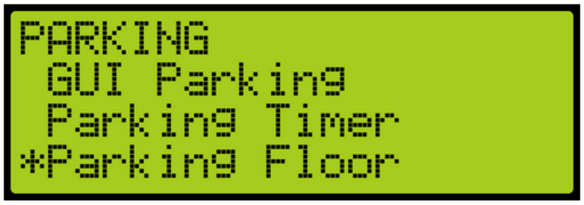

Figure 390: PARKING Menu – Parking Floor

4. From the PARKING FLOOR menu, scroll and select the floor the car parks at.
   NOTE: PI Labels allows for displaying floor landing as three characters. See section for more information.

Figure 391: PARKING FLOOR Menu

5. Scroll right and press Save.

27.8.3 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.

1. Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 57.
2. From the MISCELLANEOUS menu, scroll and select Parking. See Figure 385.
3. From the PARKING menu, scroll and select Parking Door Open.

Figure 392: PARKING Menu – Parking Door Open

4. From the PARKING DOOR OPEN menu, scroll and select ON to have the car door open when parked.

Figure 393: PARKING DOOR OPEN Menu

5. Scroll right and press Save.

27.9 OOS

Elevators can be taken out of service (OSS) for maintenance and other situations.

27.9.1 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 57.
2. From the MISCELLANEOUS menu, scroll and select OOS.

Figure 394: MISCELLANEOUS Menu – OOS

3. From the OOS menu, scroll and select Disable OOS.

Figure 395: OOS Menu – Disable OOS

4. From the DISABLE OOS menu, scroll and select if out of service is disabled.

Figure 396: DISABLE OOS Menu

5. Scroll right and press Save.

27.9.2 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 57.
2. From the MISCELLANEOUS menu, scroll and select OOS. See Figure 394.
3. From the OOS menu, scroll and select Hourly Fault Limit.

Figure 397: OOS Menu – Hourly Fault Limit

4. From the HOURLY FAULT LIMIT menu, set the number of logged faults allowed per hour.

Figure 398: HOURLY FAULT LIMIT Menu

5. Scroll right and press Save.

27.9.3 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.

1. Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 57.

2. From the MISCELLANEOUS menu, scroll and select OOS. See Figure 394.
3. From the OOS menu, scroll and select Maximum Starts Per Minute.

Figure 399: OOS Menu – Maximum Starts Per Minute

4. From MAXIMUM STARTS PER MINUTE menu, adjust the value as required for the maximum runs per minute.

Figure 400: MAXIMUM STARTS PER MINUTE Menu

5. Scroll right and press Save.

27.9.4 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 57.
2. From the MISCELLANEOUS menu, scroll and select OOS. See Figure 394.
3. From the OOS menu, scroll and select Disable PI OOS.

Figure 401: OOS Menu – Disable PI OOS

4. From the DISABLE PI OOS menu, scroll and select the On to disable the PI OOS.

Figure 402: DISABLE PI OOS Menu

5. Scroll right and press Save.

27.10 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 57.
2. From the MISCELLANEOUS menu, scroll and select Enable 3 Digit PI.

Figure 403: MISCELLANEOUS Menu – Enable 3 Digit PI

3. From the ENABLE 3 DIGIT PI menu, scroll and select On to enable 3-digit PI.

Figure 404: ENABLE 3 DIGIT PI Menu

4. Scroll right and press Save.

27.11 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.

1. Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 57.
2. From the MISCELLANEOUS menu, scroll and Payment Passcode.

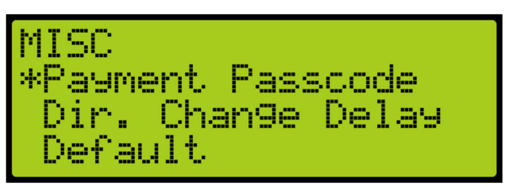

Figure 405: MISCELLANEOUS Menu – Payment Passcode

3. From the PAYMENT PASSCODE menu, enter the payment passcode.
   NOTE: The passcode will be given after payment has been made.

Figure 406: PAYMENT PASSCODE Menu

4. Scroll right and press Save.

27.12 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.

1. Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 57.
2. From the MISCELLANEOUS menu, scroll and select Direct Change Delay.

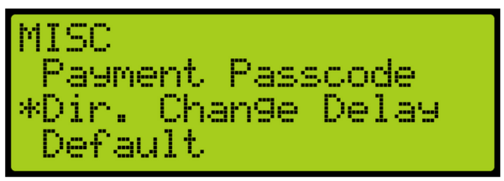

Figure 407: MISCELLANEOUS Menu – Direct Change Delay

3. From the DIRECT CHANGE DELAY menu, set the delay time for the car to change directions.

Figure 408: DIRECT CHANGE DELAY Menu

4. Scroll right and press Save.

27.13 Default

The default settings are the original settings within the controller.

27.13.1 Default Floors

The user has the option to restore the original learned floors.

The following procedure describes how to select default floors.

1. Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 57.
2. From the MISCELLANEOUS menu, scroll and select Default.

Figure 409: MISCELLANEOUS Menu – Default

3. From the DEFAULT menu, scroll and select Default Floors.

Figure 410: DEFAULT Menu – Default Floors

4. From the DEFAULT FLOORS menu, select if restoring original learned floors.

Figure 411: DEFAULT FLOORS? Menu

5. 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 412: DEFAULTING PARAMETERS Menu

6. When the system has completed defaulting all parameters, the DEFAULTING PARAMETERS menu displays Parameters Defaulted as shown in the figure below.

Figure 413: DEFAULTING PARAMETERS Menu – Parameters Defaulted

27.13.2 Default S-Curve

The user has the option restore the original S-Curve.

The following procedure describes how to select default S-Curve.

1. Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 57.
2. From the MISCELLANEOUS menu, scroll and select Default. Figure 409.
3. From the DEFAULT menu, scroll and select Default S-Curve.

Figure 414: DEFAULT Menu – Default S-Curve

4. From the DEFAULT S-CURVE? menu, select if restoring original S-Curve.

Figure 415: DEFAULT S-CURVE? Menu

5. 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 412.
6. When the system has completed defaulting all parameters, the DEFAULTING PARAMETERS menu displays PARAMETERS DEFAULTED. See Figure 413.

27.13.3 Default Run Timers

The user has the option to restore the original run timers.

The following procedure describes how to select default run timers.

1. Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 57.

2. From the MISCELLANEOUS menu, scroll and select Default. Figure 409.
3. From the DEFAULT menu, scroll and select Default Run Timers.

Figure 416: DEFAULT Menu – Default Run Timers

4. From the DEFAULT RUN TIMERS? menu, select if restoring original run timers.

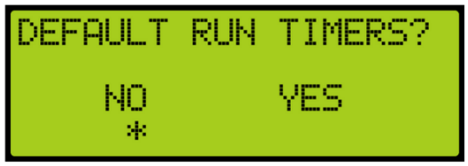

Figure 417: DEFAULT RUN TIMERS? Menu

5. 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 413.
6. When the system has completed defaulting all parameters, the DEFAULTING PARAMETERS menu displays PARAMETERS DEFAULTED. See Figure 413.

27.13.4 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 57.
2. From the MISCELLANEOUS menu, scroll and select Default. Figure 409.
3. From the DEFAULT menu, scroll and select Default I/O.

Figure 418: DEFAULT Menu – Default I/O

4. From the DEFAULT I/O? menu, select if restoring original inputs and outputs.

Figure 419: 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 412.
6. When the system has completed defaulting all parameters, the DEFAULTING PARAMETERS menu displays PARAMETERS DEFAULTED. See Figure 413.

27.13.5 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 57.
2. From the MISCELLANEOUS menu, scroll and select Default. Figure 409.
3. From the DEFAULT menu, scroll and select Default Other.

Figure 420: DEFAULT Menu – Default Other

4. From the DEFAULT Other? menu, scroll and select if defaulting other settings.

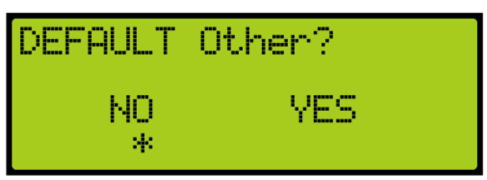

Figure 421: DEFAULT Other? Menu

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 412.
6. When the system has completed defaulting all parameters, the DEFAULTING PARAMETERS menu displays PARAMETERS DEFAULTED. See Figure 413.

27.13.6 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 57.
2. From the MISCELLANEOUS menu, scroll and select Default. Figure 409.
3. From the DEFAULT menu, scroll and select Default Factory.

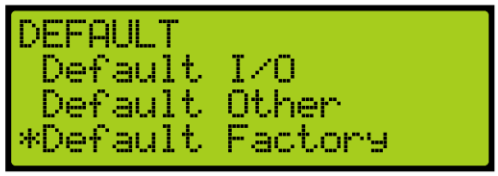

Figure 410: DEFAULT Menu – Default Factory

4. From the DEFAULT FACTORY? menu, select if restoring original factory settings.

Figure 422: DEFAULT FACTORY? Menu

5. 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 412.
6. When the system has completed defaulting all parameters, the DEFAULTING PARAMETERS menu displays PARAMETERS DEFAULTED. See Figure 413.

27.13.7 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.

1. Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 57.
2. From the MISCELLANEOUS menu, scroll and select Default. Figure 409.
3. From the DEFAULT menu, scroll and select Default FRAM.

Figure 423: DEFAULT Menu – Default FRAM

4. From the DEFAULT FRAM menu, scroll and select ON to reset the FRAM chip.

Figure 424: DEFAULT FRAM? Menu

5. Scroll right and press Save.

28 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.

28.1 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 158.
3. From the SELECT BOARD menu, scroll and select the board that is going to be assigned. See Figure 159.
4. From the Input menu, scroll and select an unused input. See Figure 350.
   NOTE: The X input is a representation of a number between 1-8.
5. Scroll right.
6. Scroll and select Auto Operation.

Figure 425: Input Menu – Enable Swing

7. Scroll right.
8. Scroll and select Enable Swing. See Figure 425.
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.

28.2 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 59.
2. From the SWING menu, scroll and select Calls Enable Swing.

Figure 426: SWING Menu – Calls Enable Swing

3. From the CALLS ENABLE menu, scroll and select On.

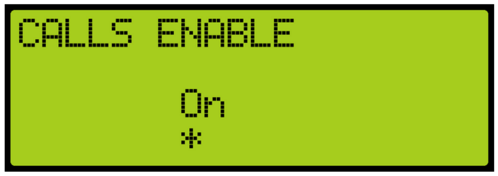

Figure 427: CALLS ENABLE Menu

4. Scroll right and press Save.

28.3 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.

1. Navigate to MAIN MENU | SETUP | DOOR SETUP. See Figure 55.
2. From the DOORS menu, scroll and select Swing Openings (Front or Rear).

Figure 428: DOORS Menu – Swing Openings (Front or Rear)

3. From the SWING DOOR OPENINGS menu, scroll and select which landings are set for swing opening.

Figure 429: SWING DOOR OPENINGS Menu

4. Scroll right and press Save.

28.4 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.

1. Navigate to MAIN MENU | SETUP | GROUP SETUP. See Figure 58.

2. From the GROUP SETUP menu, scroll and select Swing Call Mask.

Figure 430: GROUP SETUP Menu – Swing Call Mask

3. From the HALL SWING MASK menu, scroll and select the cars set for swing operation.

Figure 431: HALL SWING MASK Menu

4. Scroll right and press Save.

28.5 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 28.1 Configuring Swing Operation Input.

The following procedure describes how to configure the car to stay active in the group.

1. Navigate to MAIN MENU | SETUP | SWING. See Figure 59.
2. From the Swing menu, scroll and select Stay In Group.

Figure 432: SWING Menu – Stay In Group

3. From the STAY IN GROUP menu, scroll and select On.

Figure 433: STAY IN GROUP Menu

4. Scroll right and press Save.

28.6 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 28.1 Configuring Swing Operation Input.

The following procedure describes how to configure the idle timer.

1. Navigate to MAIN MENU | SETUP | SWING. See Figure 59.
2. From the SWING menu, scroll and select Idle Timer.

Figure 434: SWING Menu – Idle Timer

3. From the IDLE TIMER menu, set the time the car stays idle.

Figure 435: IDLE TIMER Menu

4. Scroll right and press Save.

29Timer

Timers are used for energy conservation.

29.1 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 57.

2. From the MISCELLANEOUS menu, scroll and select Fan & Light Timer.

Figure 436: MISCELLANEOUS Menu – Fan & Light Timer

3. From the FAN & LIGHT TIMER menu, set the time the fan and lights are on.

Figure 437: FAN & LIGHT TIMER Menu

4. Scroll right and press Save.

29.2 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.

1. Navigate to MAIN MENU | SETUP | MISCELLANEOUS. See Figure 57.
2. From the MISCELLANEOUS menu, scroll and select External Fan Timer.

Figure 438: MISCELLANEOUS Menu – External Fan Timer

3. From the MR FAN TIMER menu, set the time the fan and lights are on while the car is idle.

Figure 439: MR FAN TIMER Menu

4. Scroll right and press Save

29.3 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 57.
2. From the MISCELLANEOUS menu, scroll and select Arrival Update Time.

Figure 440: MISCELLANEOUS Menu – Arrival Update Time

3. From the ARRIVAL UPDATE TIME menu, set the time to update lantern outputs.

Figure 441: ARRIVAL UPDATE TIME Menu

4. Scroll right and press Save.

30Safety

Safety measures are taken to prevent personal injury and to protect the equipment.

30.1 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 33.
2. From the SAFETY menu, scroll and select Lock Clip.

Figure 442: SAFETY Menu – Lock Clip

3. From the LOCK CLIP menu, set the time of the lock.

Figure 443: LOCK CLIP Menu

4. Scroll right and press Save.

30.2 General ODL

The General overspeed debounce limit (ODL) sets the distance for miscellaneous limits.

The following is an example of setting up the general ODL.

1. Navigate to MAIN MENU | SETUP | SAFETY. See Figure 33.
2. From the SAFETY menu, scroll and select General ODL.

Figure 444: SAFETY Menu – General ODL

3. From the GENERAL ODL menu, enter the general debounce limit.

Figure 445: GENERAL ODL Menu

4. Scroll right and press Save.

30.3 NTS. ODL

The NTS 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 33.
2. From the SAFETY menu, scroll and select NTS ODL.

Figure 446: SAFETY Menu – NTS ODL

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

Figure 447: NTS ODL Menu

4. Scroll right and press Save.

30.4 TSRD ODL

The TSRD ODL sets the distance to the bottom of the top door zone magnet. If the car passes this point at more than 80% of contract speed, power will be cut to the valves and pump motor to prevent hitting the stop ring at contract speed.

The following procedure describes how to set the TSRD ODL.

1. Navigate to MAIN MENU | SETUP | Safety. See Figure 33.

2. From the SAFETY menu, scroll and select TRSD ODL.

Figure 448: SAFETY Menu – NTS TSRD ODL

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

Figure 449: TSRD ODL Menu

4. Scroll right and press Save.

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31Emergency

Emergency situations can occur due to natural or other conditions.

31.1 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 *Hydro:Evolved Parameter List.*

The table below lists the Inputs Used by the Controller for Emergency Power.

Table 49: 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.

31.1.1 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 31.2 Earthquake.

31.1.2 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 *Hydro:Evolved 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

31.1.2.1 Fire Phase 1 and Phase 2 Operation

Fire Phase1 and Phase 2 are modes of operation when smoke or heat is detected. See section 31.3 Fire for more information.

31.1.2.2 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 31.5 EMS for more information.

31.1.2.3 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.

31.1.2.4 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.

31.1.3 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.

31.1.4 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 *Hydro:Evovled Parameter List.*

31.1.4.1 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 60.
2. From the E–POWER menu, scroll and select Number Active Cars.

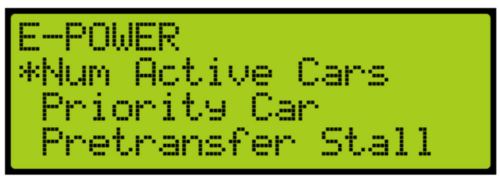

Figure 450: E–POWER Menu – Number Active Cars

3. From the NUMBER ACTIVE CARS menu, scroll and select the number of active cars.

Figure 451: Number Active Cars Menu

4. Scroll right and press Save.

31.1.5 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 *Hydro:Evolved 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.

31.1.5.1 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 60.
2. From the E–POWER menu, scroll and select the Priority Car.

Figure 452: E–POWER Menu – Priority Car

3. From the PRIORITY CAR menu, scroll and select the priority car.

Figure 453: PRIORITY CAR Menu

4. Scroll right and press Save.

31.1.6 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 31.4 Flood for more information.

After all recalls have been completed, cars are allocated for normal operation.

31.1.6.1 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 58.
2. From the E-POWER menu, scroll and select the Pretransfer Stall.

Figure 454: E-POWER Menu – Pretransfer Stall

3. From the PRETRANSFER STALL menu, scroll and select if the pretransfer stall is enabled or disabled.

Figure 455: PRETRANSFER STALL Menu

4. Scroll right and press Save.

31.1.6.2 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.

31.1.7 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.

31.2 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.

31.2.1 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 56.
2. From the EARTHQUAKE menu, scroll and select Enable Eq.

Figure 456: EARTHQUAKE Menu – Enable Eq

3. From the ENABLE EQ menu, scroll and select enable earthquake.

Figure 457: ENABLE EQ Menu

4. Scroll right and press Save.

31.2.2 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.

1. Manually move the car to the mid-point location.
2. Navigate to MAIN MENU | SETUP | EARTHQUAKE. See Figure 56.
3. From the Earthquake menu, scroll and select Set CW POS.

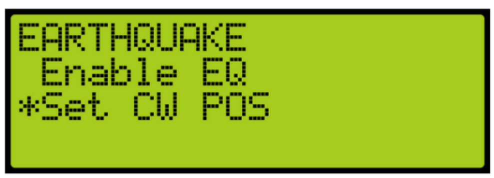

Figure 458: EARTHQUAKE Menu – Set CW POS

4. 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 459: Save CW Position? Menu

5. Scroll right and press Save.

31.2.3 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 42.
2. From the INPUTS BY FUNCTION menu, scroll and select Fire/Earthquake.

Figure 460: INPUTS BY FUNCTION Menu – Fire/Earthquake

3. From the FIRE/EARTHQUAKE menu, view the status of all selected fire and earthquake emergency services.

Figure 461: FIRE/EARTHQUAKE Menu

31.3 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.

31.3.1 Main Recall

The main recall is where the car is recalled to a main recall floor during a fire.

31.3.1.1 Main Recall Floor

The following procedure describes how to set the designated landing.

1. Navigate to MAIN MENU | SETUP | FIRE. See Figure 56.
2. From the FIRE SERVICE menu, scroll and select Main Recall.

Figure 462: FIRE SERVICE Menu – Main Recall

3. From the MAIN RECALL menu, scroll and select Floor.

Figure 463: MAIN RECALL Menu – Floor

4. From the MAIN RECALL FLOOR menu, enter the recall floor.

Figure 464: MAIN RECALL FLOOR Menu

5. Scroll right and press Save.

31.3.1.2 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 56.
2. From the FIRE SERVICE menu, scroll and select Main Recall. See Figure 462.

3. From the MAIN RECALL menu, scroll and select Opening.

Figure 465: MAIN RECALL Menu – Opening

4. From the MAIN RECALL DOOR menu, scroll and select if the front or rear door opens.

Figure 466: MAIN RECALL DOOR Menu

5. Scroll right and press Save.

31.3.2 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.

31.3.2.1 Alternate Recall Floor

The following procedure describes how to set the designated landing.

1. Navigate to MAIN MENU | SETUP | FIRE. See Figure 56.
2. From the FIRE SERVICE menu, scroll and select Alt Recall.

Figure 467: FIRE SERVICE Menu – Alt Recall

3. From the ALT RECALL menu, scroll and select Floor.

Figure 468: ALT RECALL Menu – Floor

4. From the ALT RECALL FLOOR menu, enter the recall floor.

Figure 469: ALT RECALL FLOOR Menu

5. Scroll right and press Save.

31.3.2.2 Alternate Recall Door

The following procedure describes how to set the alternate recall door.

1. Navigate to MAIN MENU | SETUP | FIRE. See Figure 56.
2. From the FIRE SERVICE menu, scroll and select Alt Recall. See Figure 467.
3. From the ALT RECALL menu, scroll and select Opening.

Figure 470: ALT RECALL Menu – Opening

4. From the ALT RECALL DOOR menu, scroll and select if the front or rear door opens.

Figure 471: ALT RECALL DOOR Menu

5. Scroll right and press Save.

31.3.3 Main Smoke

The main smoke is where the car is recalled to a designated landing when smoke has been detected in the main lobby.

31.3.3.1 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 56.
2. From the FIRE SERVICE menu, scroll and select Main Smoke.

Figure 472: FIRE SERVICE Menu – Main Smoke

3. From the MAIN SMOKE menu, scroll and select Main or Alt.

Figure 473: MAIN SMOKE Menu – Main or Alt

4. From the USE ALT FLOOR menu, scroll and select if the main or alternate floor is configured for main smoke.

Figure 474: USE ALT FLOOR Menu

5. Scroll right and press Save.

31.3.3.2 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 56.
2. From the FIRE SERVICE menu, scroll and select Main Smoke. See Figure 472.

3. From the MAIN SMOKE menu, scroll and select Flash Fire Hat.

Figure 475: MAIN SMOKE Menu – Flash Fire Hat

4. From the FLASH FIRE HAT menu, scroll and select ON.

Figure 476: FLASH FIRE HAT Menu

5. Scroll right and press Save.

31.3.3.3 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.

1. Navigate to MAIN MENU | SETUP | FIRE. See Figure 56.
2. From the FIRE SERVICE menu, scroll and select Main Smoke. See Figure 472.
3. From the MAIN SMOKE menu, scroll and select Shunt Trip.

Figure 477: MAIN SMOKE Menu – Shunt Trip

4. From SHUNT ON RECALL menu, scroll and select ON.

Figure 478: SHUNT ON RECALL Menu

5. Scroll right and press Save.

31.3.4 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.

31.3.4.1 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 56.
2. From the FIRE SERVICE menu, scroll and select Alt Smoke.

Figure 479: FIRE SERVICE Menu – Alt Smoke

3. From the ALT SMOKE menu, scroll and select Main or Alt.

Figure 480: ALT SMOKE Menu – Main or Alt

4. From the USE ALT FLOOR menu, scroll and select if the alternate floor is configured for alternate smoke.

Figure 481: USE ALT FLOOR Menu

5. Scroll right and press Save.

31.3.4.2 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 56.
2. From the FIRE SERVICE menu, scroll and select Alt Smoke. See Figure 479.
3. From the ALT SMOKE menu, scroll and select Flash Fire Hat.

Figure 482: ALT SMOKE Menu – Flash Fire Hat

4. From the FLASH FIRE HAT menu, scroll and select ON. See Figure 476.
5. Scroll right and press Save.

31.3.4.3 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 56.
2. From the FIRE SERVICE menu, scroll and select Alt Smoke. See Figure 479.
3. From the ALT SMOKE menu, scroll and select Shunt Trip.

Figure 483: ALT SMOKE Menu – Shunt Trip

4. From the SHUNT ON RECALL menu, scroll and select On. See Figure 478.
5. Scroll right and press Save.

31.3.5 Hoistway Smoke

The hoistway smoke is where the car is recalled to a designated landing when smoke has been detected in the hoistway.

31.3.5.1 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.

1. Navigate to MAIN MENU | SETUP | FIRE. See Figure 56.
2. From the FIRE SERVICE menu, scroll and select Hoistway Smoke.

Figure 484: FIRE SERVICE Menu – Hoistway Smoke

3. From the HOISTWAY SMOKE menu, scroll and select Main or Alt.

Figure 485: HOISTWAY SMOKE Menu – Main or Alt

4. From ALT FLOOR menu, scroll and select if the main or alternate floor is configured for hoistway smoke. See Figure 474.
5. Scroll right and press Save.

31.3.5.2 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.

1. Navigate to MAIN MENU | SETUP | FIRE. See Figure 56.
2. From the FIRE SERVICE menu, scroll and select Hoistway Smoke. See Figure 484.
3. From the HOISTWAY SMOKE menu, scroll and select Flash Fire Hat.

Figure 486: HOISTWAY SMOKE Menu – Flash Fire Hat

4. From the FLASH FIRE HAT menu, scroll and select ON. See Figure 476.
5. Scroll right and press Save.

31.3.5.3 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.

1. Navigate to MAIN MENU | SETUP | FIRE. See Figure 56.
2. From the FIRE SERVICE menu, scroll and select Hoistway Smoke. See Figure 484.
3. From the HOISTWAY SMOKE menu, scroll and select Shunt Trip.

Figure 487: HOISTWAY SMOKE Menu – Shunt Trip

4. From the SHUNT ON RECALL menu, scroll and select ON. See Figure 478.
5. Scroll right and press Save.

31.3.6 MR Smoke

The MR smoke is where the car is recalled to a designated landing when smoke has been detected in the machine room.

31.3.6.1 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.

1. Navigate to MAIN MENU | SETUP | FIRE. See Figure 56.
2. From the FIRE SERVICE menu, scroll and select MR Smoke.

Figure 488: FIRE SERVICE Menu – MR Smoke

3. From the MR SMOKE menu, scroll and select Main or Alt.

Figure 489: MR SMOKE Menu – Main or Alt

4. From the USE ALT FLOOR menu, scroll and select if the main or alternate floor is configured for MR smoke. See Figure 474.
5. Scroll right and press Save.

31.3.6.2 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.

1. Navigate to MAIN MENU | SETUP | FIRE. See Figure 56.
2. From the FIRE SERVICE menu, scroll and select MR Smoke. See Figure 488.
3. From the MR SMOKE menu, scroll and select Flash Fire Hat.

Figure 490: MR SMOKE Menu – Flash Fire Hat

4. From the FLASH FIRE HAT menu, scroll and select ON. See Figure 476.
5. Scroll right and press Save.

31.3.6.3 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 56.
2. From the FIRE SERVICE menu, scroll and select MR Smoke. See Figure 488.

3. From the MR SMOKE menu, scroll and select Shunt Trip.

Figure 491: MR SMOKE Menu – Shunt Trip

4. From the SHUNT ON RECALL menu, scroll and select ON. See Figure 478.
5. Scroll right and press Save.

31.3.7 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 56.
2. From the FIRE SERVICE menu, scroll and select Recall Key.

Figure 492: FIRE SERVICE Menu – Recall Key

3. From the RECALL KEY menu, scroll and select Flash Fire Hat.

Figure 493: RECALL KEY Menu – Flash Fire Hat

4. From the FLASH FIRE HAT menu, scroll and select ON. See Figure 476.
5. Scroll right and press Save.

31.3.8 PIT Smoke

The PIT smoke is where the car is recalled to a designated landing when smoke has been detected in the pit.

31.3.8.1 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.

1. Navigate to MAIN MENU | SETUP | FIRE. See Figure 56.
2. From the FIRE SERVICE menu, scroll and select PIT Smoke.

Figure 494: FIRE SERVICE Menu – PIT Smoke

3. From the PIT SMOKE menu, scroll and select Main or Alt.

Figure 495: PIT SMOKE Menu – Main or Alt

4. From the USE ALT FLOOR menu, scroll and select if the alternate floor is configured for pit smoke. See Figure 481.
5. Scroll right and press Save.

31.3.8.2 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.

1. Navigate to MAIN MENU | SETUP | FIRE. See Figure 56.
2. From the FIRE SERVICE menu, scroll and select PIT Smoke. See Figure 494.
3. From the PIT SMOKE menu, scroll and select Flash Fire Hat.

Figure 496: PIT SMOKE Menu – Flash Fire Hat

4. From the FLASH FIRE HAT menu, scroll and select ON. See Figure 476.

5. Scroll right and press Save.

31.3.8.3 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 56.
2. From the FIRE SERVICE menu, scroll and select PIT Smoke. See Figure 494.
3. From the PIT SMOKE menu, scroll and select Shunt Trip.

Figure 497: PIT SMOKE Menu – Shunt Trip

4. From the SHUNT ON RECALL menu, scroll and select ON. See Figure 478.
5. Scroll right and press Save.

31.3.9 Alt Machine Room

Alternate machine room parameters are set when a group of elevators have split machine room and hoistway.

31.3.9.1 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 56.
2. From the FIRE SERVICE menu, scroll and select Alt. Machine Room.

Figure 498: FIRE SERVICE Menu – Alt. Machine Room

3. From the ALT MACHINE ROOM menu, scroll and select Enable Alt. MR.

Figure 499: ALT MACHINE ROOM Menu – Enable Alt. MR

4. From the ENABLE ALT MR menu, scroll and select ON.

Figure 500: ENABLE ALT MR Menu

5. Scroll right and press Save.

31.3.9.2 Hoistway 2 Smoke

When a group of elevators have a split hoistway, the options for secondary hoistway smoke needs to be enabled.

31.3.9.2.1 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.

1. Navigate to MAIN MENU | SETUP | FIRE. See Figure 56.
2. From the FIRE SERVICE menu, scroll and select Alt. Machine Room. See Figure 498.
3. From the ALT MACHINE ROOM menu, scroll and select HW 2 Smoke.

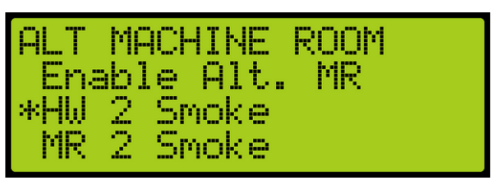

Figure 501: ALT MACHINE ROOM Menu – HW 2 Smoke

4. From the HOISTWAY 2 SMOKE menu, scroll and select Main or Alt.

Figure 502: HOISTWAY 2 SMOKE Menu – Main or Alt

5. From the USE ALT FLOOR menu, scroll and select if the main or alternate floor is configured for main smoke. See Figure 474.
6. Scroll right and press Save.

31.3.9.2.2 Flash Fire Hat

The following procedure describes how to flash the fire hat when the alternate hoistway smoke is triggered.

1. Navigate to MAIN MENU | SETUP | FIRE. See Figure 56.
2. From the FIRE SERVICE menu, scroll and select Alt. Machine Room. See Figure 498.
3. From the ALT MACHINE ROOM menu, scroll and select HW 2 Smoke. See Figure 501.
4. From the HOISTWAY 2 SMOKE menu, scroll and select Flash Fire Hat.

Figure 503: HOISTWAY 2 SMOKE Menu – Flash Fire Hat

5. From the FLASH FIRE HAT menu, scroll and select ON. See Figure 476.
6. Scroll right and press Save.

31.3.9.2.3 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.

1. Navigate to MAIN MENU | SETUP | FIRE. See Figure 56.
2. From the FIRE SERVICE menu, scroll and select Alt. Machine Room. See Figure 498.
3. From the ALT MACHINE ROOM menu, scroll and select HW 2 Smoke. See Figure 501.
4. From the HOISTWAY 2 SMOKE menu, scroll and select Shunt Trip.

Figure 504: HOISTWAY 2 SMOKE Menu – Shunt Trip

5. From the SHUNT ON RECALL menu, scroll and select ON. See Figure 478.
6. Scroll right and press Save.

31.3.9.3 MR 2 Smoke

The MR 2 smoke is the smoke sensor located in the secondary machine room.

31.3.9.3.1 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 56.
2. From the FIRE SERVICE menu, scroll and select Alt. Machine Room. See Figure 498.
3. From the ALT MACHINE ROOM menu, scroll and select MR 2 Smoke.

Figure 505: ALT MACHINE ROOM Menu – MR 2 Smoke

4. From the MR 2 SMOKE menu, scroll and select Main or Alt.

Figure 506: MR 2 SMOKE Menu – Main or Alt

5. From the USE ALT FLOOR menu, scroll and select if the main or alternate floor is configured for main smoke. See Figure 474.
6. Scroll right and press Save.

31.3.9.3.2 Flash Fire Hat

The following procedure describes how to flash the fire hat when the alternate Machine room smoke is triggered.

1. Navigate to MAIN MENU | SETUP | FIRE. See Figure 56.
2. From the FIRE SERVICE menu, scroll and select Alt. Machine Room. See Figure 498.
3. From the ALT MACHINE ROOM menu, scroll and select MR2 Smoke. See Figure 505.
4. From the MR 2 SMOKE menu, scroll and select Flash Fire Hat.

Figure 507: MR 2 SMOKE Menu – Flash Fire Hat

5. From the FLASH FIRE HAT menu, scroll and select ON. See Figure 476.
6. Scroll right and press Save.

31.3.9.3.3 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.

1. Navigate to MAIN MENU | SETUP | FIRE. See Figure 56.
2. From the FIRE SERVICE menu, scroll and select Alt. Machine Room. See Figure 498.
3. From the ALT MACHINE ROOM menu, scroll and select MR2 Smoke. See Figure 505.
4. From the MR 2 SMOKE menu, scroll and select Shunt Trip.

Figure 508: MR 2 SMOKE Menu – Shunt Trip

5. From the SHUNT ON RECALL menu, scroll and select ON. See Figure 478.
6. Scroll right and press Save.

31.3.10 Advanced Config

Advanced configuration is a simple way to configure specific fire parameters within the system. For a description of each parameter, see the Hydro:Evolved *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 56.
2. From the FIRE SERVICE menu, scroll and select Advanced Configuration.

Figure 509: FIRE SERVICE Menu – Advance Configurations

3. 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.

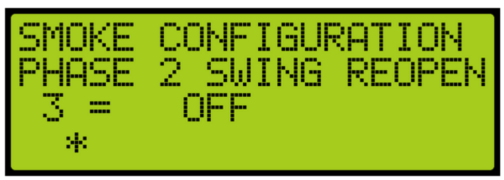

Figure 510: SMOKE CONFIGURATION Menu

4. Scroll right and press Save.

31.4 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.

31.4.1 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.

1. Navigate to MAIN MENU | SETUP | FLOOD. See Figure 58.

2. From the FLOOD menu, scroll and select Number of Floors.

Figure 511: FLOOD Menu – Number of Floors

3. 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 512: NUMBER OF FLOOD FLOORS Menu

4. Scroll right and press Save.

31.4.2 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 allows the elevator to continue running above flooded floors.

1. Navigate to MAIN MENU | SETUP | FLOOD. See Figure 58.
2. From the FLOOD menu, scroll and select Okay To Run.

Figure 513: FLOOD Menu – Okay To Run

3. From the OKAY TO RUN menu, scroll and select On to continue running in automatic operation.

Figure 514: OKAY TO RUN Menu

4. Scroll right and press Save.

31.4.3 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.

1. Navigate to MAIN MENU | SETUP | FLOOD. See Figure 58.
2. From the FLOOD menu, scroll and select Override Fire.

Figure 515: FLOOD Menu – Override Fire

3. From the OVERRIDE FIRE menu, scroll and select On for flooding to override fire.

Figure 516: OVERRIDE FIRE Menu

4. Scroll right and press Save.

31.5 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 31.5.4 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 section 31.5.5 Ph2 Exit Delay) to allow for the emergency medical team to remove the patient from the car.

31.5.1 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.

1. Navigate to MAIN MENU | SETUP | EMS. See Figure 59.

2. From the EMS menu, scroll and select AllowPh2WithoutPh1.

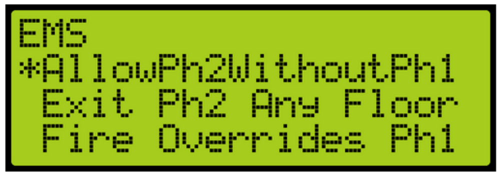

Figure 517: EMS Menu – AllowPh2WithoutPh1

3. From the ALLOWPH2WITHOUTPH1 menu, scroll and select if the car is set to run in a medical emergency.

Figure 518: ALLOWPH2WITHOUTPH1 Menu

4. Scroll right and press Save.

31.5.2 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.

1. Navigate to MAIN MENU | SETUP | EMS. See Figure 59.
2. From the EMS menu, scroll and select Exit Ph2 Any Floor.

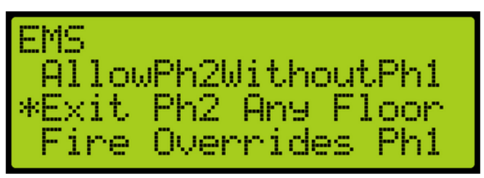

Figure 519: EMS Menu – Exit Ph2 Any Floor

3. From the EXIT PH2 ANY FLOOR menu, scroll and select if the controller can exit phase 2 on any floor.

Figure 520: EXIT PH2 ANY FLOOR Menu

4. Scroll right and press Save.

31.5.3 Fire Overrides Ph1

The following procedure describes how to allow fire to override Phase 1 EMS operation.

1. Navigate to MAIN MENU | SETUP | EMS. See Figure 59.
2. From the EMS menu, scroll and select Fire Overrides Ph1.

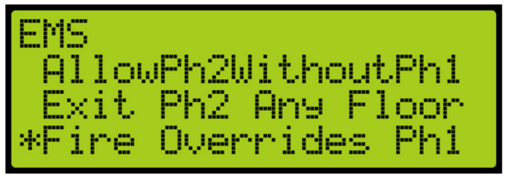

Figure 521: EMS Menu – Fire Overrides Ph1

3. From the FIRE OVERRIDES PH1 menu, scroll and select if a fire override phase 1 EMS operation.

Figure 522: FIRE OVERRIDES PH1 Menu

4. Scroll right and press Save.

31.5.4 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.

1. Navigate to MAIN MENU | SETUP | EMS. See Figure 59.
2. From the EMS menu, scroll and select Ph1 Exit Delay.

Figure 523: EMS Menu – Ph1 Exit Delay

3. From the PH1 EXIT DELAY menu, set the time the car remains at a landing prior to normal operation.

Figure 524: PH1 EXIT DELAY Menu

4. Scroll right and press Save.

31.5.5 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.

1. Navigate to MAIN MENU | SETUP | EMS. See Figure 59.
2. From the EMS menu, scroll and select Ph2 Exit Delay.

Figure 525: EMS Menu – Ph2 Exit Delay

3. From the PH2 EXIT DELAY menu, set the delay time prior to the doors closing.

Figure 526: PH2 EXIT DELAY Menu

4. Scroll right and press Save.

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32 Status

The status of each functionality can be viewed to determine which functions are active.

32.1 Input Status

The Input status displays the status for the configured inputs to the MR board.

The following procedure describes how to view the input status.

1. Navigate to MAIN MENU | STATUS | INPUTS. See Figure 44.
2. From the INPUTS BY FUNCTION menu, scroll and select the type of input.

Figure 527: INPUTS BY FUNCTION Menu –Inspection

3. From the INSPECTION menu, view the status of the configured input.

Figure 528: INSPECTION Menu

32.2 Output Status

The Output status displays the status for the configured outputs from the MR board.

The following procedure describes how to view the output status.

1. Navigate to MAIN MENU | STATUS | OUTPUTS. See Figure 44.
2. From the OUTPUTS BY FUNCTION menu, scroll and select the type of output.

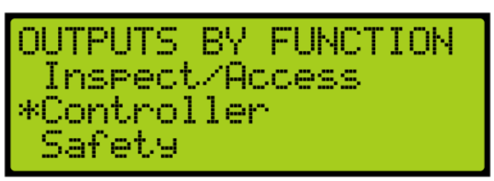

Figure 529: OUPTUS BY FUNCTION Menu –Controller

3. From the CONTROLLER menu, view the status of the configured output.

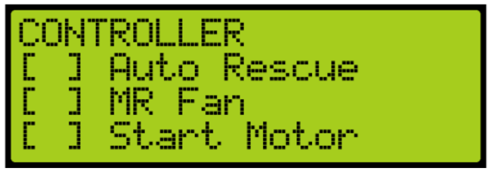

Figure 530: CONTROLLER Menu

32.3 Valve 1 and Valve 2 Status

The Valve 1 and Valve 2 status displays the activity of the valve and if there are any errors. The state and error displays unknown when there is no valve connected in the controller. If a configuration error exists, an Invalid Config message is displayed.

The following procedure describes how to view the status of Valve 1 and Valve 2.

1. Navigate to MAIN MENU | STATUS | Valve 1 Status (see Figure 44) or MAIN MENU | STATUS | Valve 2 Status (see Figure 45).
2. From the Valve 1 or Valve 2 Status menu, view the status of the valve.

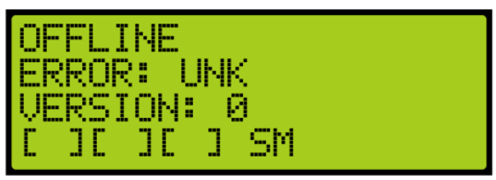

Figure 531: Valve Status Menu – Part 1 of 3

Figure 532: Valve Status Menu – Part 2 of 3

Figure 533: Valve Status Menu – Part 3 of 3

The Valve 1 and 2 Status menus display the following:

- **Valve Activity** – Displays if the valve is online or offline.
- **Error** – Displays an error code if a fault exists.
- **Version** – Displays the version.
- **SM through DL** – Displays the status of the Valve board: Command from the controller, input to the Valve board and output from the Valve board.

- **DIP 1** – Displays the status of the primary and secondary Valve boards (Command, Input and Output).
- **DIP 2** – Displays the status of operation of the secondary Valve board . If DIP 2 is ON, the secondary Valve board testing will pause.

32.4 Soft Starter and Soft Starter 2 Status

The Soft Starter status' displays the status of the primary and secondary (if configured) soft starters.

The following procedure describes how to view the Soft Starter status.

1. Navigate to MAIN MENU | STATUS | SOFT STARTER STATUS or SOFT STARTER 2 STATUS. See Figure 45.
2. From the Soft Starter Status menus, view the status of the Soft Starter.

Figure 534: Soft Starter Status Menu – Part 1 of 3

Figure 535: Soft Starter Status Menu – Part 2 of 3

Figure 536: Soft Starter Status Menu – Part 3 of 3

The Soft Starter and Soft Starter 2 Status menus display the following:

- **Soft Starter Activity** – Displays if the soft starter is online or offline.
- **CMD** – Displays an error code if a fault exists.
- **STATE** – Displays the state of the soft starter.
- **MODE** – Displays the mode of the soft starter.
- **L1 through L3** – Displays the amount of current through each phase to soft starter.
- **Temperature** – Displays the temperature of the soft starter in °F.
- **Version** – Displays current software version of the soft starter.

32.5 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.
2. 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 537: EXPANSION STATUS Menu – Expansion Group

3. From the EXPANSION Status menu, view the status of an Expansion board.

Figure 538: Active Expansion Board Status

Figure 539: 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.

32.6 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.

1. Navigate to MAIN MENU | STATUS | RISER BOARD STATUS. See Figure 46.

2. From the Riser board menu, view the Riser board status.

Figure 540: Active Riser Board Status

Figure 541: 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.

32.7 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.

1. Navigate to MAIN MENU | STATUS | HALL CALL STATUS. See Figure 47.
2. From the HALL CALL STATUS menu, scroll and select Up or Down Calls.

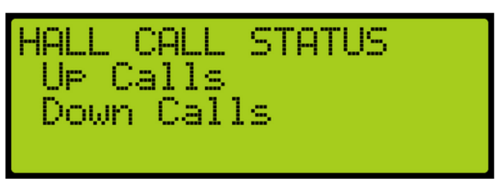

Figure 542: HALL CALL STATUS Menu

3. From the UP CALLS or DOWN CALLS menu, scroll and view hall calls with the car moving up or down.

Figure 543: UP CALLS Menu

Figure 544: DOWN CALLS Menu

32.8 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 48.
2. From the CPLD STATUS menu, scroll and select the (MR, CT, or COP) CPLD.

Figure 545: CPLD STATUS Menu – MR, CT, COP CPLD

3. From the CPLD menu, view the CPLD status.
   NOTE: Scroll down to see additional information.

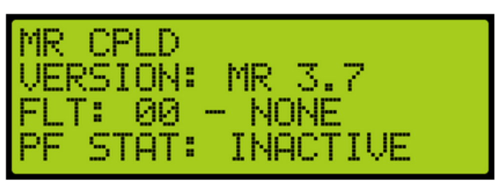

Figure 546: MR CPLD Menu

Figure 547: MR CPLD Menu Continued

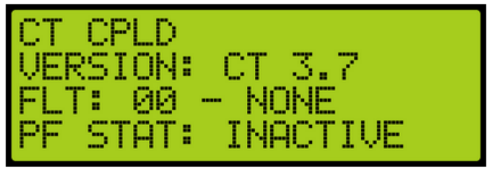

Figure 548: CT CPLD Menu

Figure 549: CT CPLD Menu Continued

Figure 550: COP CPLD Menu

Figure 551: 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 50: 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 51: 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 CPLD 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 52: 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 53: 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 54: 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

32.9 E-Power Status

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 552: E-POWER COMMAND Menu

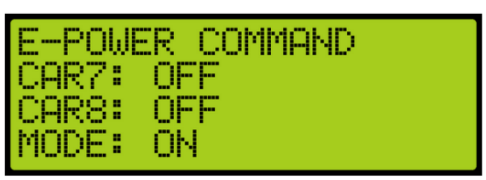

Figure 553: E-POWER COMMAND Menu Continued

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.

32.10 EMS Status

The following procedure describes how to view the EMS status.

1. Navigate to MAIN MENU | STATUS | EMS STATUS. See Figure 49.
2. 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 554: EMS STATUS Menu – Car 1 Assigned

Figure 555: EMS STATUS Menu – No Cars Assigned

32.11 Virtual Inputs

Virtual inputs display the status of inputs virtually instead of the main screens on the MR, CT, or COP boards.

32.11.1 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.

32.11.1.1 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.

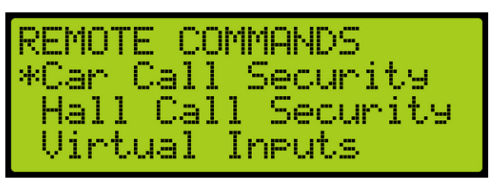

Figure 556: REMOTE COMMANDS Menu – Car Call Security

3. From the SECURE CAR CALLS menu, select either the front or rear car calls.

Figure 557: SECURE CAR CALLS Menu – Front or Rear

4. From the Secure Car menu, view the status of front or rear car doors that require security access.

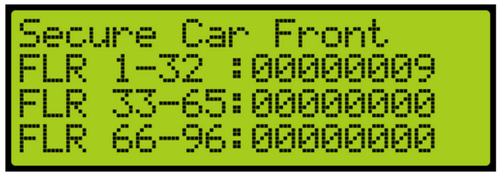

Figure 558: Secure Car Front Menu

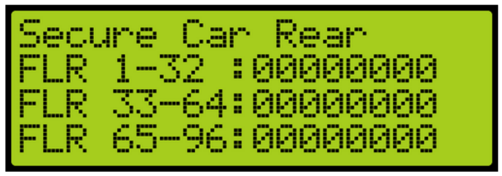

Figure 559: Secure Car Rear Menu

32.11.1.2 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.

1. Navigate to MAIN MENU | STATUS | VIRTUAL INPUTS. See Figure 50.
2. From the REMOTE COMMANDS menu, scroll and select Hall Call Security.

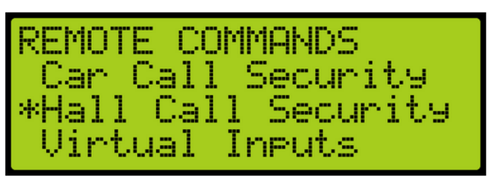

Figure 560: REMOTE COMMANDS Menu – Hall Call Security

3. From the SECURE HALL CALLS menu, select either the front or rear hall calls.

Figure 561: SECURE HALL CALLS Menu – Front or Rear

4. From the Secure (Front or Rear) Hall Call menu, view the status of front or rear car doors that require security access.

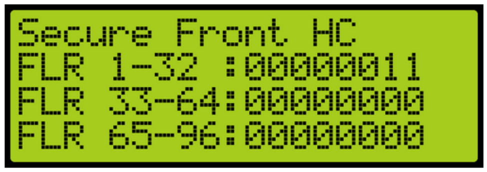

Figure 562: Secure Front Hall Call Menu

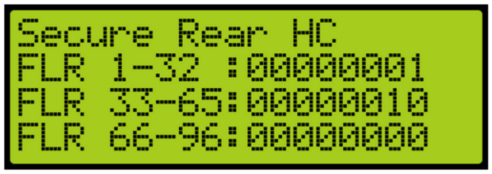

Figure 563: Secure Rear Hall Call Menu

32.11.1.3 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.

1. Navigate to MAIN MENU | STATUS | VIRTUAL INPUTS. See Figure 50.
2. From the REMOTE COMMANDS menu, scroll and select Virtual Inputs.

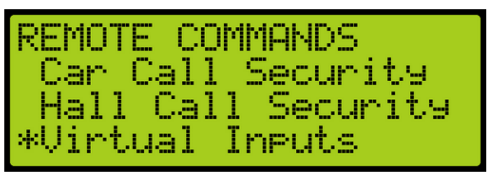

Figure 564: REMOTE COMMANDS Menu – Virtual Inputs

3. From the Virtual Input menu, view the status of auto operation inputs that are active.

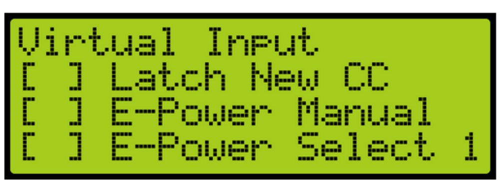

Figure 565: Virtual Input Menu

32.11.1.4 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 566: REMOTE COMMANDS Menu – Recall Input

3. From the Recall Floor/Door menu, view the floor the car is recalled and which door opens.

Figure 567: Recall Floor/Door Menu

32.11.1.5 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 568: REMOTE COMMANDS Menu – Door Command Landing

3. From the Door Command Landing menu, view the designated landing of the car.

Figure 569: Door Command Landing Menu

32.12 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.

1. Navigate to MAIN MENU | STATUS | DIP STATUS. See Figure 50.
2. From the DIP STATUS menu, select MR, CT, or COP DIP.

Figure 570: DIP STATUS Menu – MR, CT, or COP DIP

3. From the DIP SWITCHES menu, view the DIP switches that are on for the MR, CT, or COP board.

Figure 571: DIP SWITCHES Menu

32.13 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.

1. Navigate to MAIN MENU | STATUS | DOOR STATUS (Front or Rear). See Figure 51.
2. From the Door Status menu, view the input status of the door.

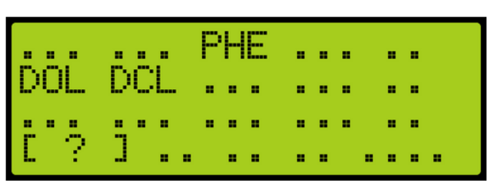

Figure 572: Door Status Menu

33 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.

33.1 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 58.
2. From the GROUP SETUP menu, scroll and select Group Car Index.

Figure 573: GROUP SETUP Menu – Group Car Index

3. From the GROUP CAR INDEX menu, enter the car ID.

Figure 574: GROUP CAR INDEX Menu

4. Scroll right and press Save.

33.2 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 58.
2. From the GROUP SETUP menu, scroll and select Group Landing Offset.

Figure 575: GROUP SETUP Menu – Group Landing Offset

3. From the GROUP LANDING OFFSET menu, set the number of floors below a group that are serviced by another group.

Figure 576: GROUP LANDING OFFSET Menu

4. Scroll right and press Save.

33.3 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.

1. Navigate to MAIN MENU | SETUP | GROUP SETUP. See Figure 58.
2. From the GROUP SETUP menu, scroll and select Dispatch Timeout.

Figure 577: GROUP SETUP Menu – Dispatch Timeout

3. From the DISPATCH 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 578: DISPATCH TIMEOUT Menu

4. Scroll right and press Save.

33.4 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 58.

2. From the GROUP SETUP menu, scroll and select Dispatch Offline Timeout.

Figure 579: GROUP SETUP Menu – Dispatch Offline Timeout

3. From the DISPATCH OFFLINE TIMEOUT menu, set the time the car is out of the group If set to zero, this feature is disabled.

Figure 580: DISPATCHING OFFLINE TIMEOUT Menu

4. Scroll right and press Save.

34 XREG

Cross registration allows for the controller dispatching system to interface with non-Smartrise controllers.

34.1 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 58.
2. From the GROUP SETUP menu, scroll and select XReg Cars.

Figure 581: GROUP SETUP Menu – XREG Cars

3. From the NUMBER XREG CARS menu, enter the number of cars from the legacy system.

Figure 582: NUMBER XREG CARS Menu

4. Scroll right and press Save.

34.2 XReg Destination 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.

1. Navigate to MAIN MENU | SETUP | GROUP SETUP. See Figure 58.
2. From the GROUP SETUP menu, scroll and select XReg Destination Timeout.

Figure 583: GROUP SETUP Menu – XReg Destination Timeout

3. 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 584: XREG DESTINATION TIMEOUT Menu

4. Scroll right and press Save.

34.3 XReg Destination 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.

1. Navigate to MAIN MENU | SETUP | GROUP SETUP. See Figure 58.

2. From the GROUP SETUP menu, scroll and select XReg Destination Offline Timeout.

Figure 585: GROUP SETUP Menu – XReg Destination Offline Timeout

3. 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 586: XREG DESTINATION OFFLINE TIMEOUT Menu

4. Scroll right and press Save.

34.4 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 67.
2. From the Destination menu, view the destination of the car within the group.

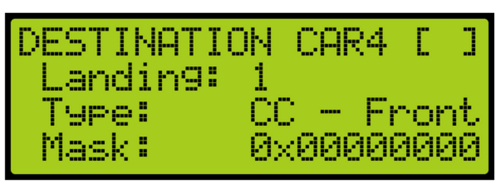

Figure 587: DESTINATION Menu

34.5 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 67.
2. From the XREG Car Data Overview (see Figure 242), view the status and press the right button.

3. From the Hall Mask Status (see Figure 243), view the status and press the right button.
4. From the Front Opening Map Status (see Figure 244), view the status and press the right button.
5. From the Rear Opening Map Status (see Figure 245), view the status and press the right button.
6. From the Emergency Power Status, view the status and press the right button.

Figure 588: Emergency Power Status Menu

7. From the Fire Emergency Power Status, view the status.

Figure 589: Fire Emergency Power Status Menu

35 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 27.10 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 57.
2. From the SET PI LABEL menu, scroll and select the floor indicator label.

Figure 590: SET PI LABEL Menu

3. Scroll right and press Save.

36 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.

36.1 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 591: ATTENDANT Menu – Dispatch Timeout

3. From the DISPATCH TIMEOUT menu, set the time for another car to take over the hall call.

Figure 592: DISPATCH TIMEOUT Menu

4. Scroll right and press Save.

36.2 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 593: ATTENDANT Menu – Buzzer Time

3. From the BUZZER TIME menu, set the time the buzzer rings after a hall call has been requested.

Figure 594: BUZZER TIME Menu

4. Scroll right and press Save.

37 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 57.
2. From the Real-Time Clock menu, set the date and time.

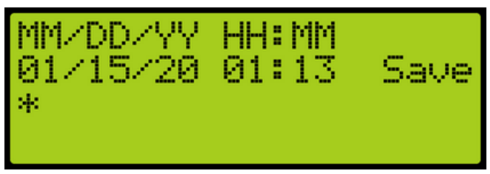

Figure 595: Real-Time Clock Menu

3. Scroll right and press Save.

37.1 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 596: Clock Menu

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38 Debug

The Debug menu allows for viewing various statuses.

38.1 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 software for Debug is v1.02.63a and later.

The View Debug Data menu (see Figure 597) 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 64.
2. From the View Debug Data menu, scroll and select the debug data of the system to be viewed.

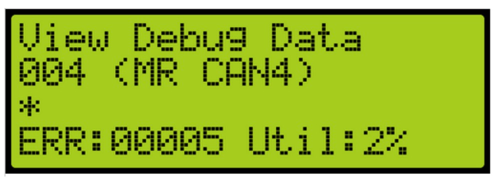

Figure 597: View Debug Data Menu

The table below lists the data index for MR, CT, and COP board communication.

Table 55: 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: • Destination Chosen, Run Requested • Car Doors Closed • Hall Locks Closed • Motion Run Flag ON • Serial Speed Reg Rls • Command Speed Nonzero • Camera Speed Nonzero
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.
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 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.

Data Index	Name	Description
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 27.13.7 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.
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.

38.2 Enter Car Calls

The Enter Car Call page 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 enter car calls.

1. Navigate to MAIN MENU | DEBUG | ENTER CAR CALLS. See Figure 62.
2. From the ENTER CAR CALLS menu, scroll and select Front or Rear.

Figure 598: ENTER CAR CALLS Menu – Front or Rear

3. From THE ENTER CAR CALL menu, scroll to view the latched car calls.

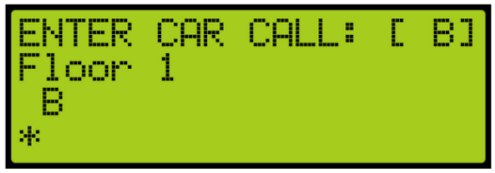

Figure 599: ENTER CAR CALL Menu

38.3 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 62.
2. From the HALL CALL menu, enter hall call.

Figure 600: 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.

38.4 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 62.

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 601: Enter Door Command Menu (Front and Rear Doors)

Figure 602: Enter Door Command Menu (Front Doors Only)

38.5 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 63.
2. View the Network Packet

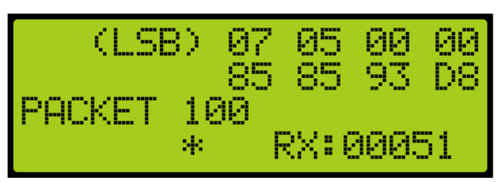

Figure 603: Network Packet

38.6 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 63.

2. View the Group Packet.

Figure 604: Group Packet

38.7 Acceptance Test

The acceptance test allows for verification testing. See *Hydro:Evolved 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 64.
2. View the SELECT ACCEPTANCE TEST menu.

Figure 605: SELECT ACCEPTANCE TEST Menu

38.8 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 64.
2. From the EMERGENY STATUS menu, view the type of emergency that has an X by the name.

Figure 606: EMERGENY STATUS Menu

38.9 Module Statuses

The module status displays the current status of various functions.

38.9.1 Motion Status

The motion status displays the current motion of the car, the start and stop condition, and the type of profile.

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 65.
2. From the MODULE STATUS menu, scroll and select Motion Status.

Figure 607: MODULE STATUS Menu – Motion Status

3. From the Motion Status menu, scroll and view the Motion Status information.

Figure 608: Motion Status Menu Part 1 of 2

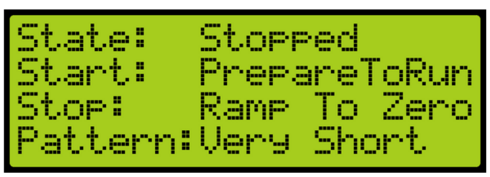

Figure 609: Motion Status Menu Part 2 of 2

38.9.2 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 65.
2. From the MODULE STATUS menu, scroll and select Pattern Data.

Figure 610: Module Status Menu – Pattern Data

3. From the PATTERN DATA menu, view the Pattern Data.

Figure 611: PATTERN DATA Menu Part 1 of 2

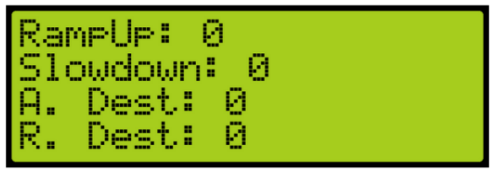

Figure 612: PATTERN DATA Menu Part 2 of 2

38.9.3 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 65.
2. From the MODULE STATUS menu, scroll and select Auto Status.

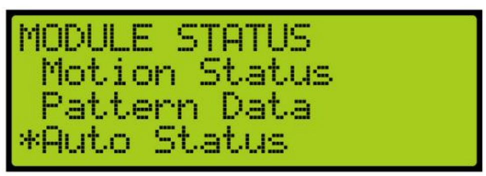

Figure 613: MODULE STATUS Menu – Auto Status

3. From the Auto Operation Status menu, view the state of operation.

Figure 614: Auto Operation Status Menu

38.9.4 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.

1. Navigate to MAIN MENU | DEBUG | Module Statuses. See Figure 65.
2. From the MODULE STATUS menu, scroll and select Recall Status.

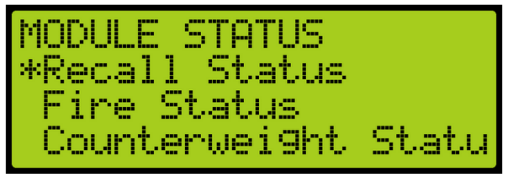

Figure 615: MODULE STATUS Menu – Recall Status

3. From the Recall Status menu, view the state of the recall status.

Figure 616: Recall Status Menu

38.9.5 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 65.
2. From the MODULE STATUS menu, scroll and select Fire Status.

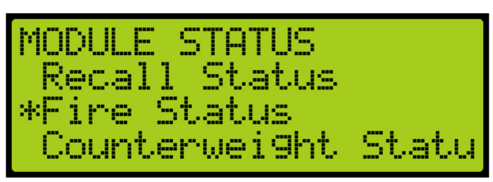

Figure 617: MODULE STATUS Menu – Fire Status

3. From the Fire Status menu, view if the fire operation is active.

Figure 618: Fire Status Menu

38.9.6 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 STATUS. See Figure 65.
2. From the MODULE STATUS menu, scroll and select Counterweight Status.

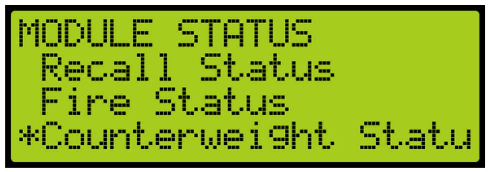

Figure 619: MODULE STATUS Menu – Counterweight Status

3. From the Counterweight Status menu, view the status of the counterweight.

Figure 620: Counterweight Status Menu

38.9.7 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.

1. Navigate to MAIN MENU | DEBUG | MODULE STATUSES. See Figure 65.
2. From the MODULE STATUS menu, scroll and select Floor Learn Status.

Figure 621: MODULE STATUS Menu – Floor Learn Status

3. From the Floor Learn Status menu, view if the status of the car is learning or not.

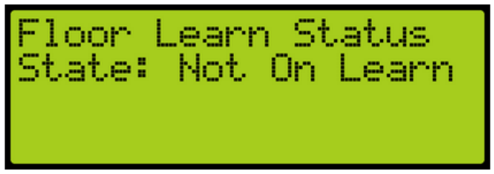

Figure 622: Floor Learn Status Menu

38.10 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.

1. Navigate to MAIN MENU | DEBUG | CAR DESTINATIONS. See Figure 65.
2. From the DESTINATION menu, view the car destination information.

Figure 623: 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 16.11 Errors.

38.11 Run Counter

The run counter displays the total number of runs.

The following procedure describe how to view the run counter.

1. Navigate to MAIN MENU | DEBUG | RUN COUNTER. See Figure 66.
2. From the RUN COUNTER menu, view the number of runs the car has completed.

Figure 624: RUN COUNTER Menu

38.12 DebugRuns

The debugruns is where a random car and hall calls can be placed into the system.

38.12.1 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 66.
2. From the DEBUGRUNS menu, scroll and select Dwell Time.

Figure 625: DEBUGRUNS Menu – Dwell Time

3. From the RUN DWELL TIME menu, set the time between test runs.

Figure 626: RUN DWELL TIME Menu

4. Scroll right and press Save.

38.12.2 Terminal to Terminal

The terminal to terminal allows for the car to run from the bottom to top terminal landing with the doors that open from the front or doors that open from the rear.

The following procedure describes how to set the car to run terminal to terminal.

1. Navigate to MAIN MENU | DEBUG | DEBUGRUNS. See Figure 66.
2. From the DEBUGRUNS menu, scroll and select Terminal to Terminal.

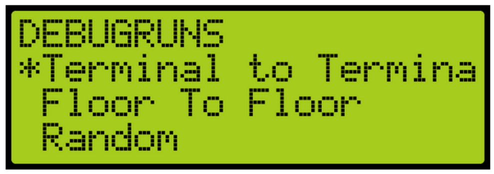

Figure 627: DEBUGRUNS Menu – Terminal to Terminal

3. From the TERMINAL TO TERMINAL menu, scroll and select if the front or rear doors open while running terminal to terminal.

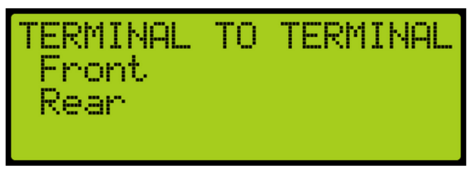

Figure 628: TERMINAL TO TERMINAL Menu – Front or Rear

4. 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 629: TERMINAL TO TERMINAL FRONT Menu

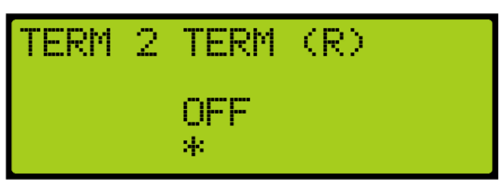

Figure 630: TERMINAL TO TERMINAL REAR Menu

5. Scroll right and press Save.

38.12.3 Floor to Floor

The following procedure describes how to set the car to stop at each floor.

1. Navigate to MAIN MENU | DEBUG | DEBUGRUNS. See Figure 66.
2. From the DEBUGRUNS menu, scroll and select Floor To Floor.

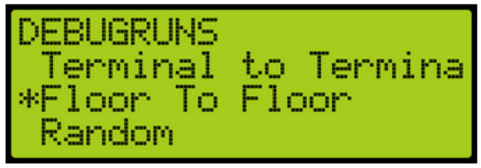

Figure 631: DEBUGRUNS Menu – Floor To Floor

3. From the FLOOR TO FLOOR menu, scroll and select if checking front or rear doors.

Figure 632: FLOOR TO FLOOR Menu – Front or Rear

4. 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 633: FLOOR TO FLOOR FRONT Menu

Figure 634: FLOOR TO FLOOR REAR Menu

5. Scroll right and press Save.

38.12.4 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 with the doors that open from the front or doors that open from the rear.

The following procedure describes how to set the car to stop randomly at different landings.

1. Navigate to MAIN MENU | DEBUG | DEBUGRUNS. See Figure 66.
2. From the DEBUGRUNS menu, scroll and select Random.

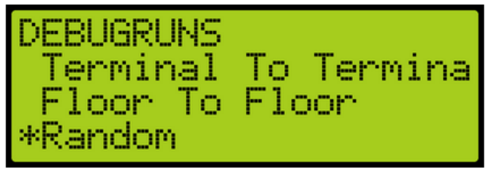

Figure 635: DEBUGRUNS Menu – Random

3. From the RANDOM menu, scroll and select if checking front or rear doors during a random run.

Figure 636: RANDOM Menu – Front or Rear

4. 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 637: RANDOM RUNS FRONT Menu

Figure 638 RANDOM RUNS REAR Menu

5. Scroll right and press Save.

38.12.5 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 16.8 Hall Call Masks.

The following procedure describes how to set the car to stop on a floor by the randomly selected hall call.

1. Navigate to MAIN MENU | DEBUG | DEBUGRUNS. See Figure 66.

2. From the DEBUGRUNS menu, scroll and select Hall Random Runs.

Figure 639: DEBUGRUNS Menu – Hall Random Runs

3. From the HALL RANDOM RUNS menu, scroll and if hall calls are made randomly.

Figure 640: HALL RANDOM RUNS Menu

4. Scroll right and press Save.

39 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 43.
2. View the JOB ID information.

Figure 641: JOB ID

40 Faults

The Faults menu shows the faults reported by the software and hardware.

40.1 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 642: Active Faults Menu

3. From the Active Faults menu, scroll and press the right button for more description of the fault. See *Hydro:Evolved Faults and Alarms* for more information.

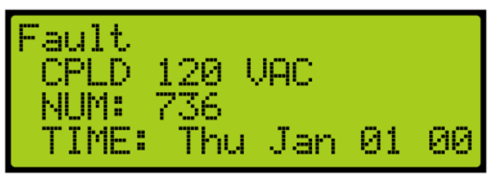

Figure 643: Fault Part 1 of 3

Figure 644: Fault Part 2 of 3

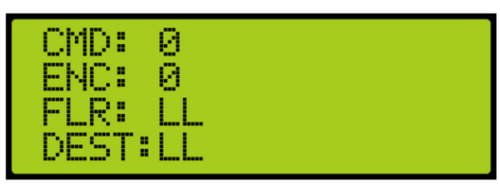

Figure 645: Fault Part 3 of 3

40.2 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 that have occurred.

Figure 646: FAULT LOG Menu

40.3 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 647: CLEAR FAULT LOG? Menu

The table below lists the faults reported by software or hardware.

Table 56: 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
COPB	Depicts faults generated on processor B of the COP board

41 Alarms

The Alarms menu shows the alarms reported by the hardware.

41.1 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 alarms that are preventing operation.

Figure 648: Active Alarms Menu

3. From the Active Alarms menu, scroll and press the right button for more description of the alarm. See *Hydro:Evolved Faults and Alarms* for more information.

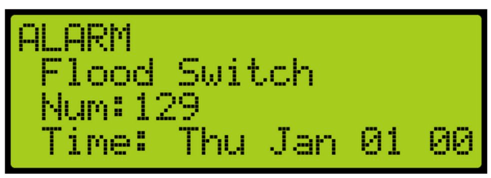

Figure 649: Alarm Part 1 of 2

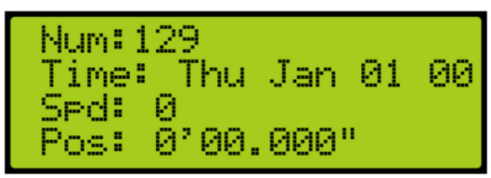

Figure 650: Alarm Part 2 of 2

41.2 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 651: ALARM LOG Menu

41.3 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 ALARM. See Figure 53.
2. From the CLEAR ALARM LOG? menu, press the right button and select Yes.

Figure 652: CLEAR ALARM LOG? Menu

