GALaxy
Destination Dispatch
Controller Manual

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Foreword

GAL Manufacturing has developed this manual with usability and safety in mind. General and specific safety notices and precautions are defined in the manual. However, GAL Manufacturing cannot be responsible for any injury to persons or damage to property (including the elevator equipment) resulting from negligence, misuse of the equipment, misinterpretation of instructions included in this manual, or due to any other cause beyond the control of GAL Manufacturing.

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SYMBOLS USED IN THIS MANUAL

CAUTION

This manual uses the CAUTION symbol to identify procedures and practices that may result in personal injury and/or equipment damage, if not followed correctly.

DANGER

This manual uses the DANGER symbol as an alert to a danger of electrocution or an acute electrical shock. The DANGER symbol provides elevator personnel with a warning of severe personal injury or potential fatality that can result if safety precautions are not observed.

NOTE / INFORMATION

In this manual, this symbol identifies information helpful to elevator personnel when carrying out a specific procedure or task.

NOT APPLICABLE / DOES NOT EXIST

When this symbol appears inside a table, it indicates that a value or property is not defined, or is nonexistent, for the item listed.

WARNINGS AND CAUTIONARY NOTES

Installation and wiring must be in accordance with the national electrical code, all local codes, and all elevator safety codes and standards. The 3-phase AC power supply to the equipment must originate from a properly fused disconnect or circuit breaker that is properly designed and sized for the specific controller requirements and the "Short Circuit Current Rating" listed on the controller. **Improper motor branch circuit protection will void warranty and may create a hazardous condition.**

Wiring to the controller terminals must be installed in a careful, neat manner. Stranded wire conductors must not have strands left out of the terminals. Leaving strands of wire out of the terminals can create a potential short circuit. All terminals and cable connectors must be seated properly. (See the **IMPORTANT** notice on the next page.)

Elevator control products must be installed by elevator personnel who have been trained in the construction, maintenance, repair, inspection, and testing of elevator equipment. The elevator personnel must comply with all applicable safety codes and standards. This equipment is an O. E. M. product designed and manufactured to comply with ASME A17.1-2016/CSA B44-16 Safety Code for Elevators and Escalators. It is the responsibility of the installer to ensure that the installation is performed safely and that the installation complies with all applicable codes.

Proper grounding is vitally important to the safe and successful operation of this system, and proper grounding should be installed to comply with all applicable codes. A separate ground wire should be installed from the building earth ground to the earth ground terminal in each controller. Proper conductor size must be utilized for grounding. In order to minimize resistance to ground, the shortest possible length should be used for the ground conductor.

Do not install the controller in a hazardous area where excessive vapors and chemical fumes are present. Do not install the controller in a dusty area. Do not install the controller in a carpeted area. The space in which the controller equipment is installed should be temperature controlled, moisture free, and should be maintained within a temperature range of 32° F and 110°F. The space in which the controller equipment is installed should be kept clean. The controller should be kept dry and should not be exposed to moisture or water condensation. Make sure the power supply voltage feeding the controller equipment does not fluctuate by more than +/- 10%.

Every safety precaution, whether or not specifically stated in this document, must be implemented when installing, adjusting, or servicing elevator equipment. All safety precautions must be followed to ensure the safety of elevator personnel and the general public.

Use only the correct rated fusing for controller protection. **Use of improperly rated fusing will void the warranty.**

IMPORTANT NOTICE

Most of the field connections to GALaxy controls are made using stranded wire. When inserting this stranded wire into the terminals – especially those for EPD's (Electrical Protective Devices) – care must be taken to ensure that all the strands are properly inserted into the terminals. Improper stripping and insertion may leave strands outside of the terminals. Strands not properly inserted into the terminals may make contact with wires from an adjacent terminal.

The danger associated with an occurrence as described above has led GAL Manufacturing to recommend that, for all connections to the Electrical Protective Devices listed in ASME A17.1-2016/CSA B44-16, Requirements 2.26.2.1 through 2.26.2.39, elevator personnel must follow the guidelines listed below:

- Inspect all terminals used to connect Electrical Protective Devices. Ensure that the cage clamp is fully open before inserting a wire into the terminal block.
- Perform corrective action for wires with stray strands by one of the following methods:
    - Reconnect the wire with all wire strands correctly installed into the terminal. Visually verify that **no wire** strands are outside of the terminal. The conductor should be stripped and inserted completely into the terminal in such a manner that no more than two millimeters of bare wire is visible; or
    - Attach a ferrule to the end of field wire for safety devices (as pictured below in Figures 0-1 and 0-2) and insert the ferrule into the terminal; or
    - Use an acceptable method such as tinning.
- After removal and replacement of any of these field wires, the actual Electrical Protective Device should be checked for proper operation.

Figure 0-1
Crimp Tool for Ferrule

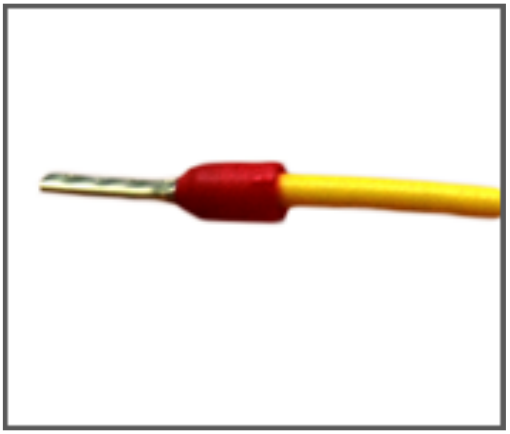


Figure 0-2
Stranded Wire with Ferrule Attached

Section 1 - Product Description

The Destination Dispatch Elevator Controller is a human-interactive dispatching system offering superior performance, flexibility, and reliability, by allowing the passenger to input their destination floor prior to calling a car. The controller is designed for quick installation and ease of troubleshooting. **It is extremely important for elevator personnel to become familiar with the procedures in this manual.** The manual provides a detailed reference for controller installation, and elevator personnel should read it thoroughly before attempting to install the equipment.

1.1 Product Code Compliance

- ASME A17.5/CSA B44.1-2019
  Elevator and Escalator Electrical Equipment
- ASME A17.1-2022/CSA B44:22
  Safety Code for Elevators and Escalators

1.2 Specifications

Standard Features:

- Traffic Analysis – Up/Down Peak
- Kiosk Diagnostics
- Emergency Power
- Onboard Diagnostics LEDs
- Onboard LCD Interface
- GALileo Kiosk Status Diagnostics
- Field Adjustable Parameters
- American with Disabilities Act (ADA) Service
- VIP Service
- Emergency Dispatch
- Return To Lobby (RTL)
- Car Request
- Parking

Environment:

- 32°F to 110°F Ambient Temperature
- 95% Maximum Humidity

Dimensions:

- 36 ¼”W x 26”L x 16 ¼”D Top/Bottom Cabinet
- 72 ½”W x 26”L x 16 ¼”D Overall

Optional Features:

- Backup DD CPU
- Lobby Express
- Credential Security Service
- Discrete Kiosk Security
- Kiosk Keypad Security
- Split Group Service

1.3 Physical Layout of the Controller

Figure 1-1 shows the general layout of the Destination Dispatch Elevator Controller. The control boards, including the Main CPU and Backup CPU, are housed in the top cabinet. The bottom cabinet houses the system transformer and the power connections.

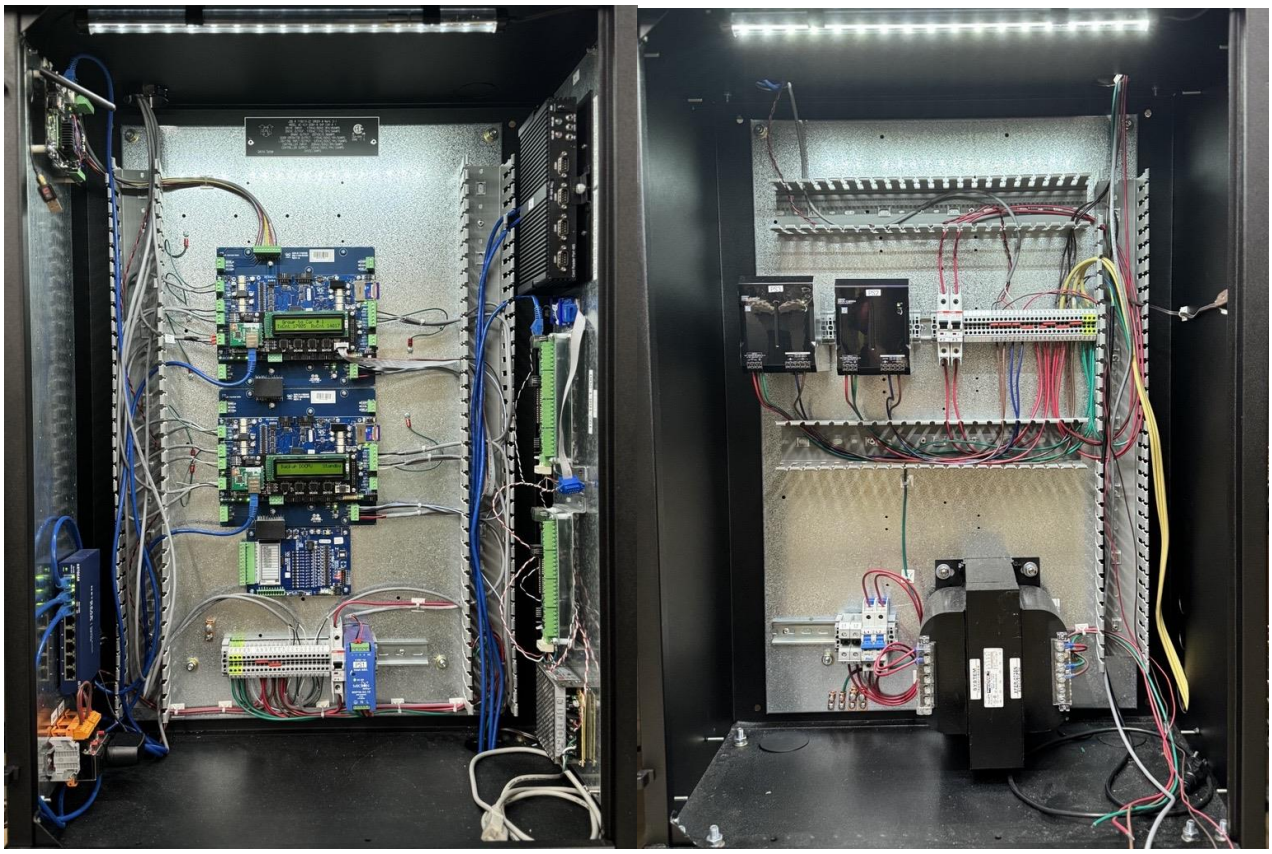


Figure 1-1: General Layout of the Controller

1.3.1 Controller Top Cabinet

Figure 1-2 shows a typical layout of the components inside the top cabinet. These components are listed below.

1) **Main Base Board:** The 1152 Main Base Board contains CAN bus connections and field wiring terminal connections.

2) **Main DDCPU Board:** The 1100 CPU Board is a dual core 32-bit CPU. It executes the main control system programs.

3) **LCD Interface:** The 1005 LCD Interface Board or the 1101 LCD/VGA Interface Board provides a user interface to all controller adjustments, adjustable parameters, and diagnostic information.

4) **Backup Base Board:** The 1152 Main Backup Board contains CAN bus connections and field wiring terminal connections.

5) **Backup DDCPU Board:** The 1100 CPU Board is a dual core 32-bit CPU. It executes the main control system programs.

6) **I/O Board:** This is a typical I/O expansion board that provides input/output interface to elevator buttons, switches, lights, and other devices. The board may use either 24VAC, 120VAC, or 24VDC, depending on device requirements.

7) **Signal Terminal Block:** This terminal block provides interconnection terminals for the earth ground and other signal wires to the top controller box.

8) **Circuit Breaker:** Circuit breakers for controller power.

9) **5V Power Supply:** 5VDC power supply for controller power.

10) **GALileo Monitoring System:** GALaxy elevator monitoring system that displays the status of elevators and allows for remote monitoring.

11) **Ethernet Switch:** Gigabit switch used in conjunction with GALileo to provide seamless ethernet connections.

12) **Power Entry Connector:** 120 VAC single outlet utilized in enclosures.

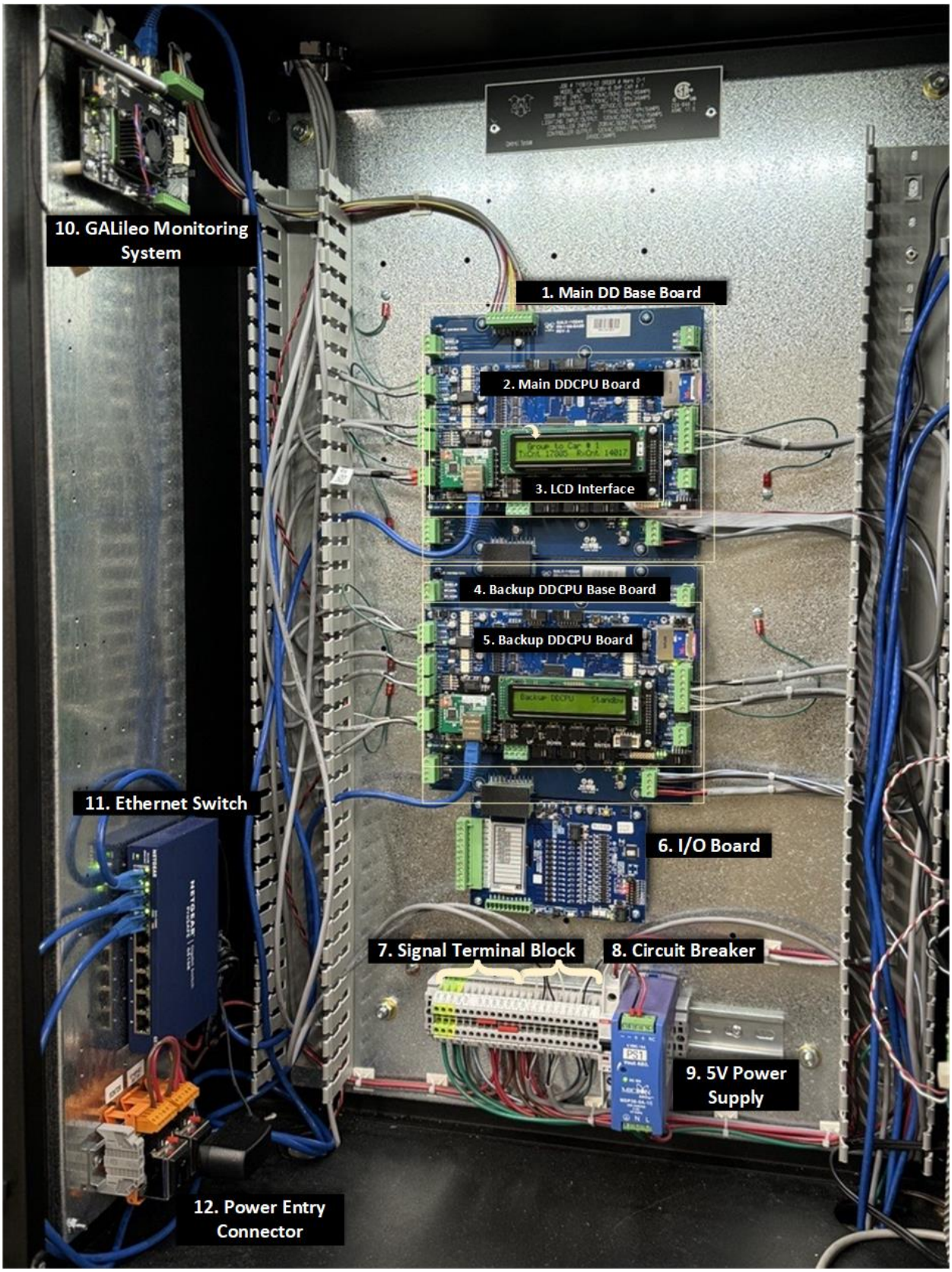


Figure 1-2: Typical Layout of the Controller Top Cabinet

1.3.2 Controller Bottom Cabinet

Figure 1-3 shows the typical layout of the components in the bottom cabinet. These components are listed below.

1) **System Transformer:** The System Transformer transforms the line voltage to 230 VAC, 115 VAC, and 24 VAC for the low voltage signals and other controller functions.

2) **Circuit Breakers:** Circuit breakers for L1 and L2 controller power.

3) **Power Terminal Blocks:** This terminal block provides the connection terminals for line power input wiring and motor power wiring.

4) **24V Power Supply:** Provides 24 VDC power and is wired to the power terminal blocks.

5) **Signal Terminal Blocks:** This terminal block provides interconnection terminals for the earth ground and other signal wires to the top controller box.

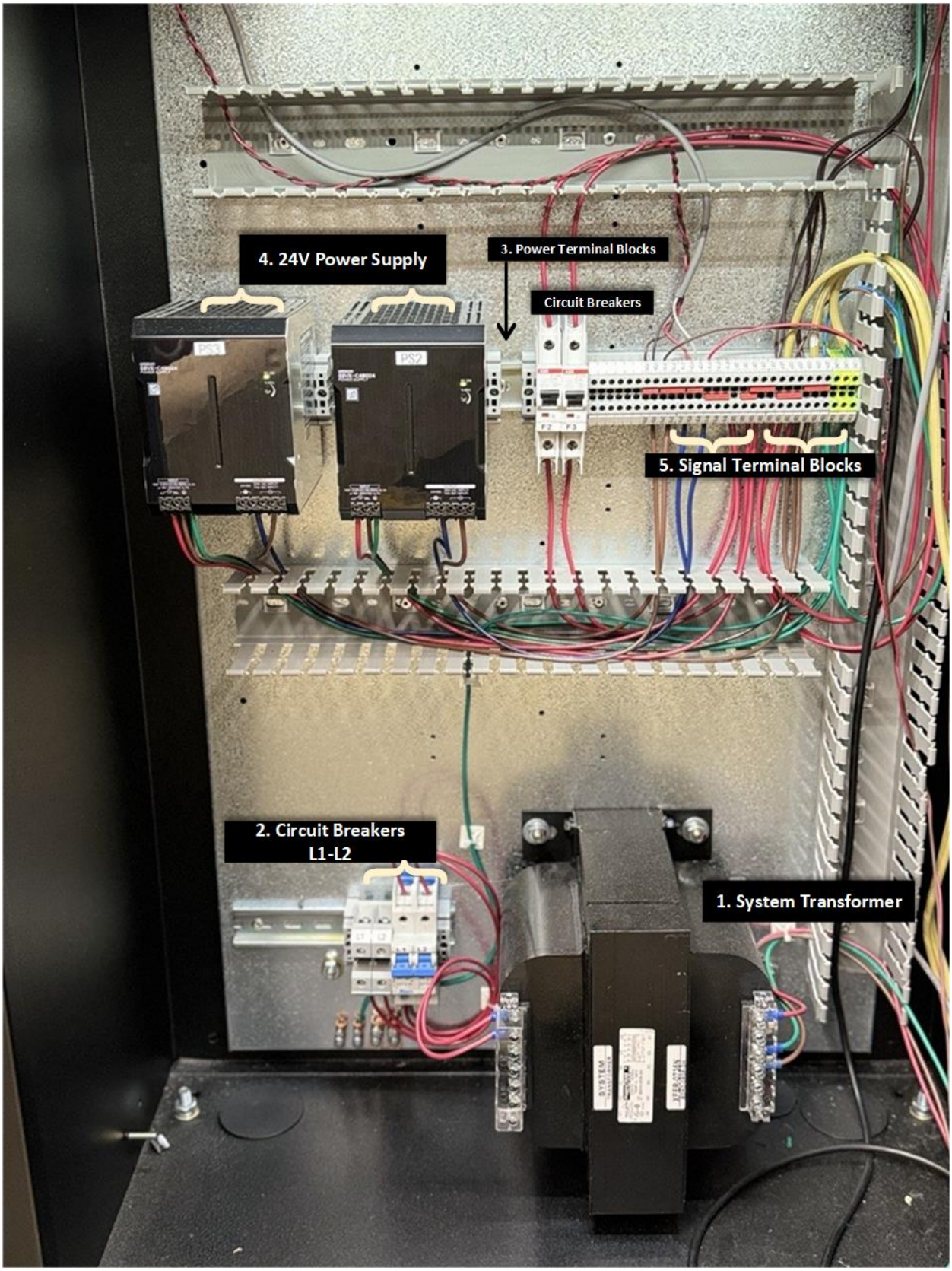


Figure 1-3: Typical Layout of the Controller Bottom Cabinet

1.4 Modes of Operation

1.4.1 General Operating Sequence

Destination Dispatch is an elevator group control operation to move passengers efficiently from their entry floor to their desired destination floor. This is done by determining the best destination time for each passenger. The destination time is the sum of the wait time for the elevator to reach the entry floor and the travel time to carry the passenger to the destination floor. As new destination calls are entered, the system calculates the effect that the new call has on each passenger's existing destination time. The new call gets assigned to the elevator that provides the best overall system performance.

The Destination Input Device displays available destinations in the normal state. The intended passenger selects the desired destination by touching the appropriate location on the touch screen display. The Destination Input Device sends the request to the DD Controller. The DD Controller assigns the best car to the call and sends that assignment to the Destination Input Device. The Destination Input Device displays the assigned car and instructs the intended passenger to proceed to that elevator. The person proceeds to the elevator and waits for the car to arrive.

When the car arrives, it will light the lantern and play a tone to alert the waiting passenger. The tone will sound one time for an up-traveling elevator and twice for one that is traveling down. While at the floor, the elevator door will open, and the Call Destination Display (CDD) will show the floor destinations that the car will travel to.

The passenger will enter the elevator, and the door will close after a time delay. Once the doors are closed, the car will proceed to the assigned destinations. When the car reaches the passenger's desired floor, the passenger will exit the car when the door opens. The door will close after a time delay and the elevator will proceed to the next destination or to the next request floor to pick up another passenger.

1.4.1.1 Equipment

Destination Input Device (DID): Touch screen device located in the elevator lobby that is used to enter floor destination and to receive assigned car. This device must also be able to assist in call entry for a disabled person.

Call Destination Display (CDD): Display device usually mounted in the door jamb of the car to show the floors the car will be traveling to.

Hall Lantern/Car identifier (CID): Hall lantern device that illuminates when the car arrives at the floor. This device shows the building identifier for that car. The device usually also includes a chime or sound device that plays a tone when the car arrives. The lantern/car identifier can also be used to signal to a handicap person the location of their assigned elevator.

1.4.1.2 Door Operation

When a passenger enters a destination from the Destination Input Device, the DD Controller will select a door dwell time depending on how far the Destination Input Device is from the assigned elevator. The purpose is to always allow enough time for the person to enter the destination at the Destination Input Device and traverse to the elevator before the door starts to close.

1.4.1.3 Lantern Operation

When the car arrives at the floor to pick up a passenger, the lantern will light, and car tone will sound to alert the waiting passenger in the elevator lobby that their assigned elevator has arrived. When the car stops at a

floor where the passenger is exiting the car, but no passenger is entering the car, the lantern will not light, and the tone will not sound.

1.4.2 Reset Mode

Reset mode is initiated when the power to the dispatcher is first turned on, or when the system is reset. When the reset mode is initiated, the controller program is automatically loaded, and communications between the dispatcher and elevator controller are checked to ensure that both the car and controller are electrically operational before putting the car into service. The dispatcher will not allow assignments until the elevator controller is deemed to be back on service.

1.4.3 Fire Service Mode

The Destination Dispatcher provides limited assistance in the fire service scenario, as it gains information from the cars in the group that fire service has been enabled. Once one car has been placed on fire service, the dispatcher deems all the cars as unavailable, and the kiosks display a “In Fire Service Mode. Please use the stairs and exit the building.” message.

1.4.4 Emergency Power Mode

It is necessary to ensure that transitions between operating on utility power (i.e. from the local electrical company) and generator power (i.e. from an in-building/in-campus system) occur in an orderly fashion.

Although it is not possible to have an orderly transfer when the utility power is lost unexpectedly, i.e. a blackout situation, orderly transitions can still take place when:

- Performing a planned generator test to determine if the system is operating as expected. The frequency of these tests is determined by building management
- Restoration of utility power occurs after a blackout, i.e. switching from generator power back to utility power.

To signal to the elevators that a transfer is about to occur, a dry contact from the building is fed into the EPT input on each car. When EPT is ON, a transfer is about to occur.

When the building systems signal an impending transfer between utility and generator power, all elevators will be prevented from running, or will be forced to finish their current run. This applies to all modes of operation, primarily to ensure that the elevators don’t perform a sudden harsh stop after dropping the machine motor’s power, dropping the brake, and dropping any emergency brake. Harsh stops can, on occasion, cause the governor switch to trip, requiring a mechanic to come and reset it. Bottom line - it is beneficial to avoid a harsh stop whenever possible.

A car in motion when an impending transfer is signaled might come to a stop at a floor that is secured, e.g. by car call card reader security. In normal operation, the car would not open the doors at a secured floor.

1.4.5 Automatic Mode

Since this is the normal operating mode, the controller automatically enters this mode if none of the previously described modes are activated, and if no fault is detected. The following operations are performed in automatic mode:

- The dispatcher operates cars in a collective operation sequence.
- Kiosks are functional.
- Hall lanterns and gongs are operational.
- The doors remain closed when the car is parked.

1.4.6 Failover from Main to Backup DD CPU Mode

The Destination Dispatch controller has the capability to support a Backup DD CPU in the case that the Main DD CPU dispatcher goes inactive. The Backup DD CPU will then act as the dispatcher and communicate to the cars, kiosks, security systems, and GALileo, as the Main DD controller would. Once the Main DD CPU goes active once again, the Main DD CPU will take the role as dispatcher back from the Backup DD CPU.

1.4.7 Security Mode

Destination Dispatch has three modes of security, credential security, kiosk keypad security, and discrete kiosk security mode, in which it allows for the human-interactive device to secure individual floors or all floors.

1.4.7.1 Credential Security Mode

Credentials Security is a pre-determined mode of security in which the passenger will swipe a Card/FOB device to input a security access code. The person will then press the desired destination floor. If the access code is valid, an elevator will be assigned and directions to the elevator displayed on the screen. If the access code is not valid, a message is displayed that the call was denied.

1.4.7.2 Kiosk Keypad Security Mode

When a passenger touches a secured destination floor on the Destination Input Device, the device will request a 4-digit code. The passenger will enter the code and if the code is correct, an elevator will be assigned and directions to the elevator displayed on the screen. If the code is not correct, a message is displayed that the call was denied. The 4-digit codes for keypad floor security are maintained on the DD Controller via the adjustable variable parameters on the LCD interface.

1.4.7.3 Discrete Kiosk Security Mode

Discrete Kiosk Security describes the use of additional I/O expansion boards to support the use of security objects such as key card readers and switches. The inputs enabled on these expansion boards allow for the user to lock floors and in turn, displays locked floors on the kiosk. The dispatcher will reject calls to the secured floors, unless the user presents credentials.

1.4.8 Service Access Codes

To access a special service from the Destination Input Device, the user will either enter a code from the touch screen on the Destination Input Device or from the Card/FOB reader. To access the service directly from the Destination Input Device, the user will touch the screen at the left bottom. The Destination Input Device will display a keypad for the user to enter the appropriate Access Code. Alternatively, the user can swipe a Card/FOB reader and instead of placing a call, wait 3 seconds for the display to show available special services. The Access Code is sent to the DD Controller by the security system Card/FOB reader device.

1.4.9 VIP Service Mode

VIP Service Mode permits passengers, specifically with the VIP attribute authorized on key cards, to ride alone in empty cars, by forcing the dispatcher to view the car answering the VIP call as unavailable once it has reached the VIP's origin floor. Once the VIP passenger reaches their destination, the car is then shown as open for service. VIP Service is enabled by an adjustable variable on the LCD screen, and the amount of VIP cars running at once can also be configured via an adjustable variable on the LCD screen.

1.4.10 Split Group Mode

Split Group mode forces the dispatcher to only assign DD calls to a specific car depending on key card split group attribute, and otherwise rejects the call if that car is not in group service, i.e., not on Automatic

or Homing. The DD controller authorizes Split Group functionality by enabling an adjustable variable to designate as the Split Group car. An example of typical usage involves placing a freight car as a Split Group car, or any other car that needs to have special access to enter, not open to the public.

1.4.11 Americans with Disabilities Act (ADA) Service Mode

An ADA call is entered from the Destination Input Device by the passenger pressing the ADA button. The Destination Input Device announces the available floors and instructs the passenger to press the button again when it announces the desired floor. When the desired floor is announced, the passenger will then press the ADA button once again. The Destination Input Device will send the destination request to the DD Controller and the controller will respond with the assigned car and a tone to identify the car. The DD Controller will assign the car that is best suited, considering the loading and the size of the car. The DD Controller will also send a command to the assigned car to light the lantern and play the same identifying tone at the entry floor. The passenger can follow the tone to the assigned elevator.

The car that has been assigned the ADA call will operate as follows:

- When the floor is reached, it will light the lantern and sound the tone as normal.
- The door will open normally but the door dwell time will be extended to allow more time for the passenger to enter the car.
- After the dwell time expires, the door will close at nudging speed and the door open button, if applies, will cause the door to reopen fully.
- The voice annunciator will announce that the door is open and when it starts to close (just before the door starts to close).
- Voice-annunciated floor destinations will play on each floor until the car reaches the passengers destination.
- Once at the destination floor, the voice annunciator will announce that the door is open.
- The dwell time at the egress floor will be extended.

1.4.12 Up/Down Peak Traffic Mode

The criterion used for the system performance is determined by the traffic flow of the building. Up peak traffic typically occurs in the morning when most passengers enter the building from the lobby floor to go to floors above. Down Peak traffic occurs in the evening when most people are leaving the building exiting to the lobby. Heavy traffic occurs when both Up Peak and Down Peak conditions are active, possibly at lunchtime, when people are leaving and returning from lunch at the same time. Off peak or light traffic occurs when there is not a full demand for the elevators. The algorithm provides the best service for all conditions.

1.4.12.1 Up Peak

The Up Peak Operation sends cars to the lobby to anticipate the inflow of above car calls from the lobby floor. If next car up is active, the lobby request is set to the number of cars in the group. If next car up is not active, up peak can be setup to activate next car up operation for the up peak duration.

Up peak is activated by an up peak trigger count being greater than a preset count variable over a specific time, the up peak trigger time. The trigger is counted from two mechanisms, the car leaving the lobby with the number of car calls greater than a preset value or from the car leaving the lobby with the load greater than the load weighing dispatch amount. Once up peak is activated, it remains active until the up peak duration timer expires. The duration timer is reset each time the up peak trigger is re-activated. The up peak trigger count (Up Pk Trig Cnt), up peak trigger time (Up Pk Trig Time), car call count (Up Pk CC Count), load weighing dispatch amount (Load Dispatch), and duration time (Up Peak Time) are adjustable variables.

Up peak also uses a parameter to increase the peak demand on the elevators (Up Peak Control set to 1). This will cause all the cars in the up peak pool to be sent at once to the lobby instead of being sent one at

a time. The parameter (Up Peak Pool) is the number cars that are subtracted from the up peak pool of cars to be recalled.

1.4.12.2 Down Peak

The Down Peak Operation, in general, sends the cars in the group to the floors above the lobby to anticipate down hall call traffic leaving the building. If the car is on next car up and not on up peak, the next car up request is removed. If next car up and up peak is active, the lobby request for next up is limited to one car.

Down peak is activated by a down peak trigger and remains in down peak for the down peak duration time. The down peak duration timer is reset each time the down peak trigger is re-activated. The trigger is set by the number of down calls above the lobby over a specific time interval. The down peak trigger count (Dn Pk Trig Cnt), trigger time (Dn Pk Trig Time) and duration time (Down Peak Time) are adjustable variables.

Down peak also uses a parameter to increase the peak demand on the elevators (Down Peak Control set to 1). This will cause all the cars in the down peak pool to be sent at once to the floors with the greatest number of down hall calls instead of being sent one at a time. The parameter (Down Peak Pool) is the number cars that are subtracted from the down peak pool of cars to be distributed.

1.4.13 Parking Mode

Parking describes the action of predetermining the temporary placement of cars. A parked car is to answer calls and once it is finished with the assignments, the car is to return to its designated parked floor. Field variables are utilized to determine if a particular car is not being used in group parking, as well as enabling/disabling individual car parking.

1.4.14 Car Request Mode

Specific elevator car requests can be made from the kiosk. The passenger requesting the service can request the service by pressing the left bottom of the display or by swiping a security card/fob device as described above. The code gives permission for the services that are allowed by the user. If a valid code is entered, the display will change to show the appropriate activation mechanism which also depends on the service requested. If the user code can only access one service, selection of that service is automatically made. If the user has access to multiple services, a menu of services will be displayed for the user to select the specific service.

The following services are allowed from the Kiosk Car Request:

- Car Return to Lobby (RTL)
- Car Elevator Off (EOF)
- Request Car Operation (RCO)
- VIP Operation (VIP)

1.4.14.1 Car Return to Lobby (RTL) Mode

The user selects the desired car to return to the lobby floor. This operation is only allowed from the Destination Input Device on the lobby floor. The display will show the status of all cars with respect to the return to lobby operation. Selecting a car that is not shown as active “Return to Lobby” (button is not highlighted), will select that car for the service. Selecting a car that is already on active “Return to Lobby” (button is highlighted) service will take that car off the service. When the car is selected for this service, it will answer all assigned calls before activating the Return to Lobby operation. The car will return to the lobby, open its door, and shut down until the service is reset through the kiosk.

1.4.14.2 Car Elevator OFF Mode

The user selects the desired car for Elevator Off Operation. This operation is allowed from any Destination Input Device. This service can be modified by a car parameter to shut down at the last floor served or can recall to a particular floor. The display will show the status of all cars with respect to the Elevator Off operation. Selecting a car that is not shown as active “Elevator Off” (button is not highlighted), will select that car for the service. Selecting a car that is already on active “Elevator Off” (button is highlighted) operation will take that car off the service. When the car is selected for this service, it will answer all assigned calls before activating the Elevator Off Operation. When the service is activated, it will either stop at the last floor or return to the recall floor, open its doors and shut down until the service is reset through the kiosk.

1.4.14.3 Request Car Mode

The user selects the desired car for Request Car Operation. This operation is allowed from any kiosk and will bring the car to the floor where the service is activated. The display will show the status of all cars with respect to the “Request Car Operation”. Selecting a car that is not shown as active on “Request Car Operation” (button is not highlighted), will select that car for the service. Selecting a car that is already on active “Request Car Operation” (button is highlighted) will take that car off the service. When the car is selected for this service, it will answer all assigned calls before activating the Request Car Operation. Once on Request Car Operation, the car will proceed to the activation floor, open its door and wait for a predetermined time delay with the door open. The purpose of this service is to allow the mechanic or building personnel to take the car out of service at a desired floor. Once the door is open, the mechanic or building personnel can open the access panel in the COP and place the car on Independent or Inspection Operation (mechanic only). If the car is not commandeered by the mechanic or building personnel before the door timer expires, the car will return to automatic operation.

1.4.14.4 VIP Mode

When the person is given access to VIP operation, the call destinations will be displayed after the service is selected. The user selects the desired destination floor and is then assigned the best VIP car. The car will answer all assigned calls before proceeding to the VIP floor. Once at the VIP floor, the car will open the door and the destination call is automatically entered. The door will stay open for a predetermined dwell time. The passenger must enter the elevator and press the door close button to enable the run to the desired floor. If the door close button is not pressed before the door dwell timer expired, the car will cancel the destination call, close its door, and return to automatic service.

1.4.15 Emergency Dispatch Mode

When the destination dispatch system determines that the kiosks at an individual floor or floors are not communicating, it can automatically dispatch cars to the affected floor(s). Once the dispatched car arrives at the floor, a destination call will be automatically entered to a floor with a working kiosk. If there are no kiosks working in the building, cars will be dispatched to all the floors to and from the lobby while maintaining the car direction preference to each terminal landing. This function can be enabled or disable from a parameter in the dispatcher.

1.4.15.1 Lobby Floor Kiosk Failure

If the kiosks at the lobby floor fail to communicate with the destination system, the dispatcher will periodically send cars to the lobby to pick up passengers with an up direction preference or, if floors are also below the lobby, the dispatcher will alternate cars with a down direction preference. Once at the lobby, the car will open the door for an extended lobby time. On cars with an up direction preference, the dispatcher will enter destination calls at floors above the lobby. On cars with a down direction preference, the dispatcher will enter destination calls at floors below the lobby. After the door timer expires, the car will close the door and run to all assigned destination floors. The specific distribution of destination calls from the lobby floor assigned by the dispatcher will be calculated for the best performance depending on the number of cars in service.

1.4.15.2 Intermediate Floor Kiosk Failure

If the kiosks at an intermediate floor fail to communicate with the destination system, the dispatcher will periodically send cars to the affected floor with a direction preference toward the lobby floor. Once at the affected floor, the car will open the door for an extended door time. The dispatcher will enter a destination call to the lobby giving the passenger the opportunity to ride to the lobby and then enter a new destination call from a lobby kiosk.

1.4.16 Kiosk Up/Down Hall Call Mode

The kiosk hall call functionality on Destination Dispatch works similarly to that of a traditional elevator approach. The hall call service can be set by assigning "Kiosk Up/Dn HC" to 1 on the DD's main controller.

The kiosk's touchscreen displays up and down buttons, instead of the usual floor numbers, to accept up and down calls. Once the elevator car has arrived at the assigned floor, the car operator panel (COP) within the car is used to make car calls. Cars accept all calls made within the car and accept assignments in the direction given, as a traditional system would do.

1.4.17 Lobby Express Mode

Lobby Express is a combination of destination dispatch from the main lobby floor with standard dispatching throughout the remaining floors in the building. The DD CPU uses advanced knowledge of passenger destinations to group riders in the most efficient way to provide minimum wait and travel times but to also keep the lobby clear. Lobby Express works with standard dispatching to provide the best Up Peak, Down Peak, Heavy and Light traffic operations.

Lobby Express requires Destination Dispatch Display Kiosk on the main lobby floor and standard up/down buttons on all other floors. Buildings can also be set up with multiple lobby floors that also benefit from using Destination Dispatch Display Kiosk to provide traffic improvement for Up Peak traffic. Any special riser such as IR, VIP, or Code Blue, will also use standard hall call fixtures. Since most floors use standard hall riser buttons to assign the elevator, standard car call buttons are required in each elevator car operating panel. Jobs with Lobby Express can also accommodate special risers that use standard hall buttons such as IR, VIP, and Code Blue.

1.4.17.1 Lobby Express with Special Risers

Lobby Express can also accommodate special risers that use standard hall buttons such as IR, VIP, and Code Blue.

1.4.17.1.1 Inconspicuous Riser Service

The Inconspicuous Riser Service is activated from a key switch to select one car to service that riser. The IR Service can operate in two ways:

1. The IR Car only answers IR riser calls and is not dispatched from the Lobby Express Dispatching or the Standard Dispatching.
2. The IR Car answers IR riser calls but also answers calls for both the Lobby Express Dispatching and the Standard Dispatching.

1.4.17.1.2 VIP Riser Service

VIP riser service is initiated by pressing a standard VIP call button in the hall. The best assigned car, or preselected VIP car, answers existing car calls lobby calls (assignments made at the lobby kiosk) before transferring to VIP service. Once dispatching assignments are completed, the VIP car will proceed directly to the VIP hall call floor. While at the VIP floor, the car will open the door and will stay open for a predetermined dwell time. The passenger must enter the elevator and press a car call to enable the run to the desired floor. If the car call is not selected before the door dwell timer expired, the car will cancel the

destination call, close the door, and return to automatic service. With a car call entered, the car will run to the desired floor without stopping for any other calls. Once at the desired floor, the door will cycle for the passenger to exit and will then return to automatic operation.

1.4.17.1.3 Code Blue Service

Code Blue riser service is initiated by a key activation of the code blue hall call. The best assigned car or preselected Code Blue car will immediately be taken out of group control, cancel all car call and destination assignments and proceed to the code blue floor.

A car traveling away from the code blue floor will stop at the next available floor and reverse direction and proceed to the code blue floor. Any passengers in the car, when they arrive at the code blue floor, will be requested to exit the car. Any waiting Lobby Express passengers that were assigned to the car before it became a code blue car will be instructed by the kiosk at their floor that their assigned car is out of service, and they must reenter their call at the kiosk. Hall calls assigned to the code blue car by the Standard Dispatcher will be automatically reassigned to available cars.

When the car reaches the code blue floor, the door will open, and the requesting person must activate Hospital Service Operation from a key switch in the car operating panel. If the key switch activation does not occur within an adjustable time, the car will return to automatic operation. To run to the desired floor, the passenger must enter a car call and then close the door from the door close button. Upon reaching the desired floor, the door will open, and the car will remain on Hospital Service Operation ready to answer additional calls. When the key switch is turned off, the car will return to automatic operation.

1.4.17.2 Lobby Express with Keypad Security

When a passenger touches a secured destination floor on the Lobby Express Kiosk, the device will request a 4-digit code. The passenger will enter the code and if the code is correct, an elevator will be assigned and directions to the elevator displayed on the screen. If the code is not correct, a message is displayed that the call was denied. The 4-digit codes for keypad floor security are maintained on the DD Controller.

1.4.17.3 Lobby Express with Card Reader Security

While at the Lobby Express Kiosk, the passenger will swipe a Card/FOB device to input a security access code. The person will then press the desired destination floor. If the access code is valid, an elevator will be assigned and directions to the elevator displayed on the screen. If the access code is not valid, a message is displayed that the call was denied.

1.4.17.4 Lobby Express with Car Call Security

When entering the elevator from a Lobby Express floor, the car calls will be disable because the destination (car call) has already been entered from the kiosk. When entering the elevator from a Standard Riser floor, the car calls are active and secured car calls can be accessed from a card reader device.

Section 2 - Installation

2.1 General Information

This section provides basic guidelines and recommendations for the proper installation of the controller equipment. These guidelines should be used as general instructions. They are not intended to usurp local codes and regulations.

Destination dispatch elevators are recommended to follow guidelines listed in ASME A17.1-2022/CSA B44:22, requirements E-18.1 through E-18.6.

2.2 Selection of an Installation Site

There are several factors that elevator personnel should consider when choosing a location for installing this product. The elevator controller should be installed at a location that provides the most convenient access for adjustment, inspections, and repairs. If possible, elevator personnel should have an unobstructed view of the machine when standing in front of the controller. A safe and adequate workspace around the controller must be provided. Work areas must be free of any items that might interfere with the proper routing of conduits or hinder the opening of cabinet doors. All clearances, workspaces, lighting, and guarding around the controller must comply with governing codes.

For a Destination Dispatch controller, determining the layout of the machine room and understanding the dimensions of the controller cabinet is very pivotal. It is recommended to consider where the standard cabinet will be placed, especially with upgrading into new modifications; Furthermore, the Destination Dispatch cabinet is recommended to be placed next to the last car that will be modified, if there were old mods set into place.

2.3 Environmental Considerations for Installation

The controller package is provided with a standard type 1 enclosure. This type of controller should be installed in a clean, dry, and non-corrosive environment. Ideally, the equipment room should be temperature controlled between 70° F and 90° F. However, control equipment will function properly within an ambient temperature range of 32° to 110° F. If temperatures remain at the upper and lower extremes of this range for an extended period, the life expectancy of the control equipment may be reduced. It is important to always keep the controller dry, clean, and free of any dust and debris.

The control system is designed to have a high immunity to electrical noise, radio frequency radiation, and magnetic interference. However, high levels of these items could cause interference with certain parts of the control system.

The power supply feeding the controller should have a fluctuation of no greater than + or - 10%.

2.4 Wiring Guidelines and Instructions

See the **IMPORTANT NOTICE** on page “x” of this manual

2.4.1 Wiring Schematics

A complete set of wiring schematics and connection diagrams will be provided for each job. Each set of wiring schematics and connection diagrams are job specific. The job name and number will be listed in the bottom right corner of each page of these documents.

2.4.2 Proper Field Wiring

Most of the field connections to GALaxy controls are made using stranded wire. When inserting this stranded wire into the terminals – especially those for EPD’s (Electrical Protective Devices) – care must be taken to ensure that all the strands are properly inserted into the terminals. Improper stripping and insertion may leave strands outside of the terminals. Strands not properly inserted into the terminals may contact wires from an adjacent terminal.

The danger associated with an occurrence as described above has led GAL Manufacturing to recommend that, for all connections to the Electrical Protective Devices listed in ASME A17.1-2022/CSA B44:22, Requirements 2.26.2.1 through 2.26.2.39, elevator personnel must follow the guidelines listed below:

- Inspect all terminals used to connect Electrical Protective Devices. Ensure that the cage clamp is fully open before inserting a wire into the terminal block.
- Perform corrective action for wires with stray strands by one of the following methods:
    - Reconnect the wire with all wire strands correctly installed into the terminal. Visually verify that **no wire** strands are outside of the terminal. The conductor should be stripped and inserted completely into the terminal in such a manner that no more than two millimeters of bare wire is visible; or
    - Attach a ferrule to the end of field wire for safety devices (as pictured in Figures 0-1 and 0-2) and insert the ferrule into the terminal; or
    - Use an acceptable method such as tinning.
- After removal and replacement of any of these field wires, the actual Electrical Protective Device should be checked for proper operation.

2.4.3 Ground Wiring

Proper grounding of the power supply, controller, elevator car, and hoistway is required. Separate conductors should be run for EG (earth ground) and GND terminals. These terminals and conductors are detailed in the wiring schematics.

2.4.4 Hoistway Wiring

All hoistway wiring is detailed on the wiring schematics and connection diagrams. The number of required hoistway conductors is listed in the connection diagrams. A job specific “pull sheet” is also included in the

connection diagrams. Kiosks are wired from the machine room down to their designated floors, with the last kiosk on the riser bus including a CAN bus jumper on JP17. Refer to Destination Dispatch schematic and subsection 2.4.8 on Kiosk Wiring.

2.4.5 Elevator Car Wiring

All elevator car wiring is detailed on the wiring schematics and connection diagrams including the wiring to the car station, door operator, car top selector, and inspection station. The number of required traveling cable conductors is listed in the connection diagrams. A job specific “pull sheet” is also included in the connection diagrams. The GALX-1114AN PI driver board with destination indicators located on the door jams, hall lanterns GALX-1139AN, and in-car annunciators are connected directly to the GALX-1100AN CPU board. Refer to the car specific schematics for connections.

Figure 2-1: Example of Car Destination Dispatch Flags

Field adjustable parameters for the serial lantern boards such as ‘DD carID/chime’ under Car Options and ‘RS485 COM Baud’ under System Options need to be set accordingly. Refer to Section 7 for further description on the parameters.

2.4.6 Machine Room Wiring

All machine room wiring is detailed on the wiring schematics and connection diagrams including the main power supply wiring, motor wiring, brake wiring (traction only), and field wiring.

The Destination Dispatch will include its own cabinet, with the main and backup controllers in the top cabinet, along with the GALileo, and group I/O boards. Refer to Section 1 for visuals of the cabinet. The Main controller will be connected to the Group through R/T+ and R/T- connections. As modernization continues during installation, it is necessary to continue to move the bus terminator onto the last modernized car on the group. Refer to Figure 2-2 below for the full topology and Figure 2-3 for the lobby express topology. Refer to schematics on Car 0/Car 9 for DD specific connections.

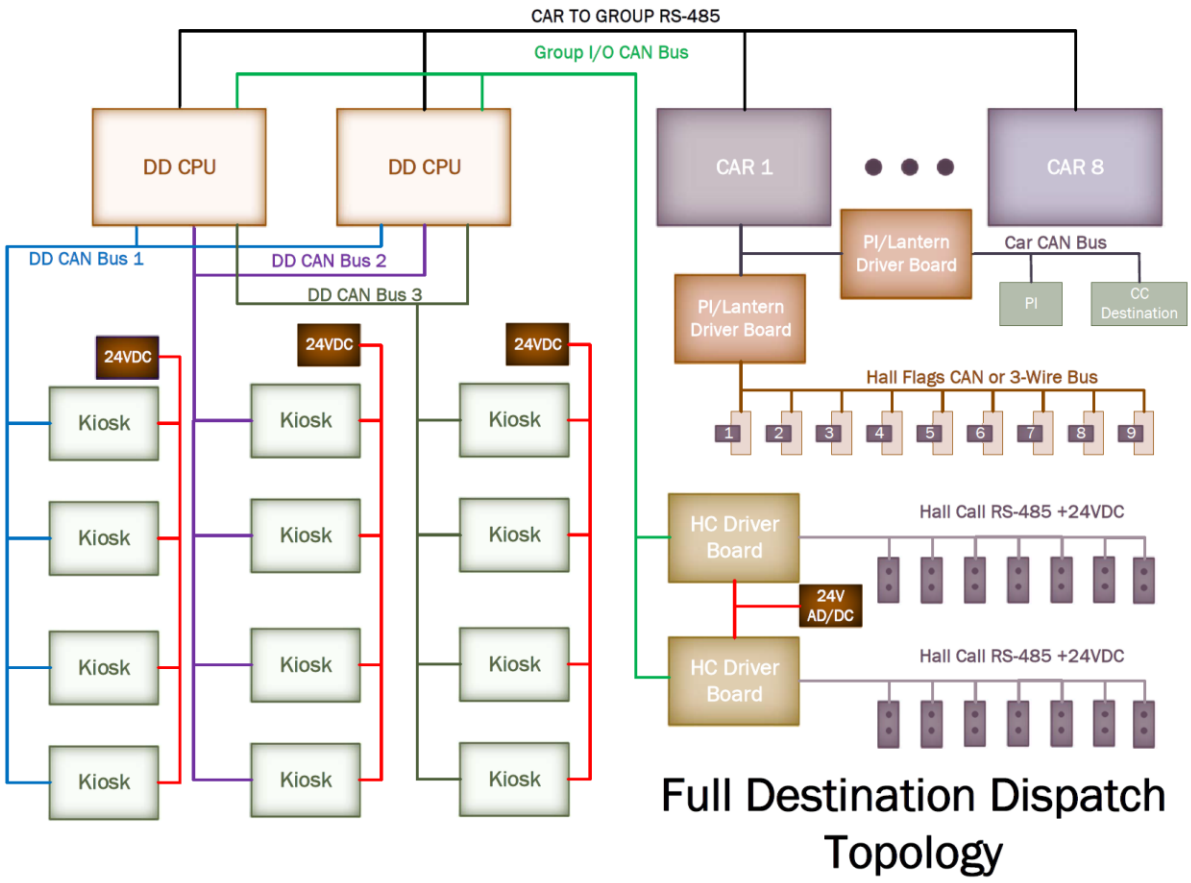


Figure 2-2: Destination Dispatch Topology

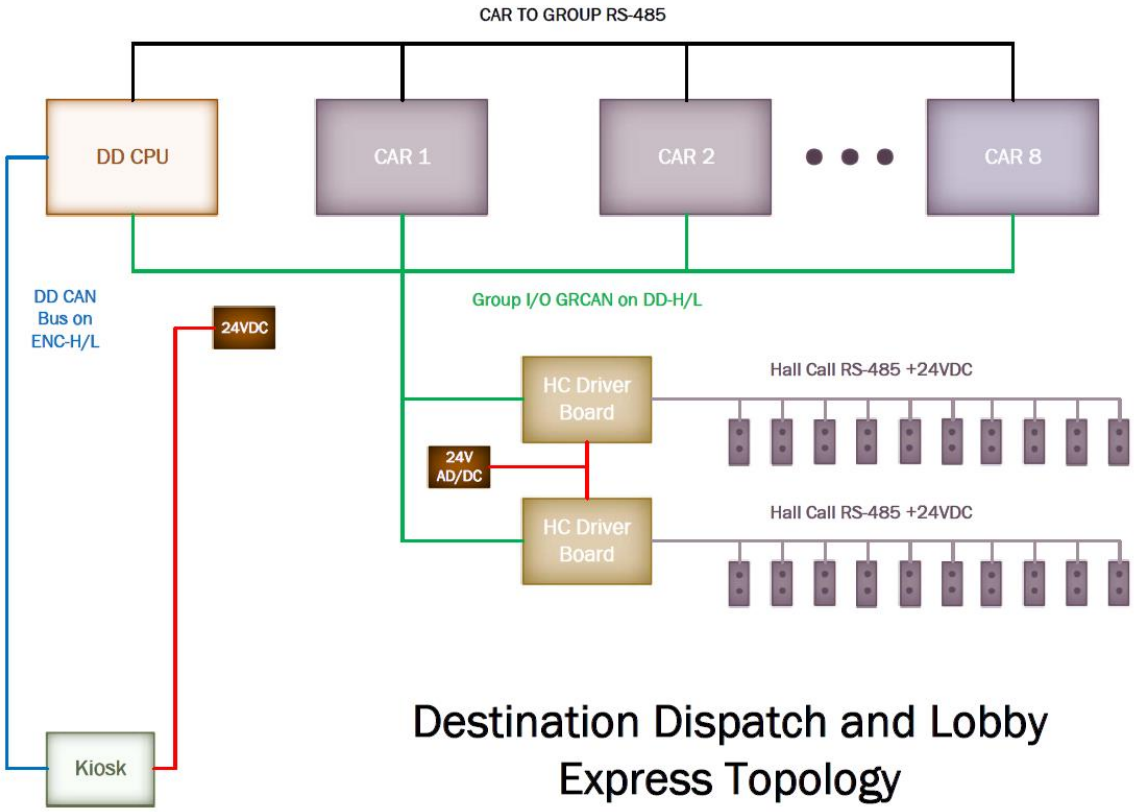


Figure 2-3 – Lobby Express Topology

The GALileo monitoring system will be present in the top cabinet of the Destination Dispatch cabinet. If access to the GALileo is needed during installation, the DD controller must be installed prior and the CAT5 connection must be connected to all the car controllers and DD controller. It is not advised to move the GALileo monitoring system, unless it is necessary.

2.4.7 Security System Wiring

The security system wiring describes the connection between the dispatcher and the intermediate security IDS system. Security parameter ‘Credentials Sec’ must be enabled on the LCD interface for third party security. The LCD interface parameters and layout are greatly described in Sections 5 and 7. Refer to Destination Dispatch Base Board connections on schematic.

2.4.8 Kiosk Wiring

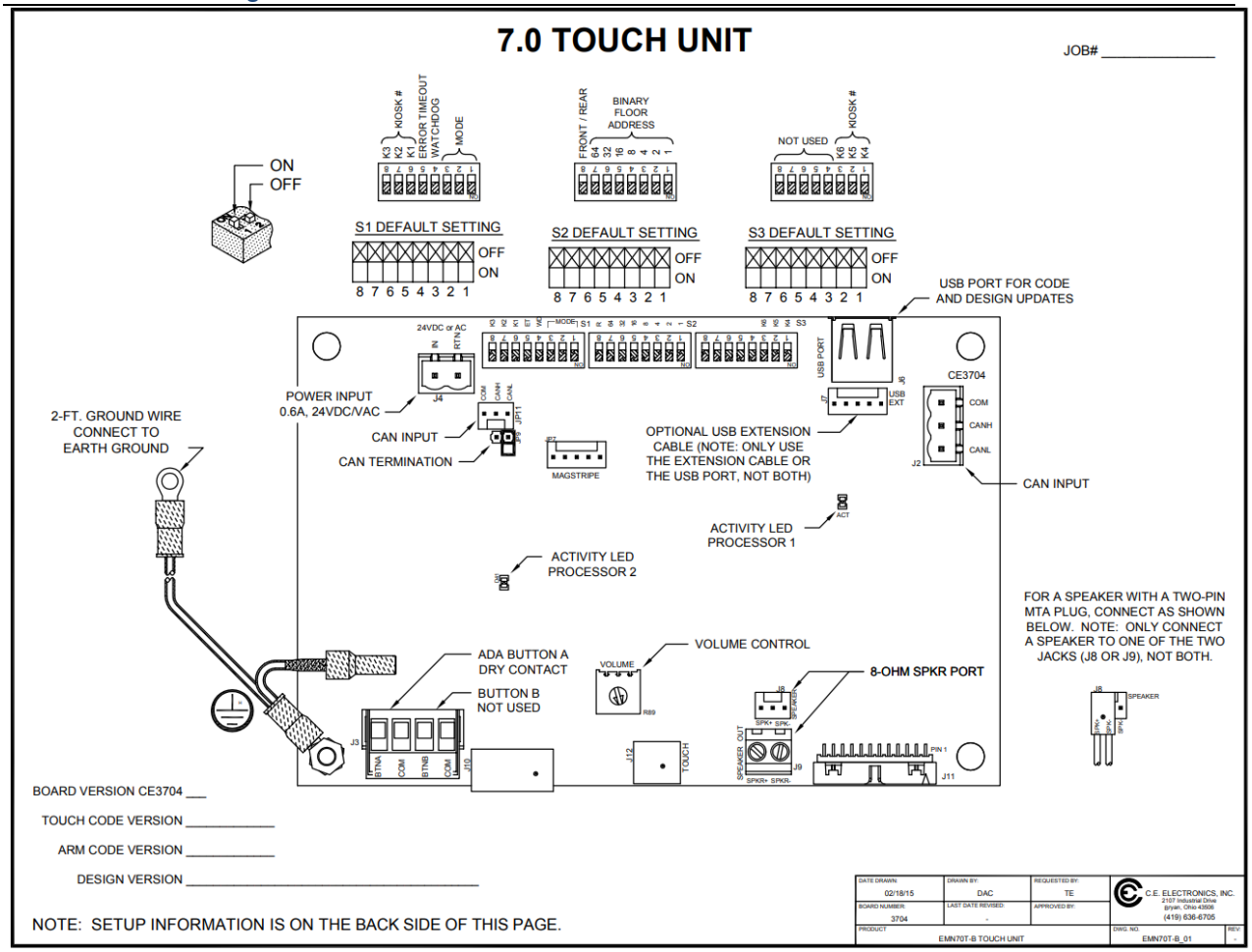
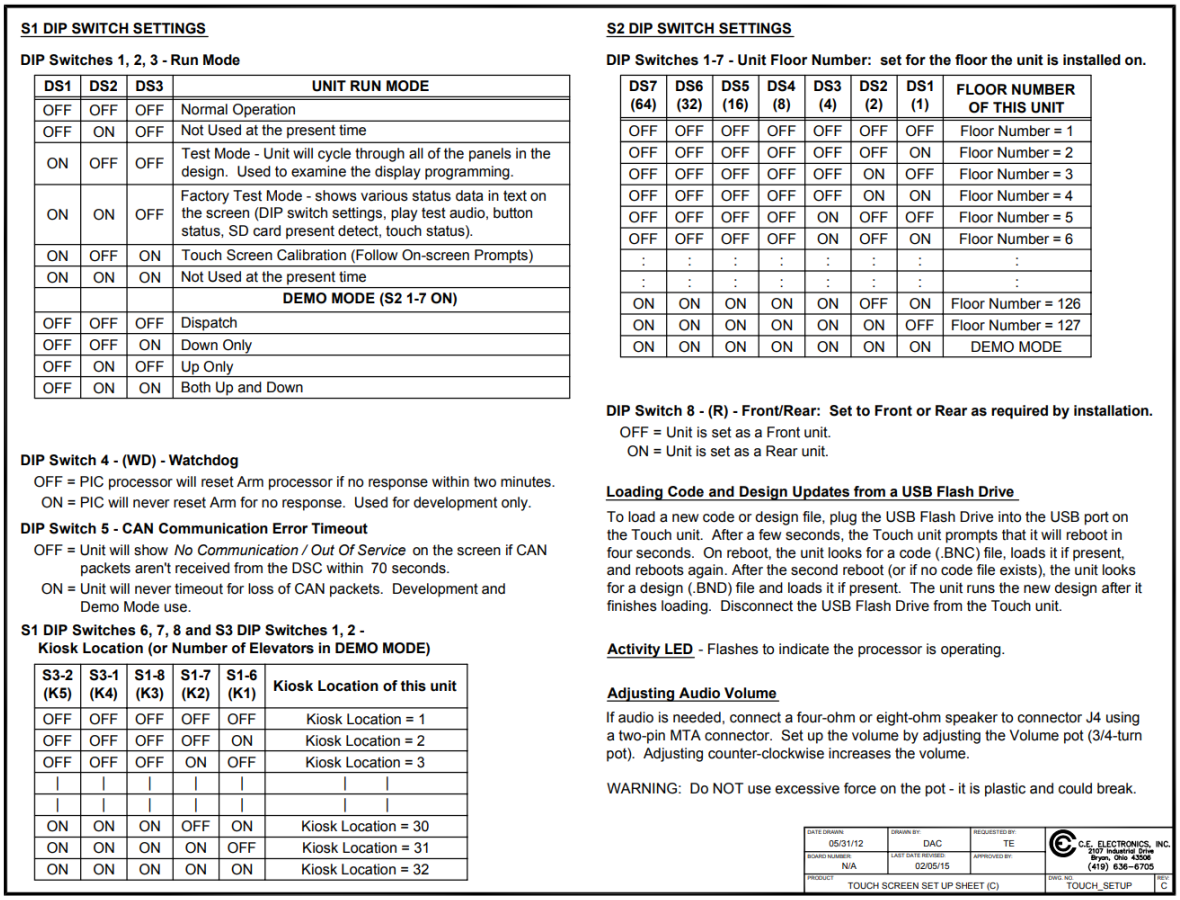


Figure 2-4: C.E. Electronics Sample Kiosk Wiring Diagram



S1 DIP SWITCH SETTINGS

DIP Switches 1, 2, 3 - Run Mode

DS1	DS2	DS3	UNIT RUN MODE
OFF	OFF	OFF	Normal Operation
OFF	ON	OFF	Not Used at the present time
ON	OFF	OFF	Test Mode - Unit will cycle through all of the panels in the design. Used to examine the display programming.
ON	ON	OFF	Factory Test Mode - shows various status data in text on the screen (DIP switch settings, play test audio, button status, SD card present detect, touch status).
ON	OFF	ON	Touch Screen Calibration (Follow On-screen Prompts)
ON	ON	ON	Not Used at the present time
			DEMO MODE (S2 1-7 ON)
OFF	OFF	OFF	Dispatch
OFF	OFF	ON	Down Only
OFF	ON	OFF	Up Only
OFF	ON	ON	Both Up and Down

DIP Switch 4 - (WD) - Watchdog

OFF = PIC processor will reset Arm processor if no response within two minutes.
ON = PIC will never reset Arm for no response. Used for development only.

DIP Switch 5 - CAN Communication Error Timeout

OFF = Unit will show *No Communication / Out Of Service* on the screen if CAN packets aren't received from the DSC within 70 seconds.
ON = Unit will never timeout for loss of CAN packets. Development and Demo Mode use.

S1 DIP Switches 6, 7, 8 and S3 DIP Switches 1, 2 - Kiosk Location (or Number of Elevators in DEMO MODE)

S3-2 (K5)	S3-1 (K4)	S1-8 (K3)	S1-7 (K2)	S1-6 (K1)	Kiosk Location of this unit
OFF	OFF	OFF	OFF	OFF	Kiosk Location = 1
OFF	OFF	OFF	OFF	ON	Kiosk Location = 2
OFF	OFF	OFF	ON	OFF	Kiosk Location = 3
|	|	|	|	|	| |
|	|	|	|	|	| |
ON	ON	ON	OFF	ON	Kiosk Location = 30
ON	ON	ON	ON	OFF	Kiosk Location = 31
ON	ON	ON	ON	ON	Kiosk Location = 32

S2 DIP SWITCH SETTINGS

DIP Switches 1-7 - Unit Floor Number: set for the floor the unit is installed on.

DS7 (64)	DS6 (32)	DS5 (16)	DS4 (8)	DS3 (4)	DS2 (2)	DS1 (1)	FLOOR NUMBER OF THIS UNIT
OFF	OFF	OFF	OFF	OFF	OFF	OFF	Floor Number = 1
OFF	OFF	OFF	OFF	OFF	OFF	ON	Floor Number = 2
OFF	OFF	OFF	OFF	OFF	ON	OFF	Floor Number = 3
OFF	OFF	OFF	OFF	OFF	ON	ON	Floor Number = 4
OFF	OFF	OFF	OFF	ON	OFF	OFF	Floor Number = 5
OFF	OFF	OFF	OFF	ON	OFF	ON	Floor Number = 6
:	:	:	:	:	:	:	:
:	:	:	:	:	:	:	:
ON	ON	ON	ON	ON	OFF	ON	Floor Number = 126
ON	ON	ON	ON	ON	ON	OFF	Floor Number = 127
ON	ON	ON	ON	ON	ON	ON	DEMO MODE

DIP Switch 8 - (R) - Front/Rear: Set to Front or Rear as required by installation.

OFF = Unit is set as a Front unit.
ON = Unit is set as a Rear unit.

Loading Code and Design Updates from a USB Flash Drive

To load a new code or design file, plug the USB Flash Drive into the USB port on the Touch unit. After a few seconds, the Touch unit prompts that it will reboot in four seconds. On reboot, the unit looks for a code (.BNC) file, loads it if present, and reboots again. After the second reboot (or if no code file exists), the unit looks for a design (.BND) file and loads it if present. The unit runs the new design after it finishes loading. Disconnect the USB Flash Drive from the Touch unit.

Activity LED - Flashes to indicate the processor is operating.

Adjusting Audio Volume

If audio is needed, connect a four-ohm or eight-ohm speaker to connector J4 using a two-pin MTA connector. Set up the volume by adjusting the Volume pot (3/4-turn pot). Adjusting counter-clockwise increases the volume.

WARNING: Do NOT use excessive force on the pot - it is plastic and could break.

DATE DRAWN:	DRAWN BY:	REQUESTED BY:	C.E. ELECTRONICS, INC. 2107 Industrial Drive Bryan, Ohio 43506 (419) 636-6705
05/31/12	DAC	TE	
BOARD NUMBER: N/A	LAST DATE REVISED: 02/05/15	APPROVED BY:	
PRODUCT: TOUCH SCREEN SET UP SHEET (C)		DWG. NO.: TOUCH_SETUP	REV: C

Figure 2-5: C.E. Electronics Sample Kiosk DIP Switch Settings

Figures 2-4 and 2-5 are samples of what the kiosk settings may appear like, reference the C.E. Electronics manual for updated versions of the wiring diagrams.

All C.E. Electronics kiosks are wired from the Dispatcher's GALX 1100AN/1152AN CAN bus connectors. The GALaxy DD CPU hardware and software supports a total of 3 CAN buses for kiosks, i.e. kiosks in a full Destination Dispatch system will be connected either through CANH/CANL, ENC-H/ENC-L, or DD-H/DD-L depending on the placement of the kiosks.

Riser	**DD CPU (GALX-1100AN) signals**
Front	ENC-H/ENC-L
Split	DD-H/DD-L
Rear	CANH/CANL

Table 2-1: DD Kiosk CAN Buses

The Split riser acts like a secondary front riser, i.e. when a call is registered it has a front origin, just like a call registered on the Front riser.

On a lobby express system, kiosks will be connected to the ENC-H/L bus, as shown in Figure 2-3 above.

Section 3 - Adjustment

1.1 Procedure for Initial Power-up of Controller

1.1.1 Checking Main Line Voltage

Prior to powering up the controller, making drive adjustments, or attempting to run the hoist motor, the following steps should be completed:

- Familiarize yourself with the wiring schematics.

All safety precautions, including precautions related to electrical safety, must be followed to ensure the safety of elevator personnel and the general public.

- Before applying power to the controller, the following items should be verified by the **proper electrical authority**.
    - Verify that the disconnecting means is properly sized and is lockable.
    - Verify that the voltage supplying the elevator controller is correct as indicated on the “Controller Input” of the controller data tag.
    - Verify that the conductors supplying the disconnecting means are properly sized.
    - Verify the conductors from the disconnecting means to the controller are properly sized.
    - Verify that the power supply feeding the controller has the proper fuse protection or circuit breaker protection.
    - Verify that the power supply feeding the controller is properly grounded and that the grounding conductor is properly sized.

1.1.2 Checking Controller Voltages

Turn the main line disconnect to the ON position. Check the voltage at points **R**, **S**, and **T** on the AC drive. Verify that all three phases are present.

Check the voltage at fuses **L1** and **L2** on controller. If correct, then check the voltage at terminals **LIN** and **24VI** with respect to ground (**GND**). The voltage readings should be 120VAC for **LIN** and 24VAC for **24VI**. If these are correct, check the voltage at terminals **S10**, **L120**, & **L24** with respect to ground (**GND**). The voltage reading at terminals **S10** and **L120** should read 120VAC, and **L24** should read 24VAC. If any of these voltage readings are not correct, then check the wiring diagram to determine the problem before continuing. Verify, from the schematic, the required voltages for **HCP** for this controller. Either supply can be wired to 24VAC or 120VAC. Verify the voltages on the terminals match the voltages on the schematic.

1.1.3 Verifying Operation of the Main CPU

Verify that the “axy” of “GALaxy”, displayed on the 1005/1152 LCD Interface, is flashing. If the “axy” is flashing, then proceed to the next step. If the “axy” is not flashing, check voltages at the 5V to 0V terminals on the 1102 Main I/O Board, to ensure 5VDC is present across these terminals. If 5VDC is present and the “axy” on the 1005/1152 LCD Interface is not flashing, then contact factory.

1.1.4 Kiosk Riser Connections

1.1.4.1 Front Riser

- The shield wire must be connected to SHIELD on the main GALX-1100AN board.
- The red wire must be connected to ENC-H on the main GALX-1100AN board and to ENC-H on the backup GALX-1100AN board. Refer to schematics on wiring.
- The black/clear wire must be connected to ENC-L on the main GALX-1100AN board and to ENC-L on the backup GALX-1100AN board. Refer to schematics on wiring.

1.1.4.2 Rear riser (if applicable)

- The shield wire must be connected to SHIELD on the main GALX-1100AN board.
- The red wire must be connected to CANH on the main GALX-1100AN board and to CANH on the backup GALX-1100AN board. Refer to schematics on wiring.
- The black/clear wire must be connected to CANL on the main GALX-1100AN board and to CANL on the backup GALX-1100AN board. Refer to schematics on wiring.

1.1.4.3 Split Riser (if applicable)

- The shield wire must be connected to SHIELD on the main GALX-1100AN board.
- The red wire must be connected to DD-H on the main GALX-1100AN board and to DD-H on the backup GALX-1100AN board.
- The black/clear wire must be connected to DD-L on the main GALX-1100AN board and to DD-L on the backup GALX-1100AN board. Refer to schematics on wiring.

1.1.5 Group Input/Output Boards

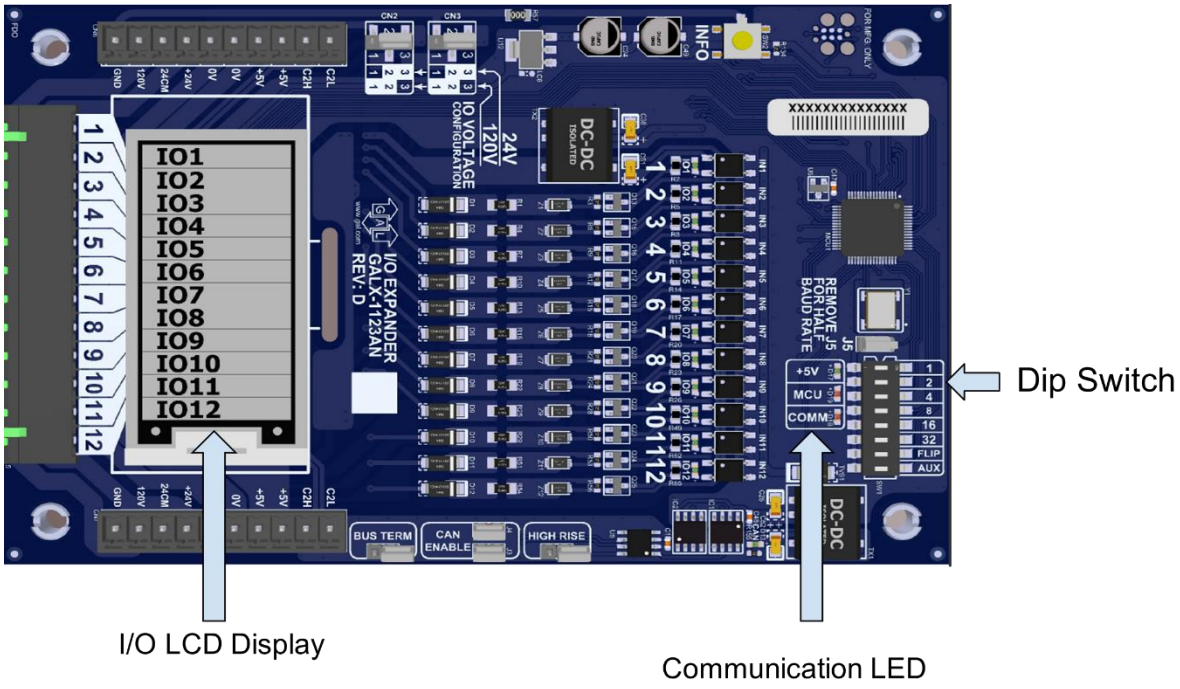


Figure 3-1: Sample of Group I/O Board

- Set the DIP switches on each group I/O board. according to the DIP switch configuration shown in the prints. Refer to Figure 3-1 above.
- Check to make sure that the COMM LED is flashing on all the group I/O boards.
- Check to make sure that the MCU LED is flashing on all the group I/O boards.
- Check to make sure that the I/O LCD screen changes from "IO 1-12" to the IO labels shown in the schematics.

1.1.6 System Transformer

1.1.6.1 Primary

- The primary of the transformer (the side connected directly to the building supply) must be configured to the building voltage. Refer to Figure 3-2 below.
  - Terminals of the primary side of the transformer are labeled H_
  - Ex. If the building voltage is 480vAC then the primary of the transformer must be configured to 480VAC.
  - Reference schematic diagrams, Destination Dispatch Cabinet - Power Section page, for proper connections

1.1.6.2 Secondary

- The secondary of the transformer must be configured to output 120VAC. Refer to Figure 3-2 below.
  - Terminals of the secondary side of the transformer are labeled X* (* = 1,2,3,4,5, or 6)
  - Refer to schematic diagrams for proper connections.

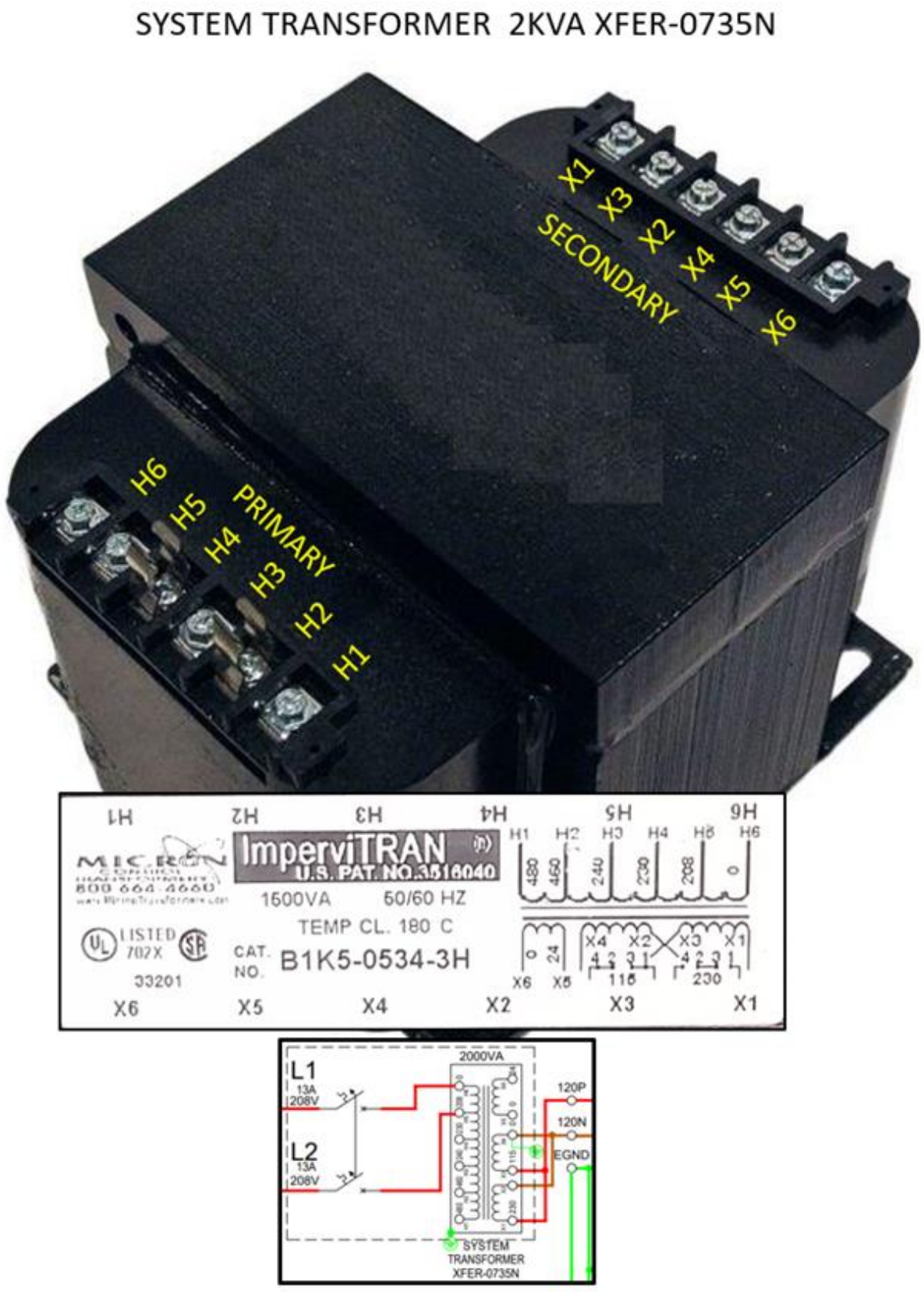


Figure 3-2: System Transformer

1.2 Start-up Procedures

1.2.1 Complete the Installation of Equipment

Before beginning the adjustment process, the installation of all equipment should be complete, including the following items. See Section 2 for the installation procedures.

- All field wiring should be installed.
- Place a jumper on CAN BUS TERM (J1) on the first Main 1152 base board. Refer to Figure 3-3 below.
- Place a jumper on CAN BUS TERM (J1) on the last board of the group I/O BUS 1123 board. Refer to Figure 3-4 below.
- Place a jumper on JP17 BUS TERM on the last kiosk at the end of the bus. Refer to Figure 3-5 below.

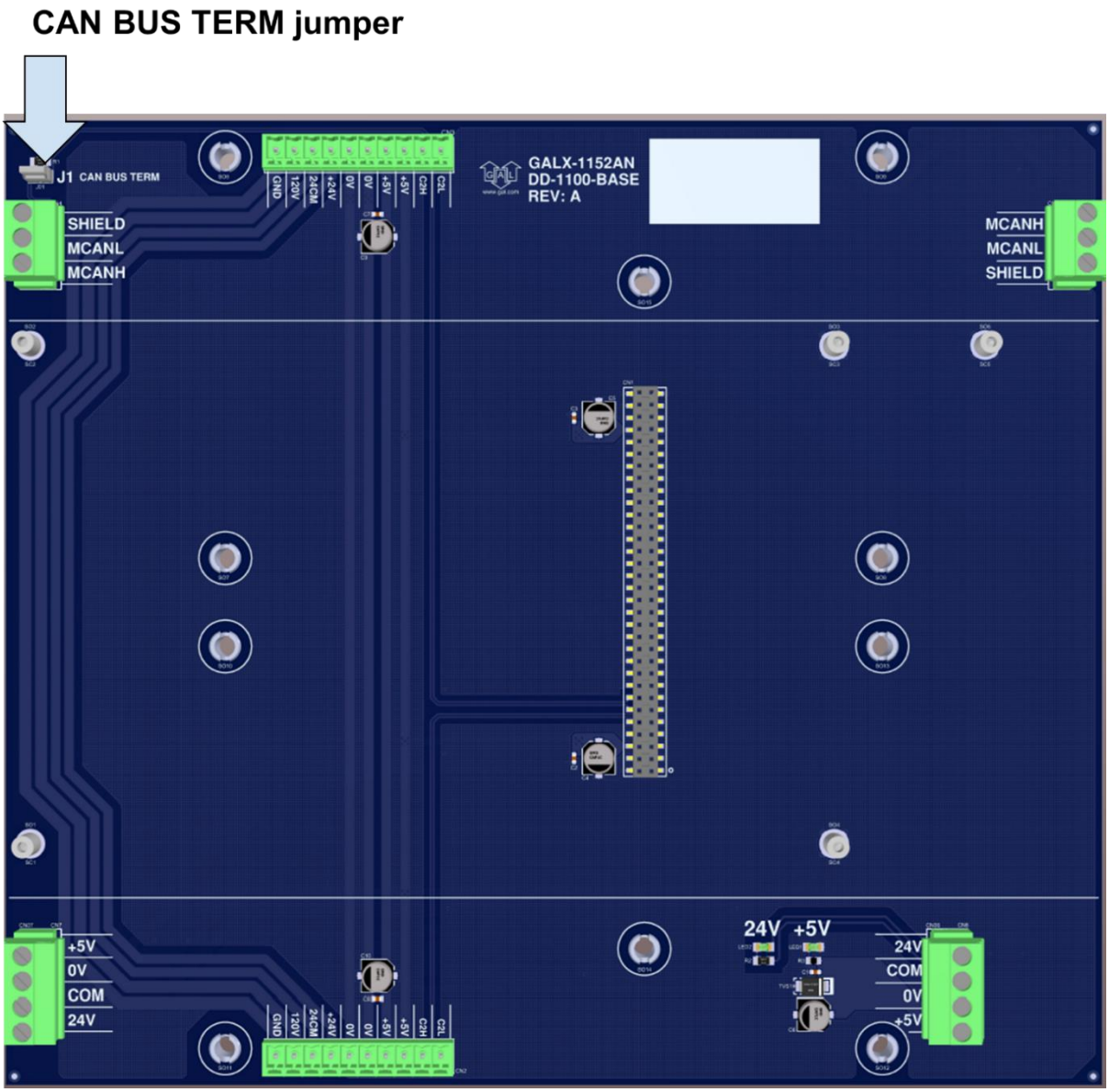


Figure 3-3: CAN Bus Jumper on 1152 Base Board

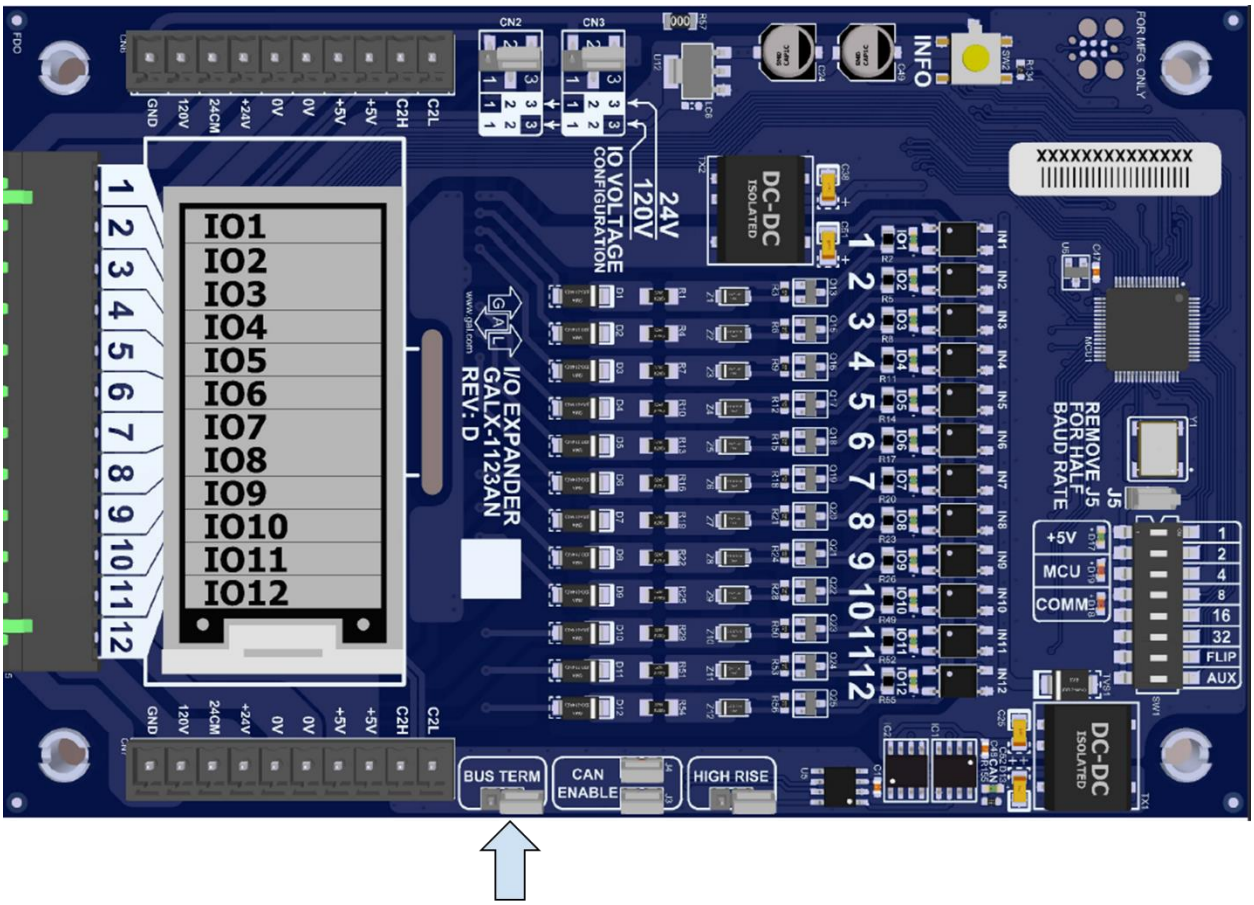


Figure 3-4: CAN Bus Jumper on 1123 I/O Expander Board

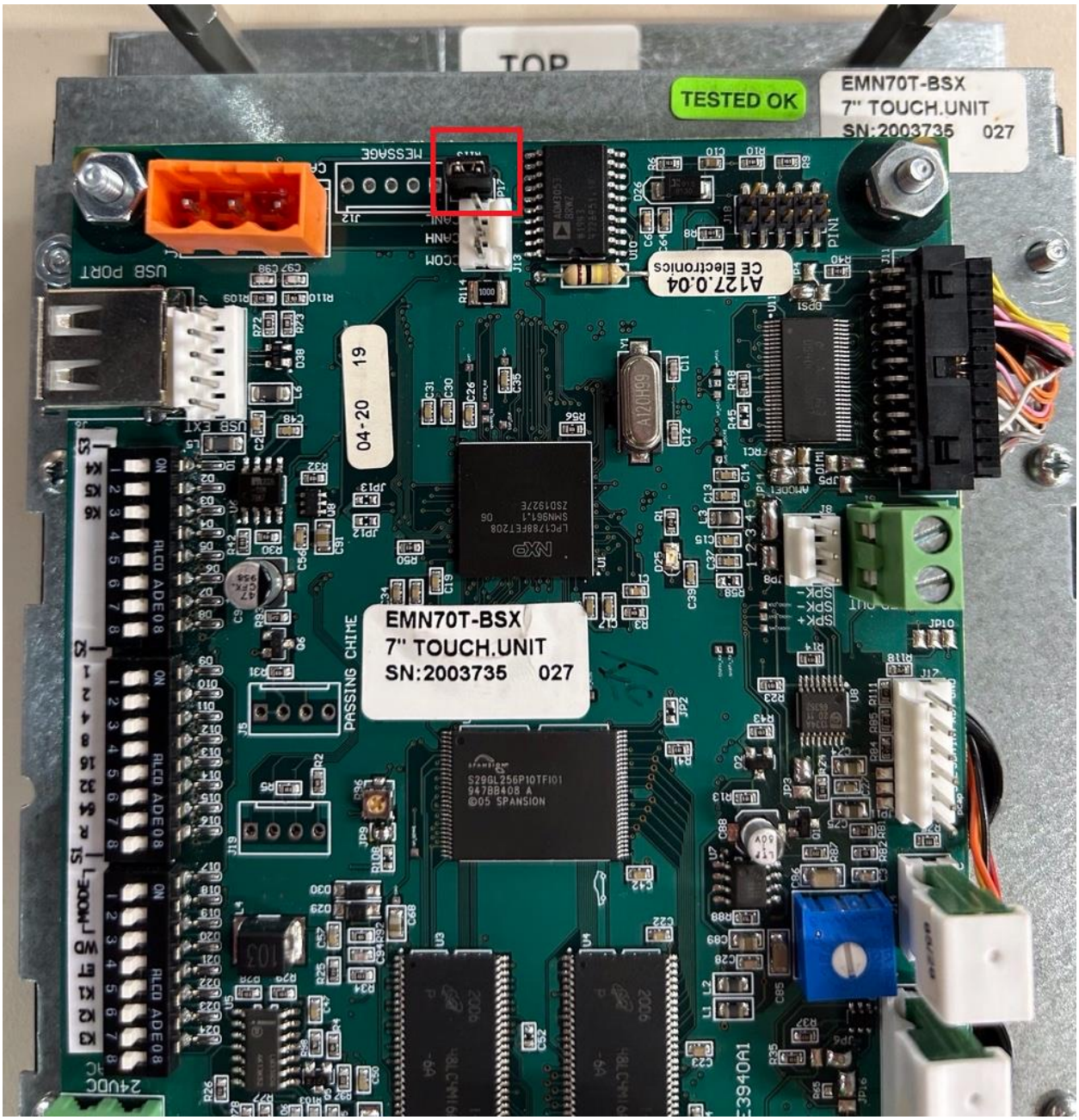


Figure 3-5: CAN Bus Jumper on C.E. Electronics Kiosk

The C.E. Electronics DD kiosks have a terminating jumper header at location JP17. The photo above shows the jumper fitted. The orange connector to the left is the incoming CAN bus.

1.2.2 Perform Required Tests

Complete all required inspections and tests before placing the elevator in service.

Section 4 - Troubleshooting

4.1 General Information

The GALaxy controller is equipped with several features that aid in troubleshooting any problems that may occur. The physical layout of the controller provides ready access to all I/O terminals to make voltage measurements. All inputs have LEDs that monitor the state of the input. The controller is equipped with the 1005/1101 LCD Interface, the Main CPU, and the 1152 base board. Section 05 describes the use of the 1005/1101 LCD Interface. In this section, the basic points of troubleshooting will be detailed.

4.2 Microprocessor CPU

With the power turned on, the “axy” in GALaxy on the 1005/1101 LCD Interface should be blinking at one second intervals, this indicates that the CPU is working correctly. If the “axy” is not blinking, then check voltage at the 5V terminal with respect to the 0V terminal, on the bottom edge of the 1100 CPU board. This voltage should read 5VDC. If not, then check the input (120VAC) and output voltage (5VDC) of the DC power supply. If the “axy” is not blinking and 5VDC is present at the 5V terminal with respect to the 0V terminal, then contact the factory. All job parameters that are field adjustable are stored in a non-volatile MRAM chip on the Main CPU board.

4.3 Input / Output Boards

The two main sections of all the I/O boards are the low voltage and the high voltage sections. The low voltage section consists of all the digital interface necessary for the CPU to communicate with the field components. The high voltage section consists of the field components (buttons, switches, lights, relays and sensors) and their associated input and output signals. The standard voltage for the Main I/O Board and the COP Board is 120VAC. However, the I/O expansion boards can accept a voltage range from 24 VAC, 24 VDC and 120 VAC.

It is very important that the wiring schematics are reviewed to determine the voltages for which the controller was designed before applying power. Examples of possible problems that may exist on a controller could be a limit switch input not turning on, or an acknowledgement light not turning on. In both cases, the problem could be either on the high voltage section or the low voltage section of the circuit. The GALaxy control system is designed to enable the technician to check both the high voltage section and the low voltage section to correct the problem.

The high voltage section is checked with a digital voltmeter, or by individual LEDs that are associated with each input. Depending on the input or output, the voltage measured at the terminal will either be “high” or “low” with respect to its reference point.

All the I/Os are optically isolated between the high voltage section and the low voltage section. The input opto-isolators and the output solid-state relays are socketed ICs that are labeled on the silk screen of the various I/O boards with a **U** number (for example U45). If it is determined through the previous troubleshooting procedures that the input signal is present at the terminal, but is not being communicated to the CPU, the input opto-isolator may be defective and can be replaced in the field, ONLY if GALX-1106AN or 1107AN are being used. If a GALX-1123AN is being used, these opto-isolators are NOT able to be replaced in the field. If it is determined that the CPU is communicating the output signal to the solid-state relay, but the voltage does not go high at the terminal, the solid-state relay may be defective and can be replaced in the field.

Any time IC chips are replaced, the power should be turned off and care should be taken in the removal of the old chip and replacement of the new one. Please pay attention to the chip orientation. All the I/Os and their associated ICs are listed in the controller wiring schematics.

4.4 Fault Log

Faults that are detected by the Main CPU can be viewed on the 1005/1101 LCD Interface by navigating to **Reset / View Faults Log** Menu, **=> View Fault Log**. The lists of possible faults detected by the Main CPU, the Safety Processor, and the NTS Processor are listed in section 6.1, System Faults. By pressing the *ENTER* button on the 1005/1101 LCD Interface when the fault is being displayed, the interface will display detailed information for that fault. Section 6.2, Detailed Faults, describes this information.

In general, when a fault occurs, the system records the state of all the items listed in section 6.2 and stores the data in two different buffers, the normal and long-term fault buffers. The normal fault buffers can hold the last 50 faults that occurred, and the long-term fault buffer holds the last 600 faults that occurred. The data in the normal fault buffer is accessed from the **Fault Log** Menu. The long-term fault buffer can be copied to the SD Card and viewed on a PC using a text editor such as Note Pad.

In both cases the highest numbered fault is the newest fault.

4.5 Main CPU Inputs and Outputs

4.5.1 Full Destination Dispatch

Main CPU Inputs & Outputs	
Name	**Description**
HCP	Hall Call Comm Power Loss
EPTDD	Emergency Power Transfer Input
EMPDD	Emergency Power Input
AUTEP	Emergency Power Auto Recall Enable
K1SEC-KnSEC	1st –> Nth Discrete Input Kiosk Security Device
1FK1-xxFKn	1st –> XXth Floor with Discrete Input Nth Kiosk Security Device

Table 4-1: Main CPU Inputs & Outputs

4.6 Relocate I/Os

Special Relocation I/O's are located on the Machine Room CAN bus, the Car Top CAN bus and the Group CAN bus. Each CAN bus has three inputs and three outputs for this purpose, and are named as follows:

MRCAN		CTCAN		GRCAN	
Inputs	Outputs	Inputs	Outputs	Inputs	Outputs

MSPI1	MSPO1	CSPI1	CSPO1	GSPI1	GSPO1
MSPI2	MSPO2	CSPI2	CSPO2	GSPI2	GSPO2
MSPI3	MSPO3	CSPI3	CSPO3	GSPI3	GSPO3

Table 4-2: CAN Bus Inputs/Outputs

Mnemonic legend:
M (**M**RCAN) **SP** (**Sp**are) **I** (**I**nput) 1
C (**C**TCAN) **SP** (**Sp**are) **O** (**O**utput) 1
G (GRCAN) **SP** (**Sp**are) **I** (**I**nput) 3

The locations of these I/Os are preset in the io.dat file and can be viewed on the diagnostic I/O display or on the board electronic ink label.

To relocate the I/O, select the “Relocate I/O” menu from the “Inputs and Outputs” menu. Then select the “Add I/O Relocation”. Use the Up or Down button to select the input type and location such as CSPI1, (CTCAN car spare input 1). The type is an input and CSPI1 is located where the desired Input will be relocated. Hit the Enter button and then the Up or Down to select the I/O to be relocated. Only I/O’s allowed on the selected bus will be displayed. When you reach the I/O to be relocated, then hit the Enter button again. Once an I/O has been selected, power must be cycled on the controller for the relocation to take place.

To remove an I/O from the relocation table, select the “Remove I/O Relocation” menu and then “Select I/O: None” and hit enter. To remove all I/O relocations, select the “Clear Relocation Table” menu and hit enter. Please refer to the Inputs and Outputs menu of the LCD Interface section for a graphic view of the Relocate I/Os menu.

4.7 GALileo Monitoring System

The Destination Dispatch controller is equipped with the GALileo monitoring system that provides elevator personnel with information on a machine room monitor or smart device.

4.7.1 GALileo Setup

To validate connection between the GALileo and dispatcher, set the configuration of the COM1 port on the Main DD Controller under:

- Adjustable Variables->System Options->COM1 Baud Rate = 6
- Adjustable Variables->System Options->COM1 Port Sel = 6.

4.7.2 GALileo Enhanced Diagnostics

The GALileo Enhanced Diagnostics includes the following features:

- Group Screen
- Fault Log
- Car I/O Screen
- Hall I/O Screen
- Kiosk Status Screen
- Kiosk Keypad Screen
- Adjustable Variables
- Trace Screen
- Traffic Analysis
- Event Scheduling
- Service Settings

- Call Lockouts
- Fault Description List
- PDF copies of Project Documents
- Instructional Videos

The GALileo User's Guide provides a complete description of the GALileo features.

4.7.3 GALileo Trace Screen

The "Trace Screen" feature allows elevator personnel to record the operation of the elevator over a period and replay this recorded information. This recorded event provides detailed information to assist in adjustment and troubleshooting.

The "Trace Screen" functions as follows:

When the controller powers up, it begins storing trace information at the pre-set time interval, usually 10 msec, but can be adjusted to 20, 30 or 40 msec. This means that data is recorded for 5 seconds duration and will continue to cycle until stopped by the F2 key or from a set trigger.

The trace stops storing data when a trigger condition occurs. The trace information is the same data that is stored for each fault occurrence but is stored in volatile memory, i.e. ***the data is lost when power is cycled***. Even though the trace data is not stored in non-volatile memory, the trigger setup conditions are stored in non-volatile memory and will not be lost when power is cycled.

The playback commands from the machine room monitor are:

- F1 to re-start the trace
- F2 to trigger a stop trace condition. When the trigger is activated, the controller will store 35 more trace frames and then will stop.
- The Home key places the count (frame) to the trigger point after the trace is stopped – start of trigger.
- The End key places the count to the last frame after the trace has stopped (i.e. 35 frames after the trigger point) – end of trigger.
- If you press the End key and then one Up arrow key, the frame will be at the start of the trace.
- The Up and Down arrows increment or decrement the frame by one count
- The Page Up and Page Down keys increment/decrement the frame by ten counts.
- The Right and Left arrow keys scroll part of the status screen data at the bottom of the screen.

Using the GALileo interface, the playback commands are graphical, and allow you to step through the trace one frame at a time, 10 frames at a time, or move the slider to any position. To play the trace for the entire run use the play button.

The trace trigger and timing can be setup from the "Trace Setup" menu under "Software Utilities". Below is a list of the trace setup menus and their functions:

- Stop Trace Recording
- Start Trace Recording
- Trace Time Interval – Time interval from 10 to 20, 30 or 40 msec. Extends the trace time from 5 seconds to 10, 15 or 20 seconds respectively.
- Trace Trigger Arm – Arm the trace for a condition after power up:
  - Always Armed
  - Power Up Reset
  - Initial At Floor
  - Motion Start

  - Initial Stop,
  - Re-level Start
  - Front Door Open Start
  - Front Door Dwell Start
  - Front Door Close Start
  - Rear Door Open Start
  - Rear Door Close Start
  - Rear Door Close Start
  - Inspection Start
  - Safety String Start
- Trace Trigger Window – Time window for logic events to be considered valid. When the trigger condition is set for more than one condition and a trigger condition occurs momentarily, this is the duration of time that the momentary condition is considered valid. A value of 35 is recommended.
- Setup Trace Trigger – The logic condition for the trace trigger to occur. There is an “AND” trigger variable and an “OR” trigger variable. When a trigger condition is selected, the user must set it in the “AND” or “OR” trigger variable. A trigger condition cannot be set in both trigger variables. The trigger occurs when all the “AND” conditions are met or any of the “OR” conditions are met. In addition, the trigger ARM must also be active. Trigger conditions can be set from the following:
  - Fault change
  - Fault match
  - servf change
  - servf match
  - procf change
  - procf match
  - run_statusf change
  - run_statusf match
  - slowdown change
  - slowdown match
  - rear slowdown change
  - rear slowdown match
  - statusf change
  - statusf match
  - statusf2 change
  - statusf2 match
  - Fault Bits 0 change
  - Fault Bits 0 match
  - Fault Bits 1 change
  - Fault Bits 1 match
  - Fault Bits 2 change
  - Fault Bits 2 match
  - Fault Bits 3 change
  - Fault Bits 3 match
  - SPB service change
  - SPB status change
  - SPB command change
  - NTS service change
  - NTS status change
  - NTS command change
- Show Trace Trigger Logic
- Clear Trace Trigger Logic

4.7.4 GALileo Kiosk Status Screen

The Kiosk Status Screen allows users to view all the kiosks configured through the cons file. The screen also provides an overview of which kiosks are online/offline by location and floor. The offline kiosks are shown as a red box with an “x”, and online as green. Blank boxes signify there are no kiosks at this location/floor.

This feature requires v1.01.12w1.29 GALileo software or later and can be accessed from the machine room monitor or smart device.

NOTE: Kiosks cannot be configured on the Kiosk Status Screen.

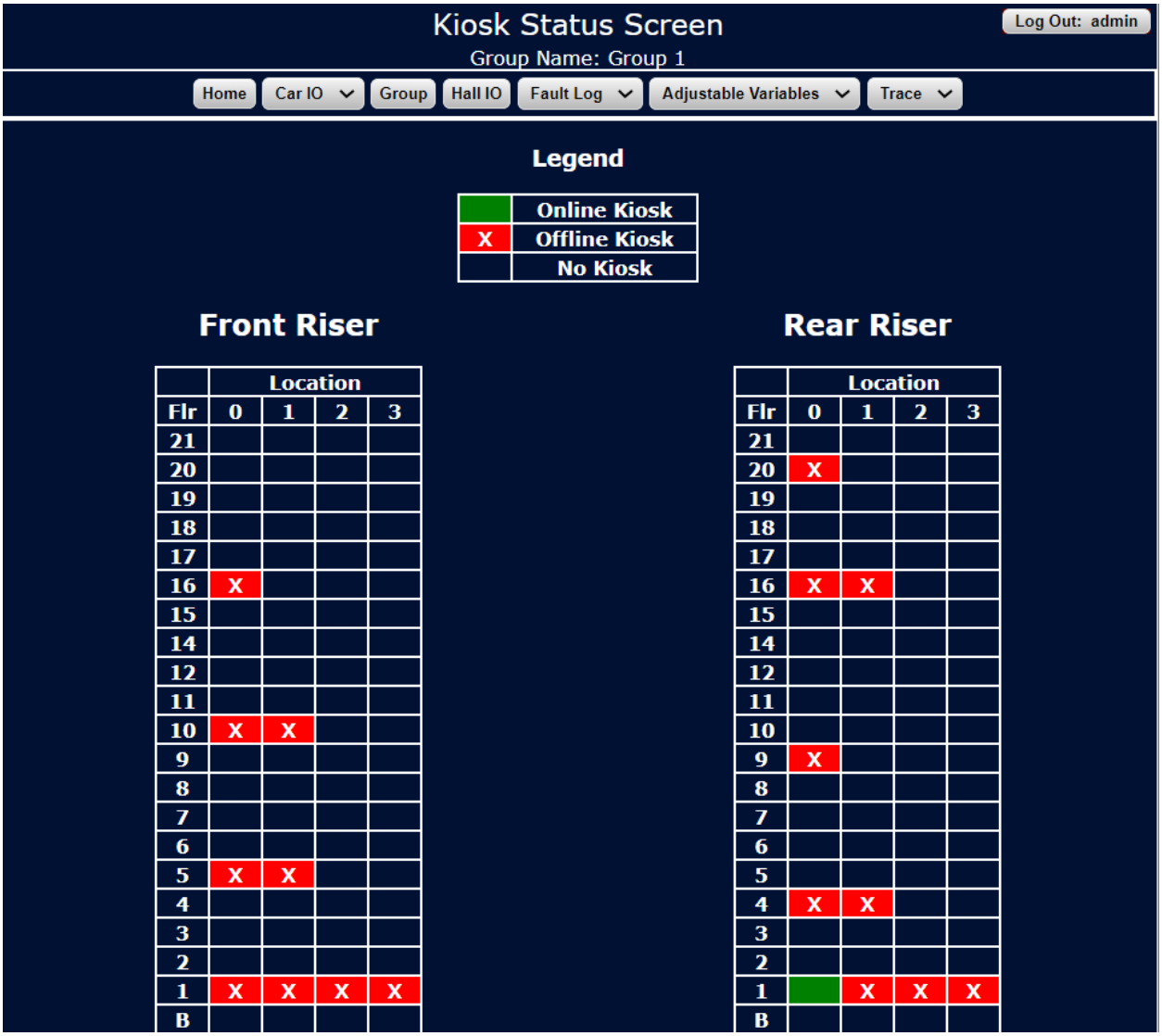


Figure 4-1: Kiosk Status Screen

4.7.5 GALileo Kiosk Keypad Screen

The GALileo Kiosk Status Screen supports the functionality of locking out specific/all floors, issues 4 digit pin codes to kiosk users, and the deletion of codes. The pin codes can also be accessed through the DD CPU LCD interface. Once the pin code has been issued, users will then input the pin code on any hall kiosk, when necessary, if they need to go to a secured floor or multiple secured floors if the pin code allows access to those secured floor/s. The admin will be able to change the designated secured floor(s) when needed – ie: may secure or unsecure floors whenever desired.

This feature requires 2.02.03w3.04 GALileo software or later and can be accessed from the machine room monitor or smart device.

4.8 DD CPU Diagnostics LCD Interface Screen

4.8.1 Group Comm Status

The Group Comm Status Screen allows for users to view the communication status between the dispatcher and the group. By using the UP/DOWN buttons, users can view the message count between the dispatcher and controllers, users can also view the version number, and Online status of controllers in the group.

4.8.2 Group CAN Comm Status

The Group CAN Comm Status Screen allows for users to view the communication status between the dispatcher and the devices on the group CAN bus. Examples include SEB (serial expansion board) and KSEC (discrete kiosk security inputs) statuses. The statuses include the message counts, version number, and Online status.

4.8.3 DD F-Riser CAN Comm Status

The DD F-Riser CAN Comm Status includes the statuses of the communication between the dispatcher and the destination input devices by floor and location number on the FRONT riser. The max number of locations per floor is currently six. The statuses include the message count between the dispatcher and kiosks, version number, M (kiosk security mode) and Online status.

4.8.4 DD S-Riser CAN Comm Status

The DD S-Riser CAN Comm Status includes the statuses of the communication between the dispatcher and the destination input devices by floor and location number on the SPLIT riser. The max number of locations per floor is currently six. The statuses include the message count between the dispatcher and kiosks, version number, M (kiosk security mode) and Online status.

4.8.5 DD R-Riser CAN Comm Status

The DD R-Riser CAN Comm Status includes the statuses of the communication between the dispatcher and the destination input devices by floor and location number on the REAR riser. The max number of locations per floor is currently six. The statuses include the message count between the dispatcher and kiosks, version number, M (kiosk security mode) and Online status.

4.8.6 DD Security Comm Status

The DD Security Comm Status screen displays information regarding the third party security system and its current communication status with the controller.

- ‘Time since last RX msg’ will tell you the last time the DDCPU received a message from the security system.
- ‘CRED FL:’ shows you what floors have shown credentials, both rear and front. The Rear riser will be the first screen you will encounter and if you press DOWN again, you will see the Front riser. Have someone swipe a card with credentials and see if the Front mask updates for the specific floor they swiped on.
- ‘ALW FL:’ shows you what floors have allowed floors, which are unlocked all the time at the kiosk. It will also have two screens, one for the Rear, and one for Front, skip the Rear. The Front allowed floor should only be one floor, which should be the lobby floor. Please confirm this.
- If you are receiving a heartbeat on the ‘Security Heartbeat’ screen (the ‘Good:’ value is incrementing), then the DDCPU is communicating as it should.

4.9 Destination Input Device

The C.E. Electronics kiosk displays messages on the screen that will allow the user notice to troubleshoot. Before validating steps below, verify Destination Dispatch cons file configuration 'cons[Dest_Disp]: Destination Dispatch EN' is set to either +2 for Full DD System, or +1 for Lobby Express.

- 'No Communications' means the dispatcher is not communicating with the kiosk.
    - Verify that the floor and location of the kiosk is configured on the cons file.
        - This can also be seen from the GALileo Kiosk Status screen.
    - Verify that the floor and location of the kiosk is configured correctly on the DIP switches on the back of the kiosk (see Figure 4-3 below).
    - Verify the wiring between the dispatcher and the kiosk and the correct riser.
        - The full topology of the dispatcher can be found in Section 2.
- 'Elevators are not available – Please use the stairs.' means there aren't any cars online.
    - Verify that cars are communicating with the dispatcher by referring to the Group Comm Status Screen section above.
- Kiosk is off.
    - Verify 24VDC power to the kiosks. Refer to Schematics.
- To update files on kiosk:
    - Set the dip switches DS1 and DS2 shown in the red box in Figure 4-3 below as the Factory Test Mode switches. Figure 4-2 displays the Factory Test Mode screen and allows the user to see the version number of the current firmware and graphic design files.
    - Insert USB with new firmware and/or graphic design files.
        - The firmware is delivered as a *.BEC file
            - A127_aa_bb_yymmdd.BEC for released firmware
                - The "aa" and "bb" portions of the firmware filename represent the major and minor sub-versions respectively. The "yymmdd" portion represents the build date.
        - Graphic designs are delivered as *.BND files, typically with a prefix that reflects the customer, kiosk size, C.E. job number and creation date, e.g.
            - "GAL - HQ Demo - J2003735 D071420.bnd" (this is for a 10" kiosk - the screen size is not part of the name)
            - "GAL - 7 - HQ Demo - J2003735 D071921.bnd" (this is for a 7" kiosk)
                - NOTE: The date in the filename is formatted as "Dmmddyy", which is different to the way dates are formatted for the firmware.

Figure 4-2: Kiosk Factory Test Mode

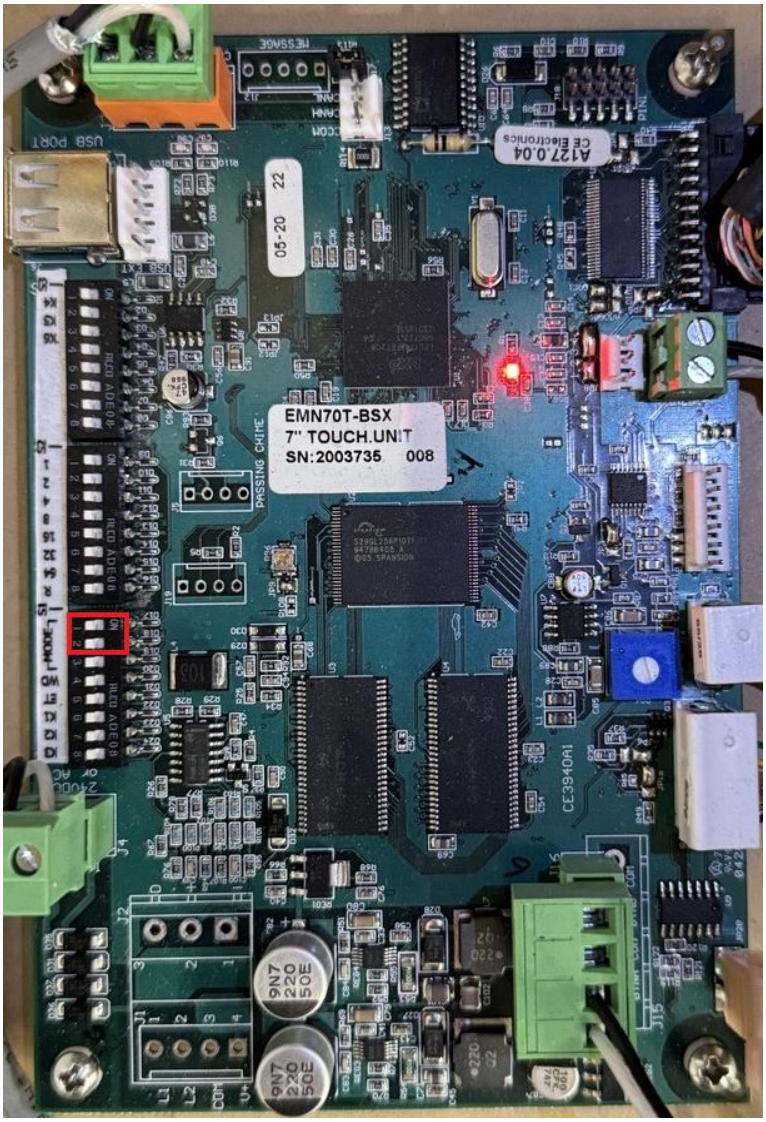


Figure 4-3: DIP Switch Settings for Kiosk

Section 5 – LCD Interface

5.1 Operating the LCD Interface

5.1.1 Interface Operator Panel

Potentiometer is used to adjust the viewing angle. It makes the display lighter or darker.

UP Button is used to scroll up to the next menu item or to increment data values.

DOWN Button is used to scroll down to the next menu item, or decrement data values.

MODE Button is used to go back to the previous menu or to select digits of data values.

ENTER Button is used to select menu items or to complete the operation of changing data values.

The LCD Interface Board uses a 2 line by 24-character display, and it includes four buttons for navigation and menu item selections (see above). This interface allows the user to adjust parameters, view critical controller information, implement controller setup options, and view elevator status information. Upon power-up, the interface board shows a blinking “GALaxy” on the display to indicate the controller is running, as shown in the photograph above.

The four buttons used for operating the LCD display are UP, DOWN, MODE, and ENTER. The UP and DOWN buttons are used to scroll up and down items listed for selection in the controller menus. The ENTER button is used to select a particular item. Some menu items have submenus containing additional selection items. Again, in these submenus, the UP and DOWN buttons are used for scrolling through the items, and the ENTER button to is pressed to make selections.

The MODE button is used to return to previous menus.

When a menu item is an adjustable variable, the item is selected with the ENTER button, and the UP or DOWN buttons are used to adjust the item’s value. In number entries, the MODE button is used to move the cursor to the next digit. Once the appropriate value has been selected, the ENTER button is used to confirm/complete the variable change operation, and exit edit mode.

The following pages in this section provide descriptions of the flowcharts at the end of the chapter. The descriptions and flowcharts are shown separately, to allow more space for the graphics, for better readability.

For clarity and better organization, the descriptions are provided in the same order as the flowcharts.

5.1.2 LCD Interface Main Menu

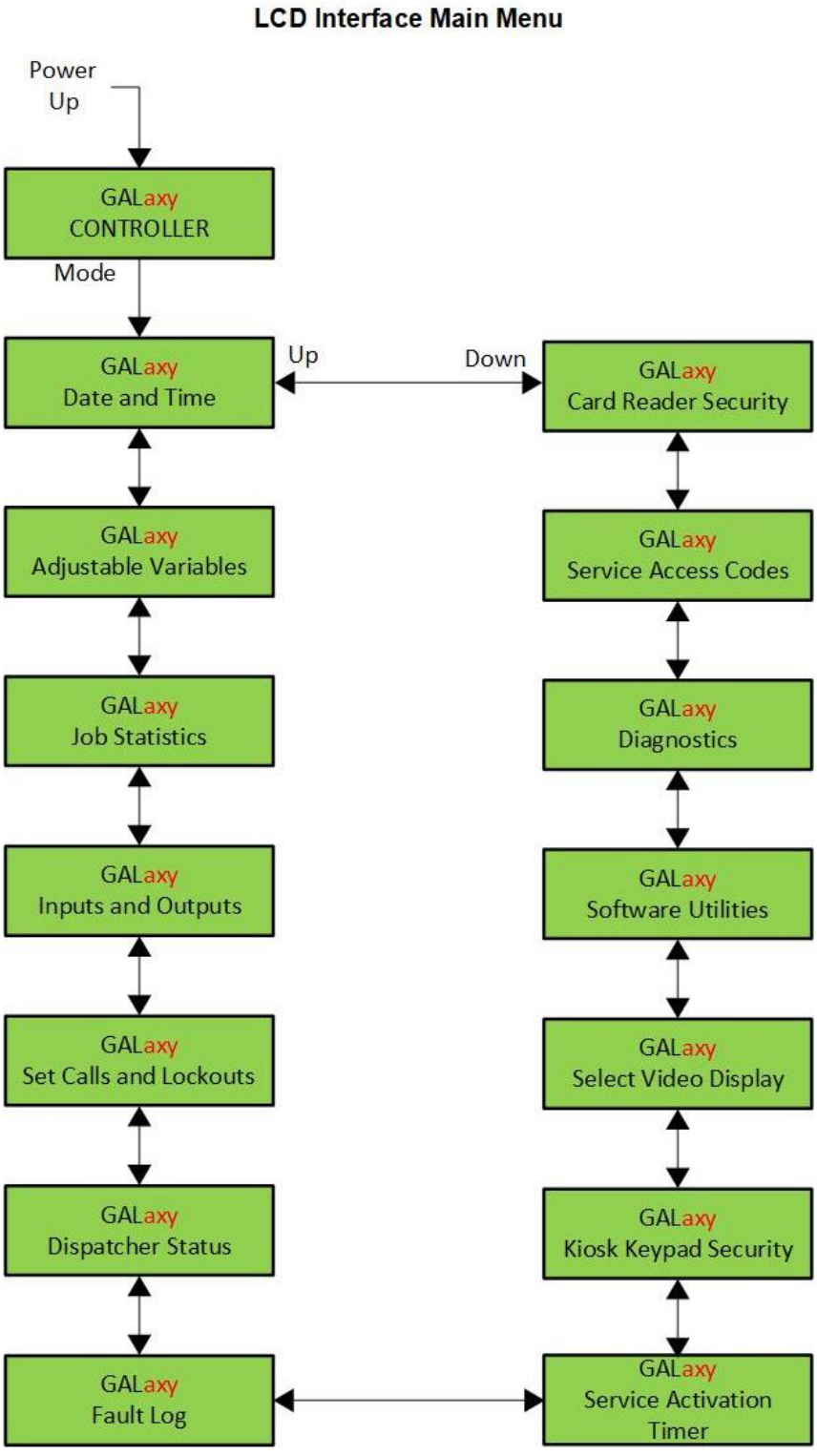


Figure 5-1: The Main Menu of the LCD Interface

The flowchart for the Main Menu shows the top-level menus in the controller system.

5.1.3 Dispatcher Status

The **Dispatcher Status** Display continuously updates to show the status regarding the Main DD CPU dispatcher, limited status of car controllers, debug variables, and waiting passenger per car. The UP and DOWN keys allow access to the status display. The dispatcher may interchangeably display whether the Main DDCPU OR Backup DDCPU is the current dispatcher, by displaying whether it is currently Active OR Standby. If a Dispatcher Service Flag is active, it will display on the top line of the status display instead of the Dispatcher Status. When an elevator system fault occurs, it will be shown on the bottom line of the status display while the fault exists, and it will remain displayed for 60 seconds after the fault is cleared. The following dispatcher status information (including fault information) may appear on this screen:

Dispatcher Status:
Main DDCPU Active*
Backup DDCPU Standby*
Dispatcher Service Flag Status:
Fire Service
Emergency Power
Fire & Emergency Power
All Cars OTS
Cars OTS, Fire Service
Cars OTS, Emergency Pwr
Cars OTS, Fire, Emrg Pwr
Dispatch Status:
DD Stat: Okay
DD Stat: Car Off Line
DD Stat: Car Out of Serv
DD Stat: Kiosk Off Line
DD Stat: SecDev Off Line
DD Stat: Up Peak
DD Stat: Down Peak
DD Stat: Heavy Traffic
DD Stat: Parking
Dispatcher Car Status:
Offline Cars
Out of Service Cars
Parking Cars
none

Table 5-1: Dispatcher Car Status

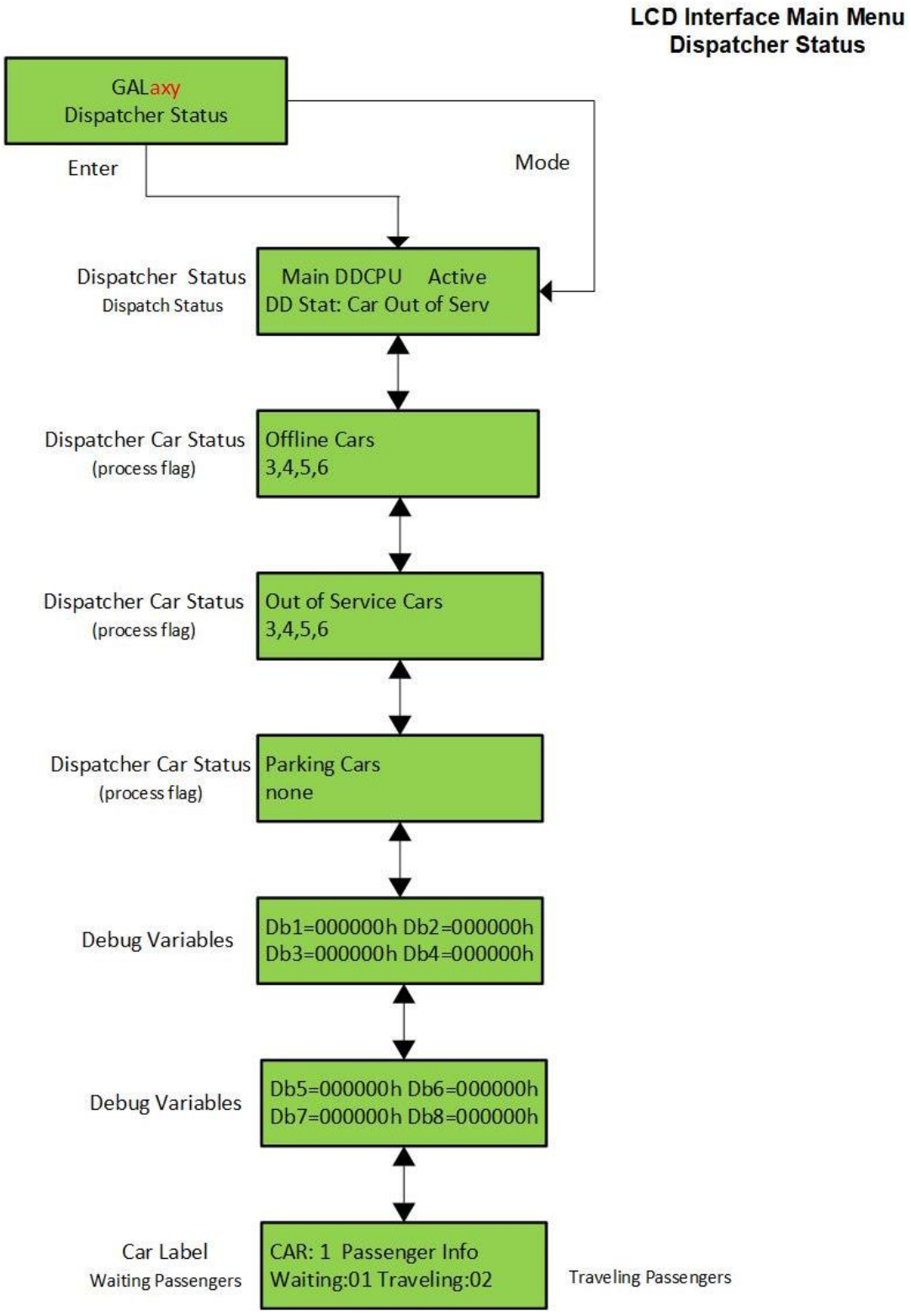


Figure 5-2: The Dispatcher Status Menu of the LCD Interface

The flowchart for the Dispatcher Status Menu shows the DD CPU status and car status of the controller system, along with debug information and traveler information.

5.1.4 Set Calls and Lockouts

When cars are available in a group, the menu system allows access to options for setting both hall calls and car calls. When car controllers are not in the group, only car calls can be set. Rear car calls and lockouts are displayed only when there is a rear door in at least one of the cars.

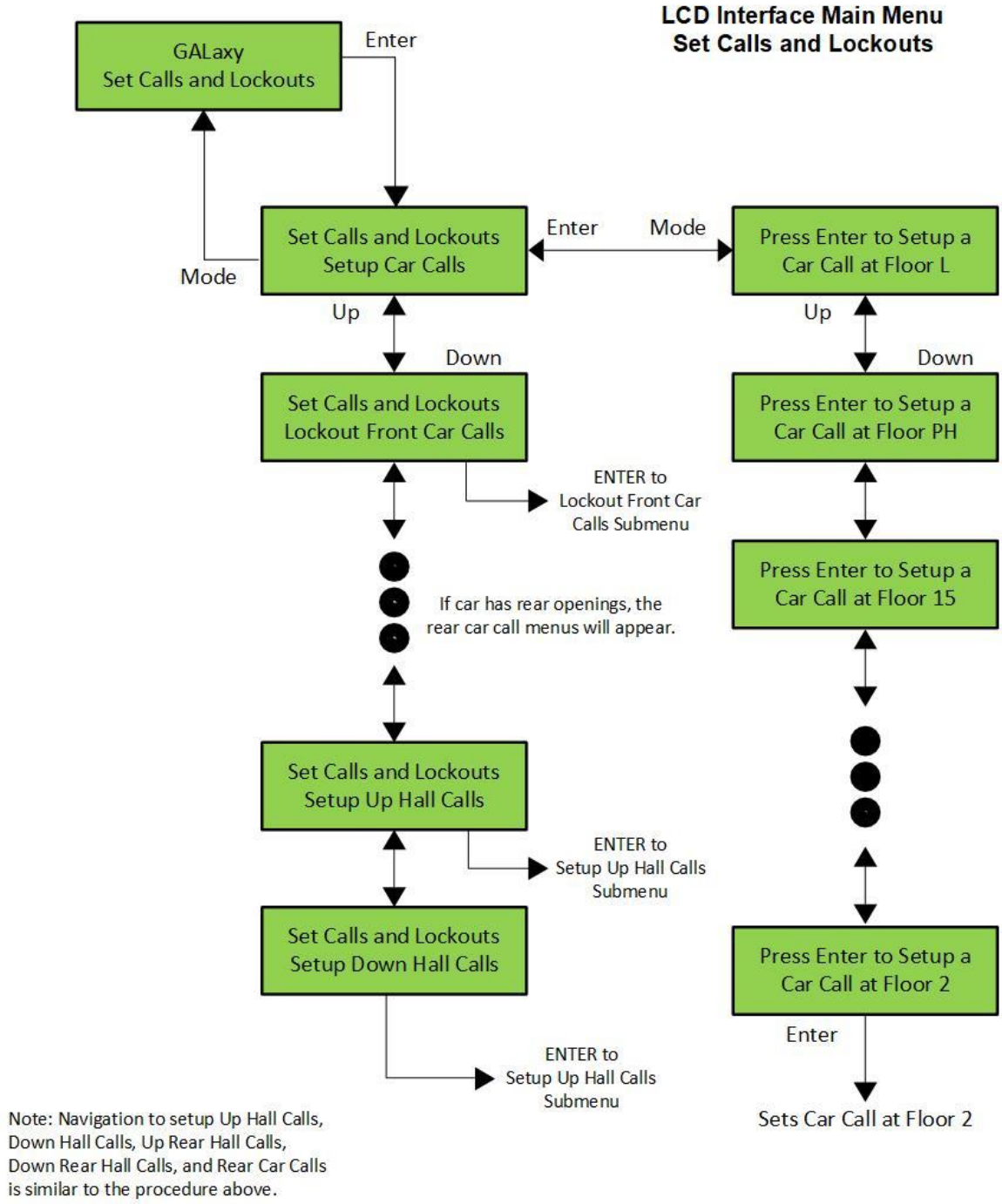


Figure 5-3: The Set Calls and Lockout Menu of the LCD Interface

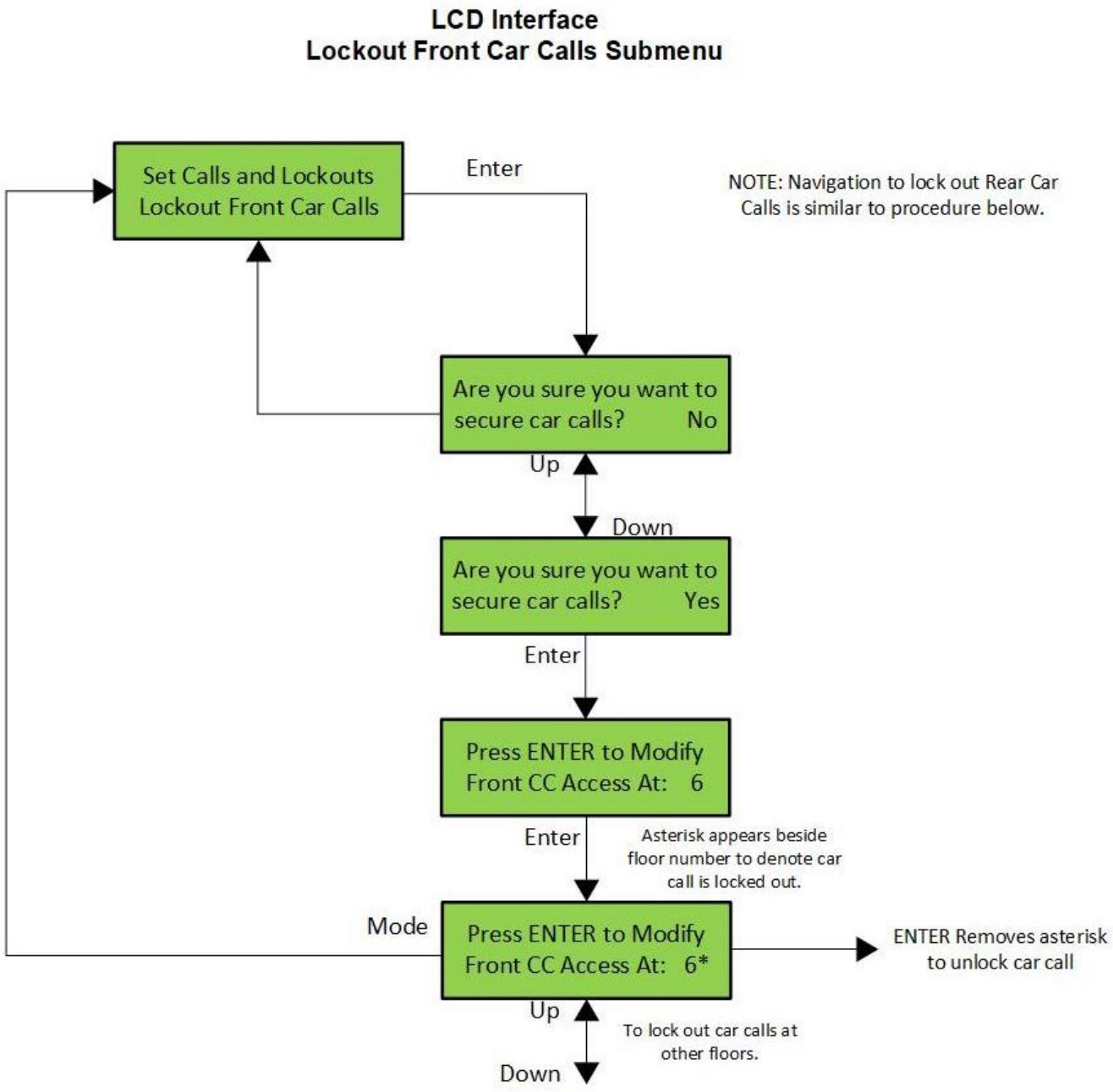


Figure 5-4: The Front Car Call Lockout Submenu of the LCD Interface

The menu above displays the process of setting and removing a car call lockout on a specific front door floor. The navigation for the rear door and other floors is similar to the process shown above.

5.1.5 Inputs & Outputs

Inputs and outputs are shown as a “1” for ON and a “0” for OFF. A list of all inputs and outputs used on the controller, and on specific boards, is shown in Section 4 of this manual, “Troubleshooting”. The controller determines which boards are used, depending on the options selected and the number of front and rear floors specified by the configuration files. The **Input and Output** Menu has submenus to access the Group I/Os. All I/O locations are determined from an *io.dat file* on the SD Card. I/Os in lines 0-13 and

138-146 of the *io.dat file* are specific hardware dependent locations, and their table locations should never be changed.

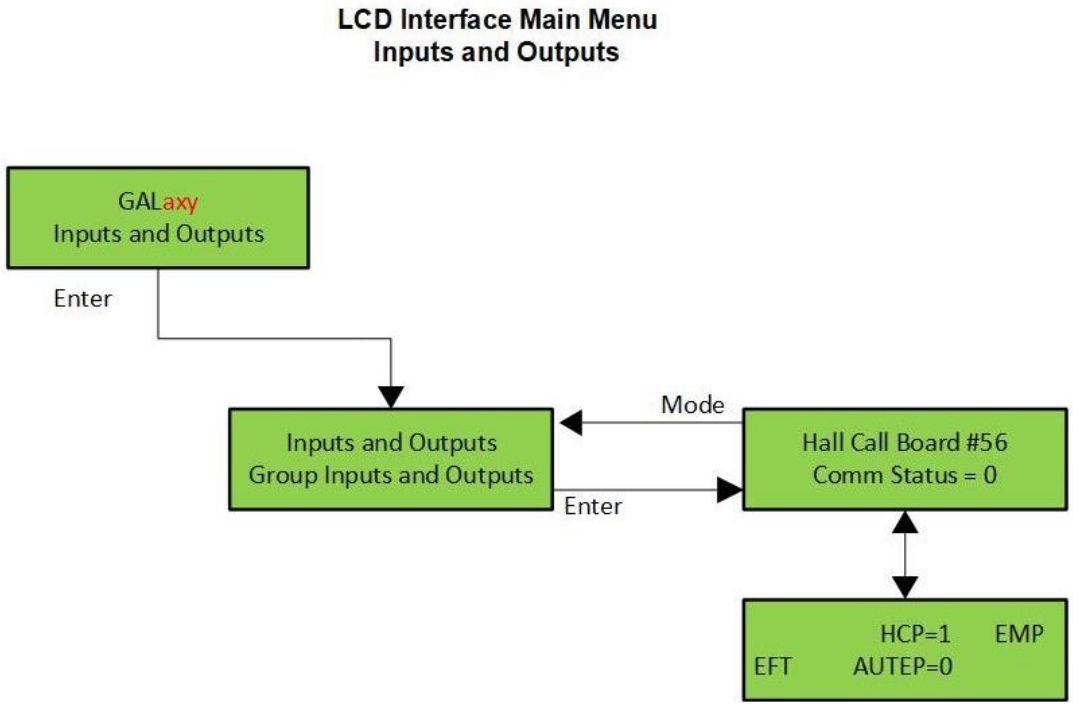


Figure 5-5: The Inputs and Outputs Menu of the LCD Interface

5.1.6 Job Statistics

The **Job Statistics** Menu shows the number of car calls and the number and percentage of hall calls serviced since the job was started, or since the job statistics were cleared. Listed below are all the call categories maintained:

- Number of Car Calls
- Number of Up Hall Calls
- Number of Down Hall Calls
- Number of Up Hall Calls with < 15 second wait time
- Number of Up Hall Calls with < 30 second wait time
- Number of Up Hall Calls with < 45 second wait time
- Number of Up Hall Calls with < 60 second wait time
- Number of Up Hall Calls with > 60 second wait time
- Number of Down Hall Calls with < 30 second wait time
- Number of Down Hall Calls with < 45 second wait time
- Number of Down Hall Calls with < 60 second wait time
- Number of Down Hall Calls with > 60 second wait time
- Percent of Hall Calls with < 15 second wait time
- Percent of Hall Calls with < 30 second wait time
- Percent of Hall Calls with < 45 second wait time
- Percent of Hall Calls with < 60 second wait time

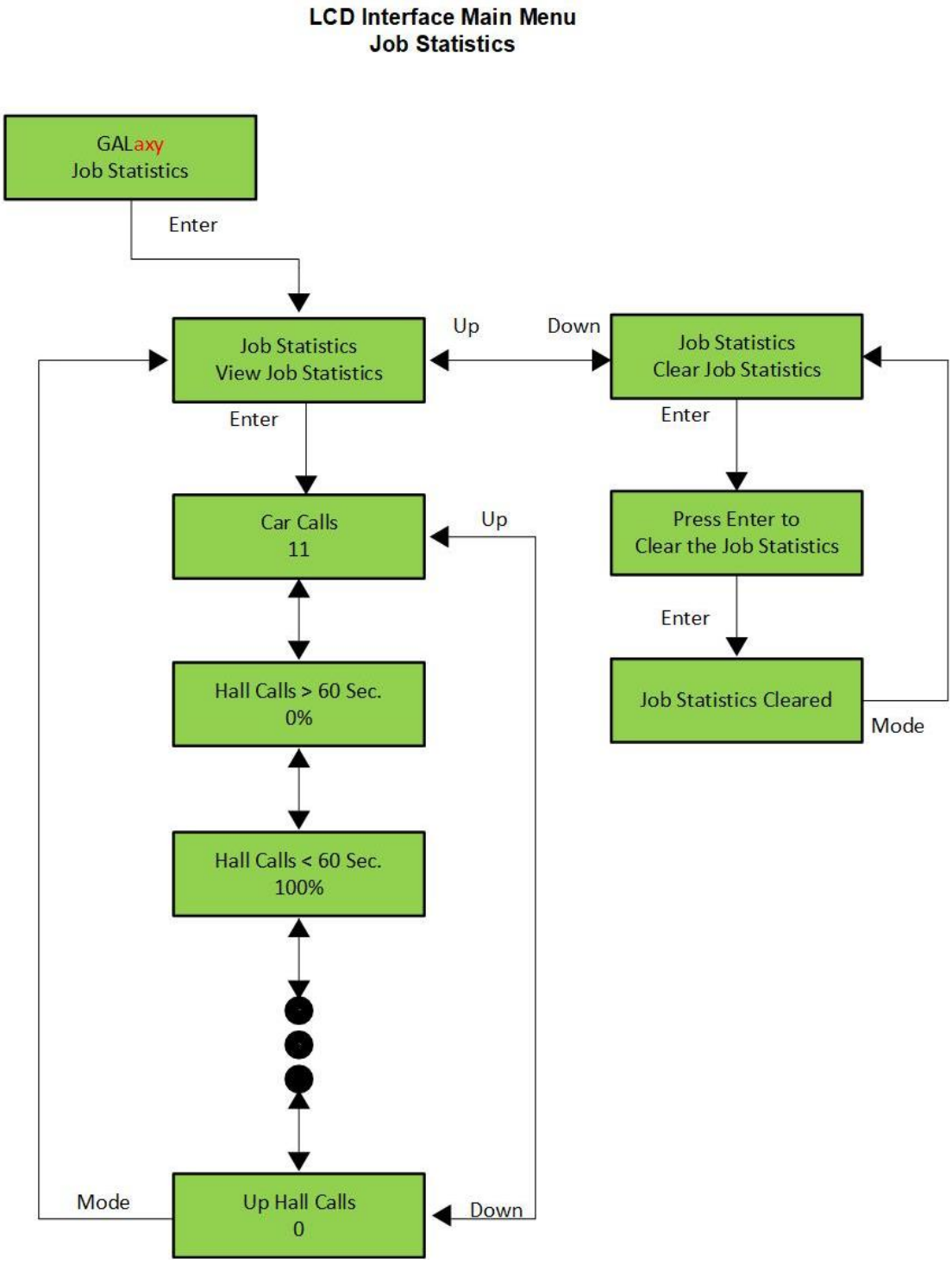


Figure 5-6: The Job Statistics Menu of the LCD Interface

This is the flowchart for the Job Statistics menu. It includes information regarding the job statistics, amount of hall calls under and over 60 seconds, and up/down hall calls.

5.1.7 Adjustable Variables

The **Adjustable Variables** Menu allows modification of all field adjustable parameters for the Main CPU, Destination Dispatch specific variables, Kiosk Timers, Group Dispatch, Group Emergency Services, and System Options.

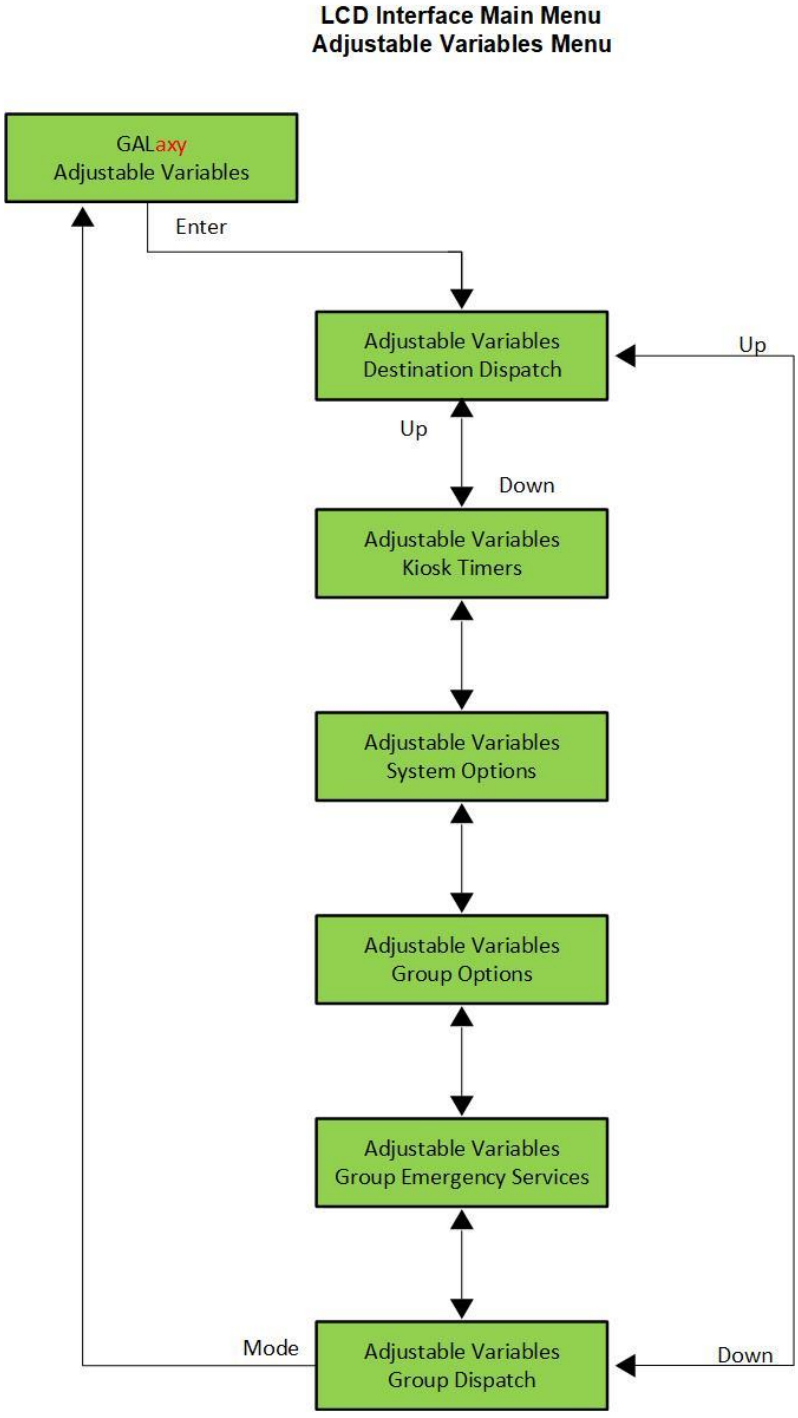


Figure 5-7: The Adjustable Variables Menu of the LCD Interface

5.1.8 Destination Dispatch Variables

The Destination Dispatch submenu will be the focal point of the Adjustable Variables menu. It entails all the destination dispatch related variables that dictate how the controller will behave. The following diagrams are an example of one **Adjustable Variables** Submenu. Other Adjustable Variable submenus will be similar.

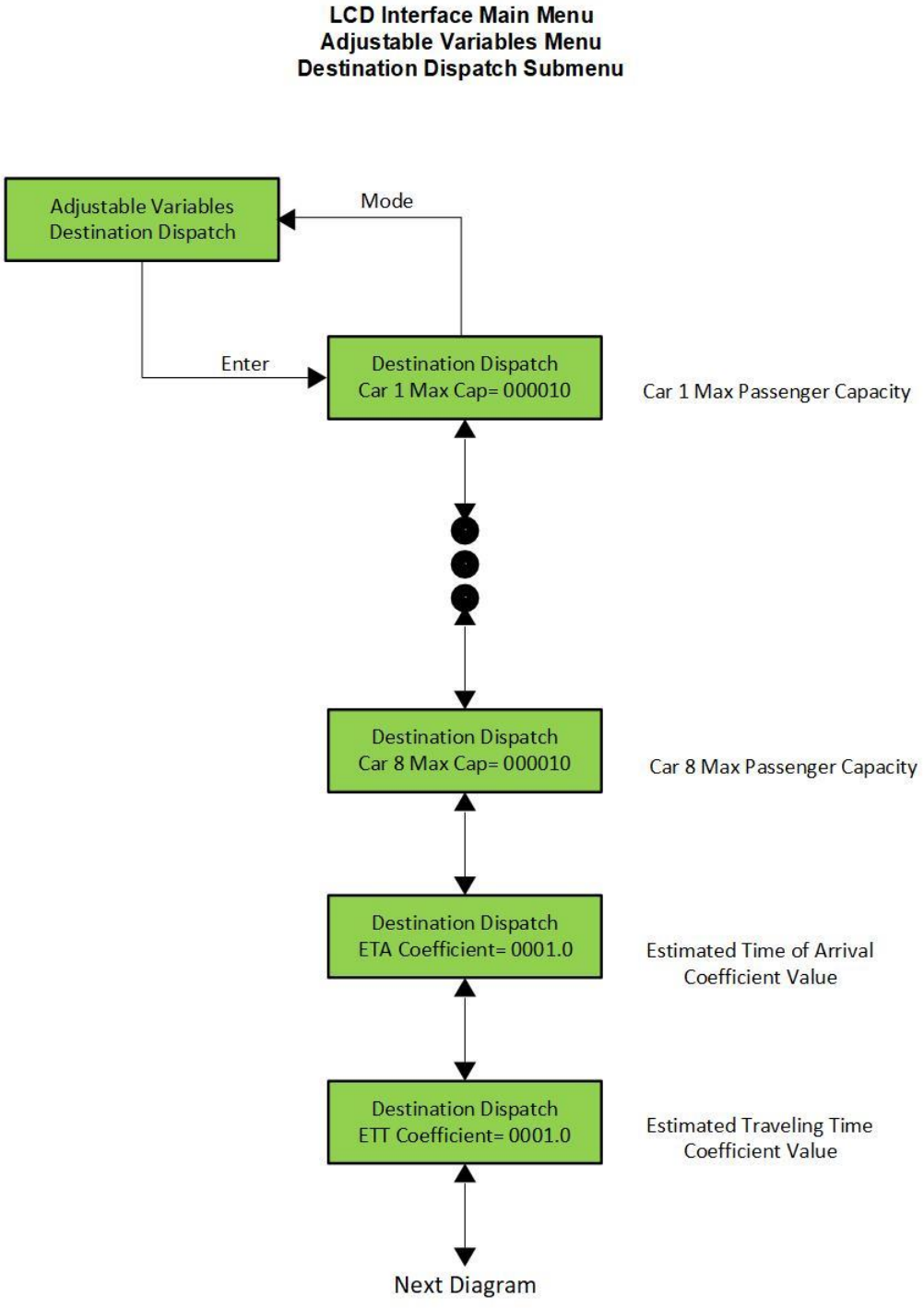


Figure 5-8-1: The Destination Dispatch Submenu of the LCD Interface

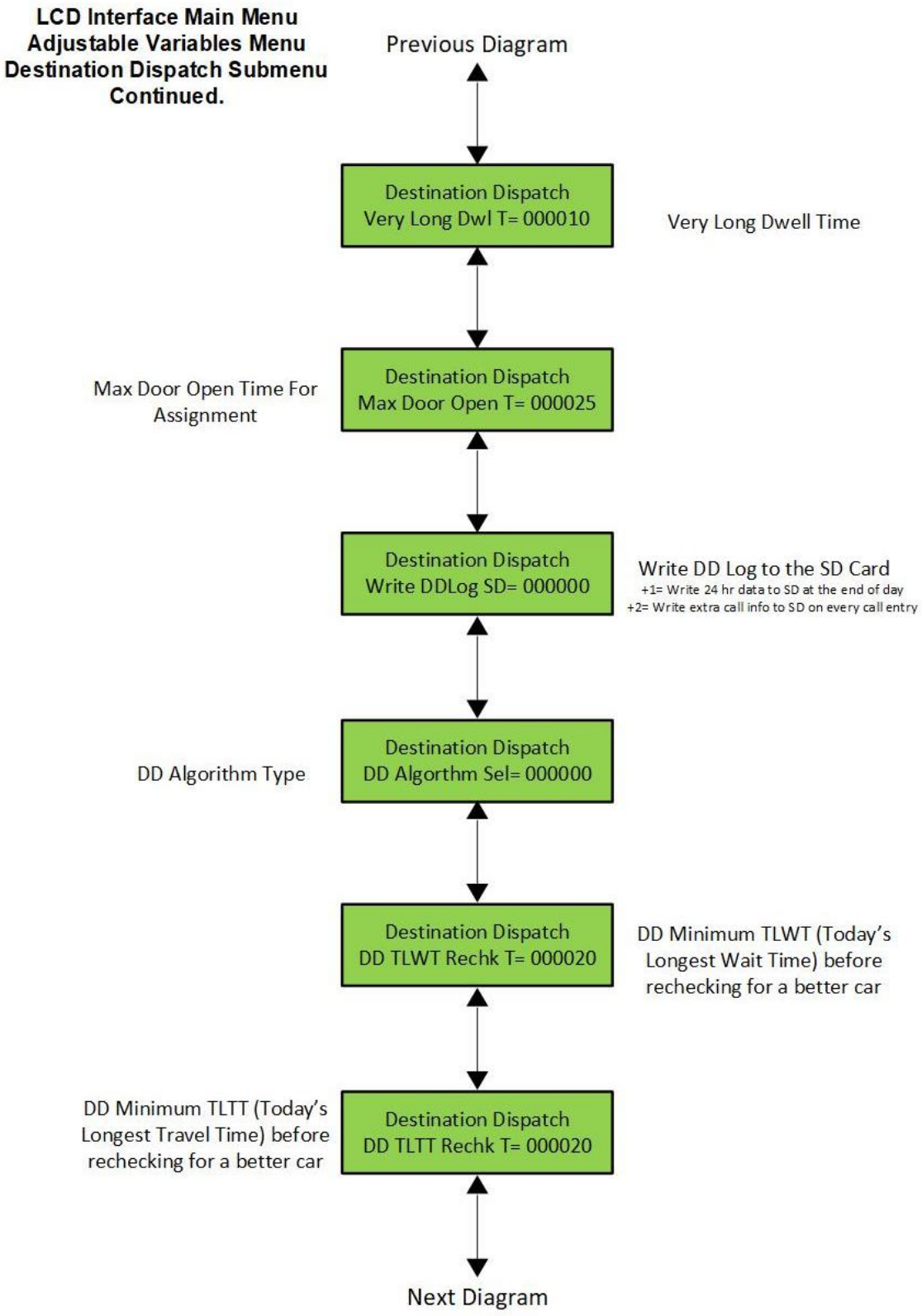


Figure 5-8-2: The Destination Dispatch Submenu of the LCD Interface

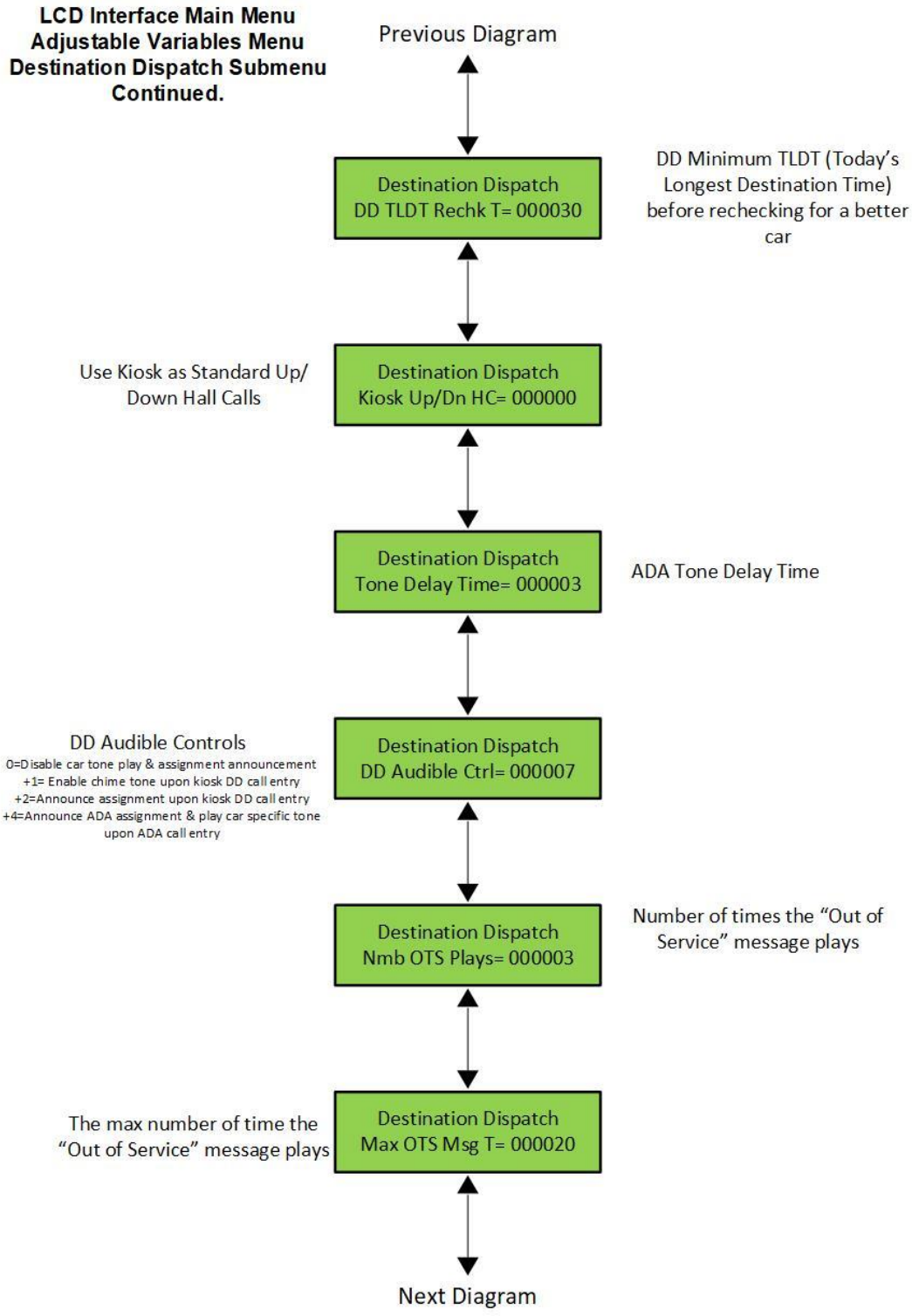


Figure 5-8-3: The Destination Dispatch Submenu of the LCD Interface

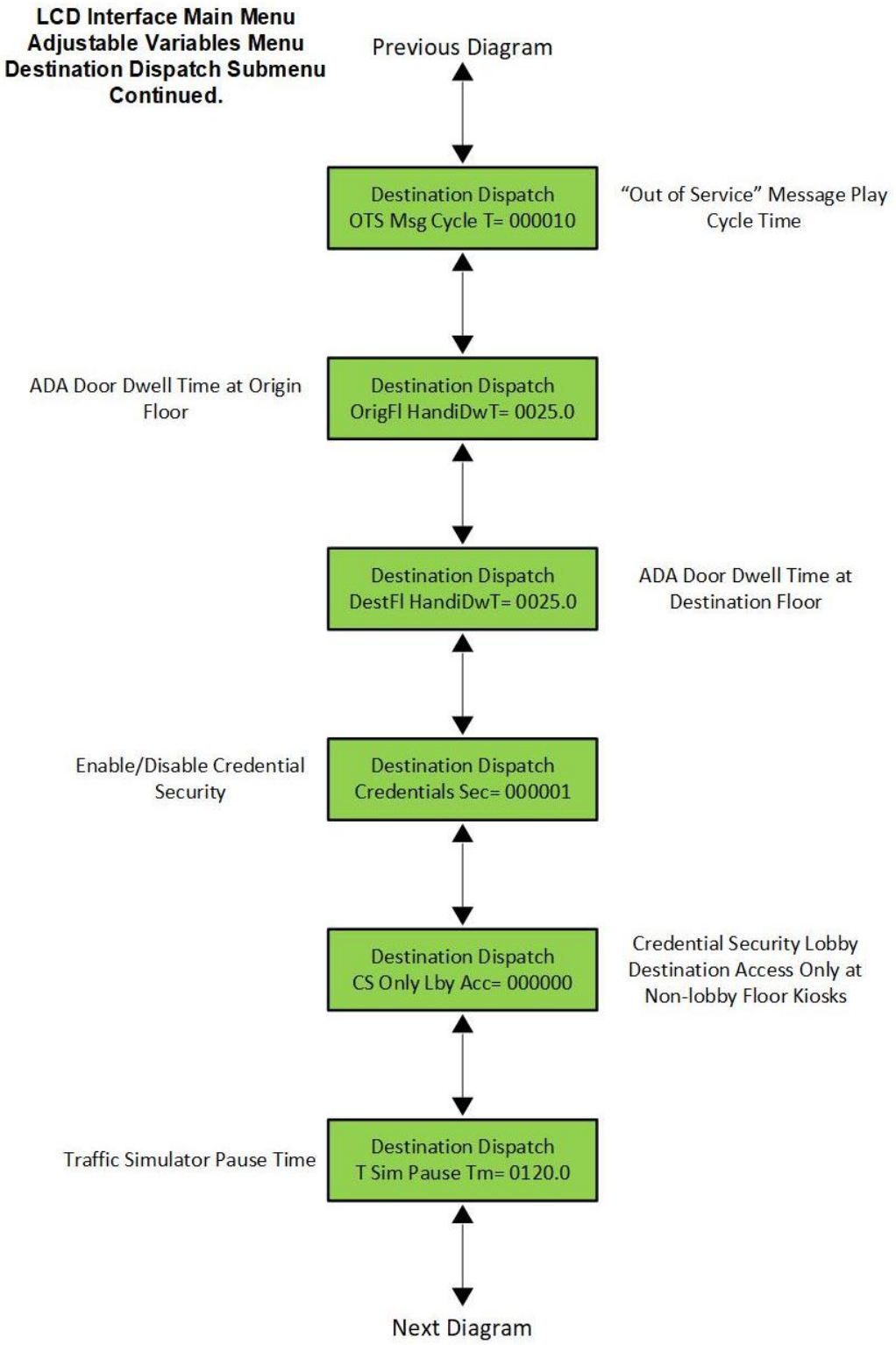


Figure 5-8-4: The Destination Dispatch Submenu of the LCD Interface

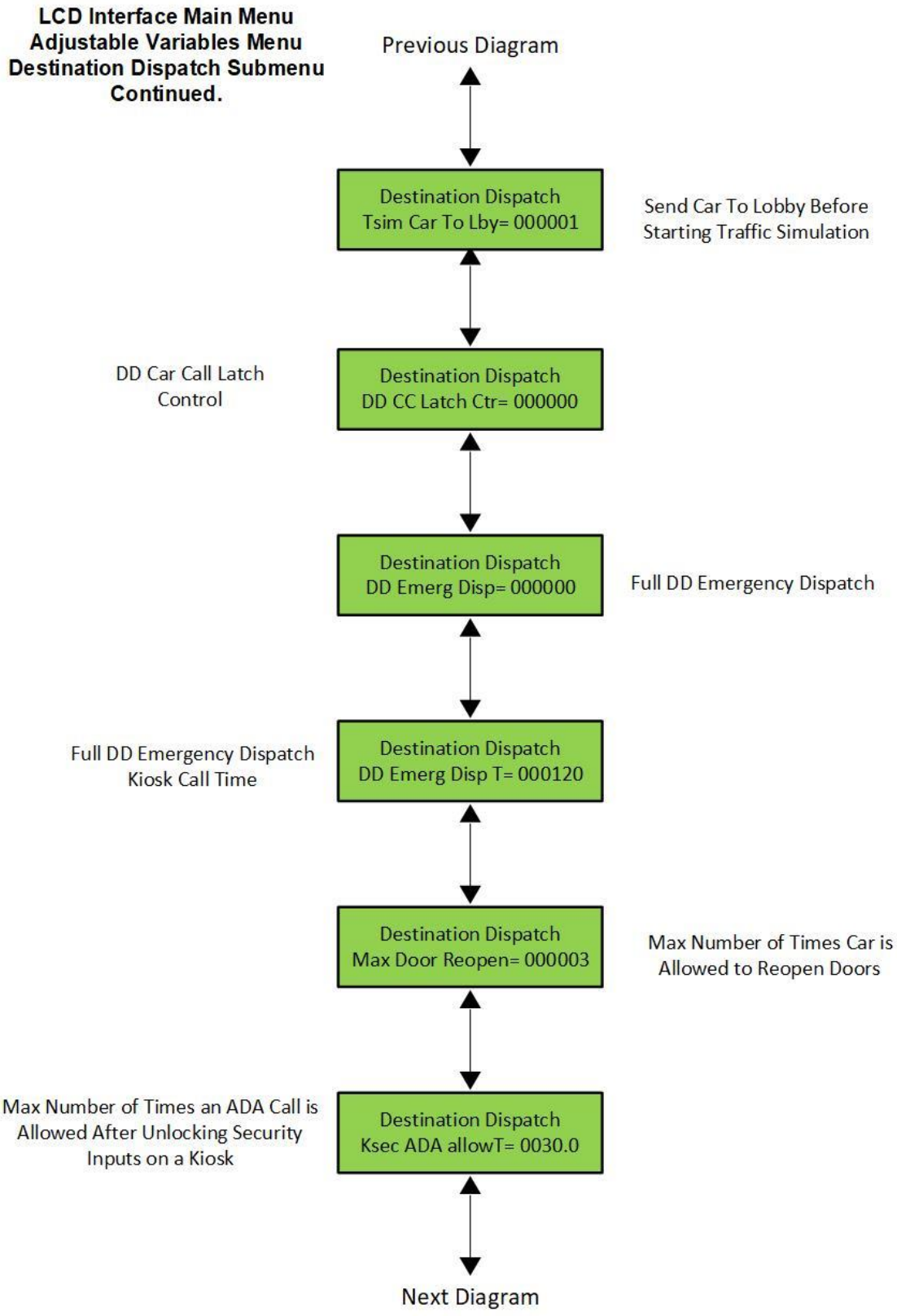


Figure 5-8-4: The Destination Dispatch Submenu of the LCD Interface

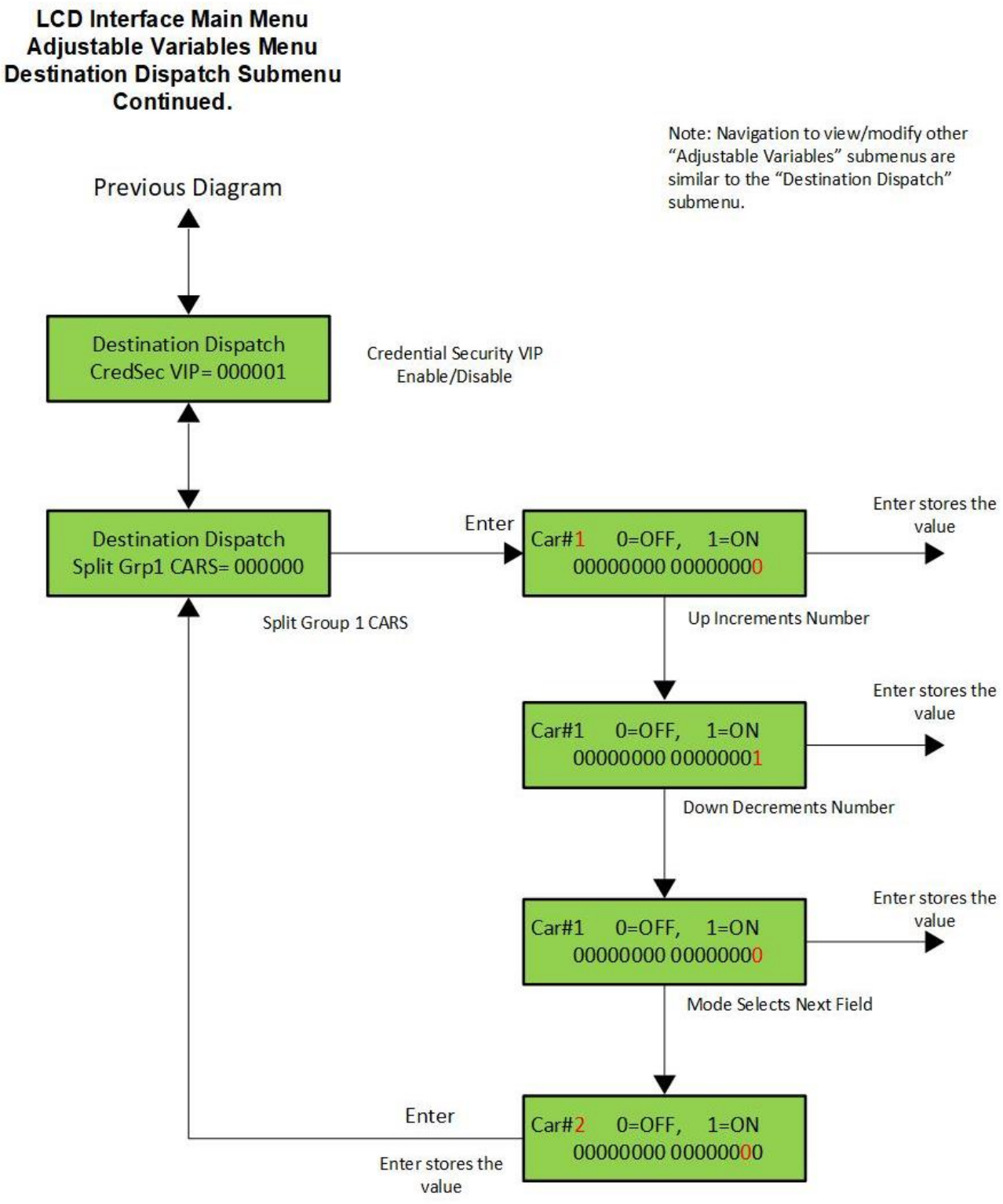


Figure 5-8-4: The Destination Dispatch Submenu of the LCD Interface

5.1.9 Date and Time

It is important to set the date and time on the controller clock, so that the fault log shows the correct time stamp and sequence as faults occur. The Date and Time menu allows for the date and time to be viewed and set, as shown in the diagram below.

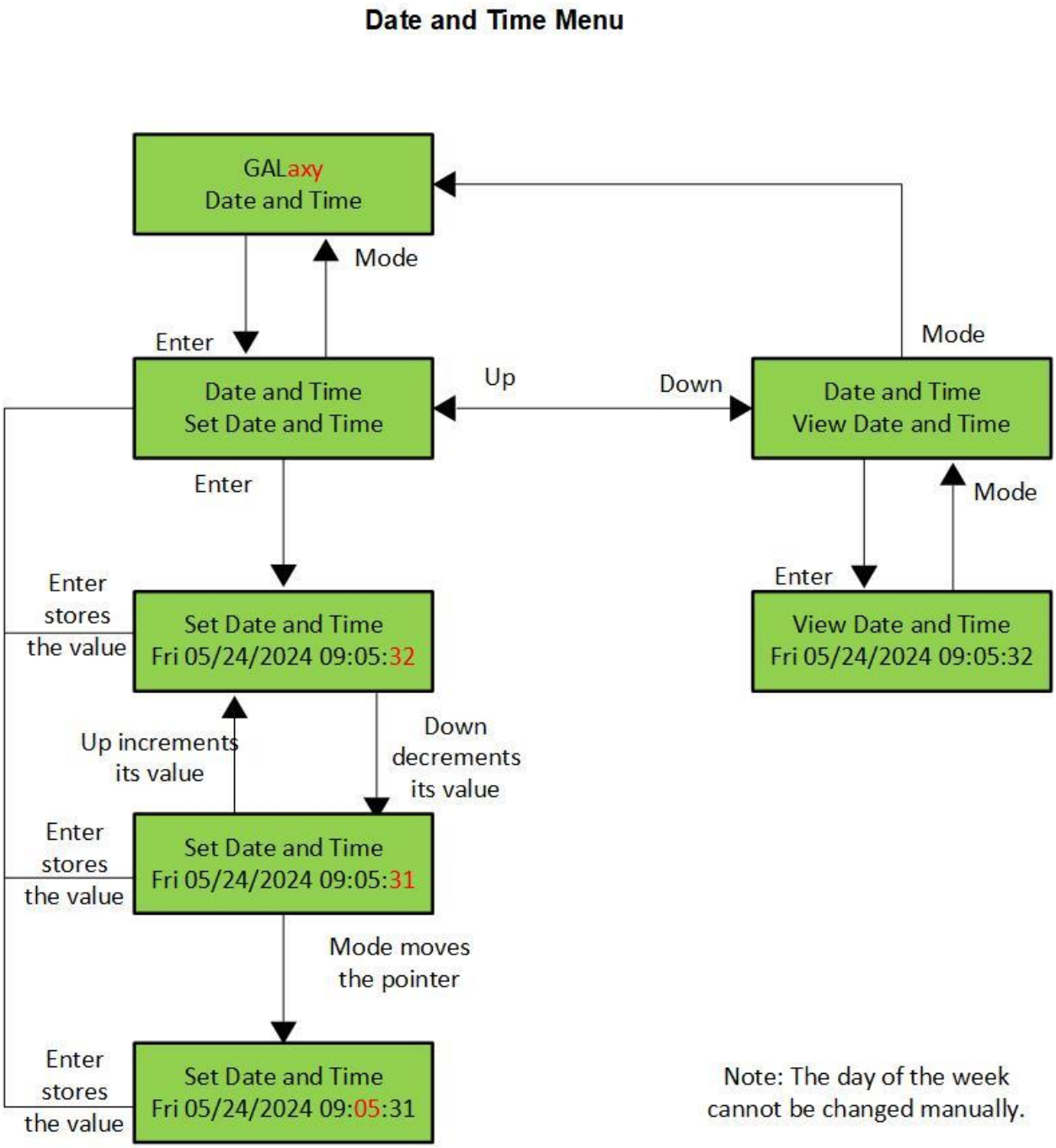


Figure 5-2: LCD Interface Main Menu – Date & Time

5.1.10 Diagnostics

The **Diagnostics** Menu shows the communications status for all serial devices. For most of these devices, the firmware version and the transmit/receive counts are displayed. The transmit/receive counts should be increasing continuously for all serial devices while the device is communicating. All CAN bus communications ports show *TxErr* and *RxErr* counts, which ideally should show as zero. A non-zero error count on a CAN channel, or a non-incrementing receive counter on any serial channel, indicates a poor cable connection, or the presence of electrical noise on the cable. The **Diagnostics** Menu also contains riser CAN communication statuses depending on which risers are being utilized.

The following is a list of all submenus of **Diagnostics** that are useful for troubleshooting status and communications issues within the system. These submenus are as follows:

- **Group Comm Status**
- **Clear Group Comm Status**
- **Group CAN Comm Status**
- **Clear Grp CAN Com Status**
- **DD F-Riser CAN Com Stat**
- **Clr DD F-Riser CAN Stat**
- **DD S-Riser CAN Com Stat**
- **Clr S-Riser CAN Com Stat**
- **DD R-Riser CAN Com Stat**
- **Clr R-Riser CAN Com Stat**
- **UPS Comm Status**
- **Clear UPS Comm Status**
- **LiftNet Comm Status**
- **Clr LiftNet Comm Status**
- **DD Security Comm Status**
- **Clr DD Sec Comm Status**

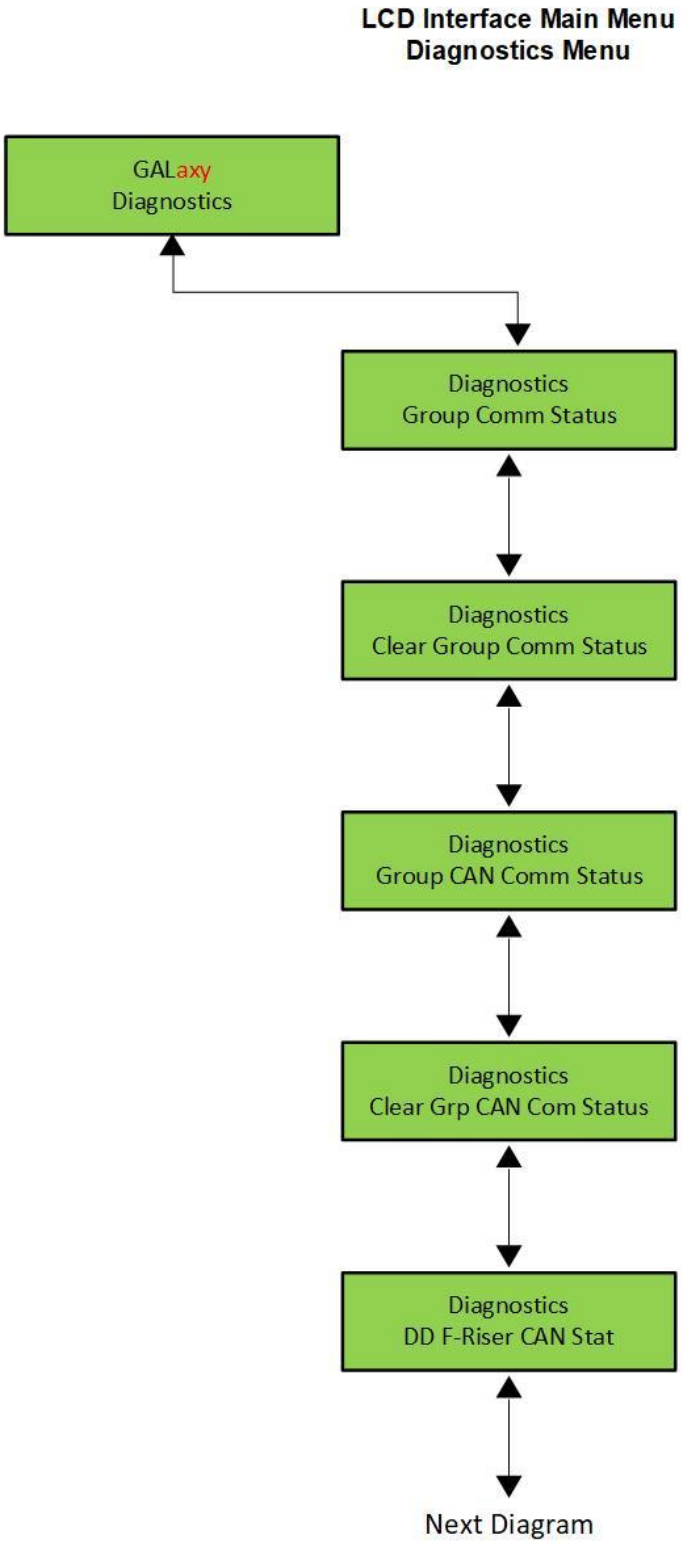


Figure 5-3-1: LCD Interface Main Menu - Diagnostics

LCD Interface Main Menu
Diagnostics Menu
Continued.

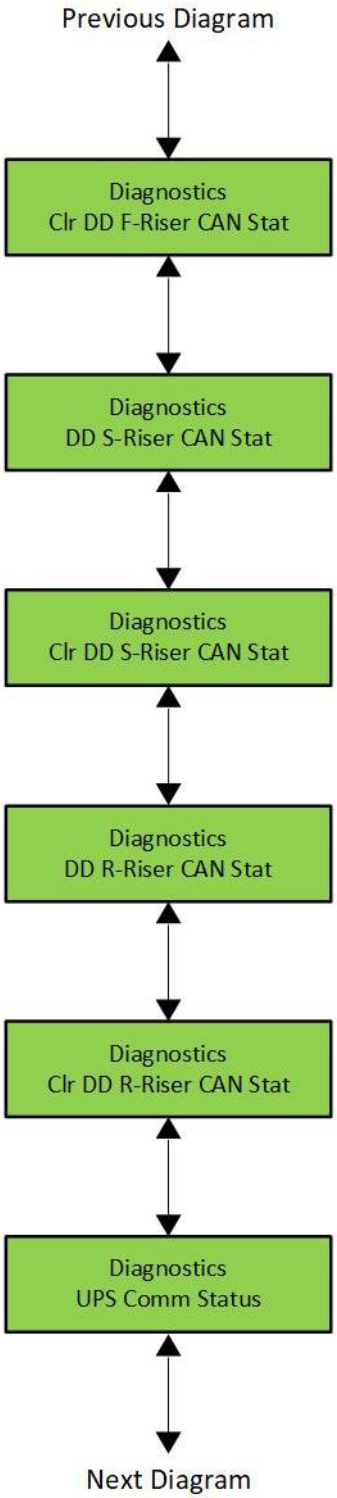


Figure 5-4-2: LCD Interface Main Menu - Diagnostics

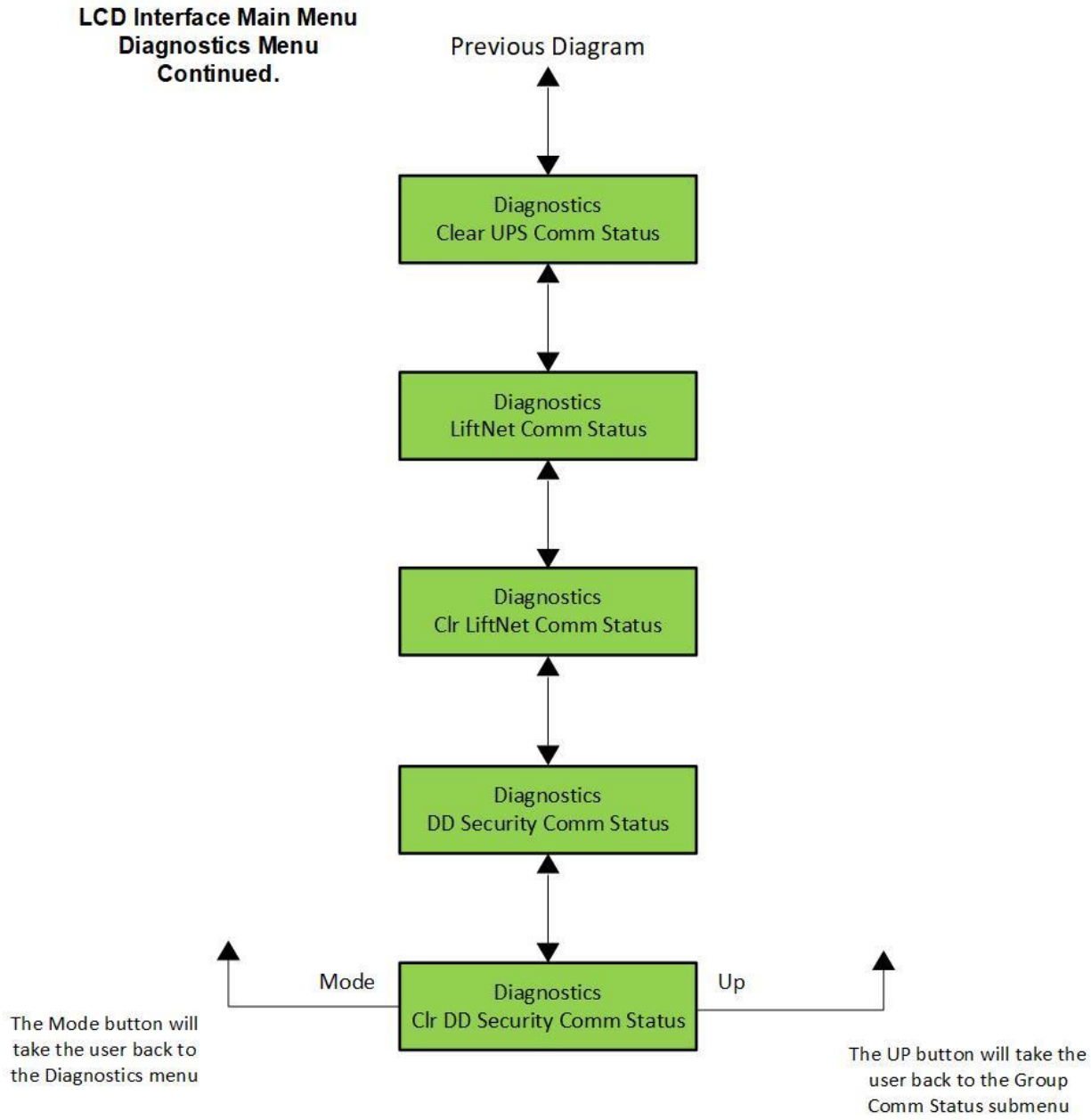


Figure 5-5-3: LCD Interface Main Menu - Diagnostics

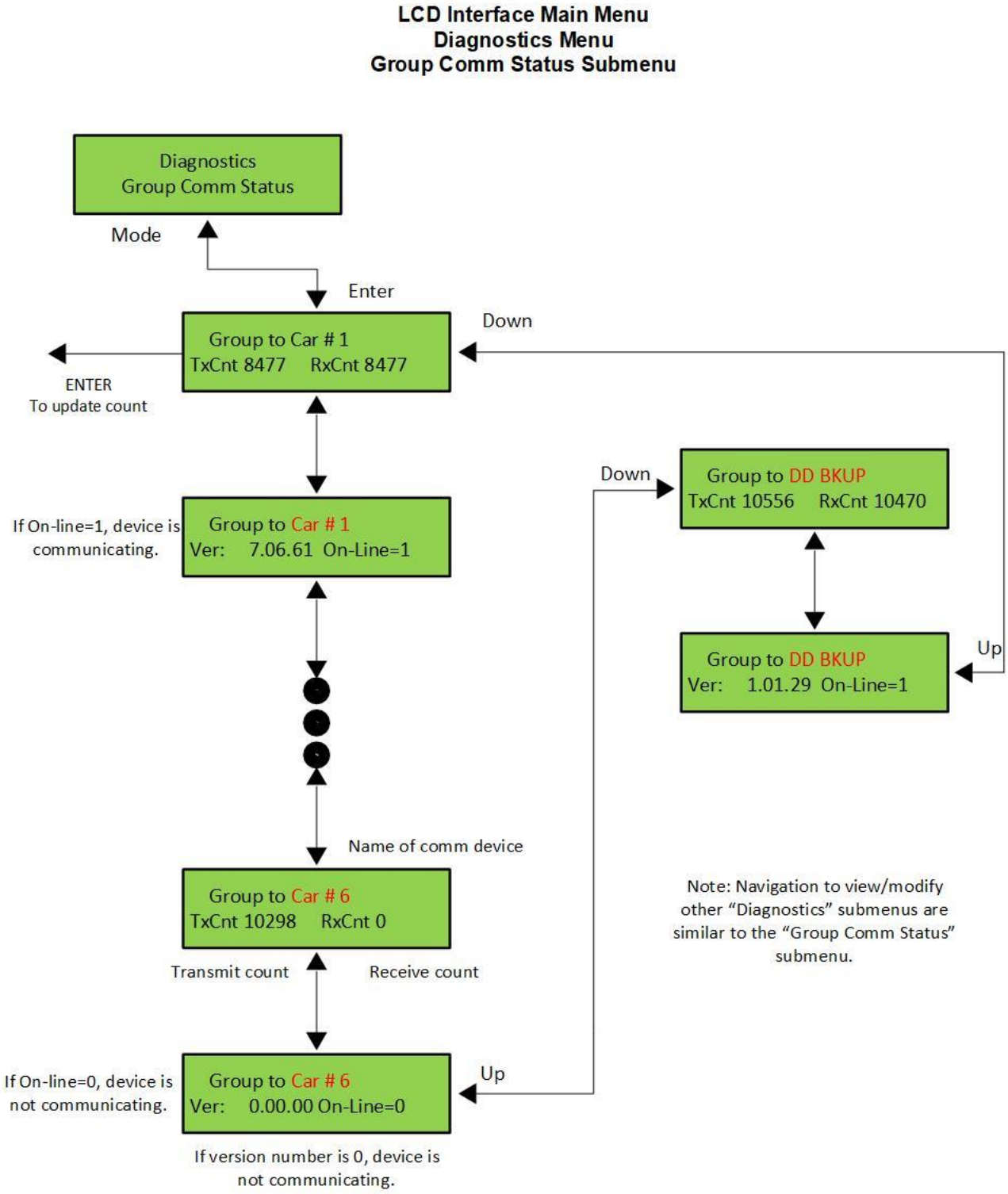


Figure 5-14: LCD Interface Main Menu – Group Comm Status Submenu

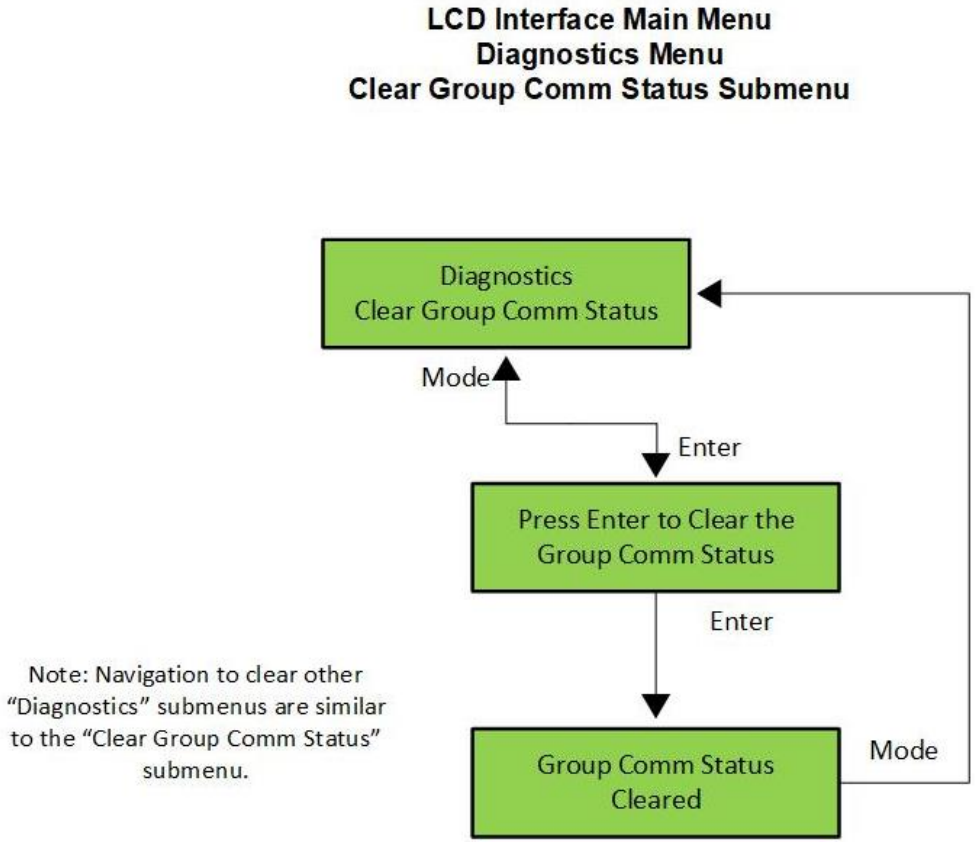


Figure 5-15: LCD Interface Main Menu – Clear Group Comm Status Submenu

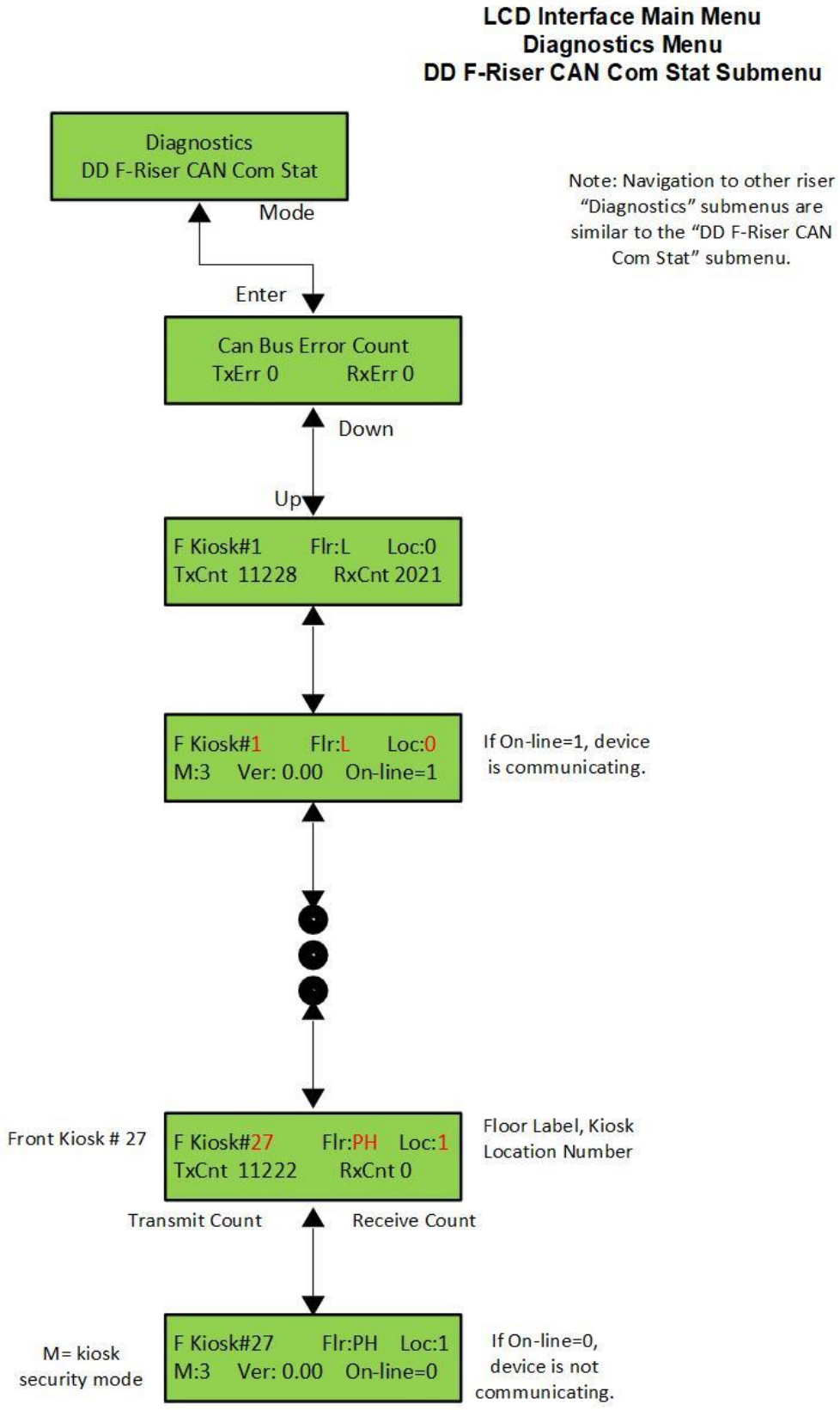


Figure 5-16: LCD Interface Main Menu – DD F-Riser CAN Comm Status Submenu

5.1.11 Software Utilities

The **Software Utilities** Menu allows the user to view the controller's software version, run Power-Up Mode, test the CPU watchdog timer, access SD Card operations and to initialize car data.

View Software Version: Display the software version, revision and interim revision in the form 1.01.29.

Run Power-Up Mode: The Power-Up Mode is a program that executes first upon power up of the controller. It checks that there is a valid controller program in memory, and that a valid *cons.dat file* is on the SD Card. Once this is validated, the power up program runs the controller program. If the power up program is executed from the controller program, or if during power up, the user presses and holds the *ENTER* and *MODE* buttons. This routine does not run the controller program but stays in the power up routine, to allow for updates of the controller program. The Power-Up Mode is also used to upload new controller software from the SD Card to the Main CPU, the Safety Processor, and the NTS Processor.

Test Watchdog Reset: The watchdog is a CPU timer whose software must be updated periodically to confirm that the Main CPU program is still running correctly. If the watchdog is not updated, the timer will expire and cause the Main CPU to do a hard reset, to allow the program to restart. To test the watchdog timer, when the command is given, the controller program sits in an infinite software loop without updating the watchdog time to test that the reset function works.

Reset Debug Variables: The debug variables are set by a software engineer to aid in debugging a software problem. Some problems are especially difficult to catch because they occur infrequently or at random. The debug variables are displayed in the detailed **Elevator Status** Menu so that elevator personnel can view the variables and report back to the software engineer. The **Reset Debug Variables** menu allows elevator personnel to reset the variables to zero, to aid in the debugging.

SD Card Read/Write Data: This menu item allows the user to read and write controller data to and from the SD Card. This menu is explained in detail in the next section.

SD Card Status: This is the Secured Digital Card Status that shows if the card has been initialized (*Init*=1), if it is standard (*HC=0)* or High Capacity (*HC*=1), and if it can operate at an acceptable voltage level (*VStat*=1).

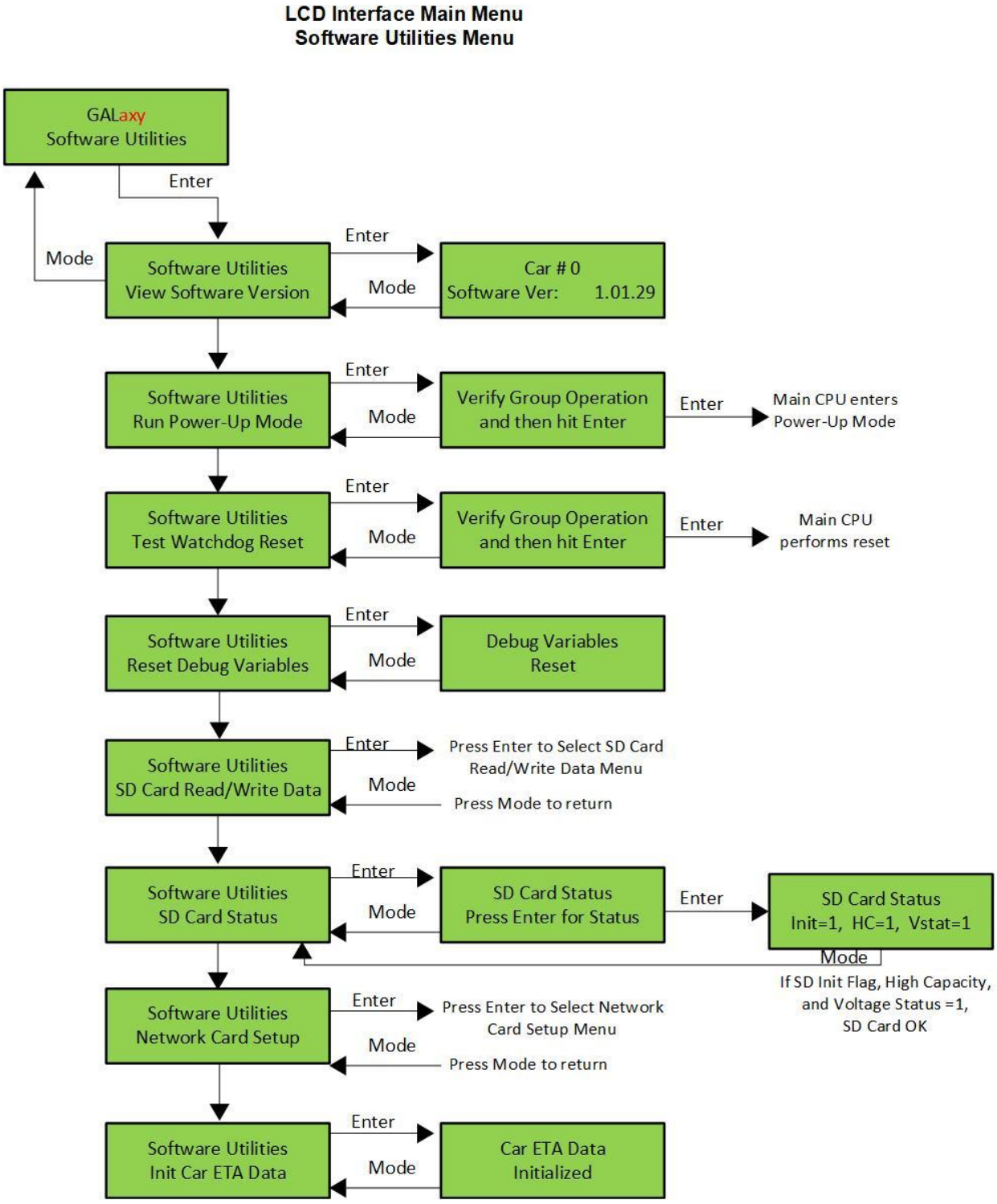


Figure 5-17: LCD Interface Main Menu – Software Utilities

5.1.12 Power-Up Mode

When the Main CPU powers up, it runs a power-up routine that verifies the checksum of the controller program in local flash memory, and then verifies that the job configuration file is on the SD Card. If the checksum and job configuration file are okay, the power-up routine jumps to the controller program. If the power up does not pass these verifications however, the program control stays in the power-up routine and the elevator is not allowed to run. To enter power-mode (run the power-up routine), cycle the power while pressing the *ENTER* and *MODE* buttons on the LCD Display Interface, and then release the button when the display indicates to do so. Alternately, power up mode can also be entered by placing the car on inspection and selecting the **Run Power-Up Mode** Submenu item located in the **Software Utilities** Menu.

LCD Interface Main Menu
Software Utilities Menu
Power-Up Mode Submenu

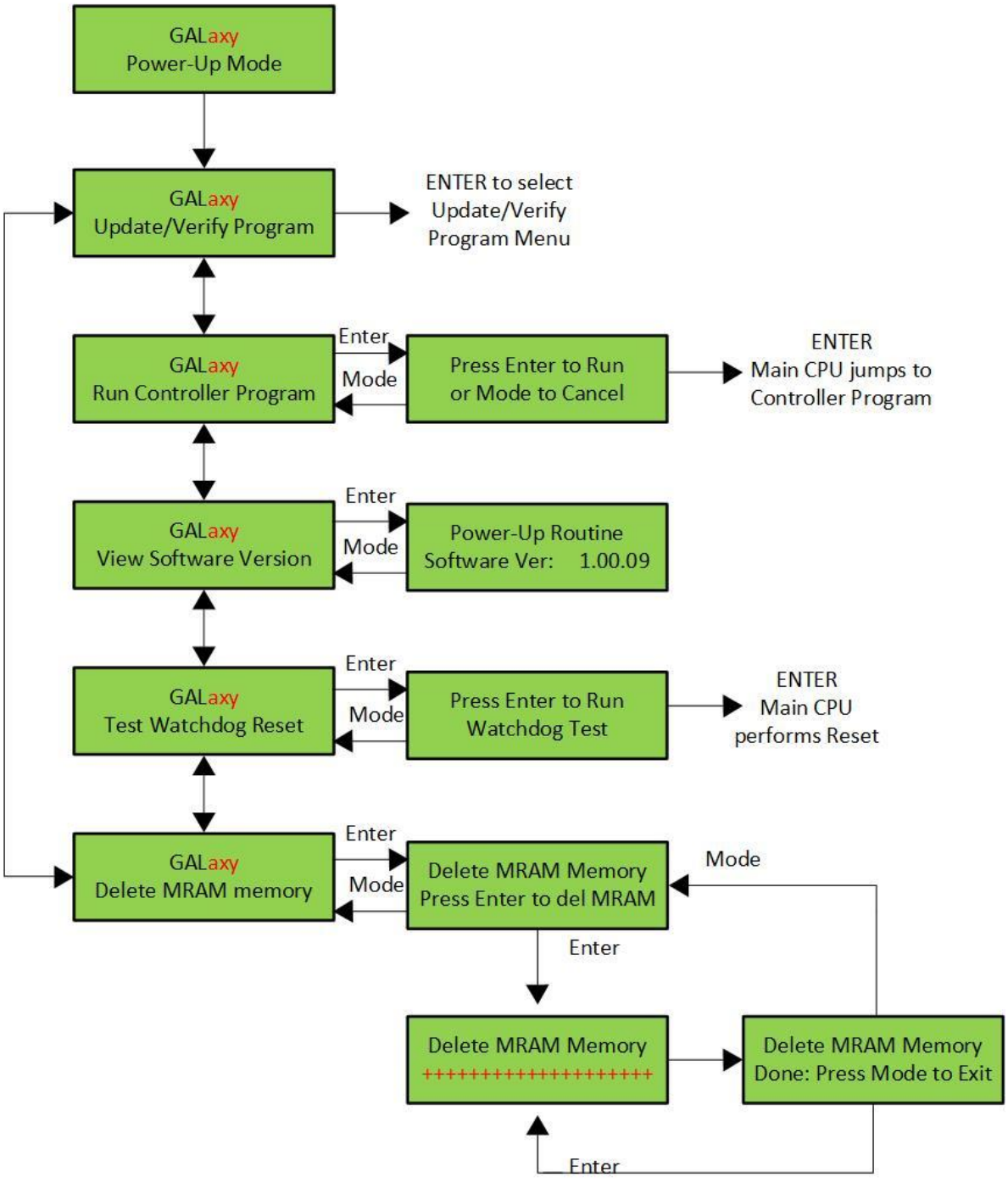


Figure 5-18: LCD Interface Main Menu – Power-Up Mode Submenu

5.1.13 Update / Verify Program

This menu is used to check the integrity of the CONS file, the controller program, and the SD card itself. The **Update/Verify Program** Menu is also used to update the controller software. Whenever the software is to be updated, the controller must be booted without an SDCard, and when the Power-Up Mode Screen appears, the SD card can be inserted, the software can then be updated through entering **Update/Verify Program => Load Program from SDCard** Submenu.

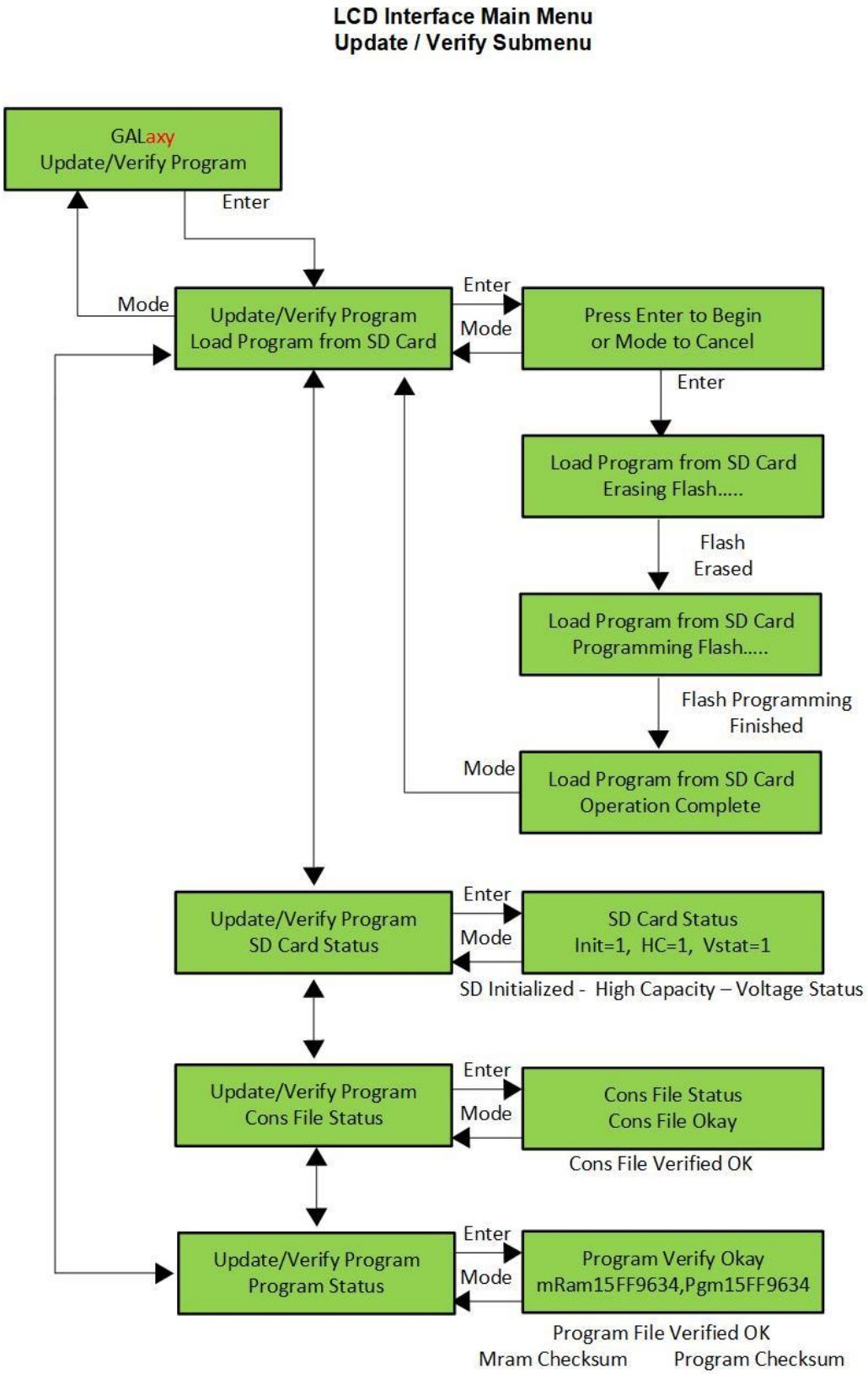


Figure 5-19: LCD Interface Main Menu – Update / Verify Program Submenu

LCD Interface Main Menu
Software Utilities Menu
SD Card Read/Write Data Submenu

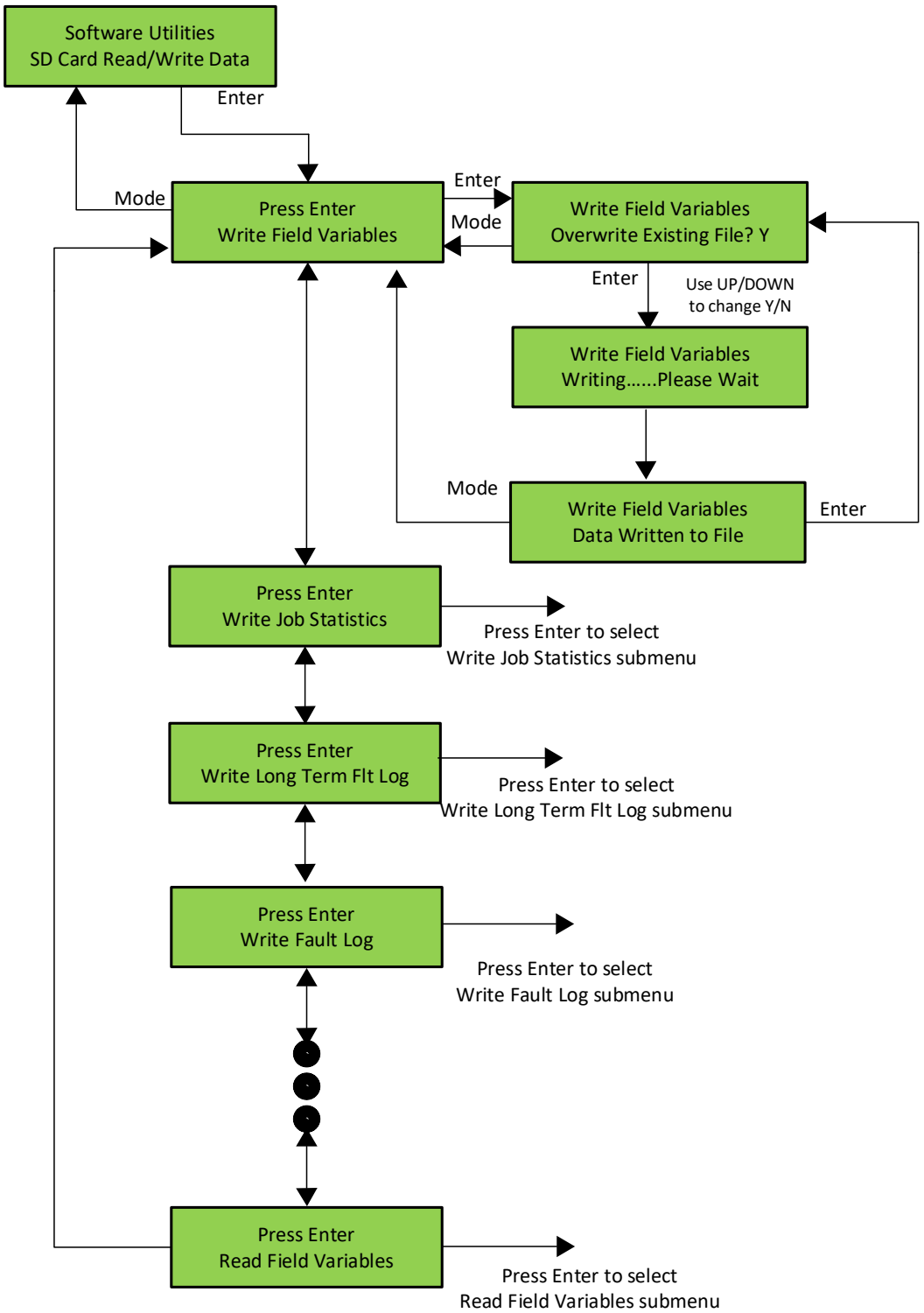


Figure 5-20: LCD Interface Main Menu – SD Card Read / Write Data Submenu

LCD Interface Main Menu
Software Utilities Menu
Network Card Setup Submenu

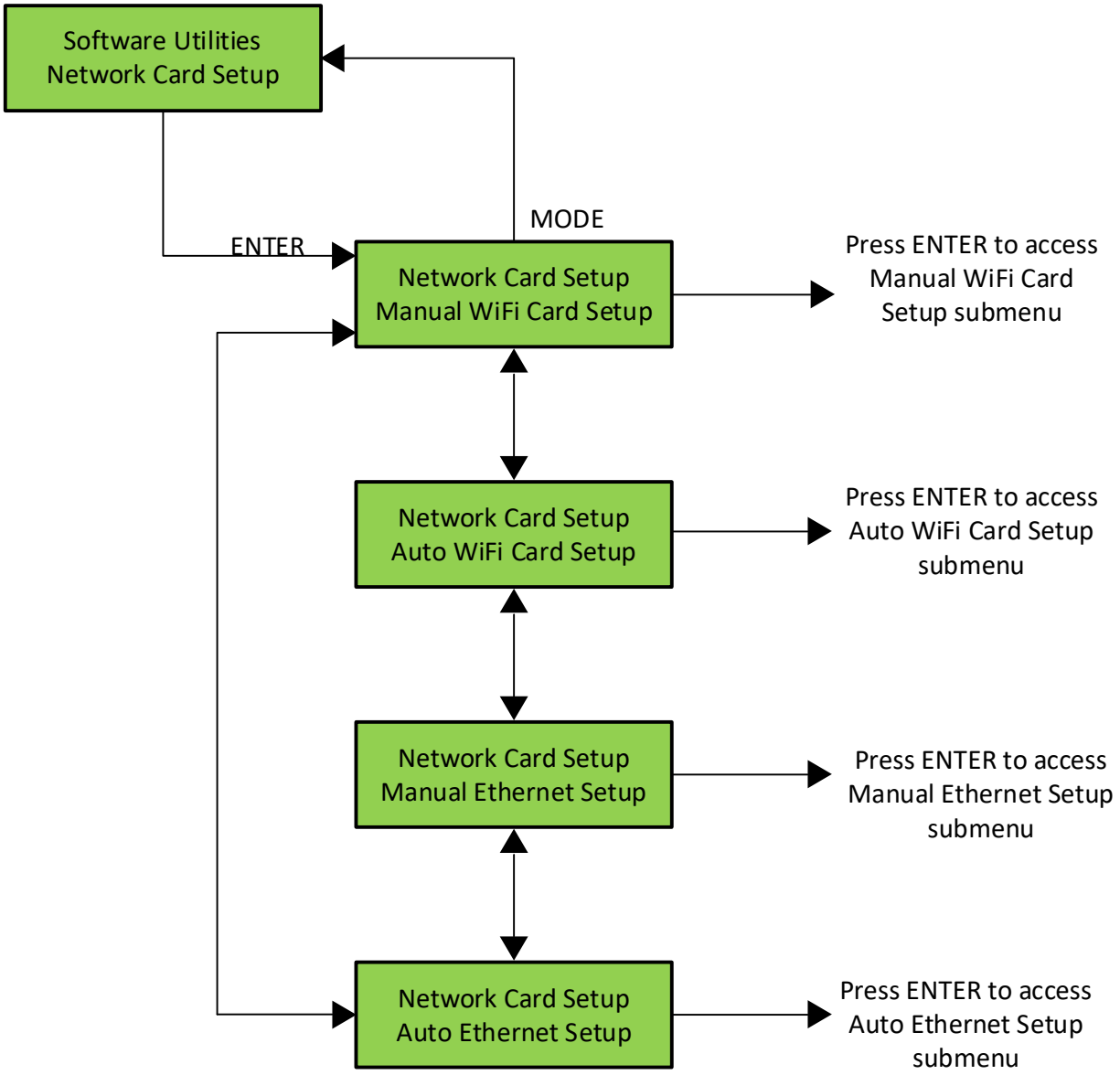


Figure 5-21: LCD Interface Main Menu – Network Card Setup Submenu

5.1.14 Select Video Display

This menu allows you to select different video display screens when a machine room monitor is installed on the controller. If the monitor is installed on a non-dispatcher car, then only information for that car is displayed on the monitor. The “Select Video Display” submenu is specifically utilized in sites where GALileo is included. The use of this submenu will be removed from Destination Dispatch LCD screens in the future.

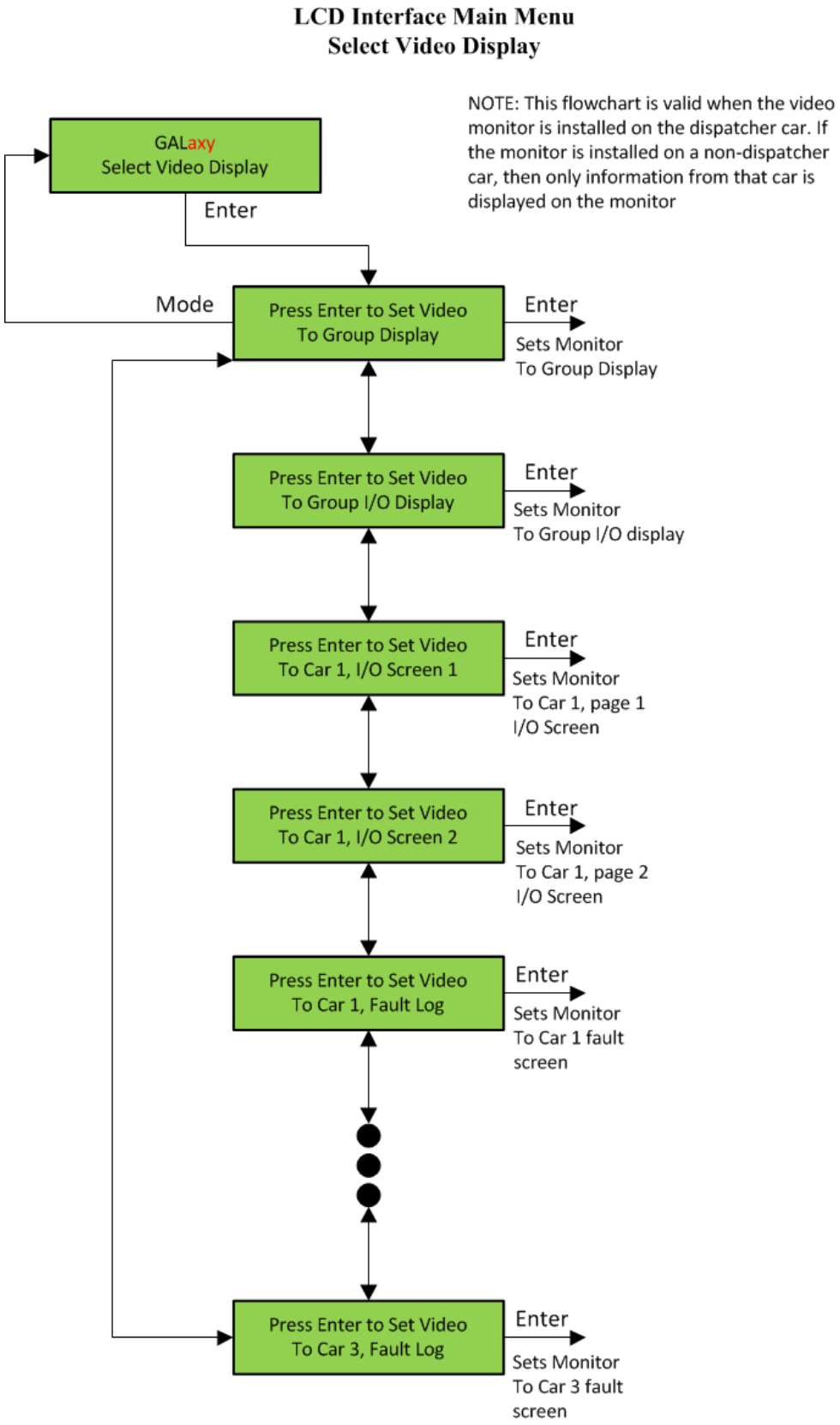


Figure 5-22: LCD Interface Main Menu – Select Video Display

5.1.15 Service Activation Timers

All services have either an input that triggers them or a condition that activates them. The **Service Activation Timers** are used in addition to these inputs for GALaxy IV and eHydro specific sites. The timers will allow a feature to be turned on during specific times of the day, without the need for a specific condition or switch operation. All GALaxy traction and complex hydro controllers have service activation timers built in. Up to ten different timers (TIMER0 to TIMER9) can be programmed.

Destination Dispatch does not currently support the use of these timers. Please refer to the GALaxy IV manual for flowcharts and usage of the Service Activation Timers.

5.1.16 Kiosk Keypad Security

The **Kiosk Keypad Security** 4-digit codes are maintained in this submenu. The menu allows for users to enable/disable security and assign the codes for either specific floors OR all floors for front OR rear door entrances. The kiosk keypad security mode can allow for multiple codes to be added and assigned to floors, as well as the deletion of codes.

LCD Interface Main Menu
Kiosk Keypad Security Menu

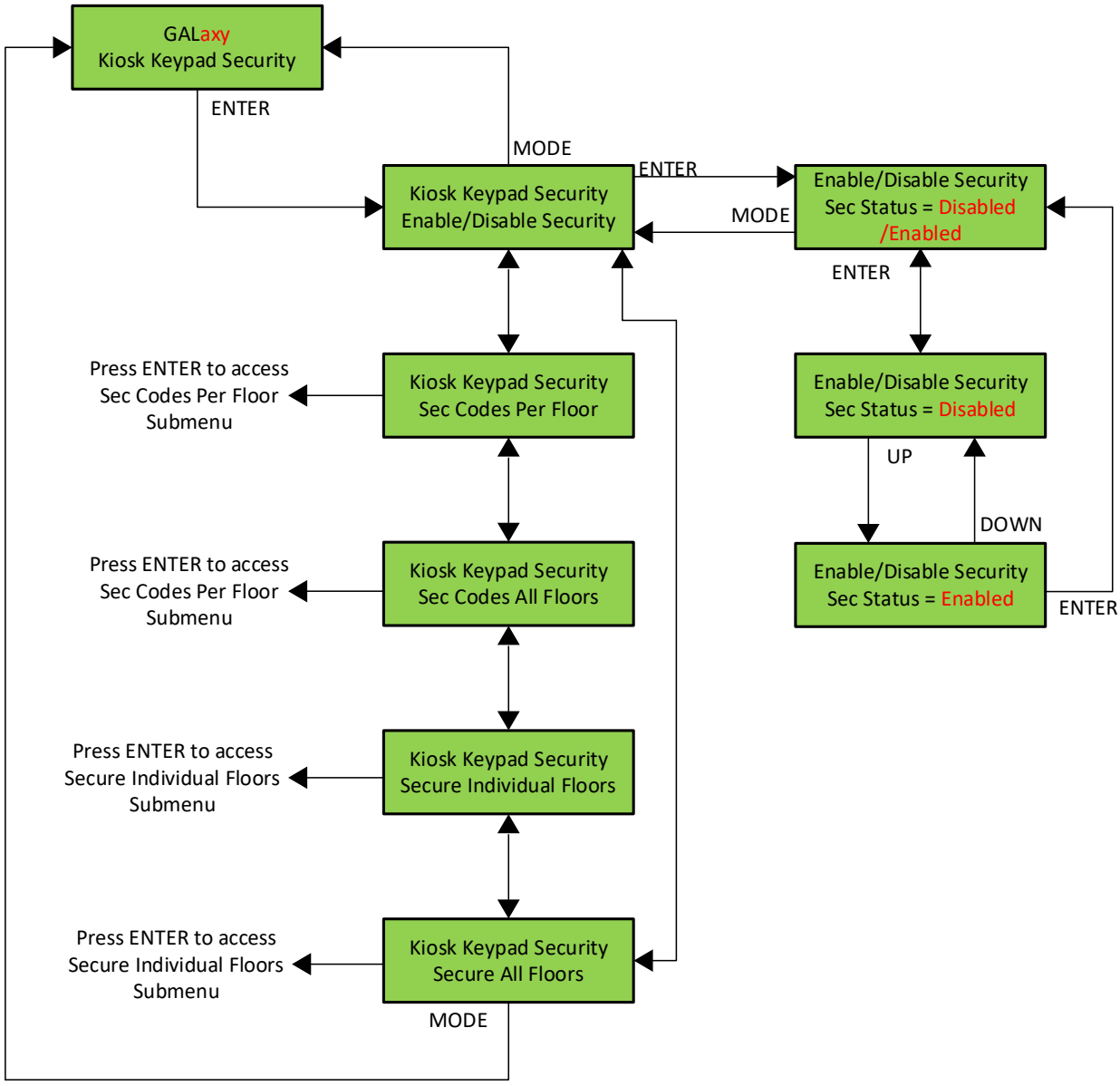


Figure 5-23: LCD Interface Main Menu – Kiosk Keypad Security Menu

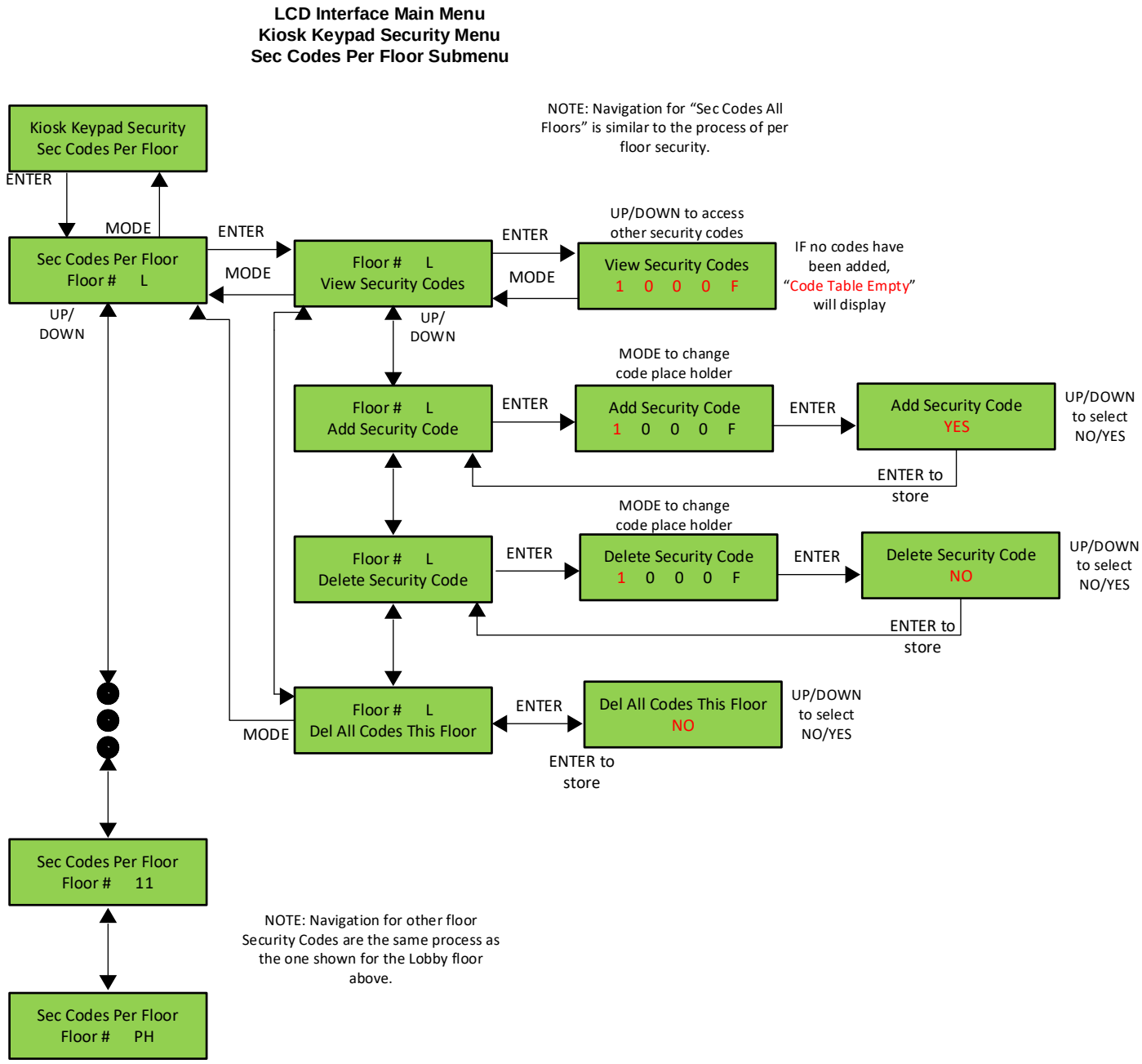


Figure 5-24: LCD Interface Main Menu – Sec Codes Per Floor Submenu

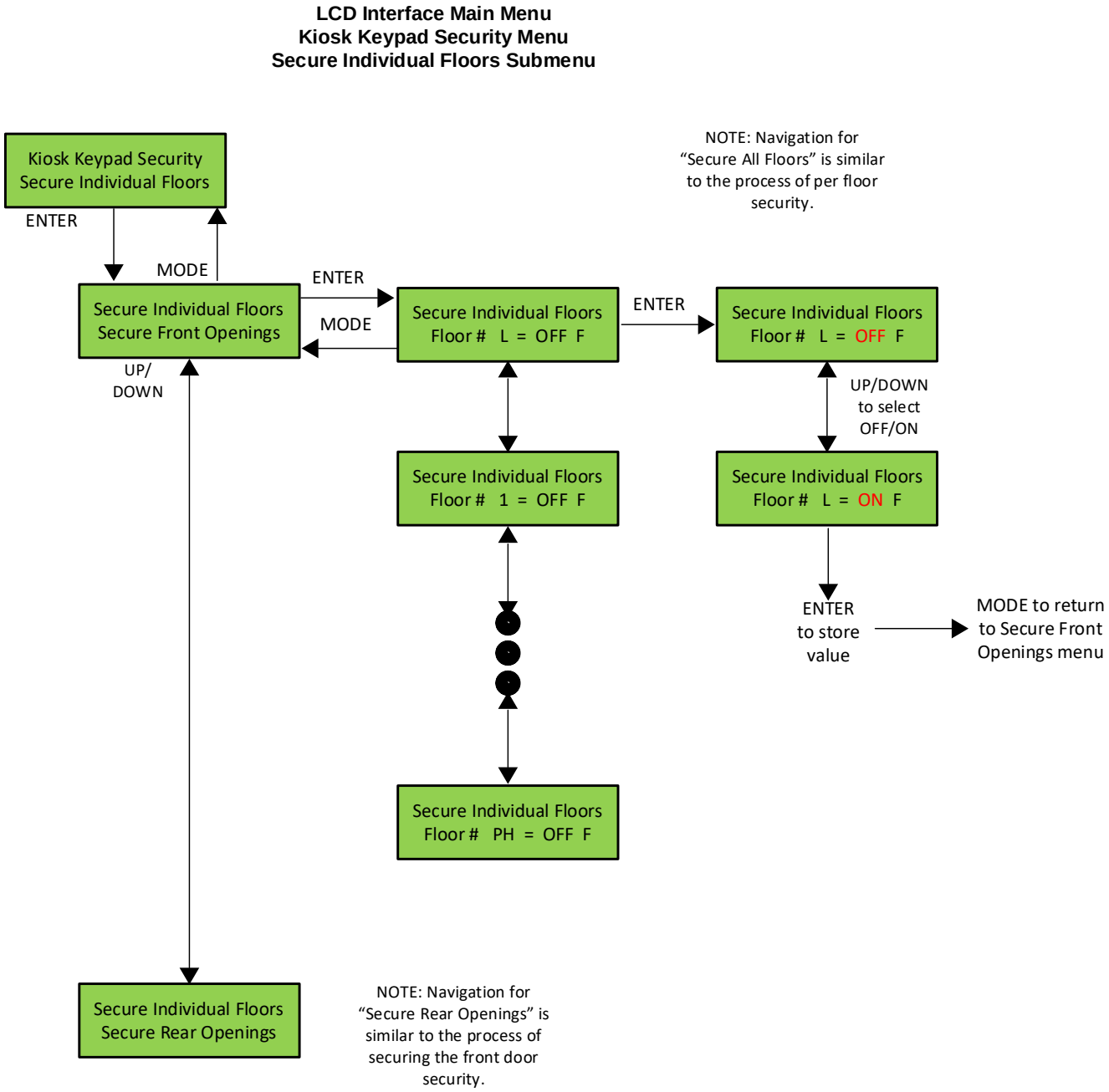


Figure 5-25: LCD Interface Main Menu – Secure Individual Floors Submenu

5.1.17 Reset / View Faults

This menu allows the user to view or clear the fault log.

5.1.18 View Fault Log

The fault display shows the fault, the car position, time and date the fault occurred and the number of occurrences. Faults are displayed in the order of occurrence with the order number displayed on the top left. The largest order number signifies the last fault that has occurred. Faults are stored in a circular buffer that fits up to 50 faults. Once the buffer is full the next fault overwrites the oldest fault (lowest numbered fault). Refer to the system faults in the troubleshooting section of this manual for possible causes of the fault and a description of the detailed fault data.

5.1.19 Clear Fault Log

This operation clears the fault log. Once cleared, all faults will show “No Occurrences” until a new fault occurs.

LCD Interface Main Menu
Fault Log Menu

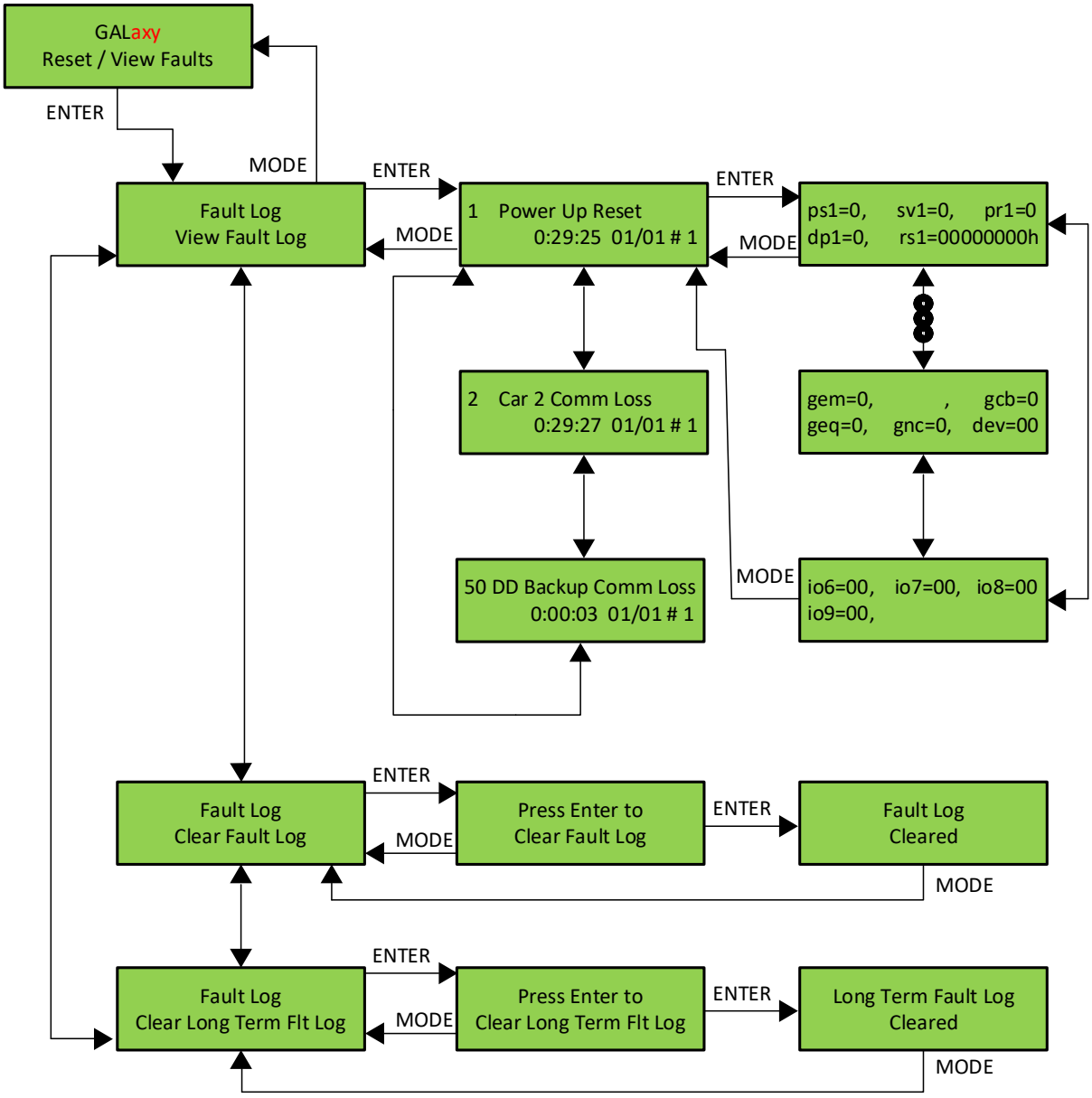


Figure 5-26: LCD Interface Main Menu – Fault Log Menu

Section 6 – System Faults & Detailed Faults

6.1 System Faults

Fault	Description	Possible Cause/Suggested Fix
ASV Time-out Car 1	Automatic Service Time-out Car 1	• Car was not able to answer group hall call within the automatic service time-out timer. Look for fault condition on car.
ASV Time-out Car 2	Automatic Service Time-out Car 2	• Car was not able to answer group hall call within the automatic service time-out timer. Look for fault condition on car.
ASV Time-out Car 3	Automatic Service Time-out Car 3	• Car was not able to answer group hall call within the automatic service time-out timer. Look for fault condition on car.
ASV Time-out Car 4	Automatic Service Time-out Car 4	• Car was not able to answer group hall call within the automatic service time-out timer. Look for fault condition on car.
ASV Time-out Car 5	Automatic Service Time-out Car 5	• Car was not able to answer group hall call within the automatic service time-out timer. Look for fault condition on car.
ASV Time-out Car 6	Automatic Service Time-out Car 6	• Car was not able to answer group hall call within the automatic service time-out timer. Look for fault condition on car.
ASV Time-out Car 7	Automatic Service Time-out Car 7	• Car was not able to answer group hall call within the automatic service time-out timer. Look for fault condition on car.
ASV Time-out Car 8	Automatic Service Time-out Car 8	• Car was not able to answer group hall call within the automatic service time-out timer. Look for fault condition on car.

Fault	Description	Possible Cause/Suggested Fix
Car 1 Comm Loss	The DDCPU is not communicating with Car 1.	• Faulty wiring from R/T+ and R/T- from car to car. • Faulty U6 driver chip on 1100 board. • Noise on shield wire. Connect shield only on one end. • Noise on the communication wires. Run wires in separate conduit.
Car 2 Comm Loss	The DDCPU is not communicating with Car 2.	• Faulty wiring from R/T+ and R/T- from car to car. • Faulty U6 driver chip on 1100 board. • Noise on shield wire. Connect shield only on one end. • Noise on the communication wires. Run wires in separate conduit.
Car 3 Comm Loss	The DDCPU is not communicating with Car 3.	• Faulty wiring from R/T+ and R/T- from car to car. • Faulty U6 driver chip on 1100 board. • Noise on shield wire. Connect shield only on one end. • Noise on the communication wires. Run wires in separate conduit.
Car 4 Comm Loss	The DDCPU is not communicating with Car 4.	• Faulty wiring from R/T+ and R/T- from car to car. • Faulty U6 driver chip on 1100 board. • Noise on shield wire. Connect shield only on one end. • Noise on the communication wires. Run wires in separate conduit.
Car 5 Comm Loss	The DDCPU is not communicating with Car 5.	• Faulty wiring from R/T+ and R/T- from car to car. • Faulty U6 driver chip on 1100 board. • Noise on shield wire. Connect shield only on one end. • Noise on the communication wires. Run wires in separate conduit.

Fault	Description	Possible Cause/Suggested Fix
Car 6 Comm Loss	The DDCPU car is not communicating with Car 6	• Faulty wiring from R/T+ and R/T- from car to car. • Faulty U6 driver chip on 1100 board. • Noise on shield wire. Connect shield only on one end. • Noise on the communication wires. Run wires in separate conduit.
Car 7 Comm Loss	The DDCPU is not communicating with Car 7	• Faulty wiring from R/T+ and R/T- from car to car. • Faulty U6 driver chip on 1100 board. • Noise on shield wire. Connect shield only on one end. • Noise on the communication wires. Run wires in separate conduit.
Car 8 Comm Loss	The DDCPU is not communicating with Car 8	• Faulty wiring from R/T+ and R/T- from car to car. • Faulty U6 driver chip on 1100 board. • Noise on shield wire. Connect shield only on one end. • Noise on the communication wires. Run wires in separate conduit.
Car 9 Comm Loss	The DDCPU is not communicating with Car 9.	• The Main DDCPU is not communicating with the Backup DDCPU. •Faulty connector. •Faulty board.
DDCAN Max Dev Fault	Max number of devices on DDCAN ENC-H, ENC-L CAN bus (front riser)	•Max number of devices on CAN bus is 75. •Check configurations and reduce the number of CAN devices used per floor.
DDCAN S Max Dev Flt	Max number of devices on DDCAN DD-H, DD-L CAN bus (split riser)	•Max number of devices on CAN bus is 75. •Check configurations and reduce the number of CAN devices used per floor.
DDCAN R Max Dev Flt	Max number of devices on DDCAN CAN-H, CAN-L CAN bus (front riser)	•Max number of devices on CAN bus is 75. •Check configurations and reduce the number of CAN devices used per floor.
Emrgncy Dispatch Flt	Controllers went into emergency Dispatch Operation	• Loss of communication with the hall call boards • Loss of communication with the group • Losing the HCP input

Fault	Description	Possible Cause/Suggested Fix
EP Recall Car 1 OTS	Emergency Power Recall Car Out of Service Car 1	• Car 1 was out of service while elevators were in an Emergency Power Recall Sequence • Check faults for car 1
EP Recall Car 2 OTS	Emergency Power Recall Car Out of Service Car 2	• Car 2 was out of service while elevators were in an Emergency Power Recall Sequence • Check faults for car 2
EP Recall Car 3 OTS	Emergency Power Recall Car Out of Service Car 3	• Car 3 was out of service while elevators were in an Emergency Power Recall Sequence • Check faults for car 3
EP Recall Car 4 OTS	Emergency Power Recall Car Out of Service Car 4	Car 4 was out of service while elevators were in an Emergency Power Recall Sequence • Check faults for car 4
EP Recall Car 5 OTS	Emergency Power Recall Car Out of Service Car 5	• Car 5 was out of service while elevators were in an Emergency Power Recall Sequence • Check faults for car 5
EP Recall Car 6 OTS	Emergency Power Recall Car Out of Service Car 6	• Car 6 was out of service while elevators were in an Emergency Power Recall Sequence • Check faults for car 6
EP Recall Car 7 OTS	Emergency Power Recall Car Out of Service Car 7	• Car 7 was out of service while elevators were in an Emergency Power Recall Sequence • Check faults for car 7
EP Recall Car 8 OTS	Emergency Power Recall Car Out of Service Car 8	• Car 8 was out of service while elevators were in an Emergency Power Recall Sequence • Check faults for car 8
EPRecall Car1 Tim-ot	Emergency Power Recall Time-out Car 1	• Car 1 timeout while it was in Emergency power recall mode • Make sure the field variable 'Recall Timeout' is set properly to allow the car enough time to recover if it is between floors and away from Emergency Power Floor • If you have a blank shaft, consider increasing the Recovery Speed (default 25fpm)

Fault	Description	Possible Cause/Suggested Fix
EPRecall Car2 Tim-ot	Emergency Power Recall Time-out Car 2	• Car 2 timeout while it was in Emergency power recall mode • Make sure the field variable 'Recall Timeout' is set properly to allow the car enough time to recover if it is between floors and away from Emergency Power Floor • If you have a blank shaft, consider increasing the Recovery Speed (default 25fpm)
EPRecall Car3 Tim-ot	Emergency Power Recall Time-out Car 3	• Car 3 timeout while it was in Emergency power recall mode • Make sure the field variable 'Recall Timeout' is set properly to allow the car enough time to recover if it is between floors and away from Emergency Power Floor • If you have a blank shaft, consider increasing the Recovery Speed (default 25fpm)
EPRecall Car4 Tim-ot	Emergency Power Recall Time-out Car 4	• Car 4 timeout while it was in Emergency power recall mode • Make sure the field variable 'Recall Timeout' is set properly to allow the car enough time to recover if it is between floors and away from Emergency Power Floor • If you have a blank shaft, consider increasing the Recovery Speed (default 25fpm)
EPRecall Car5 Tim-ot	Emergency Power Recall Time-out Car 5	• Car 5 timeout while it was in Emergency power recall mode • Make sure the field variable 'Recall Timeout' is set properly to allow the car enough time to recover if it is between floors and away from Emergency Power Floor • If you have a blank shaft, consider increasing the Recovery Speed (default 25fpm)
EPRecall Car6 Tim-ot	Emergency Power Recall Time-out Car 6	• Car 6 timeout while it was in Emergency power recall mode • Make sure the field variable 'Recall Timeout' is set properly to allow the car enough time to recover if it is between floors and away from Emergency Power Floor • If you have a blank shaft, consider increasing the Recovery Speed (default 25fpm)

Fault	Description	Possible Cause/Suggested Fix
EPRecall Car7 Tim-ot	Emergency Power Recall Time-out Car 7	• Car 7 timeout while it was in Emergency power recall mode • Make sure the field variable 'Recall Timeout' is set properly to allow the car enough time to recover if it is between floors and away from Emergency Power Floor • If you have a blank shaft, consider increasing the Recovery Speed (default 25fpm)
EPRecall Car8 Tim-ot	Emergency Power Recall Time-out Car 8	• Car 8 timeout while it was in Emergency power recall mode • Make sure the field variable 'Recall Timeout' is set properly to allow the car enough time to recover if it is between floors and away from Emergency Power Floor • If you have a blank shaft, consider increasing the Recovery Speed (default 25fpm)
Field Vars Deflt Ini	Field Variables Default Initialization. Field adjustable variables are being initialized for the first time.	• Job related parameters are invalid. This error occurs on the first time the GALX-1100 CPU board is being powered up.
GRCAN Device Fault	Device on the Group CAN Port has a Fault	• Look at the details of the fault. The device name and the error code that caused the fault are listed. • Look up the fault code for the device for debugging information.
GRCAN Device Reset	Device on the Group CAN Port has reset	• Look at the details of the fault. The device name and the error code that caused the fault are listed. • The device requested an initialization packet from the main CPU. Typically, this occurs during power up or from a power cycle of the individual device. • Ignore the error if the controller power has been cycled. Otherwise, check the device communications and power connections.
GRCAN Max Sec Dev	Number of security devices on DDCPU is over the max.	•Check configurations and reduce the number of security devices used. •The max number of devices on the CAN bus * 3.

Fault	Description	Possible Cause/Suggested Fix
Group Comm Loss	The car that was acting as the group car has stopped communicating.	• Faulty wiring from TX+/TX- from car to car. • Faulty U6 driver chip on the GALX-1100 CPU board (next to the connector for the group comm). Call GAL. • Noise on shield wire. Connect shield only on one end. • Noise on the communication wires. Run wires in separate conduit.
HCB Ax Dn Input Ovld	HCB Aux Down input overload	• Controller detected overload in the input from the Aux terminal at the station. To identify fault device, refer to Detailed Fault Log 'dev' and 'dv2' will provide address for Serial Driver address and Station where the fault was generated.
HCB Ax Up Input Ovld	HCB Aux Up input overload	• Controller detected overload in the input from the Aux terminal at the station. To identify fault device, refer to Detailed Fault Log 'dev' and 'dv2' will provide address for Serial Driver address and Station where the fault was generated.
HCB Device Comm Loss	The Driver does not see this HCB device	• Comm faults above and below a device – check wiring • Board not powering up – check 24VAC and MCU on device • Fuses blown on driver
HCB Device Reset	The HCB has just comeback online	• Fixed previous problem. There is a power/communication problem, where the board is either resetting (power) or temporarily losing communication on both ports.
HCB Dn Input Ovrload	HCB Down input overload	• Controller detected overload in the input from the LED board at the station. To identify fault device refer to Detailed Fault Log 'dev' and 'dv2' will provide address for Serial Driver address and Station where the fault was generated.

Fault	Description	Possible Cause/Suggested Fix
HCB Dn FET Open	HCB fet open down	• Replace GALX-1054AN
HCB Dn FET Short	HCB fet short down	• Replace GALX-1054AN
HCB Dn LED Open	HCB led open down	• Make Sure there is a GALX-1056AN attached to the proper connector (Up LED always attached to CN5, Down LED attached to CN5 if only down call at that station (like the top floor), otherwise attached via ribbon at CN6. • Replace GALX-1056AN for the associated up or down call.
HCB Dn LED Short	HCB led short down	• Make Sure there is a GALX-1056AN attached to the proper connector (Up LED always attached to CN5, Down LED attached to CN5 if only down call at that station (like the top floor), otherwise attached via ribbon at CN6. • Replace GALX-1056AN for the associated up or down call.
HCB FET Open Blue Dn	HCB fet open blue down	• Replace the GALX-1093AN board – dev / dev 2 can pinpoint which 1093 is at fault.
HCB FET Open Blue Up	HCB fet open blue up	• Replace the GALX-1093AN board – dev / dev 2 can pinpoint which 1093 is at fault.

Fault	Description	Possible Cause/Suggested Fix
HCB FET Open Grn Dn	HCB fet open green down	• Replace the GALX-1093AN board – dev / dev 2 can pinpoint which 1093 is at fault.
HCB FET Open Grn Up	HCB fet open green up	• Replace the GALX-1093AN board – dev / dev 2 can pinpoint which 1093 is at fault.
HCB FET Open Red Dn	HCB fet open red down	• Replace the GALX-1093AN board – dev / dev 2 can pinpoint which 1093 is at fault.
HCB FET Open Red Up	HCB fet short red up	• Replace the GALX-1093AN board – dev / dev 2 can pinpoint which 1093 is at fault.
HCB FET Short Blu Dn	HCB fet short blue down	• Replace the GALX-1093AN board – dev / dev 2 can pinpoint which 1093 is at fault.

Fault	Description	Possible Cause/Suggested Fix
HCB FET Short Blu Up	HCB fet short blue up	• Replace the GALX-1093AN board – dev / dev 2 can pinpoint which 1093 is at fault.
HCB FET Short Grn Dn	HCB fet short green down	• Replace the GALX-1093AN board – dev / dev 2 can pinpoint which 1093 is at fault.
HCB FET Short Grn Up	HCB fet short green up	• Replace the GALX-1093AN board – dev / dev 2 can pinpoint which 1093 is at fault.
HCB FET Short Red Dn	HCB fet short red down	• Replace the GALX-1093AN board – dev / dev 2 can pinpoint which 1093 is at fault.
HCB FET Short Red Up	HCB fet short red up	• Replace the GALX-1093AN board – dev / dev 2 can pinpoint which 1093 is at fault.

Fault	Description	Possible Cause/Suggested Fix
HCB Invalid Floor	HCB has invalid floor	• This fault is only intended for internal use to identify floors that need to be skipped in diagnostics. It should never occur.
HCB LED Open Blue Dn	HCB led open blue down	• Make Sure there is a GALX-1056AN attached to the proper connector (Up LED always attached to CN5, Down LED attached to CN5 if only down call at that station (like the top floor), otherwise attached via ribbon at CN6. • Replace GALX-1056AN for the associated up or down call.
HCB LED Open Blue Up	HCB led open blue up	• Make Sure there is a GALX-1056AN attached to the proper connector (Up LED always attached to CN5, Down LED attached to CN5 if only down call at that station (like the top floor), otherwise attached via ribbon at CN6. • Replace GALX-1056AN for the associated up or down call.
HCB LED Open Grn Dn	HCB led open green down	• Make Sure there is a GALX-1056AN attached to the proper connector (Up LED always attached to CN5, Down LED attached to CN5 if only down call at that station (like the top floor), otherwise attached via ribbon at CN6. • Replace GALX-1056AN for the associated up or down call.
HCB LED Open Grn Up	HCB led open green up	• Make Sure there is a GALX-1056AN attached to the proper connector (Up LED always attached to CN5, Down LED attached to CN5 if only down call at that station (like the top floor), otherwise attached via ribbon at CN6. • Replace GALX-1056AN for the associated up or down call.

Fault	Description	Possible Cause/Suggested Fix
HCB LED Open Red Dn	HCB led open red down	• Make Sure there is a GALX-1056AN attached to the proper connector (Up LED always attached to CN5, Down LED attached to CN5 if only down call at that station (like the top floor), otherwise attached via ribbon at CN6. • Replace GALX-1056AN for the associated up or down call.
HCB LED Open Red Up	HCB led short red up	• Make Sure there is a GALX-1056AN attached to the proper connector (Up LED always attached to CN5, Down LED attached to CN5 if only down call at that station (like the top floor), otherwise attached via ribbon at CN6. • Replace GALX-1056AN for the associated up or down call.
HCB LED Short Blu Up	HCB led short blue up	• Make Sure there is a GALX-1056AN attached to the proper connector (Up LED always attached to CN5, Down LED attached to CN5 if only down call at that station (like the top floor), otherwise attached via ribbon at CN6. • Replace GALX-1056AN for the associated up or down call.
HCB LED Short Blu Dn	HCB led short blue down	• Make Sure there is a GALX-1056AN attached to the proper connector (Up LED always attached to CN5, Down LED attached to CN5 if only down call at that station (like the top floor), otherwise attached via ribbon at CN6. • Replace GALX-1056AN for the associated up or down call.
HCB LED Short Grn Dn	HCB led short green down	• Make Sure there is a GALX-1056AN attached to the proper connector (Up LED always attached to CN5, Down LED attached to CN5 if only down call at that station (like the top floor), otherwise attached via ribbon at CN6. • Replace GALX-1056AN for the associated up or down call.

Fault	Description	Possible Cause/Suggested Fix
HCB LED Short Grn Up	HCB led short green up	• Make Sure there is a GALX-1056AN attached to the proper connector (Up LED always attached to CN5, Down LED attached to CN5 if only down call at that station (like the top floor), otherwise attached via ribbon at CN6. • Replace GALX-1056AN for the associated up or down call.
HCB LED Short Red Dn	HCB led short red down	• Make Sure there is a GALX-1056AN attached to the proper connector (Up LED always attached to CN5, Down LED attached to CN5 if only down call at that station (like the top floor), otherwise attached via ribbon at CN6. • Replace GALX-1056AN for the associated up or down call.
HCB LED Short Red Up	HCB led short red up	• Make Sure there is a GALX-1056AN attached to the proper connector (Up LED always attached to CN5, Down LED attached to CN5 if only down call at that station (like the top floor), otherwise attached via ribbon at CN6. • Replace GALX-1056AN for the associated up or down call.
HCB Low Supply Volt	Hall call board has low supply voltage	• Low voltage at Hall call device level. To identify fault device refer to Detailed Fault Log 'dev' and 'dv2' will provide address for Serial Driver address and Station where the fault was generated.
HCB No Dn LED Board	HCB No Down Led Board Detected	• HCB board could not detect an LED board • Replace LED board (GALX-1085AN)

Fault	Description	Possible Cause/Suggested Fix
HCB No Up LED Board	HCB No Up Led Board Detected	• HCB board could not detect an LED board • Replace LED board (GALX-1085AN)
HCB Rx from above fl	HCB Rx fault from above floor	• Receiver on board is bad – replace device • Cable is bad or disconnected • Cables going to wrong port (i.e., switched to above and to below) • Transmitter from device above is bad.
HCB Up Input Ovrload	HCB Up input overload	• Controller detected overload in the input from the LED board at the station. To identify fault device, refer to Detailed Fault Log 'dev' and 'dv2' will provide address for Serial Driver address and Station where the fault was generated.
HCB Up FET Open	HCB fet open up	• Replace GALX-1054AN
HCB Up FET Short	HCB fet short up	• Replace GALX-1054AN

Fault	Description	Possible Cause/Suggested Fix
HCB Up LED Open	HCB led open up	• Make Sure there is a GALX-1056AN attached to the proper connector (Up LED always attached to CN5, Down LED attached to CN5 if only down call at that station (like the top floor), otherwise attached via ribbon at CN6. • Replace GALX-1056AN for the associated up or down call.
HCB Up LED Short	HCB led short up	• Make Sure there is a GALX-1056AN attached to the proper connector (Up LED always attached to CN5, Down LED attached to CN5 if only down call at that station (like the top floor), otherwise attached via ribbon at CN6. • Replace GALX-1056AN for the associated up or down call.
HC Com Device Reset	Serial Hall Call board reset unexpectedly. Usually caused by loss of power to the individual board.	• Usually caused by loss of power to the individual board. • Faulty power connection to board. • Faulty hall call board.
HC DvrBd Too Few Dev	Too few stations detected based on configuration – will only trigger if loop is closed (i.e. will not trigger if device #5 is not functioning, causing driver to establish communication with all but one station.)	• Check configuration and number of stations
HC DvrBd TooMany Dev	Too many stations detected based on configuration.	• Check configuration and number of stations

Fault	Description	Possible Cause/Suggested Fix
HC DvrBd Tx to Top	Can't internally read information from transmitter to top station.	• Cable connecting two devices could be flip-flopped (i.e., gray wire goes from pin 1 on one end to pin 8 on the other end). Disconnect cable, and if fault changes to Rx Fault, the problem is the cable. • Cables going to wrong port (i.e., switched TO ABOVE and TO BELOW) • Transmitter is bad – replace the Device.
HC DrvBd Tx to Bot	Can't internally read information from transmitter to bottom station	• Cable connecting two devices could be flip-flopped (i.e., gray wire goes from pin 1 on one end to pin 8 on the other end). Disconnect cable, and if fault changes to Rx Fault, the problem is the cable. • Cables going to wrong port (i.e., switched TO ABOVE and TO BELOW) • Transmitter is bad – replace the Device.
HC Fuse Blown Fault	The HC input is off. No power on HC.	• Make sure that the hall call power for each car is in phase. During a power up for car 1 while car 2 is powering the hall call power could cause a momentary short if the hall call power for each car is not in phase. • Short circuit in the hall call lighting circuitry.
Invalid XA Fvar Sel	Invalid X-Assignment Field Variable Selection	• The cross assignment parameter was set to use additional cross assignment hall call I/O boards without cross assignment being enabled.
Load Weigh Var Init	Load weigher initialized	• Invalid load weigher table on power up. The load weigher table will be re-initialized to zero **and the load weigher must be set up again.** • If this error persists, the MRAM on the CPU board is faulty. Replace the CPU board. • Ignore this error if the load weigher is not being used.
MRAM Hardware Fault	MRAM Fault	• The MRAM is tested on power up and has failed the test. • Replace the CPU board.

Fault	Description	Possible Cause/Suggested Fix
PC List Full	Pending Credentials list is full	• Cannot add credential to full pending credentials list.
Power Up Reset	Whenever power is cycled on the controller this error will indicate that the controller CPU was reset	• This error code is normal for a power loss. • If power was not lost and the CPU re-boots, verify the +5VDC on the CPU power connector reads in the range of 4.90 and 5.1 VDC. • If out of range, adjust the 5VDC supply pot for the correct voltage.
Too Many F XIO Brds	Too many Front X-Assignment IO Boards are being selected from the HC X-Assign En field variable setting.	• The software detected that the number of cross assignment I/O boards exceeded the number of boards allowed. • The number depends on the number of floors and the selected options that require hall call I/O boards. • Contact Tech Support for assistance.
Too Many R XIO Brds	Too many Rear X-Assignment IO Boards are being selected from the HC X-Assign En field variable setting.	• The software detected that the number of cross assignment I/O boards exceeded the number of boards allowed. • The number depends on the number of floors and the selected options that require hall call I/O boards. • Clear the selection for rear cross assignment hall calls. • Contact Tech Support for assistance.
Too Many F XHC Brds	Too many Front X-Assignment Hall Call Boards are being selected from the HC X-Assign En field variable setting.	• The software detected that the number of cross assignment hall call I/O boards exceeded the number of boards allowed. • The number depends on the number of floors and the selected options that require hall call I/O boards. • Contact Tech Support for assistance.
Too Many R XHC Brds	Too many Rear X-Assignment Hall Call Boards are being selected from the HC X-Assign En field variable setting.	• The software detected that the number of cross assignment hall call I/O boards exceeded the number of boards allowed. • The number depends on the number of floors and the selected options that require hall call I/O boards. • Clear the selection for rear cross assignment hall calls. • Contact Tech Support for assistance.

Fault	Description	Possible Cause/Suggested Fix
UPS Comm Fault	Power loss: Controller cannot establish comm to UPS	• Check wiring and shielded pairs • Defective comm board • Possible bad UPS unit
UPS Low Bat Capacity	Power loss UPS battery capacity low fault	• Battery Capacity went below the threshold set by the parameter 'Low Bat Cap Lev'
UPS Low Battery Flt	Power loss: UPS battery fault	• UPS Battery voltage has dropped below 18V • Replace unit
UPS Low Bat Voltage	Power loss: UPS battery fault	• Defective battery inside UPS unit • Replace UPS
UPS On Battery Power	Power loss: UPS on battery power	• No line voltage on UPS. • Unit running on battery power
UPS Turned Off	Power loss: UPS turned off	• Power loss on UPS. Power has been turned off
User Variable Init	User variable initialization	• User related parameters such as passwords and telephone numbers are being initialized. • This error occurs on the first time the GALX-1100 CPU board is being powered up.

Fault	Description	Possible Cause/Suggested Fix
VC List Full	Validated Credentials list is full	• Cannot add credential to full validated credentials list.

6.2 Detailed Faults Data and Description

Example of data stored in the standard fault log:

```
  5 DD Backup Comm Loss  21:26:54  2/18/   0 Occurrences =   1
ps1=005, sv1=001, pr1=015, dp1=000, rs1=30805ff8h
ps2=001, sv2=001, pr2=015, dp2=000, rs2=30805ff8h
ps3=001, sv3=001, pr3=015, dp3=000, rs3=30805ff8h
ps4=005, sv4=001, pr4=015, dp4=000, rs4=30805ff8h
ps5=000, sv5=000, pr5=000, dp5=000, rs5=00000000h
ps6=000, sv6=000, pr6=000, dp6=000, rs6=00000000h
ps7=000, sv7=000, pr7=000, dp7=000, rs7=00000000h
ps8=000, sv8=000, pr8=000, dp8=000, rs8=00000000h
gem=000, gcb=000, geq=000, gnc=000, dev=00h, dv2=00h, pf1=00h
pf2=00h, gfs=0000h, gpw=0000h, io0=00h, io1=00h, io2=00h, io3=00h, io4=00h
io5=00h, io6=00h, io7=00h, io8=00h, io9=00h
```

Example of detailed fault data on LCD Display Interface:

```
  "srv= 0, prc= 2, drf= 0  "
  "rdf= 0, dpr= 0, dir= 0  "
  "emp= 0, med= 0, cbl= 0  "
  "equ= 0, fir= 0, rfi= 0  "
  "hsf= 0, stf= 0, cal= 0  "
  "esp= 0, nst= 0, rlv= 0  "
  "ste= 1, dsf= 0, st0= 0  "
```

```
"ins=01, nds= 0, dev=00  "
"pf1=00, pf2=00, dv2=00  "
"io0=A1, io1=0F, io2=7E  "
"io3=20, io4=C3, io5=6F  "
"io6=7C, io7=8D, io8=00  "
"io9=00, ioA=C7, ioB=F7  "
"ioC=FF, ioD=FB, ioE=35  "
"ioF=00, ioG=00, ioH=F0  "
"ioI=0F, ioJ=F1, ioK=0F  "
"ioL=3F, ioM=30, ioN=00  "
"ioO=05, ioP=07, ioQ=00  "
"ioR=05, ioS=07, ioT=00  "
"   statusf = 00000040   "
"  statusf2 = 00000000   "
"Dp=  126400, Tg=       0"
"DrvV=    0, EncVel=    0"
"CalcV=    0,DmdVel=    0"
"VDif=    0, Enc Dir = 0 "
"SPB Cnt =        0      "
"SPB Vel=    0, Stat=00  "
"SPB Srv=00,Cmd=04,S1=00 "
"S2=00,S3=00,S4=00,S5=00 "
"FltB1=01     FltB2=00   "
"FltB3=01     FltB4=00   "
"SsStat=0000,PwrStat=0000"
"Run Status = 008013f8   "
"NTS Vel=    0, Stat=00  "
"NTS Serv=00, Cmd=00     "
"LmF1=00 LmF2=00 LmF3=00 "
"Nio1=00 Nio2=00 Nio3=00 "
"Nud=00, DRq=08, CFg=00  "
"RnS=23, StS=00, LvS=00  "
```

```
"DrS=24,FSd=0000,RSd=0000"
"Motion Tmr =     1       "
"PAL Vel=00000, Stat=     "
"Ins Svc=00, % Load =    4"
"DrvCmd=0000,TrqCmd=     0"
"DvStat=0000,MtrTrq=     0"
```

6.2.1 Detailed Fault I/O Data Example

The data in the I/O block is read from left to right with the left-most bit being the MSB (Most Significant Bit) and the right-most bit being the LSB (Least Significant Bit). Each bit represents the state (on or off) of the corresponding I/O. The table below provides the HEX number and the associated Binary number.

CONVERSION TABLE

HEX	BINARY	DECIMAL
0	0 0 0 0	0
1	0 0 0 1	1
2	0 0 1 0	2
3	0 0 1 1	3
4	0 1 0 0	4
5	0 1 0 1	5
6	0 1 1 0	6
7	0 1 1 1	7
8	1 0 0 0	8
9	1 0 0 1	9
A	1 0 1 0	10
B	1 0 1 1	11

C	1 1 0 0	12
D	1 1 0 1	13
E	1 1 1 0	14
F	1 1 1 1	15

The ***example*** below shows how to interpret the detailed fault data for the I/O blocks. Given that IO0 is a value of “D1” hex. Place the “D” in the first hex value block and then the “1” in the second hex value block. Follow the red arrows below. Go to the next diagram to convert the inputs to binary.

HEX	BINARY
0	0000
1	0001
2	0010
3	0011
4	0100
5	0101
6	0110
7	0111
8	1000
9	1001
A	1010
B	1011
C	1100
D	1101
E	1110
F	1111

I/O BLOCK	**IO0**							
HEX VALUE	**9**				**1**			
BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**								
I/O NAME								

Place the Binary value for D (1101) in the first four bit locations and then place the binary value for 1 (0001) in the last four bit locations. The 1's show which inputs are on.

HEX	BINARY
0	0000
1	0001
2	0010
3	0011
4	0100
5	0101
6	0110
7	0111
8	1000
9	1001
A	1010
B	1011
C	1100
D	1101
E	1110
F	1111

I/O BLOCK	IO0							
HEX VALUE	D				1			
BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**1**	**0**	**O**	**1**	**0**	**0**	**0**	1
I/O NAME								

6.2.2 Detailed Fault I/O Data Form

I/O Blocks:

I/O BLOCK	**IO0**							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**
I/O NAME	GOV		S10	L120	GBP	LBP	IND	AD

I/O BLOCK	**IO1**							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**
I/O NAME	TAD	BAU		ACC			BF	TF

I/O BLOCK	**IO2**							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**
I/O NAME	RLM	DLT-1	DLT	DLM-1	DLM	DLB-1	DLB	TAU

I/O BLOCK	**IO3**							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON								

Outputs 0=On 1=Off	**MSB**							**LSB**
I/O NAME			BKS					RLM-1

I/O BLOCK	**IO4**							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**
I/O NAME	MRSW	AUTO		MRIU			PFCi	SFCi

I/O BLOCK	**IO5**							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**
I/O NAME			GS	RGS-1	**GRT2**	**GRT1**	GTS	RDY

I/O BLOCK	**IO6**							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**
I/O NAME								

I/O BLOCK	**IO7**							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**
I/O NAME		IU	IEN	ID	FFS	CST	ICI	P

I/O BLOCK	**IO8**							
HEX VALUE								
BINARY BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**
I/O NAME	RUNX	RUNAi	MCX	RUNi	BRKi	DON	MCAi	MCCi

I/O BLOCK	**IO9**							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**
I/O NAME					ETS	UPi	NTSDi	DNI

I/O BLOCK	**IOA**							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**

I/O NAME	FSTP	FST	LE1	LE	GR2R			

I/O BLOCK	IOB							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON Outputs 0=On 1=Off	MSB							LSB
I/O NAME								

I/O BLOCK	IOC							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON Outputs 0=On 1=Off	MSB							LSB
I/O NAME	UPF	UP	DNF	DNR	RUN	RUNA		

I/O BLOCK	IOD							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON Outputs 0=On 1=Off	MSB							LSB
I/O NAME								

I/O BLOCK	IOE
HEX VALUE	

BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**
I/O NAME							FS	

I/O BLOCK	**IOF**							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**
I/O NAME								

I/O BLOCK	**IOG**							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**
I/O NAME								

I/O BLOCK	**IOH**							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON								

Outputs 0=On 1=Off	**MSB**							**LSB**
I/O NAME								

I/O BLOCK	**IOI**							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**
I/O NAME								

I/O BLOCK	**IOJ**							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**
I/O NAME								

I/O BLOCK	**IOK**							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**

I/O NAME								

I/O BLOCK	**IOL**							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**
I/O NAME (Tape)	DZD-1	DZU-1	DZD	DZU	DL	DZA	DZ-2	UL
I/O NAME (Tapeless)			DZD	DZU	DL	DZA	DZ-2	UL

I/O BLOCK	**IOM**							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**
I/O NAME				UTS-1		UT		UN-1

I/O BLOCK	**ION**							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**
I/O NAME (Tape)		DT		DN-1				

I/O BLOCK	**IOO**
HEX VALUE	

BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**
I/O NAME								DTS-1

I/O BLOCK	**IOP**							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**
I/O NAME				SE	DCL	DOL	EE	DPM

I/O BLOCK	**IOQ**							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**
I/O NAME				DO		DC	NUD	

I/O BLOCK	**IOR**							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**
I/O NAME				SER	DCLR	DOLR	EER	

I/O BLOCK	**IOS**

HEX VALUE								
BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**
I/O NAME				DOR		DCR	NUDR	

I/O BLOCK	**IOT**							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**
I/O NAME		INDC	ALM	DOB	DCB	FS2C	FS2H	FS2OF

I/O BLOCK	**IOU**							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**
I/O NAME						ED		

I/O BLOCK	**IOV**							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**
I/O NAME			HB	FBNB	FL			

I/O BLOCK	**IOW**							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**
I/O NAME					CSPI3	CSPI2	CSPI1	DLW

I/O BLOCK	**IOX**							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**
I/O NAME		CSPO2	CSPO1					

I/O BLOCK	**IOA0**							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**
I/O NAME			CDL	CUL				

I/O BLOCK	**IOA1**							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**
I/O NAME		CDLR	CULR					

I/O BLOCK	**IOA2**							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**
I/O NAME					EDR	ALMR	DOBR	DCBR

I/O BLOCK	**IOA3**							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**
I/O NAME							CDLR	CULR

I/O BLOCK	**IOA4**							
HEX VALUE								
BINARY Inputs 0=OFF 1=ON **Outputs 0=On 1=Off**	**MSB**							**LSB**
I/O NAME								RDET

NOTE

I/O location depends on the specific job. On earlier software versions, some of the selector I/O name will not match the table above. The software version 1.1.29 and above is set up to work with either name.

Section 7 – Adjustable Variables

7.1 Main CPU Adjustable Variables

The Adjustable Variables menu has a vast variety of field adjustable parameters that play an important role in how the controller will react to different scenarios. Below are the six submenus that are enclosed in the adjustable variables menu: Destination Dispatch, Kiosk Timers, System Options, Group Options, Group Emergency Services, and Group Dispatch. The variables are in the order of which they appear.

7.1.1 Destination Dispatch Submenu

Field Variable	Min	Max	Default	Units	Description
Table 7-1: Destination Dispatch					
Car 1 Max Cap Car 2 Max Cap . . Car 8 Max Cap	1	25	10	-	**Max Capacity.** The maximum number of passengers allowed in a car.
ETA Coefficient	0.0	1.0	1.0	-	**ETA Coefficient.** Estimated Time of Arrival coefficient value that will be used in the average time for calls to preference either ETA or ETT.
ETT Coefficient	0.0	1.0	1.0	-	**ETT Coefficient.** Estimated Traveling Time coefficient value that will be used in the average time for calls to preference either ETA or ETT.
Very Long Dwl T	0	60	10	secs	**Very Long Dwell Time.** Allows for the car door to dwell for a longer time than usual.
Max Door Open T	0	60	25	secs	**Max Door Open Time.** The maximum car door open time that is OK for a new DD assignment when the car already has onward calls.
Write DDLog SD	0	3	0	-	**Write DD Log to SD Card.** Writes DD traffic log to the SD card in the form of a file. +1=Write 24 hour data to SD at the end of the day +2=Write extra call info to SD on every call entry

Field Variable	Min	Max	Default	Units	Description
Table 7-1: Destination Dispatch					
DD Algorthm Sel	0	2	0	-	**DD Algorithm Select.** The DD algorithm select allows the user to prioritize one algorithm over the other. Minimum Journey Time or Minimum Wait Time are the two algorithms DD currently offers. 0=Auto 1=Minimum Journey Time 2=Minimum Wait Time
DD TLWT Rechk T	0	255	20	secs	**DD Today's Longest Wait Time Recheck Time.** Today's minimum longest DD wait time before rechecking for a better car to assign.
DD TLTT Rechk T	0	255	20	secs	**DD Today's Longest Travel Time Recheck Time.** Today's minimum longest DD travel time before rechecking for a better car to assign.
DD TLDT Rechk T	0	255	30	secs	**DD Today's Longest Destination Time Recheck Time.** Today's minimum longest DD destination time before rechecking for a better car to assign.
Kiosk Up/Dn HC	0	1	0	-	**Kiosk on Up/Down Hall Call Mode.** Places the kiosk on Up/Down Hall Call Mode, which displays Up/Down arrows on the kiosks instead of number of floors.
Tone Delay Time	0	15	3	secs	**Tone Delay Time.** Allows for the ADA tone in the car to play for a given time.

Field Variable	Min	Max	Default	Units	Description
Table 7-1: Destination Dispatch					
DD Audible Ctrl	0	7	7	-	**DD Audible Control.** Controls all the DD related audible tones. 0=Disable car tone play and assignment announcement. +1=Enable playing all car chime tones upon standard DD call entry on kiosk +2=Enable playing assignment announcement upon standard DD call entry on kiosk +4=Enable playing ADA announcement and playing car specific tone upon ADA call entry
Nmb OTS Plays	0	5	3	-	**Number Out of Service Plays.** Number of times the “Out of Service” message plays for.
Max OTS Msg T	20	100	20	secs	**Maximum Out of Service Message Time.** Maximum amount of time the dispatcher will play the “Out of Service” message for.
OTS Msg Cycle T	20	10	10	secs	**Out of Service Message Cycle Time.** “Out of Service” message play cycle time.
OrigFl HandiDwT	1.0	120.0	25.0	secs	**Origin Floor Handicap Dwell Time.** The ADA car door dwell time at origin floor.
DestFl HandiDwT	1.0	120.0	25.0	secs	**Destination Floor Handicap Dwell Time.** The ADA car door dwell time at destination floor.
Credentials Sec	0	1	0	-	**Credentials Security.** Enable third-party credential security.
CS Only Lby Acc	0	1	0	-	**Credential Security Lobby Only Access.** Enables credential security lobby floor destination access only at non-lobby kiosk floors.
T Sim Pause Tm	0.0	320.0	120.0	secs	**Traffic Simulation Pause Time.** Amount of time the traffic simulation process will be paused for until cycling through once again.

Field Variable	Min	Max	Default	Units	Description
Table 7-1: Destination Dispatch					
TSim Car To Lby	0	1	1	-	**Traffic Simulation Car to Lobby.** Brings cars to lobby floor before starting the traffic simulation.
DD CC Latch Ctr	0	1	0	-	**DD Car Call Latch Control.** Controls when the car calls should latch. 0=CC latch when leveling into origin floor. 1=CC latch when car door is fully opened at origin floor.
DD Emerg Disp	0	1	0	-	**DD Emergency Dispatch.** Enables emergency dispatch for DD when kiosks are down. Sends cars up to floors where all kiosks are OFF with the preset destination to lobby. Only working with credential security OFF.
DD Emerg Disp T	30	300	120	secs	**DD Emergency Dispatch Kiosk Call Time.** Time between each cycle of emergency dispatching.
Max Door Reopen	0	5	3	-	**Max Door Reopen.** Maximum number of times the doors are allowed to reopen. 0=door reopening disabled.
Ksec ADA allowT	0.0	100.0	30.0	secs	**Kiosk ADA Security Allow Time.** Maximum time ADA calls are allowed after unlocking inputs when using kiosk security.
CredSec VIP	0	1	0	-	**Credential Security VIP.** Enables VIP credential security feature, which allows for VIP passengers to ride in empty cars.
Split Grp1 CARS	0	255	0	-	**Split Group 1 Cars.** Split group allows for cars to be taken out of the group and solely used as “split cars”. Typically used for freight cars. Only passengers with split group attribute will be allowed to ride in these assigned cars.

7.1.2 Kiosk Timers Submenu

Field Variable	Min	Max	Default	Units	Description
Table 7-2: Kiosk Timers					
Normal Scrn TOut	0	60	3	secs	**Normal Screen Timeout.** Maximum amount of time kiosks will display messages on the screen.
Assistd Scrn TO	0	60	5	secs	**Assisted Screen Timeout.** Maximum amount of time the kiosk screens will display when in assisted mode until it is timed out.
Key Prss Ent TO	0	60	6	secs	**Key Press Entry Timeout.** Maximum amount of time the kiosk will wait when keys are being pressed to select a floor before being timed out.
Key Prs Astd TO	0	60	10	secs	**Assisted Key Press Entry Timeout.** Maximum length of time the kiosk will wait for ADA calls when keys are being pressed to select a floor before being timed out.
Code Entry TO	0	60	6	secs	**Code Entry Timeout.** Maximum amount of time the kiosk will wait while keys are pressed during a security code entry before it is timed out.
Ast Code Ent TO	0	60	10	secs	**Assisted Code Entry Timeout.** Maximum amount of time the kiosk will wait while keys are pressed during a security code entry before it is timed out.
Dispathr Res TO	0	60	10	secs	**Dispatcher Response Timeout.** Maximum amount of time the kiosk will wait while waiting for a response from the dispatcher before timing out. The message “No Response from Dispatcher” will display on the kiosk screen.

7.1.3 System Options Submenu

Field Variable	Min	Max	Default	Units	Description
Table 7-3: System Options					
COM1 Baud Rate	0	9	6	bps	**Com 1 User Interface Baud Rate.** Selects the bit rate of the COM 1 serial port. 0=2400 1=4800 2=9600 3=19200
COM2 Baud Rate	0	9	3	bps	**COM 2 User Interface Baud Rate**. Selects the bit rate of the COM 2 serial port. 0=2400 1=4800 2=9600 3=19200
Com 1 Port Sel	0	7	6	-	**Com 1 Port Select.** Selects the operation of COM 1 port. 0 = Comm Diag 1 = Comm Debug 2 = Galcom 3 = DL20 4 = Galcom Wireless 5 = Galcom Ethernet 6 = Galcom Wireless Flow Control 7 = Galcom Ethernet Flow Control
Com 2 Port Sel	0	7	0	-	**Com 2 Port Select.** Selects the operation of COM 2 port. 0 = Comm Diag 1 = Comm Debug 2 = Galcom 3 = DL20 4 = Galcom Wireless 5 = Galcom Ethernet 6 = Galcom Wireless Flow Control 7 = Galcom Ethernet Flow Control
RS485 COM Baud	0	6	0	bps	**RS485 COM Baud Rate.** 0 = 2400 1 = 4800 2 = 9600 3 = 19.2K 4 = 38.4K 5 = 57.6K 6 = 115.2K bits per second

Field Variable	Min	Max	Default	Units	Description
Table 7-3: System Options					
485 Port Sel	0	1	0	-	**485 Port Sel.** Selects the operation of 485 port. 485 com port select: 0 = IGEP if enabled 1 = EX-51 Hall Lantern
CAN Baud Rate	0	1	0	bps	**CAN Baud Rate.** Set to zero and do not change. Special jobs utilize a different baud rate for CAN Bus. All devices need to be reconfigured for a new rate. CAN Baud Rate: 0 = 115.2K 1 = 57.6K
UPS/COM3 Baud	0	3	2	bps	**UPS Baud Rate:** 0 = 2400 1 = 4800 2 = 9600 3 = 19200
Service UPS	0	1	0	-	**Service UPS Mode.** Turning this parameter ON disables UPS faults. It should only be used in construction mode or while servicing the UPS. 0=Normal 1=Service UPS
Low Bat Cap Lev	0	101	50	%	**Low Battery Capacity Level.** For UPS Systems. This is the battery level at which the controller will fault out due to Low Battery Capacity.
Password	0	9999	0	-	**Password Code** to modify and adjust field variables.
Pword Time-out	0.0	3200.0	300.0	secs	**Password Time-out.** The amount of inactive time for the LCD to lock out the field variables.
Video Time-out	0.0	3200.0	0.0	secs	**Time-out Video Display.** Time is takes to timeout Video Display. 0=do not time out
Auto Fault Dpy	0	1	0	-	**Automatic Fault Display.** Enable to automatically display a fault on the LCD screen.

Field Variable	Min	Max	Default	Units	Description
Table 7-3: System Options					
Exclusion FLT 1 Exclusion FLT 2 . . Exclusion FLT 6	0	Max # Faults (606)	0	-	**Exclusion Fault.** Set to fault code number. This prevents faults from being recorded in the fault log. It should only be set for nuisance and noncritical faults. Controller still goes through all the logic for each fault code except, a call is not recorded in the fault log.
Cpu Tim Output	0	0x7FFF	0	bits	**CPU Timing Output.** The CPU has three test point pins that outputs timing signals depending upon the setting of this parameter. These are 5 Volt signals that can be monitored by an oscilloscope. 0 = Z6 LED 1 second pulse 1 = Inctime 2 = GrpIO 4 = 10 msec
GMON Pkt Cntrl	0	7	0	-	**GAL Monitor Serial Output Packet Control.** This variable controls how the controller data is being packed and unpacked in the serial data. 1=all cars 2=all floors 4=rear doors
GMON Intrvl Tim	0	10.0	0.2	secs	**GAL Monitor Interval Timer.** Controls the timer interval that data packets are transmitted. When zero, data is not transmitted on a time interval.
GMON Upd Cntrl	0	3	0	-	**GAL Monitor Update Control.** Controls how the packet data on the serial port is updated. +1=change of state +2=packet request
Network Setup	0	3	1	-	**Network Setup.** Controls the setup of the network, either Wi-Fi or ethernet. 0=Wi-Fi enabled 1=Auto Wi-Fi setup 2=Ethernet Enabled 3=Auto Ethernet Setup

Field Variable	Min	Max	Default	Units	Description
Table 7-3: System Options					
Galileo Group #	1	20	1	-	**GALileo Group Number.** Sets group number to assign unique IP addresses on auto ethernet setup.

7.1.4 Group Options Submenu

Field Variable	Min	Max	Default	Units	Description
Table 7-4: Group Options					
IR Car	0	Number of Cars	0	car	**Inconspicuous Riser Car.** This car is assigned all the IR hall calls.
2nd IR Car	0	Number of Cars	0	car	**2nd Inconspicuous Riser Car.** Set this option to have a second car answer the Inconspicuous Risers.
IR Control	0	15	0	bits	**Inconspicuous Riser Control.** This parameter alters how IR riser service is activated or deactivated. 0 = IR active from ICR or RICR input +1 = IR activated when any IR call is activated +2 = Finish car calls then answer IR calls +4 = Finish car call before going off IR. +8 = 2nd IR Car selected if 1st IR Car Out of Service
Secnd Risr Ctl	0	9	0	-	**Second Riser Control.** Flag set up to control the second riser. 1=No standard HC assigned to SR cars 2=SR with HC 3=Second riser call or'ed with standard riser calls if second riser operation not selected from input. 5=Front standard HC assigned to SR 9=Rear standard HC assigned to SR
Third Risr Ctrl	0	3	0	-	**Third Riser Control.** Defines the third riser operation. 1=No standard HC 2=TR with HC

Field Variable	Min	Max	Default	Units	Description
Table 7-4: Group Options					
Number VIP Cars	0	Number of Cars	1	car	**Number of VIP Cars.** Number of cars allowed to service VIP (priority service) calls at one time.
VIP Sel IR Car	0	3	0	bits	**VIP Select IR Car.** Enables VIP operation to select a car that is on IR service. +1=VIP can select IR car +2=VIP selects ONLY IR car
VIP Operation	0	7	0	bits	**VIP (Priority Call) Operation.** +1 = Cancel hall call if no cars available for VIP call. +2 = Cancel car call upon initiation of being selected as the VIP car. +4 = Cancel VIP HC without doors reopening
High Priorty FL	0	Top Floor	0	floor	**High Priority Floor.** Prioritizes hall calls for a specific floor number.
High Priorty TM	6.0	254.0	60.0	secs	**High Priority Timeout.** The best car for a high priority floor will be chosen after this timeout has occurred.
OTS No HC Canc	0	1	0	-	**Out of Service No Hall Call Cancel.** Do not cancel hall calls if cars are out of service. This is used in accordance with cross assignment feature.
Sabbath Restart	0.0	3200.0	8.0	secs	**Sabbath Service Restart Time.** Sabbath Service will restart after this timeout.
Grp CC Sec OvrT	1	240	60	secs	**Group Car Call Security Override Timer.** This is the amount of time that the car call security is overridden when a group car call security override button is pressed.
Grp CC Ovrride	0	1	0	-	**Group Car Call Override.** Normally visitor access allows the car call security to be overridden momentarily from a push button in an owner's apartment. With this parameter set to 1, the security override works directly from a key switch input.

Field Variable	Min	Max	Default	Units	Description
Table 7-4: Group Options					
HC Asg SecType	0	15	0	-	**Hall Call Assignment Secure Type.** Dictates which hall call types are secured. +1=Secure UP calls +2=Secure DOWN calls +4=Secure rear UP calls +8=Secure rear DOWN calls
HC Securty ctrl	0	2	0	-	**Hall Call Security Control.** Controls which hall calls are secured. 1=Standard plus SR Hall Calls 2=Only SR Hall Calls
Invert HC Sec	0	1	0	-	**Invert Hall Call Security.** When set to 1, hall call security inputs are secured when the security input goes off from a normally closed switch. Normally, the security input must be on to secure the hall call.
Security Floor	0	Top Floor	1	floor	**Security Floor.** The security recall floor. This is the floor where the security guard would be stationed. **This floor would not be locked out when on security.**
Elev Off Ret Fl	0	Top Floor	0	floor	**Elevator Off Return Floor.** Related to HEOF input. If the elevator is configured to recall, this parameter will determine what floor the car should be recalled to in elevator off mode. If Parameter is set to zero, car will be returned to the Lobby.
Elv Off2 Ret Fl	0	Top Floor	0	floor	**Hall Switch Elevator Off 2 Return Floor**
Vid Pos Car 1 Vid Pos Car 2 . . Vid Pos Car 8	1	Number of Cars	1	car	**Video Position for Car.** The column where the car is displayed on the dispatch screen starts from left to right for positions 1 through 6 (8 for high rise cars). Car 1 through 6 positions is defaulted to display positions 1 through 6 respectively. Changing the car's video position changes the column where the car is displayed.
HC X-Assign En	0	15	0	bits	**Hall Call Cross Assignment Enable.** Used to enable hall call cross assignments. 0=OFF +1=Front Cross Assignment +2=Cross Cancellation +4=Rear Cross Assignment +8=Cross Assignment Ored with Serial HC

Field Variable	Min	Max	Default	Units	Description
Table 7-4: Group Options					
					Power should be cycled on controller after this variable is modified so all communications to all devices are made.
HC X-Assign ETA	0	500	60	secs	**Hall Call Cross Assignment ETA.** If ETA for hall call assignment is greater than this ETA limit, the hall call will be cross assigned to the old group controller.
X-Assign Cars	0	Number of Cars	0	car	**Cross Assignment Cars.** Select how many cars from the old group will be used for cross assignment calls.
HC On Brght	0.0	100.0	100.0	%	**Hall Call ON Bright.** Controls the output of the brightness for hall call output LED (the higher the brighter).
HC Off Bright	0.0	100.0	20.0	%	**Hall Call OFF Bright.** Controls hall call output off brightness for LED.

7.1.5 Group Emergency Services Submenu

Field Variable	Min	Max	Default	Units	Description
Table 7-5: Group Emergency Services					
Em Power Floor	Bottom Floor	Top Floor	Bottom Floor	floor	**Emergency Power Recall Floor.**
Em Power Cars	1	Number of Cars	1	car	**Number of Emergency Power Cars** that can run at the same time on the emergency power source.

Field Variable	Min	Max	Default	Units	Description
Table 7-5: Group Emergency Services					
1st Recall Car	0	Number of Cars	1	car	**First Recall Car.** This is the first car allowed to recall during the emergency power recall sequence. The recall sequence continues in consecutive order and then loops around until all cars are recalled.
1st Rcl EPSF 2	0	Number of Cars	2	car	**First Return Car Emergency Power Service Feeder 2**. This will be the first car recalled in Emergency Power (the rest are done sequentially in a loop) for power feeder 2.
1st EP Run Car	0	Number of Cars	1	car	**First Car Selected on Emergency Power.** This is the first car selected to run. If this car cannot run, the next consecutive car is selected.
1st Run EPSF 2	0	Number of Cars	2	car	**First Run Car Emergency Power Service Feeder 2.** This will be the first car selected to run on emergency power (the rest are done sequentially in a loop) for power feeder 2.
EP Recall Delay	0.0	3200.0	60.0	secs	**Emergency Power Recall Delay Time.** Time delay before the group starts the emergency power recall sequence.
Recall Timeout	1.0	600.0	60.0	secs	**Recall Time-out.** The time allowed for the car to reach the recall floor during the emergency power recall sequence. If this timer expires, the next car is selected to recall.
EP Recover Tim	1.0	60.0	30.0	secs	**Emergency Power Recovery Time.** When elevators are in Emergency Power recall, this is the time that the dispatcher will wait for each car to recover to a floor. If the car is in the middle of a blind shaft, you need to calculate the time each car may take to get to a floor in emergency power recovery speed.

Field Variable	Min	Max	Default	Units	Description
Table 7-5: Group Emergency Services					
EP Man Op TimOt	60.0	180.0	120.0	secs	**Emergency Power Manual Operation Time-Out.** Time that designated attendant car does not run for emergency power operation to sequence next car to recall.
EP Man Sel En	0	3	1	-	**Emergency Power Manual Select Enable:** 0 = If set to zero, the recall sequence is aborted, and any moving car will stop at the next floor to allow the selected car to run. +1 = Car is selected to run when the currently selected car completes its recall. +2 = Makes the selected car wait for all the cars to recall before being selected to run.
Skip Car@RcFLDO	0	1	0	-	**Skip Car at Recall Floor with Door Open.** While on Emergency Power Recall sequence: if enabled, out of service cars at the Emergency Power Recall floor with door open will be given a chance to run, 0 = Override immediately 1 = Override after time-delay. Time delay defined by variable '**EP Recover Tim**'.
SkipCarN@RcFLDO	0	1	0	-	**Skip Car Not at Recall Floor with Door Open.** While on Emergency Power Recall sequence: if enabled, out of service cars at the Emergency Power Recall floor with door open will be given a chance to run, 0 = Override immediately 1 = Override after time-delay. Time delay defined by variable '**EP Recover Tim**'.

Field Variable	Min	Max	Default	Units	Description
Table 7-5: Group Emergency Services					
EmPwr Op Output	0	3	2	-	**Emergency Power Operation LED.** This parameter controls the group outputs for emergency power status for each car. 0 = Outputs are on for cars that are operational. 1 = Outputs on for cars on normal power. 2 = Outputs on for car on emergency power. 3 = Outputs on for cars that are being recalled.
EmPwr Pk Output	0	3	0	-	**Emergency Power Park LED.** This parameter controls the group outputs for emergency power parked status for each car. 0 = Cars are parked on emergency power. +1 = Cars are recalled. +2 = Cars are at emergency power floor.
EP Rcl Out en	0	1	0	-	**Emergency Cars Finished Recalling Output Enable.** It enables an output in the hall call board for Emergency Power Complete (EPCOM). This setting is only read in power up so after changing this setting you need to reboot the controller.
EMP ATT car 1st	0	1	0	-	**Emergency Power Attendant Car First.** Select and prioritize the attendant car for running on emergency power service. It won't be recalled. After recall is complete for the group, it recovers and goes back in service
Code Blue Car	0	Number of Cars	0	car	**Code Blue Car.** When a code blue call is initiated, this will be the first car to be sent to respond. If car is not available, see variables '**Code Blue Car#2**' and '**CB Rcll Any Car**' for more options.
Code Blue Car#2	0	Number of Cars	0	car	**Code Blue Car #2.** When a code blue call is initiated, this will be the car to be sent to respond if first '**Code Blue Car**' is not available, see variables '**Code Blue Car**' and '**CB Rcll Any Car**' for more options.

Field Variable	Min	Max	Default	Units	Description
Table 7-5: Group Emergency Services					
CB Rcll Any Car	0	1	0	-	**Code Blue Recall Any Call.** 0 = Disable 1 = Enables dispatcher to recall any car if Code Blue Cars 1 and 2 are not available. If you want to select any car as your primary option, make **Code Blue Car** and **Code Blue Car #2** equal to zero and enable this setting.
CB SRiser Car	0	Number of Cars	0	car	**Code Blue Second Riser Car Select**
CB Req Ind Car	0	1	0	-	**Code Blue Request Independent Car.** Code blue request for car on independent operation. Set to 1 in dispatcher, and in all cars so the car could be requested (flash EML) if the car is in independent mode.
CB Sel IR Car	0	1	0	-	**Code Blue Over IR Car**
CB IR Penalty	0	60	10	secs	**IR Car Code Blue Penalty Time.** This is used to calculate and give preference to cars in fully automatic operation
Emerg Dispatch	0	5	0	-	**Emergency Dispatch.** This parameter is applied to both the car that is selected as the dispatcher and the non-dispatcher cars. If set to 1 and hall call power is lost, the dispatcher car will set down hall calls above the lobby and up hall call at and below the lobby. For the non-dispatcher cars, if set to a 1, and communications is lost to the dispatcher car, the car will dispatch itself to down hall calls above the lobby and up hall calls below the lobby. The front hall call, and rear hall call bits settings are only used for the dispatcher car and when set, if communication is lost to a particular hall call board, hall calls are set for the affected floors. 1 = ON 2 = Front Doors 4 = Rear Doors

Field Variable	Min	Max	Default	Units	Description
Table 7-5: Group Emergency Services					
Cl Door F1 Rcl	0	1	0	-	**Close Door after Fire phase 1 Recall.** When set to 1, elevator will close the doors after phase 1 recall and reopen from a hall call (Denver Fire service amendment).

7.1.6 Group Dispatch Submenu

Field Variable	Min	Max	Default	Units	Description
Table 7-6: Group Dispatch					
Parking	0	Number of Cars	1	car	**Number of Cars to Park.** One car is parked at the lobby. The remaining cars are parked at the most used floors of the building. If set to zero, no cars are parked.
Park Delay Time	0.0	900.0	8.0	secs	**Parking Delay Time.** The time delay an idle car waits before being parked.
Parking floor 1 Parking floor 2 . . Parking floor 7	0	Top Floor	0	floor	**Parking Floor.** Floor to park the idle car (up to 7 parking floors). If set to zero, the group will use the number of hall call history to decide where to park the car. The parking variable must be set to at least 1 for this function to work. See also Parking Type.
Parking Width	0	Top Floor	0	floor	**Parking Width.** The number of floors that a car must be within to be considered parked at the parking floor. See also Parking Type.
Parking Type	0	3	0	-	**Parking Type.** Determines the type of parking operation that is implemented by the group. 0 = Park free cars to floors with the most hall calls for that 15 minute period. 1 = Divide the hoist way by the number of cars and place a car in each zone starting with the lobby. 2 = Park cars according to the adjustable variable parking floor. Note that during parking, a car is always parked at the Lobby except when the option for alternate parking floor is selected through an input.

Field Variable	Min	Max	Default	Units	Description
Table 7-6: Group Dispatch					
Alt Parking Fl	1	Top Floor	1	floor	**Alternate Parking Floor.** Normally, during parking operation, one elevator is always parked at the lobby. With alternate parking floor operation, a free car is parked at the alternate parking floor instead of the lobby floor. This operation is controlled by an input or from a service timer.
Grp Timer Park	0	Number of Cars	0	car	**Group Service Timer Park Cars.** This is the number of parking cars when parking is set from the Service Activation Timer for Group parking.
Asgn Park Fl DO	0	1	0	-	**Assign Parking Floor with Door Open.** By default, we only park cars that have the doors closed after a time delay. This parameter allows to re-assign parking to cars with doors open if they do not have a direction to run.
Lobby Floor	Bottom Floor	Top Floor	Bottom Floor	floor	**Lobby Floor.**
Alt Lobby Floor	1	Top Floor	1	floor	**Alternate Lobby Floor.** Galaxy groups could be configured to have an alternate lobby. Switching between regular lobby and alternate lobby could be done by means of LiftNet, Galileo, controller input or service timer. Once the alternate lobby is enabled, controllers will use this landing as the lobby floor for all dispatching purposes.
Lobby Request	0	Number of Cars	0	car	**Lobby Request.** Number of Cars Requested to the Lobby floor. Used with Next Car Up operation.
Lobby Req Cntrl	0	1	0	-	**Lobby Request Control.** If the lobby request variable is set to non-zero, then that is how many cars are requested to the lobby all the time. When this flag is set to 1, the lobby request is only used when next up is active. Next Up can be active all the time, from a dedicated input or from Up Peak.

Field Variable	Min	Max	Default	Units	Description
Table 7-6: Group Dispatch					
Next Car Up	0	7	0	-	**Next Car Up.** Set to 1 or 2 will activate the Next Car Up operation. +1 = The next up car will open its door at the lobby and keep it open. The car is allowed to leave the floor after the Lobby Dwell time expires but will remain at the floor with the door open until an onward call is assigned to it. +2 = The next up car will close its door after the Lobby Dwell time expires and go off of next up but will remain at the lobby. An up hall call at the lobby will cause the car to open its door and go on next up. +4 = Next up is activated on Up Peak detection only. Next up can also be activated from an input.
Up Pk Trig Time	0.0	3200.0	60.0	secs	**Up Peak Trigger Time.** The time interval to count the number of up peak triggers.
Up Pk Trig Cnt	1	100	3	count	**Up Peak Trigger Count.** The number of up peak triggers that are set within the up peak trigger time to activate up peak operation. Up peak triggers are counted when the car leaves the lobby with the load dispatch input set or with the more car calls than the up peak car call count.
Up Pk CC Count	1	40	3	count	**Up Peak Car Call Count.** Number of car calls the car must have when leaving the lobby to count as an up peak trigger.
Up Peak Time	0.0	3200.0	180.0	secs	**Up Peak Duration Time.** The duration time for up peak operation once up peak is activated. If set to zero, up peak operation will never turn on.
Up Peak Contrl	0	1	0	-	**Up Peak Control.** 0 = Normal up peak 1 = Heavy up peak
Up Peak Pool	0	Number of Cars	1	car	**Up Peak Pool.** Number of cars to be utilized for up peak.

Field Variable	Min	Max	Default	Units	Description
Table 7-6: Group Dispatch					
Dn Pk Trig Time	0.0	3200.0	60.0	secs	**Down Peak Trigger Time.** The time interval to count the number of down hall calls above the lobby to activate down peak operation.
Dn Pk Trig Cnt	1	100	12	count	**Down Peak Trigger Count.** Number of down hall calls above the lobby that are set within the down peak trigger time to place the system on down peak operation.
Down Peak Time	0.0	3200.0	180.0	secs	**Down Peak Duration Time.** The duration time for down peak operation once down peak is activated.
Dn Peak Contrl	0	1	0	-	**Down Peak Control** 0 = Normal down peak 1 = Heavy down peak
Down Peak Pool	0	Number of Cars	0	car	**Down Peak Pool.** Number of cars to be utilized for down peak.
ETA Min Time	0	60	6	secs	**ETA Minimum Time.** For a hall call to be assigned to a new car, the difference in ETA must be greater than the ETA Minimum Time.
ETA Co CC Time	0	60	15	secs	**ETA Coincident Car Call Time.** Hall calls will be assigned to the car with the coincident car call unless the car without the coincident car call can reach the call faster than ETA Coincident Car Call Time.
ATT Pref Time	0	60	0	secs	**Attendant ETA Preference Time.** When set to non-zero, the car not on attendant service has this time added to its ETA time. This causes the attendant car to be given a preference for the hall call.

Field Variable	Min	Max	Default	Units	Description
Table 7-6: Group Dispatch					
Handicap Wait	0	255	0	secs	**Handicap Car Wait Time.** Special operation that when a passenger presses a handicap hall button, the group adds this time to the ETA of all cars that do not have enough capacity. See Handicap Capacity in car options. Normally, if a car is at the floor of the handicap hall call, it will get the assignment regardless of the handicap capacity unless this value is set to 255.
Auto SVC tm-out	0	1	0	-	**Auto Service Time-out.** 0 = Disable 1 = Enable When this parameter is enabled and **'Auto SVC tot TM'** (below) parameter time is set accordingly, each car is checked for answering assigned hall calls. If the car does not move to answer calls in the required time, it is put into AST service. Hall calls that are assigned to that car are reassigned to working cars in the group. The group then periodically assigns hall calls to the AST car to verify if it can be put back into the group for normal operation.
Auto SVC tot TM	10	3200	120	secs	**Auto Service Time Out Time.** This time in seconds is used in conjunction with **'Auto SVC tm-out'** (above) and is the amount of time that the group will wait before setting a 'not moving/responding' car as timed out.

Section 8 – Appendix A

Every safety precaution, whether specifically stated in this document, must be implemented when installing, adjusting, or servicing elevator equipment. All safety precautions must be followed to ensure the safety of elevator personnel and the general public.

The test procedures outlined in this Appendix provide a guide for elevator personnel to perform the specific tests in this Appendix. These test procedures are not intended to override or circumvent any procedure or test that is mandated by the applicable codes and the Authority Having Jurisdiction.

All temporary connections must be removed before placing the elevator in service.

If there are any questions in regard to the procedures for performing these tests with a Destination Dispatch controller, please call GAL Manufacturing toll free at 1-(877) 425-7778 for free technical assistance.

7.2 Failover Between Main and Backup DD CPU

There are two possible active dispatcher devices in the full DD system, the DD CPU with car ID 0, and the DD CPU with car ID 9. The GALaxy 4 car controllers cannot become the active dispatcher in a DD system, since they cannot communicate with the kiosks that are connected to CAN buses that are only connected to the two DD CPUs in the DD controller cabinet. In the cons file, Main DDCPU is always configured as car # 0 and Backup DDCPU is always configured as car # 9. Under normal conditions the Main DDCPU acts as the active dispatcher and it dispatches calls coming into the system via kiosks, while Backup DDCPU sits idle. In the case of Main DDCPU failure due to either hardware, software or power failure, the Backup DDCPU takes over and becomes the active dispatcher and dispatches calls.

NOTE: In lobby boost destination dispatch setup, there is no use of the Backup DDCPU, instead in case of DDCPU failure, the next available car will operate as group to dispatch Up/Down hall calls.

7.2.1 Test Backup DD CPU

1) On the Main DD CPU LCD interface, head to the Diagnostics screen and press ENTER.
2) Navigate to Group Comm Status and press ENTER.
3) Verify Group to Backup DDCPU status shows as “Online”, indicating successful communication status.
4) Place the Main DD CPU on “Power Up Mode” on the Software Utilities screen.
5) On the Backup DD CPU LCD interface, head to the Dispatcher Status screen and press ENTER.
6) Verify Dispatcher Status displays “Backup DDCPU” as “Active”, not “Standby”.

7.3 Emergency Power

7.3.1 Test Emergency Power

1) Where applicable, simulate emergency power by installing a temporary connection from terminal HCP to terminal EMP.
2) To restore to normal operation, remove the temporary connection from terminal HCP to terminal EMP.

7.4 Emergency Dispatch

Emergency dispatch for Destination Dispatch occurs when all destination input devices on a floor, or multiple floors, are down/offline. The destination dispatch controller starts dispatching cars to the offline DID floors and automatically sends calls to the lobby floor. If the lobby floor DIDs are down, then the car will dispatch from the lobby floor to floors above and below the lobby, in order.

NOTE: If front riser DIDs are down, but split risers are online, then emergency dispatch will NOT commence.

NOTE: Emergency Dispatch is currently working on non-credential security sites, as it may impose privacy issues/restrictions on sites with security.

7.4.1 Test Emergency Dispatch

To have emergency dispatch running automatically, the following field parameter will have to be enabled on the Main DDCPU LCD interface:

1) Navigate to the Adjustable Variables screen then click ENTER.
2) Click ENTER for the Destination Dispatch screen.
3) Press DOWN until “fvddemdisp” is reached.

4) Change the parameter to 1 by pressing the UP button to increment the number and press ENTER to save the change.

To change the cycle's amount of time the controller waits until dispatching the cars to offline floors:

1) Navigate to the Adjustable Variables screen then click ENTER.
2) Click ENTER for the Destination Dispatch screen.
3) Press DOWN until "fvddemdisptime" is reached.
4) The default value is 120 seconds, the parameter can be changed by pressing the UP button to increase the number and press ENTER to save the change.

Allow the emergency dispatching cycle to start and ensure that the cars are being assigned calls on floors that have offline DIDs.

7.5 VIP Service

VIP Service allows passengers to have priority over others in which once assigned a car, this car will be temporarily unavailable until it completes its dispatch to the destination floor of the VIP passenger. The maximum number of VIP cars used at once can be adjusted by a field parameter.

NOTE: VIP calls will NOT be assigned to Split Group cars.

7.5.1 Test VIP Service

For the first parameter, we will be enabling the Credential Security VIP Service on the LCD interface:

1) Navigate to the Adjustable Variables screen then click ENTER.
2) Click ENTER for the Destination Dispatch screen.
3) Press DOWN until "CredSec VIP" is reached.
4) Press ENTER to change the parameter to 1 by clicking the UP button to increment the number and then press ENTER to save the change.

(Adjustable Variables -> Destination Dispatch -> "CredSec VIP" = 1)

For the second parameter, we will be setting the number of VIP cars that can be in use at the same time:

1) Navigate to the Adjustable Variables screen then click ENTER.
2) Press DOWN until the Group Options screen is reached and then press ENTER.
3) Press UP until "Number Vip Cars" is reached.
4) Press ENTER to change the parameter to 3 by clicking the UP button to increment the number and then press ENTER to save the change.

(Adjustable Variables -> Destination Dispatch -> "Number Vip Cars" = 3)

Present credentials with VIP attribute enabled and ensure that the passenger is the only call being assigned to that specific car. VIP calls will be shown in the Group Screen.

7.6 Split Group Service

Split group service allows for elevators to be temporarily taken out of the group and assigned as split group cars. The user must have the split group attribute to be assigned to a split group elevator. Split group elevators will be shown as unavailable for standard calls and VIP calls.

7.6.1 Test Split Group Service

The following steps are necessary on the Main Destination Dispatch Controller DDCPU (and Backup, if it is enabled):

1) Navigate to “Adjustable Variables” and Press “ENTER”
2) Navigate to “Destination Dispatch” and Press “ENTER”
3) Use the “DOWN” button until you find “Split Grp1 CARS=” and Press “ENTER”
4) Once in this screen, use the “MODE” button to navigate to whichever car was previously set to the split group car (this will be obvious, as it will be the only car set to 1).
5) Set the 1 to a 0 by using the “DOWN” button after using the “MODE” to navigate to that specific placement and press “ENTER” to save the new values.
6) The “Enter” should’ve brought you back to the previous screen and now it should say “Split Grp1 CARS=000000”.
7) Repeat this for the Backup DDCPU, to ensure that both controllers have the same parameters set.
8) Present credentials, with the split group attribute enabled, at a destination input device and confirm that the car assigned is a split group car.

7.7 American Disabilities Act (ADA) Destination Dispatch Operation

The parameters to specify door dwell time for handicap passenger at origin floor and destination floor can be found on DD CPU under the following menu location:

- Adjustable Variables -> Destination Dispatch ->OrigFl HandiDwT
- Adjustable Variables -> Destination Dispatch ->DestFl HandiDwT

The DD Audible Controls field adjustable parameter can be found on

- DD CPU Adjustable Variables -> Destination Dispatch -> “DD Audible Ctrl”.

These parameter options work as described in Section 7.

7.7.1 ADA Button Pressed Prior to Keycard Swipe

When the ADA button is pressed before a keycard is presented, there are two possible occurrences; a call can be placed by the passenger and the elevator will arrive to collect them **OR** a passenger can begin the ADA process and take an action to cancel the operation. In the scheme of events, when the ADA button is pressed first, an ADA call can be placed by the passenger by three means.

- Credential Security NOT Enabled

Figure 8-1: Credential Security Not Enabled on Kiosk

When **credential security** is **NOT enabled,** the passenger is allowed to reach any floor. The following scenario describes the interaction between a passenger and a kiosk in this case:

- The passenger approaches a kiosk, and all the floors are unsecure.
- The passenger presses the ADA button.
- Kiosk states through the speaker that it is now on ADA mode.
- Kiosk announces the destination floor numbers.
- The passenger selects a destination floor by pressing the ADA button once they hear the desired floor they desire.
- Kiosk announces the elevator the passenger is assigned to and will switch back to the main screen.

7.7.2 Credential Security Enabled, Some Destination Floors Accessible

Figure 8-2: Credential Security Enabled, With Lobby Floor Accessible

This case describes when **credential security** is **enabled**, but there are **certain floors** that are **unsecured** (i.e., lobby floors). These **specific unsecured destinations** are **unlocked** for everyone approaching a kiosk. All three outcomes of this case are described below:

- The passenger approaches a kiosk.
- Kiosk displays an unsecured destination without a lock icon.
- The passenger presses the ADA button.
- Kiosk asks for the credentials.
- **8.6.2.1: Passenger Does Not Present Credentials, Places an ADA Call**
  - Kiosk announces the floors that are unlocked, without the passenger having to present credentials.
- **8.6.2.2: Passenger Presents Credentials, New Destinations Unlock, Places an ADA Call**
  - The passenger presents credentials.
  - Kiosk announces new destinations.
- **8.6.2.3: Passenger Presents Credentials, No New Destinations Unlock, Places an ADA Call**
  - The passenger presents credentials.
  - Kiosk announces the same destinations that were unsecured before.
- The passenger selects a destination by pressing the ADA button once they hear their desired unsecured floor number.
- Kiosk announces the elevator the passenger is assigned to and switches back to the main screen.

7.7.3 Credential Security Enabled, All Destination Floors Secured

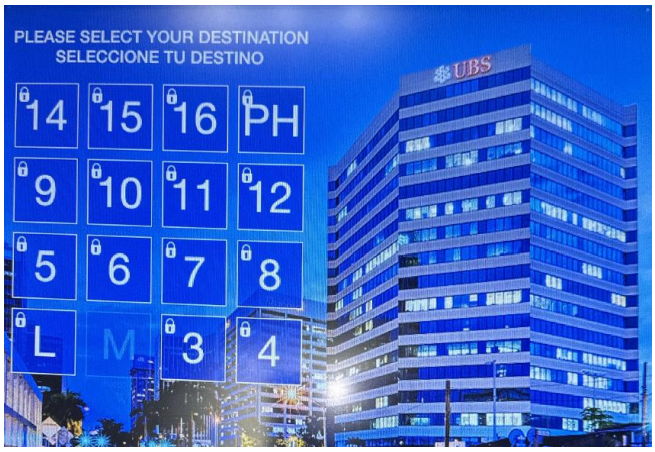


Figure 8-3: Credential Security Enabled, All Destinations Secured

The following scenario describes when **credential security** is **enabled,** and **all destinations are secured**:

- A passenger approaches a kiosk that has lock icons next to every floor number displayed.
- The passenger presses the ADA button.
- The kiosk states on the screen and announces that it is now on ADA mode.
- The kiosk asks for credentials to be presented.
- The passenger presents credentials.
- The kiosk starts announcing the floors that the passenger has access to.
- The passenger will press the ADA button once they hear their desired destination.
- The kiosk will then announce the elevator the passenger is assigned to and will switch back to the main screen.

7.7.4 Termination of ADA Sequence

The **three actions** which would **allow for the kiosk** to **cancel the ADA procedure** and return to the main screen are described below.

7.7.4.1 8.6.4.1: Passenger Takes No Action

- The passenger presses the ADA button.
- Passenger presents credentials.
- Kiosk announces floors.
- Passenger takes no action.

Once the unlocked floors are announced twice, the kiosk would know to cancel the procedure if no action was taken and return to the main screen.

7.7.4.2 8.6.4.1.2: Double Clicks ADA Button

- The passenger double clicks the ADA button at any time during the ADA process.

This immediately cancels the ADA procedure and allows for the kiosk to return to normal screening.

7.7.4.3 8.6.4.1.3: Credential Security Enabled, All Floors Secured, No Credentials Given

- Kiosk is placed on credential security.
- Kiosk asks for credentials to be presented.
- The passenger does not present the credentials within the given timeframe.
- Kiosk cancels the ADA procedure and returns to the main screen.

7.7.5 Keycard Presented Prior to ADA Button Press

Figure 8-4: Kiosk Asks for Credentials

Keycard credentials are stored by the dispatcher the moment they are swiped until a timeout is reached. For the ADA operation, this timeout is prolonged to a field variable set on the controller on the jobsite. For ADA operation specifically, the train of events that occurs is stated below:

- A passenger presents credentials.
- The destination dispatcher stores the credentials.
- Kiosk removes the secured locks.
- Accessible floors are retained until the ADA sequence ends.

There are two possibilities that can occur following the swiping of a keycard prior to pressing the ADA button; Furthermore, the ADA call can be placed, **OR** the call can be canceled by two different actions. The following steps will place an ADA call under scenario 2:

- A passenger will approach a kiosk.
- The passenger will present the keycard.
- The ADA button will be pressed immediately after.
- The kiosk will switch the screen to ADA mode and will state it is in ADA mode.
- The kiosk will announce the floors that are unlocked in accordance with the authorized floors on the keycard presented.
- An ADA call can be made by pressing the ADA button once the floor that is desired is announced on the kiosk.
- The kiosk will then display which elevator is assigned and verbally announce this call, and then switch the screen back to the main screen.

The actions required to cancel an ADA process when the keycard is presented first are simple. The passenger can either take no action at any time, **OR** double click the ADA button at ANY time during the ADA operation to cancel the process.