ES2 Quick Start Guide (V1.03) Traction Controller

Higher | Faster | Smoother

ESI ELEVATOR SYSTEMS

Table of Contents

1. Legacy Controller Terminal Name to New Name Mapping

* ESI is transitioning from Legacy Terminal Names/Numbers to more user friendly Terminal names that define the function of the terminal more appropriately.

Controller Type	Legacy Terminal Name	New Terminal Name	Function
Both	#32	#GOV1	Governor Switch
Both	#32A	#GOV2	Governor Switch/Governor Switch Input
Both	#34	#DCB	Front Door Contact Bottom (Swing/Manual Doors Only)
Both	#34A	#DCBI	Front Door Contact Bottom-Intermediate
Both	#34AR	#DCBIR	Rear Door Contact Bottom-Intermediate
Both	#34D	#DCTI	Front Door Contact Top-Intermediate
Both	#34DR	#DCTIR	Rear Door Contact Top-Intermediate
Both	#34R	#DCBR	Rear Door Contact Bottom
Both	#35	#DCT	Front Door Contact Top/Front Door Contact Input
Both	#35R	#DCTR	Rear Door Contact Top/Rear Door Contacts Input
Both	#40	#CSC1	Car Safety Circuit
Both	#41	#CSC2	Car Safety Circuit/Safety Chain Input
Both	#42	#ICGS	In-Car Inspection Switch Input
Both	#43	#DLT	Front Door Lock Top/Front Door Locks Input
Both	#43A	#DLTI	Front Door Lock Top-Intermediate
Both	#43AR	#DLTIR	Rear Door Lock Top-Intermediate
Both	#43D	#DLBI	Front Door Lock Bottom-Intermediate
Both	#43DR	#DLBIR	Rear Door Lock Bottom-Intermediate
Both	#43R	#DLTR	Rear Door Lock Top/Rear Door Locks Input
Both	#44	#DLB	Front Door Lock Bottom
Both	#44R	#DLBR	Rear Door Lock Bottom
Both	#45	#GS	Front Gate Switch Input
Both	#45R	#RGS	Rear Gate Switch Input
Hydraulic	#65	#LW	Load Weighing 80% Input
Hydraulic	#66	#OLD	Load Weighing 110% Input
Both	#68	#OOS	Out of Service Key Switch Input
Both	#69	#CTL	Car to Lobby Key Switch Input
Both	#74	#OOSL	Out of Service Light Output
Both	#90	#AFR	Smoke & Heat Detector at Prime Floor Input
Both	#90B	#HFD	Hatch Smoke & Heat Detector Input
Both	#91	#FCOM	Fire Service Common
Both	#92	#PFR	Smoke & Heat Detector at All Floors Except Prime Floor Input
Both	#92B	#MFD	Machine Room Smoke & Heat Detectorv
Both	#93	#FR	Fire Reset/Bypass Input
Both	#94	#FLS	Fire Lobby Switch Input
Both	#97L	#LFI	Lobby Fire Light Output

Traction*	#BY	#PBS	Primary Brake Switch
Traction*	#BZ	#EBS	Emergency Brake Switch
Both	#HW	#PFS	Pit Flood Switch Input
Both	#IC2	#ICI	In-Car Inspection Input
Both	#ICA	#ACC	Access Input
Hydraulic	#OT	#OTS	Over Temperture Switch Input
Both	#PRS1	#OPS	Pressure Switch Input
Both	#SAB	#SABI	Sabbath Service Key Switch Input
Both	#SAL	#SABO	Sabbath Service Light Output
Both	#TC	#TCI	Top of Car Inspection Input
Both	#TPR4	#TOL	Motor Thermal Overload Input
Traction	#X10	#TRS1	TEERs Switch
Traction	#X11	#TRS2	TEERs Switch/TEERs Input

* On the Brake Terminals

2. Legacy COP Input/Output Names to New Input/Output Name Mapping

* ESI is transitioning from Legacy Input/Output Names/Numbers to more user friendly Input/Output names that define the function of the Input/Output more appropriately.

Input#	Legacy COP Input Name	New COP Input Name	Function
18	28H	DH	Front Door Hold Button
19	28HR	DHR	Rear Door Hold Button
20	62	SB	S-Button
21	70	ATTN	Attendant ON
22	71	ATTD	Attendant UP
23	72	ATTU	Attendant DN
24	73	ATTB	Attendant Bypass
25	24	DC	Front Door Close Button
26	28	DO	Front Door Open Button
27	50	IND	Independent Service
28	95	FC2N	Fire Phase II ON
29	100	FC2O	Fire Phase II OFF
30	96	FC2C	Fire Phase II Call Cancel
31	24R	DCR	Rear Door Close Button
32	28R	DOR	Rear Door Open Button

Output#	Legacy COP Output Name	New COP Output Name	Function
17	28H	DHL	Front Door Hold Light
18	N/A	HWL	High Water Light
19	28HR	DHLR	Rear Door Hold Light
20	N/A	OPEN	Open for future use
21	N/A	OPEN	Open for future use
22	5	ATBO	Attendant Buzzer
23	6	ATDL	Attendant Up Light
24	7	ATUL	Attendant Down Light
27	61	SPG	Stop & Passing Gong
28	97	FCL	Fire Light In Car
29	97B	FB	Fire Buzzer In Car
30	67	LWLB	Load Weighing Light & Buzzer

3. Legacy TOC Input/Output Names to New Input/Output Name Mapping

* ESI is transitioning from Legacy Input/Output Names/Numbers to more user friendly Input/Output names that define the function of the Input/Output more appropriately.

Input#	Legacy TOC Input Name	New TOC Input Name	Function
9	OL	DOL	Front Door Open Limit
11	28E	DES	Front Door Edge Sensor
13	ROL	DOLR	Rear Door Open Limit
14	DLR	DCLR	Rear Door Close Limit
15	28ER	DESR	Rear Door Edge Sensor
18	65	LW	Load Weighing 80%
19	66	OLD	Load Weighing 100%

Output#	Legacy TOC Output Name	New TOC Output Name	Function
9	OX	DOS	Front Door Open Signal for the Operator
10	CX	DCS	Front Door Close Signal for the Operator
13	OXR	DOSR	Rear Door Open Signal for the Operator
14	CXR	DCSR	Rear Door Close Signal for the Operator
22	97I	FLI	Fire Light Top of Car
23	97BI	FLB	Fire Buzzer Top of Car
24	LCP	LFC	Light & Fan Control

4. Pre Power Check Out

Prior to shipment, the controller is given a series of thorough tests to ensure proper operation. However, it is possible that components could have loosened or been damaged during shipment. Therefore, before applying power, it is a good idea to check the following:

- Check for loose components.
- Check that no components were damaged in shipping
- Check all rectifier connections are tight and not shorted
- Make sure all plug in relays are fully inserted and seated.
- Check that all CPU terminal strips fully inserted
- Make sure all toggle switches are in the down position.
- CONFIRM input power supply. The input power supply specifications are printed near the terminals.

5. Intial Power Turn On/ES2 Ground Safety

CAUTION: High Voltage can cause serious and fatal injury. Extreme caution should be exercised when working on or near this controller. Only qualified personnel should attempt to start-up or troubleshoot this controller.

1. Connect the main power line to Terminal Block connectors L1, L2, and L3. Terminal Block is at the bottom of Controller.
2. Check the voltage across terminals #L1, #L2 and #L3. Verify that the voltage reading is what the controller is built for.
3. The Reverse Phase Relay (RPR) should be lit. If the RPR is not lit then reverse the #L1 and #L2 wires.
4. Typically, voltage across the Primary side of the control transformer should be 208VAC and the voltage across the Secondary side of the transformer should be 120VAC.
5. The Secondary side of the transformer ties into the RB board where power is routed to different parts of the controller.
6. Verify the following terminal pairs should have 120VAC present:
    - #27 - #60
    - Controllers with E-Brake (Emergency Brakes) #GOV1- #60 (with CT Relay energized)
    - Controllers with Rope Gripper #OVS1-#60 (with CT Relay Energized)
    - #FCOM(#91) - #60
7. Verify the following terminal pairs have 24vdc which is a feed from PS #2:
    - #31 - #22
    - #30 - #22 (with Hall Button Switch ON)
8. If job is using ESI Digital Position Indicators (DPI-XX)'s verify the following terminal pairs have 24vdc which is a feed from PS #2:
    - #1L - #2L

If all voltages are within range and all safety circuits are properly wired, running the car on Construction Mode with Top of Car Inspection should be done first. See the Construction Mode/sequence of operation for a full description of this procedure

6. Construction Mode

Construction Mode

Assuming all the necessary steps have been taken as defined in Initial Power Turn On/ES2 Ground Safety, ES2 can now be put to construction mode:-

1 **Following Terminals need to be Jumped for car to run in Construction Mode:-**

Terminal #'s	Function
#DCB(#34) - #DCT(#35)	Door Contacts (Manual/Swing Doors only), Input [HDC]
#DLT(#44) - #DLB(#43)	Door Locks, Input [DL] and Relay "DL"
#37 to #39	Bottom Normal Limit
#38 to #39	Top Normal Limit
#TFL1- #TFL2	Top Final Limit
#BFL1 - #BFL2	Bottom Final Limit
#PSW1 - #PSW2	Pit Safety Switch
#CSC1(#40) - #CSC2(#41)	Car Safety Circuit - Escape Hatch, Safety Sw, TOC Stop Sw (input [SAF] ON)
#CSC2(#41) - #ICGS(#42)	InCar Stop Switch (input [ICSS] ON)
#ICGS(#42) - #GS(#45)	Car Door Contact (input [GS] ON and relay "GS" ON)

2 **If job has walkthrough doors, jump the following terminals**

Terminal #'s	Function
#DCBR(#34R) - #DCTR(#35R)	Rear Door Contacts (Manual/Swing Doors Only), Input [RHDC]
#DLTR(#44R) - #DLBR(#43R)	Rear Door Locks, Input [RDL] and Relay "RDL"
#ICGS(#42) - #RGS(#45R)	Rear Car Door Contact (input [RGS] ON and relay "RGS" ON)

3 **In addition for controllers using Rope Gripper as a secondary brake , jump the following terminals on the** ES-RG-BD **(Rope Gripper Board):-**

Terminal #'s	Function
#OVS1 - #OVS2	Governor Overspeed Switch (input **"OVS"** ON)
#RGC1 - #RGC2	Rope Gripper Contact

4. **If the controller uses Emergency Brake as the secondary brake, jump the following terminals:-**

Terminal #'s	Function
#GOV1(#32) - #GOV2(#32A)	Governor Trip Switch

5. **If running construction mode with a Temporary Run Box, connect the Run Box to the following Terminals**

   #TI , #ID , #IU

6 **After adding the above jumpers, use the following documents to tune the drive to the machine/motor. On clicking the links below you :-**

- KEB F5 Drive: KEB Elevator Quick Start Guide (V 3.00), included with the controller documentation (Click to download)
- Magnetek M1000 Drive: M1000 Quick Start Guide V3-0, included with the controller documentation (Click to download)

7. Learn Trip

This procedure is specifically for APS applications performed from the COP (in the car) , or TOC (TOP OF CAR) while in Inspection Mode. .

1. Parameter [2], Top Floor, must be set before running this procedure
2. Terminals #37 and #38 must be jumped to #39. While these jumpers are in place, the car will not be stopped by the virtual normals.
3. Set Parameter [20] = 8 (this allows floor heights to be written to Memory)
4. Keep pressing MODE Button until the Setup/Utilities Menu is visible. Enter the Setup/Utilities Menu

5. Press UP ARROW until "LEARN FLOOR TABLE" is displayed

6. Press set, LEARN Floor Hgts will be displayed

7. RUN Car to Landing "1"
8. Press SET, repeat SET to confirm

9. Repeat the process for each Landing
10. Once each Landing position has been learned, the controller will ask for the CWT position.
11. Move the car to the desired position and press Set to Save and Set to Confirm.
12. Slow down distances and position of the virtual normal limits are then automatically calculated.
13. Remove Jumpers from Terminals #37 and #38 that were jumped to #39
14. At the end of this procedure, the controller will train the safety processor in the TOC

8. Floor Height Final Adjustments

After Initial Learn Trip, following process is used to do final adjustments to fine tune the floor height table.

1. Set Parameter [20] = 8
2. Keep Pressing MODE Button until the Setup/Utilities Menu is visible

3. Press UP ARROW until "View Flr Hgt Table" is displayed

4. Press Set to View the table

5. Press up and down arrows to cycle through the rows of the floor height table
6. Press Set to Edit the floor height

7. The cursor will show which number will be changed. Press Mode to move the cursor between the characters. Use up and down arrows to adjust the number. Press Set to save OR Press clear to cancel.

9. ES2 Testing Procedures

ES2 provides industry standard Testing Procedures to pass various elevator Safety Tests

1. NTS Testing
2. ETS Testing
3. Unintended Motion Acceptance Test
4. Ascending Overspeed Test
5. Descending Overspeed Test/Car Safety Test
6. Car Buffer Test
7. Counterweight Buffer Test
8. Traction Loss Test
9. Rope Gripper Test

9.1. NTS Testing

NTS Testing

NTS (Normal Terminal Slowdown) testing is a crucial procedure performed on elevators before they are put into service to ensure proper operation of the slowdown and stopping mechanisms at the top and bottom of the hoistway. This test verifies that the elevator will safely slow down and stop at the terminal landings using the designated normal virtual limit.

CAR SHOULD BE IN AUTOMATIC MODE FOR THIS TEST TO BE CONDUCTED.
Car will Enter SPECIAL TEST MODE and all calls and normal operations will be disabled. The NTS Test is to be performed after the initial Floor Learn Trip has been completed.

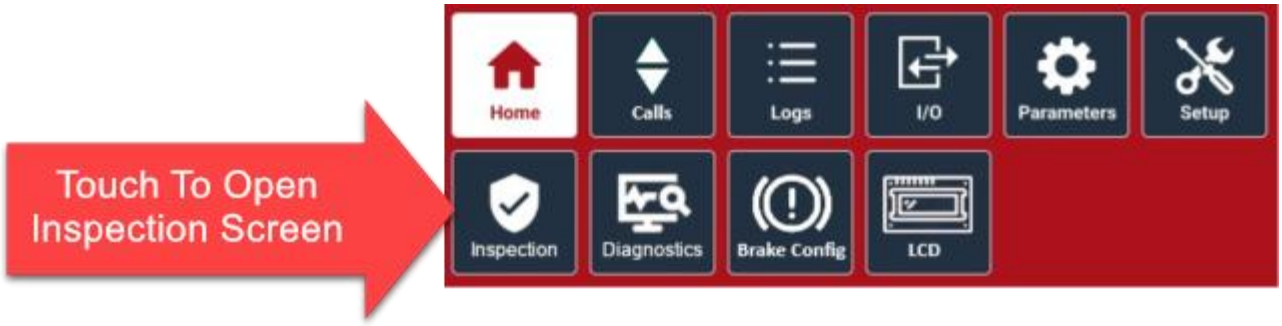
With ES2, NTS can be performed either with an Automated Test or a Manual Test.

1. Automated Test
2. Manual Test

9.1.1. NTS Automated Testing Procedure

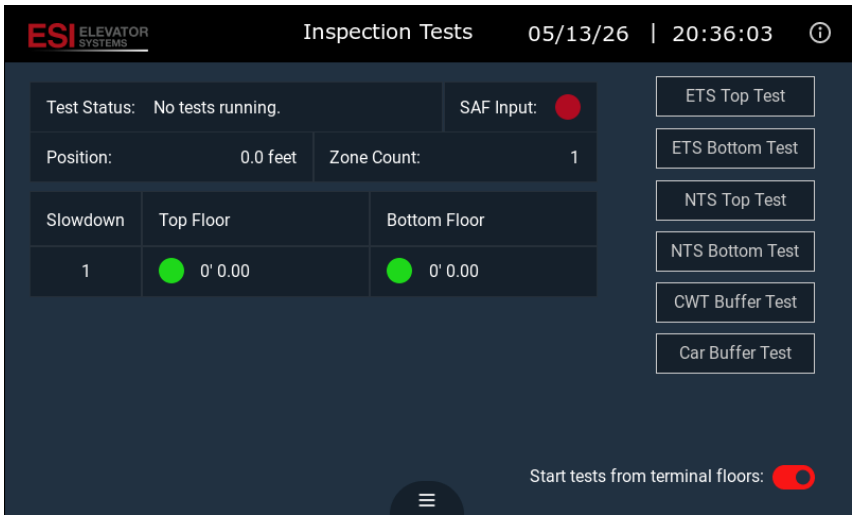
CAR SHOULD BE IN AUTOMATIC MODE FOR THIS TEST TO BE CONDUCTED.
Car will Enter SPECIAL TEST MODE and all calls and normal operations will be disabled. The NTS Test is to be performed after the initial Floor Learn Trip has been completed.

Automated NTS Testing Procedure



The following screen provides automated wizards to perform the inspection tests. Car will move during these tests. The following screen provides automated wizards to perform the inspection tests. Car will move during these tests.

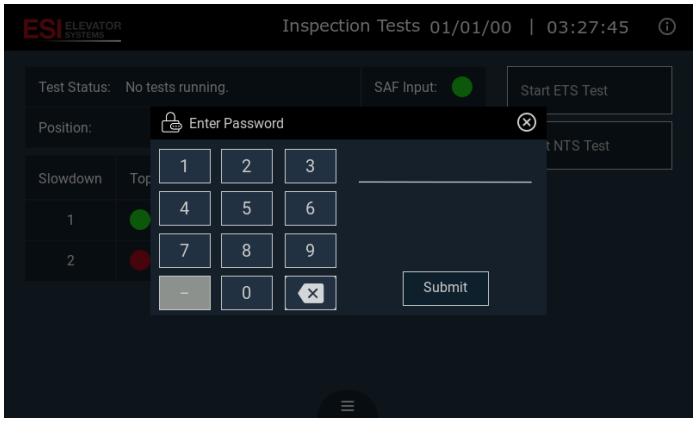
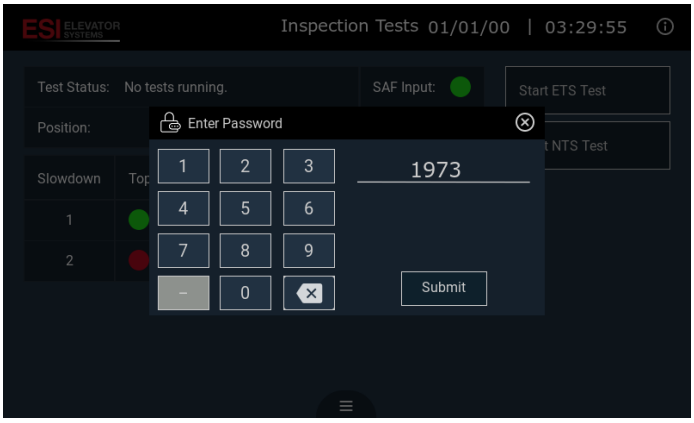
1) Select the NTS Top Test button to start the test and follow the on screen prompts.
2) Once NTS Top Test is completed, Select the NTS Bottom Test button to start the test and follow the on screen prompts.



In case during inspection it is desired to run the NTS test starting from terminal floors, toggle the START TESTS FROM TERMINAL FLOORS to ON position. It will turn Green and will conduct automated testing from Terminal Floors.

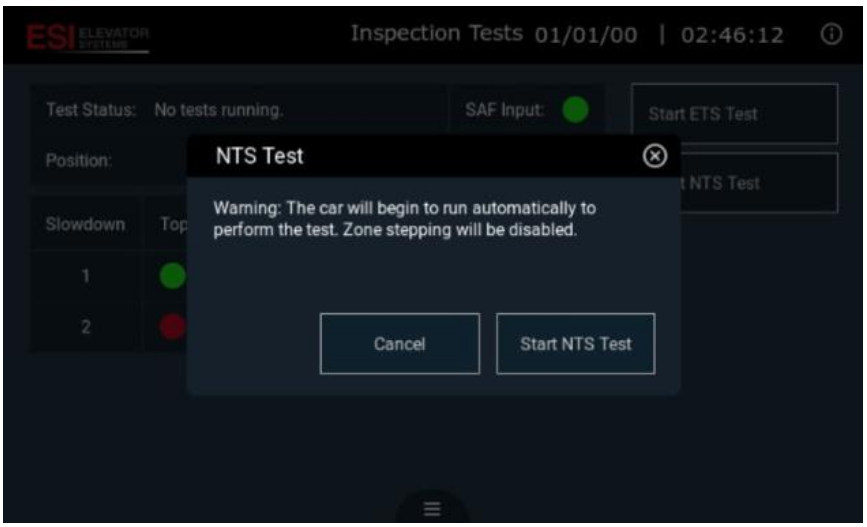
(NTS TEST STEP 1)

Press one of the NTS TEST buttons. Screen will prompt for a password. Default Password is 1973. Enter the Password.

Figure 2	Figure 3
	

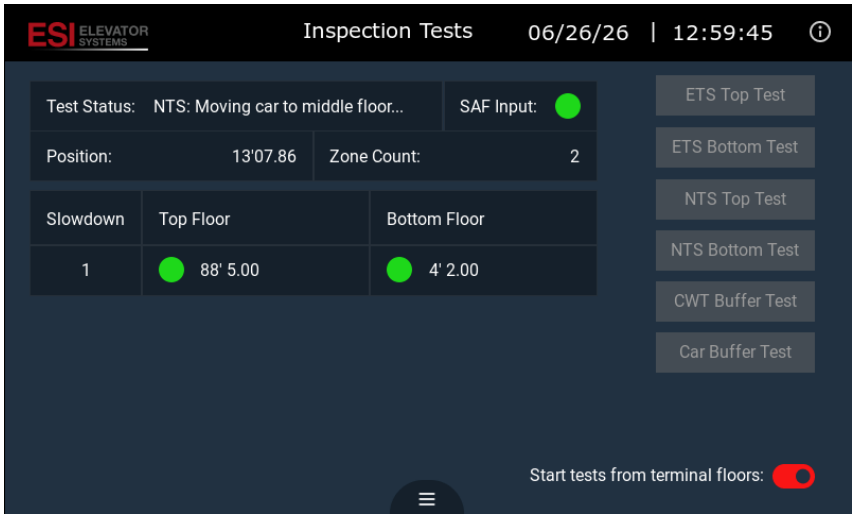
(NTS TEST STEP 2)

After Entering the password, Screen will display the following Prompt. Press the Start NTS Test button



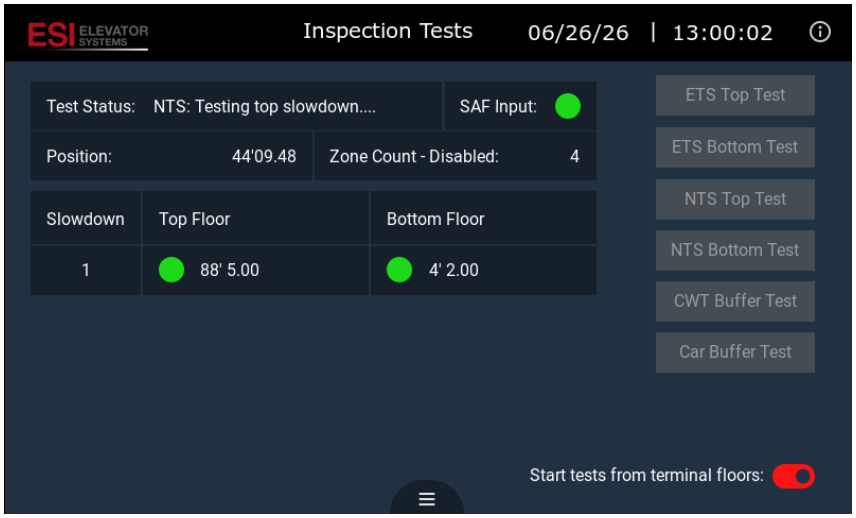
(NTS TEST STEP 3)

Car will Move to middle floor to start the Test Process.If the "Start tests from terminal floors" switch is enabled, the car will move to a terminal floor to start the test.

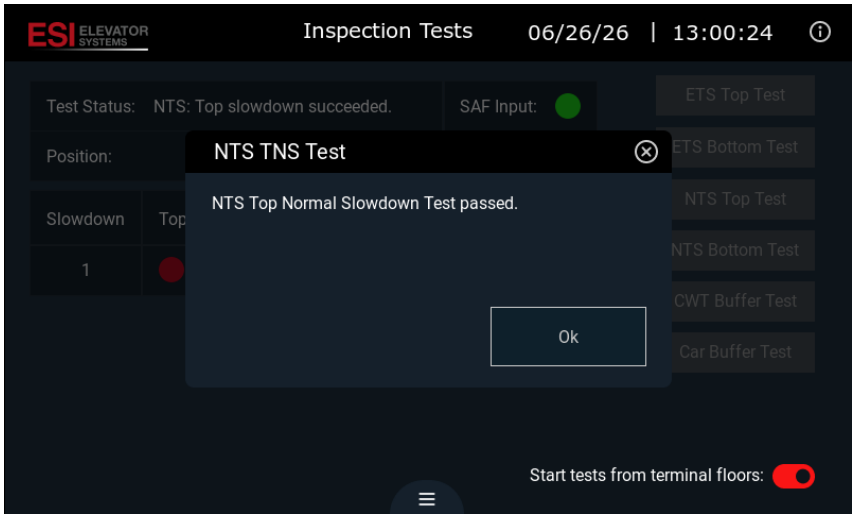


(NTS TEST STEP 4)

Car will then test the slowdown limit that was selected. (Automatically: No USER INPUT required). Zone Count is disabled which means that zone count will during the test procedure, only reflect the middle floor.



The car will slow down via the slow down limit and stop at the normal limit.



(NTS TEST STEP 5)

End of NTS Testing.
Cycle the Inspection Switch on the ES-RB (Relay Board) to return to Automatic Mode.

9.1.2. NTS Manual Testing Procedure

CAR SHOULD BE IN AUTOMATIC MODE FOR THIS TEST TO BE CONDUCTED.
Car will Enter SPECIAL TEST MODE and all calls and normal operations will be disabled. The NTS Test is to be performed after the initial Floor Learn Trip has been completed.

STEP 1

Place Car Level at a landing in the middle of the shaft.

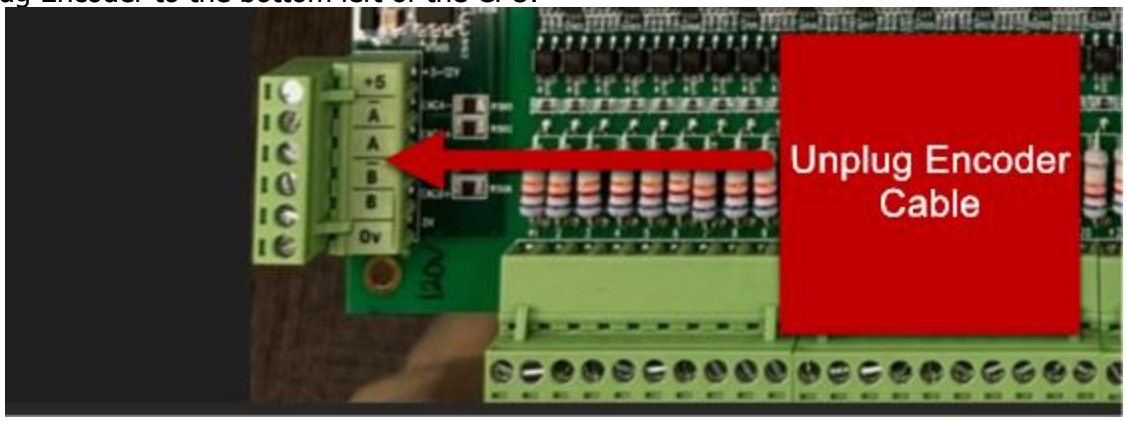
STEP 2

Use ESI LCD Screen Menu to Setup the following Parameter Values

- Set Parameter [20] to 8 and Parameter [30] to 1.

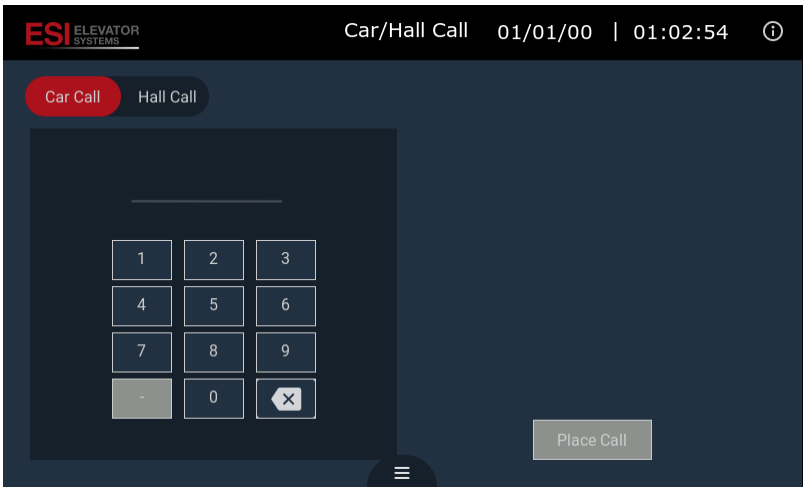
STEP 3

Unplug Encoder to the bottom left of the CPU.



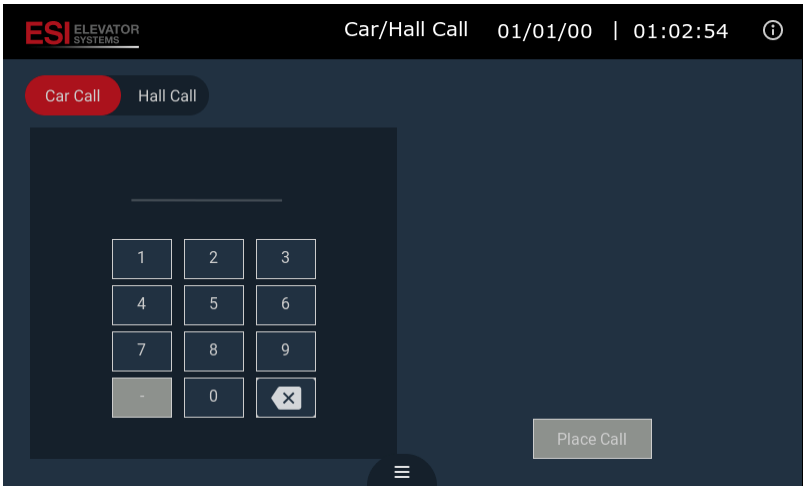
STEP 4

PLACE A CAR CALL from the Controller Screen for the BOTTOM LANDING. The car will slow down via the bottom slow down limit(s) then stop on the Bottom Normal Limit.



STEP 5

PLACE A CAR CALL from the Controller Screen for the TOP LANDING. The car will slow down via the top slow down limit(s) then stop on the Top Normal Limit.



STEP 6

Restore Encoder Plug.

STEP 7

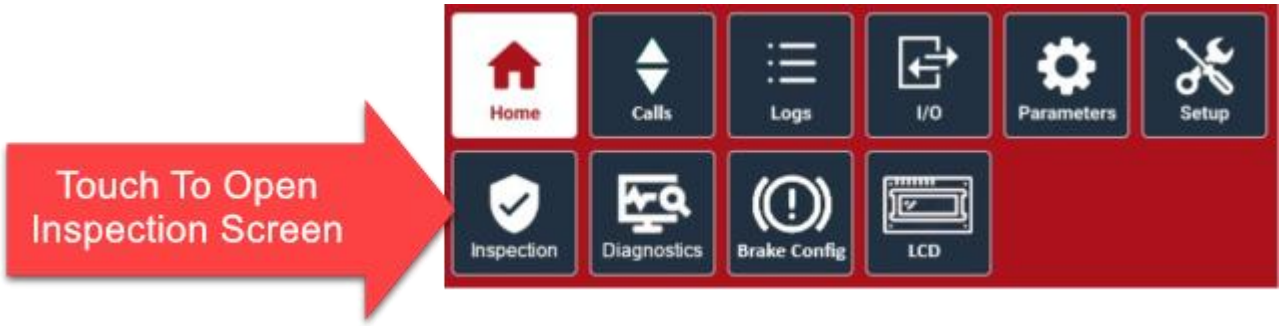
Using ES2 LCD Screen, Set Parameter [20] to 8 and Parameter [30] to 0.

9.2. ETS Testing

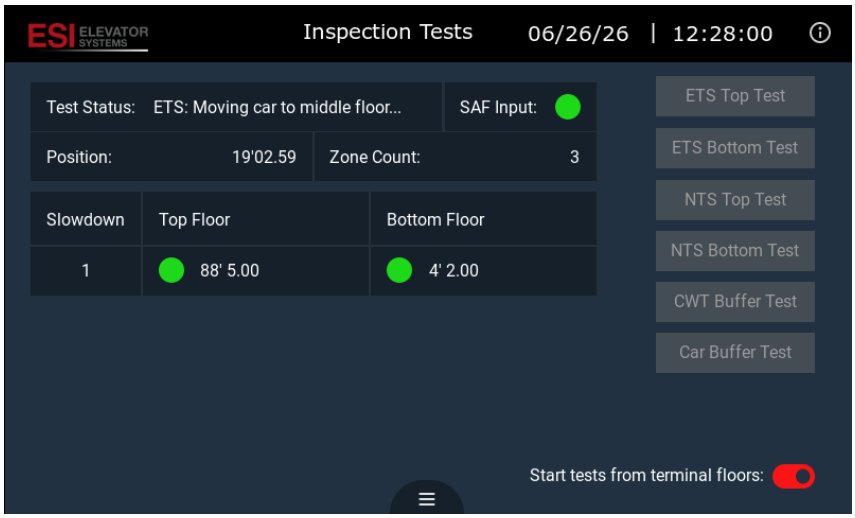
9.2.1. ETS Automated Testing Procedure

CAR SHOULD BE IN AUTOMATIC MODE FOR THIS TEST TO BE CONDUCTED.
Car will Enter SPECIAL TEST MODE and all calls and normal operations will be disabled. The ETS Test is to be performed after the initial Floor Learn Trip has been completed.

Automated ETS Testing Procedure- (ETS Testing only for jobs above 200 fpm)

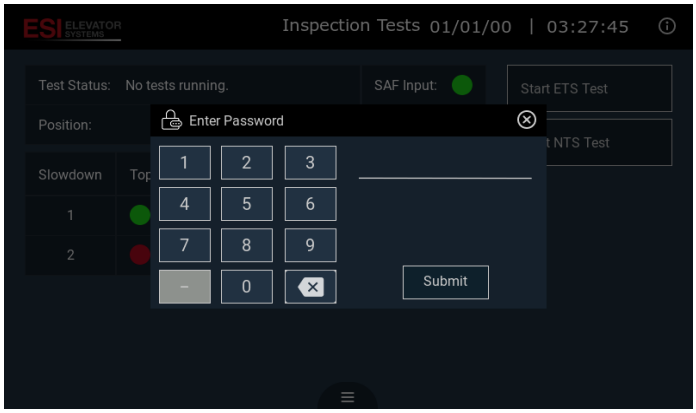
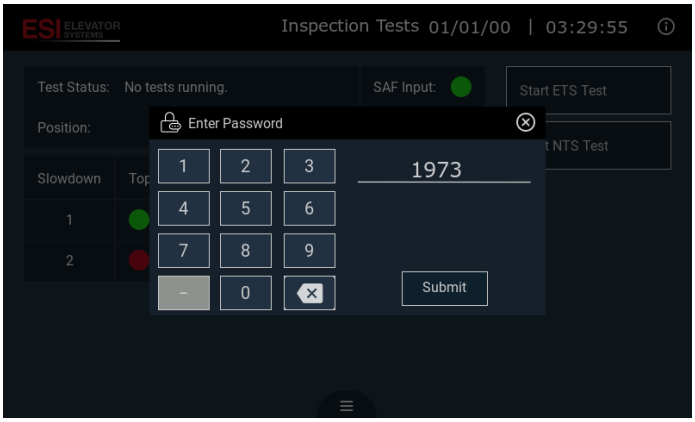


Press the Menu Button, Followed by INSPECTION Button to get to the ETS test screen.
ETS (Normal Terminal Slowdown) testing is a crucial procedure performed on elevators before they are put into service to ensure proper operation of the slowdown and stopping mechanisms at the top and bottom of the hoistway. This test verifies that the elevator will perform an emergency stop on the Terminal Floors on SECOND slow down virtual limit. Normally all tests will move to the middle landing to start the test. If desired, the tests can be started from the terminal floors. The toggle switch in the lower right corner can be flipped to green or left position to enable the tests to start from the terminal floors. **CAR SHOULD BE IN AUTOMATIC MODE FOR THIS TEST TO BE CONDUCTED. Car will Enter SPECIAL TEST MODE and all calls and normal operations will be disabled.**



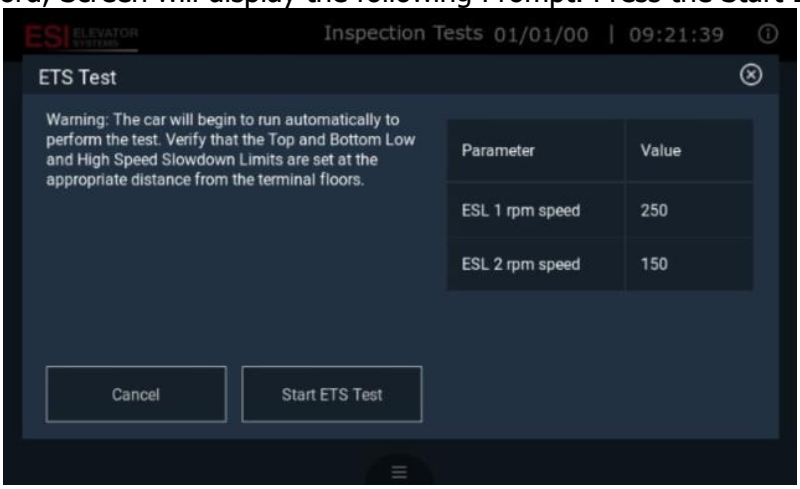
(ETS TEST STEP 1)

Press one of the ETS test buttons. Screen will prompt for a password. Default Password is 1973. Enter the Password.

Figure 2	Figure 3
	

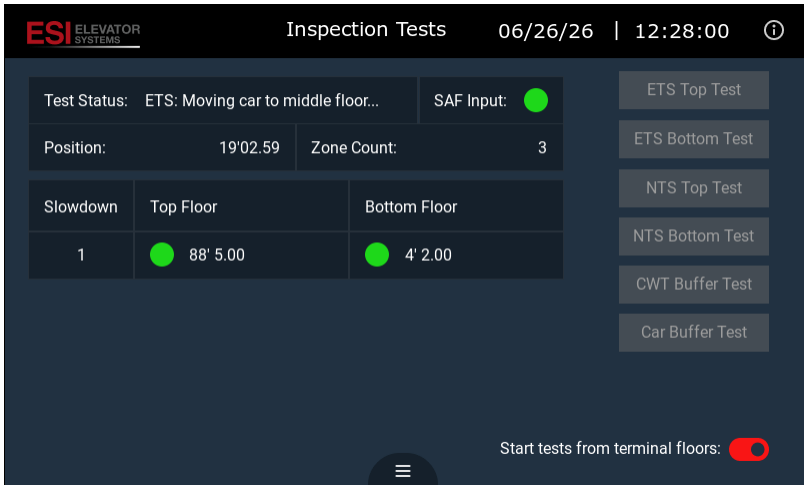
(ETS TEST STEP 2)

After Entering the password, Screen will display the following Prompt. Press the Start ETS Test button



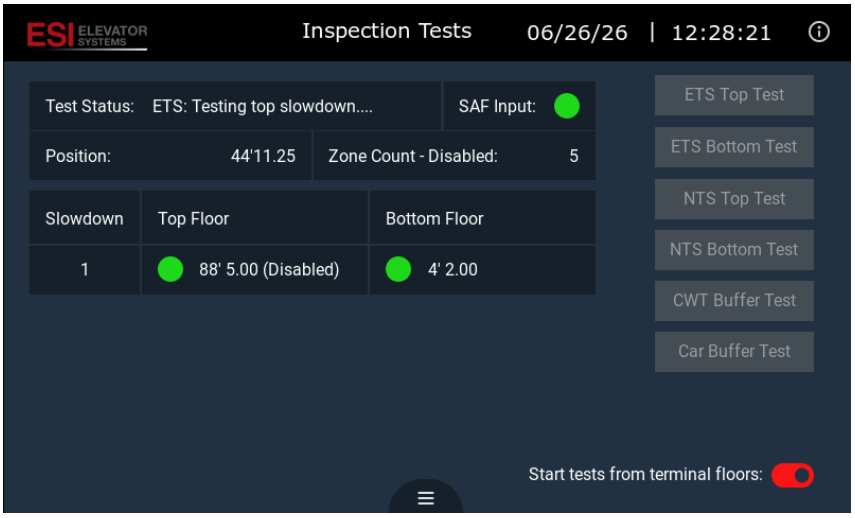
(ETS TEST STEP 3)

Car will Move to middle floor to start the Test Process.If the "Start tests from terminal floors" switch is enabled, the car will move to a terminal floor to start the test.

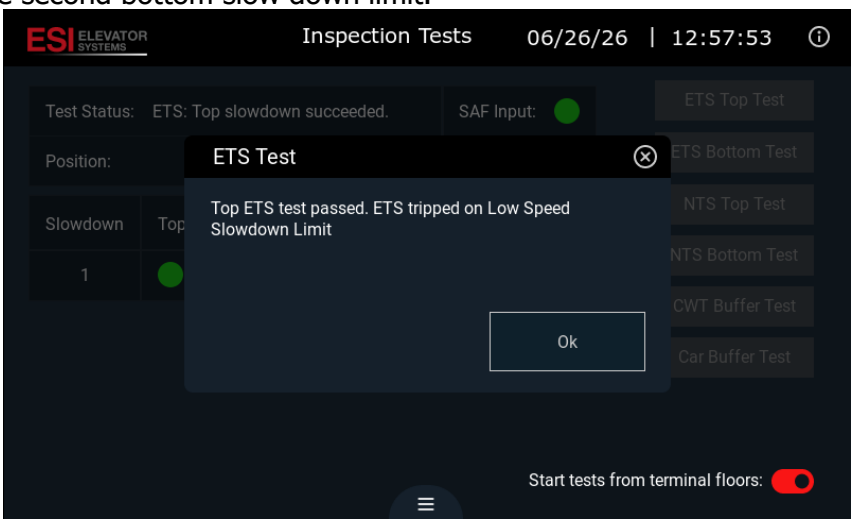


(ETS TEST STEP 4)

Car will first test the slowdown limit selected (Automatically: No USER INPUT required). First Slow Down is disabled which means that car will not begin to slow down on the first slow down.



The car will stop on the second bottom slow down limit.



(ETS TEST STEP 5)

End of ETS Testing.

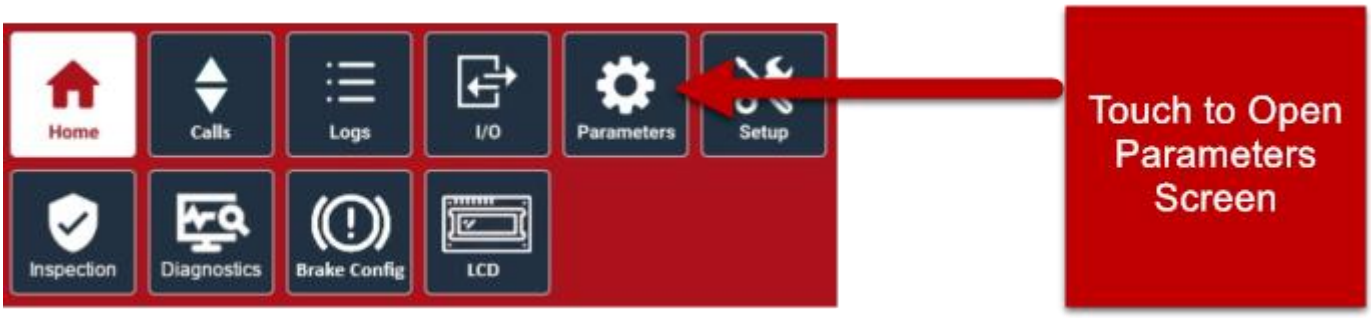
Cycle the Inspection Switch on the ES-RB (Relay Board) to return to Automatic Mode

9.2.2. ETS Manual Testing > 200 FPM and < 400 FPM

The ETS Test is to be performed after the initial Floor Learn Trip has been completed.

Before the test begins ensure that the controller is in an intermediate landing (not a terminal landing).

Go To Parameters Screen ➞ Speed Settings Menu



There are four (4) controller parameters in **Speed Setting Menu** that will be involved with the ETS system testing OR Change the Following Parameters on LCD Screen .

1. ETS CHECK ENGAGE / [180]
2. S/D DISTANCE HSM / [82]
3. ETS 1 FPM SPEED / [181]
4. ETS 3 FPM SPEED / [182]

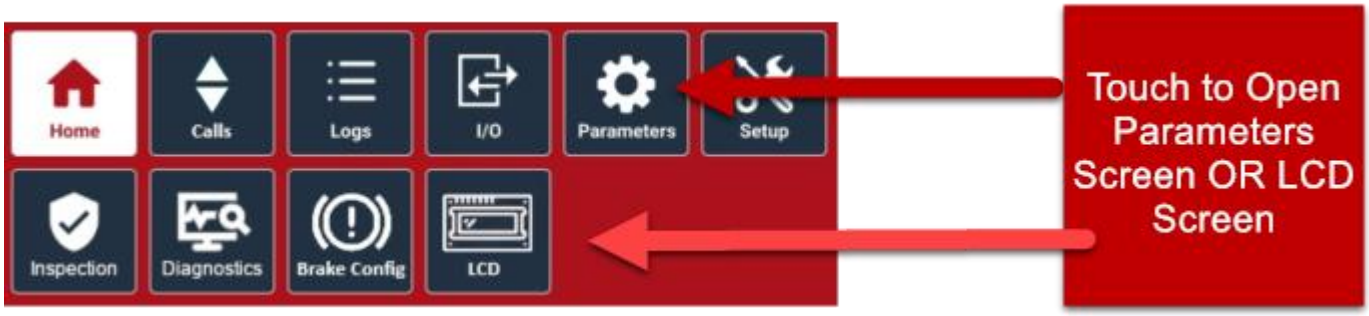
Test Procedure

1. RECORD value in the following parameter: S/D #2 Distance HSM / [82]
2. Change the following Parameters
   - Set Parameter [20] = 8
   - Set Parameter S/D #2 Distance HSM / [82] to 12 INCHES
3. Ensure Following Parameters are set as follows:-
   - ESL CHECK ENGAGE / [180] IS SET TO 1
   - ETS 1 FPM SPEED / [181] is equal to the Contract Car Speed Value.
   - ETS 2 FPM SPEED / [182] = 150 FPM
4. Jump terminal #27 to #52A so that the car does not slow down on the first slowdown limit.
5. Run the car to the bottom landing.
6. Upon Reaching the second slow down limit the car will shut down, and the ESI LCD display will show the status of the car as ESL Error.
7. Toggle the Controller Inspection Switch to clear the error.
8. Remove the jumper from #52A.
9. Move the car to the center of the hoist way.
10. Jump terminal #27 to #53A so that the car does not slow down on the first slowdown limit.
11. Run the car to the top landing.
12. Upon Reaching the second slow down limit the car will shut down, and the ESI LCD display will show the status of the car as ESL Error.
13. Toggle the Controller Inspection Switch to clear the error.
14. Remove the jumper from #53A.
15. Reset Parameter S/D #2 Distance HSM / [82] BACK TO THE NUMBER THAT WAS RECORDED ON STEP 1.

9.2.3. ETS Manual Testing >= 400 FPM

The ETS Test is to be performed after the initial Floor Learn Trip has been completed.

Before the test begins ensure that the controller is in an intermediate landing (not a terminal landing).
Go To Parameters Screen ⟶Speed Settings Menu



There are four (4) controller parameters in Speed Setting Menu that will be involved with the ETS system testing OR Change the Following Parameters on LCD Screen.

1. ETS CHECK ENGAGE / [180]
2. S/D DISTANCE HSM / [82]
3. ETS 1 FPM SPEED / [181]
4. ETS 2 FPM SPEED / [182]

Test Procedure

1. ENSURE ESL CHECK ENGAGE/ [180] IS SET TO 1.
2. RECORD value in the following Parameter: S/D #2 Distance HSM/[82].
3. Change the following Parameters
   - Set Parameter [20] = 8
   - Set Parameter S/D #2 Distance HSM / [82] to 12 INCHES
4. Ensure Following Parameters are set as follows:-
   - ETS 1 FPM SPEED / [181] is equal to the Contract Car Speed Value
   - ETS 2 FPM SPEED / [182] = 150 FPM
5. Jump terminal #27 to #52B so that the car does not slow down on the first slowdown limit.
6. Run the car to the bottom landing.
7. Upon Reaching the second slow down limit the car will shut down, and the ESI LCD display will show the status of the car as ESL Error.
8. Toggle the Controller Inspection Switch to clear the error.
9. Remove the jumper from #52B.
10. Move the car to the center of the hoist way.
11. Jump terminal #27 to #53B so that the car does not slow down on the first slowdown limit.
12. Run the car to the top landing.
13. Upon Reaching the second slow down limit the car will shut down, and the ESI LCD display will show the status of the car as ESL Error.
14. Toggle the Controller Inspection Switch to clear the error.
15. Remove the jumper from #53B.
16. Change the following Parameters Reset Parameter S/D #2 Distance HSM / [82] on SPEED SETTING SCREEN BACK TO THE NUMBER THAT WAS RECORDED ON STEP 1

9.3. Unintended Motion Acceptance Test

Unintended Motion Acceptance Test

Purpose of Unintended Motion Acceptance Test is to ensure that if the Elevator Moves out of the door zone and doors are still open, it triggers the secondary braking (Rope Gripper or Emergency Brake).

1. Take note of Parameter [74]
2. Set Parameter [20] to 8 on the LCD screen
3. Set Parameter [74] to 0 on the LCD screen
4. Place controller level at a floor on INDEPENDENT SERVICE, this will hold both the Hall and Car doors open.
5. Manually engage the PB, PBX and BR contactors
6. If the UAM push button exist:
    - Manually engage the PB and PBX contactors and press the UAM push button
    - Both brakes will release
7. The car should drift out of the door zone with the doors open, tripping the EBrake and causing a "ROPEGrp/EmBrkTrp_UAM" Error.
8. Set Parameter [74] to the value noted in step 1 on the LCD screen
9. To reset, toggle the controller from "Automatic" to Controller Inspection.

9.4. Ascending Overspeed Test

Ascending Overspeed Test: Purpose of the Ascending Overspeed Test is to ensure that if the car is running UP at a speed more than 10% than the contract speed, the Overspeed Governor Trips.

1. Place controller in test mode.
2. Move the car to the middle of the shaft way.
3. Set the drive speed to 25% more than the Contract Speed
4. Manually Engage the PB/BR contactors which control the Primary Brake.
5. Place a car call to the top floor from the controller.
6. The car will attempt to run up at a speed 25% higher than the contract speed and trip the governor.
7. When the governor trips, the EBRAKE drops and would stop the car.
8. The controller will show the following error RopeGrp/EmBrkTrp_OVS

9.5. Descending Overspeed Test/Car Safety Test

Descending Overspeed Test/Car Safety Test: Purpose of the Descending Overspeed Test/Car Safety is to ensure that if the car is running down at a speed more than 10% than the contract speed, the Overspeed Governor Trips.

1. Place controller in test mode.
2. Move the car to the middle of the shaft way.
3. Set the drive speed to 25% more than the Contract Speed
4. Manually Engage the PB/BR contactors which control the Primary Brake.
5. Place a car call to the bottom terminal floor from the controller.
6. The car will attempt to run down at a speed 25% higher than the contract speed and trip the governor.
7. When the governor trips, the EBRAKE drops and would stop the car.
8. The controller will show the following error RopeGrp/EmBrkTrp_OVS

9.6. Car Buffer Test

Car Buffer Test: Objective is to verify that the buffers at the bottom of the hoistway can safely stop and decelerate the elevator car if it over travels beyond its normal lowest landing

1. Place car level at a floor mid shaft
2. Place controller in test mode.
3. Jump out bottom slow down limits terminals #27 to #52, #52A (only available on jobs above 200FPM) and #52B (#52B only available for more than 400 FPM jobs)
4. USE ESI LCD Screen Menu to Setup the following Parameter Values
    - Set Parameter [20] to 8
    - Set Parameter [180] to 0 from LCD Screen. This will disable the ETS test.
    - Set Parameter [30] (disabling zone count) in the LCD screen to 1
5. Record Parameter [81], [82], [83] before going to step 7
6. Set Parameter [81] (S/D #1 Distance OFR), [82] (S/D #2 Distance HSM), [83] (S/D 2/3 Floor Run) to 12 (inches). This will ensure that car bypasses all the slow downs.
7. Wait 1 Minute for changes to be recorded throughout the controller safety system
8. Place car call to bottom floor.
9. Car will stop at the buffers.
10. Once test is completed, restore the following:-
    - Remove jumpers from bottom slow down limits terminals #27 to #52, #52A (only available on jobs above 200FPM) and #52B (#52B only available for more than 400 FPM jobs)
    - Set Parameter [180] to 1 from LCD Screen
    - Set Parameter [30] to 0 from LCD Screen
    - Restore the values recorded in Step 6 for Parameter [81], [82], [83]

9.7. Counterweight Buffer Test

Counterweight Buffer Test: Objective is to verify that the buffers at the bottom of counterweight can safely stop and decelerate the elevator car if it over travels beyond its normal highest landing

1. Place car level at a floor mid shaft
2. Place controller in test mode.
3. Jump out bottom top down limits terminals #27 to #53, #53A (only available on jobs above 200FPM) and #53B (#53B only available for more than 400 FPM jobs)
4. USE ESI LCD Screen Menu to Setup the following Parameter Values
    - Set Parameter [20] to 8
    - Set Parameter [180] to 0 from LCD Screen. This will disable the ETS test.
    - Set Parameter [30] (disabling zone count) in the LCD screen to 1
5. Record Parameter [81], [82], [83] before going to step 7
6. Set Parameter [81] (S/D #1 Distance OFR), [82] (S/D #2 Distance HSM), [83] (S/D 2/3 Floor Run) to 12 (inches). This will ensure that car bypasses all the slow downs.
7. Wait 1 Minute for changes to be recorded throughout the controller safety system
8. Place car call to top floor.
9. Counterweight will stop at the buffers.
10. Once test is completed, restore the following:-
    - Remove jumpers from bottom slow down limits terminals #27 to #53, #53A (only available on jobs above 200FPM) and #53B (#53B only available for more than 400 FPM jobs)
    - Set Parameter [180] to 1 from LCD Screen
    - Set Parameter [30] to 0 from LCD Screen
    - Restore the values recorded in Step 6 for Parameter [81], [82], [83]

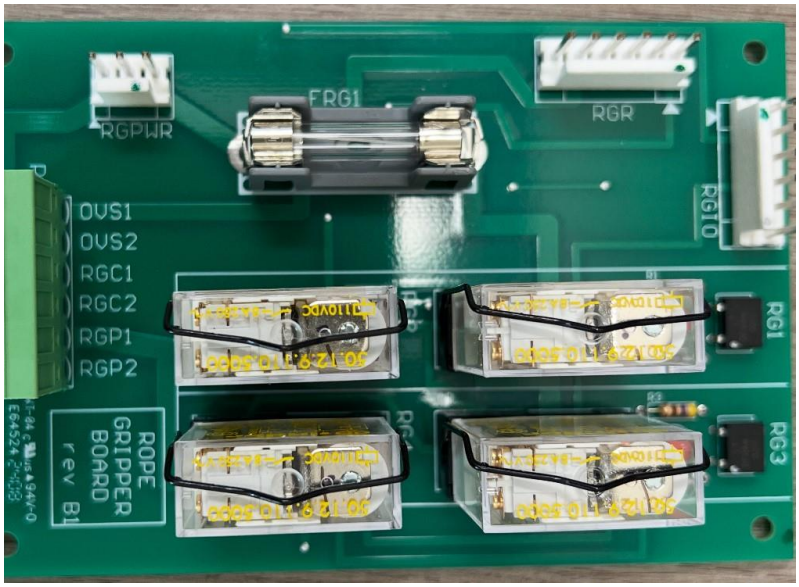
9.8. Traction Loss Test

Traction Loss Test: Objective is to verify that in case of traction loss the controller detects and displays a fault.

1. Set Parameter [50] = 3
2. Place a call to next floor.
3. If car can't make it to next floor within 3 seconds (Parameter [50]), the controller should fault out with "Traction Loss".
4. Toggle Auto/Insp switch to reset the fault.
5. After the test, set Parameter [50] to 2 times of the floor to floor run time.

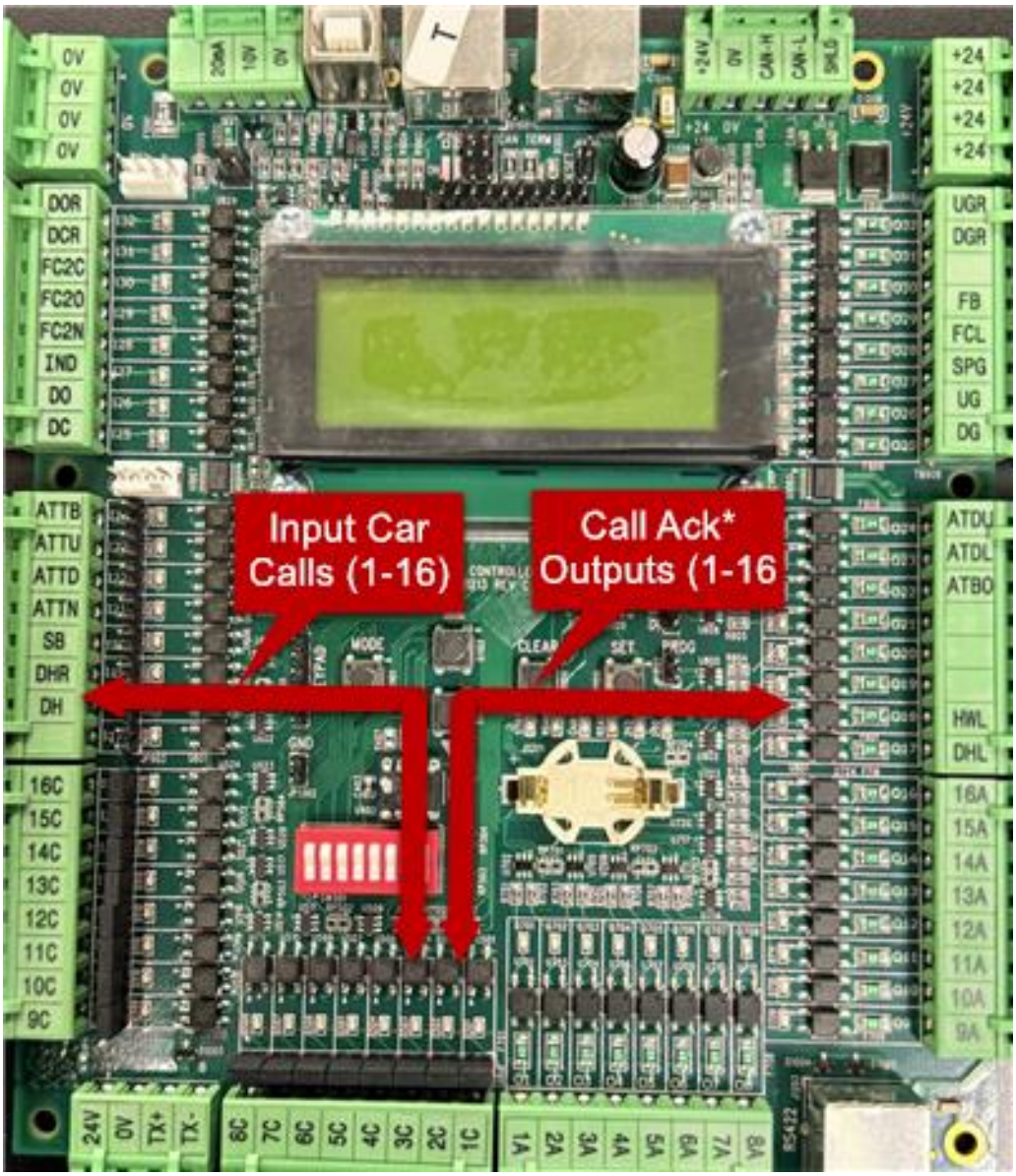
9.9. Rope Gripper Test

1. Trip the Governor connected to OVS1 and OVS2. Rope Gripper should trip(GOV overSp).
2. Remove wire from disc brake switch, if in use. Rope Gripper should trip(BrakeSW on Stop).
3. See Section 8.3 for testing Unintended Motion.



10. Car Operating Panel Board-(ES-CT-COP)

Standard ES2 controller architecture includes a ES-ECT-COP board. It can be shipped to the customer or our customer's COP manufacturer. This COP ECT will be wired to the car components/inputs/outputs. ES-ECT-COP connects to the ES-CPU via a CAN connection back to the controller. Standard ES-ECT-COP is setup for 16 floors. For additional floors, ES-ECT-COP's are provided in increments of 32 floors.

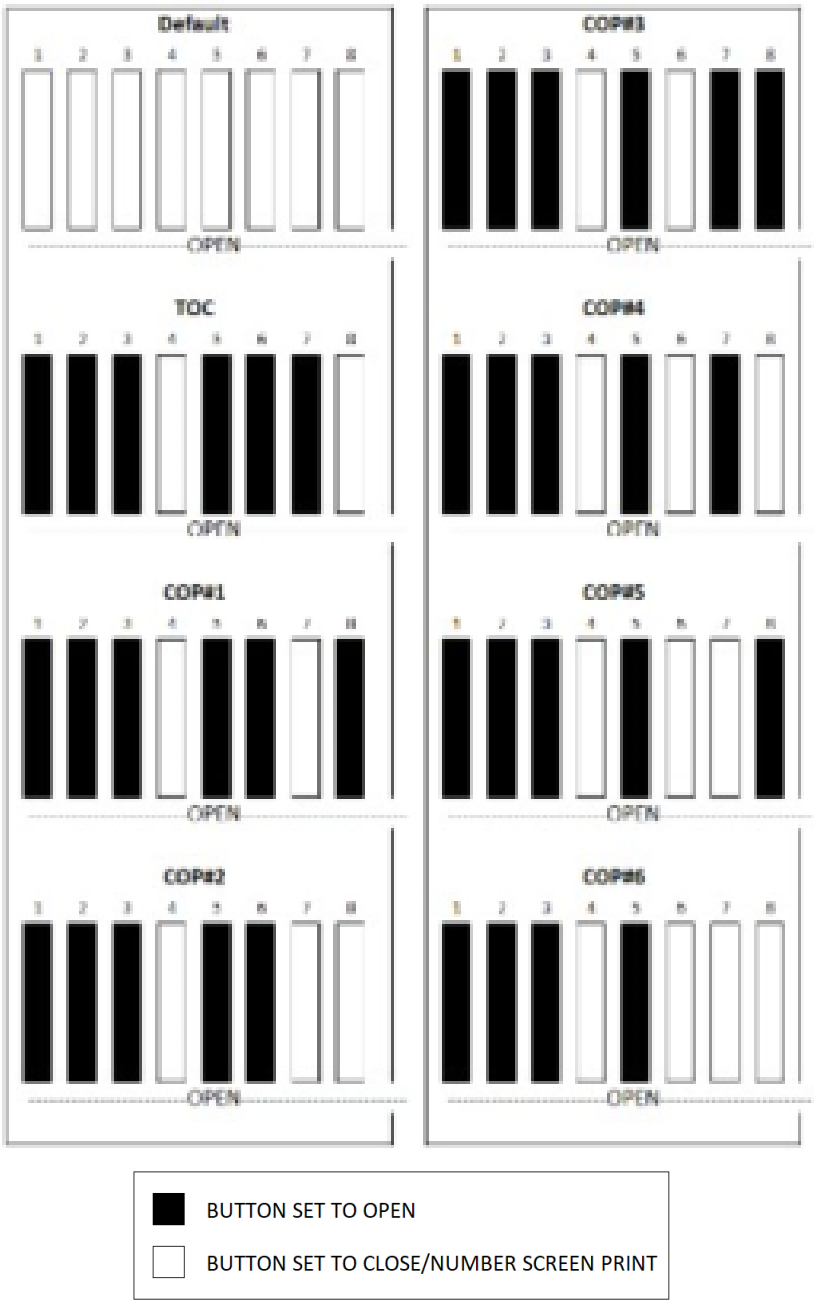


10.1. COP-Inputs & Outputs

*The input/output listing is standard version and may change for certain controllers based on customer requirements. Always refer to the final print to ensure everything is wired as per the print.

Input#	Legacy Label/Label	Function	Output#	Label	Function
1	1C	Car Call Floor 1	1	1A	Car Call Acknowledgment Light Floor 1
2	2C	Car Call Floor 2	2	2A	Car Call Acknowledgment Light Floor 2
3	3C	Car Call Floor 3	3	3A	Car Call Acknowledgment Light Floor 3
4	4C	Car Call Floor 4	4	4A	Car Call Acknowledgment Light Floor 4
5	5C	Car Call Floor 5	5	5A	Car Call Acknowledgment Light Floor 5
6	6C	Car Call Floor 6	6	6A	Car Call Acknowledgment Light Floor 6
7	7C	Car Call Floor 7	7	7A	Car Call Acknowledgment Light Floor 7
8	8C	Car Call Floor 8	8	8A	Car Call Acknowledgment Light Floor 8
9	9C	Car Call Floor 9	9	9A	Car Call Acknowledgment Light Floor 9
10	10C	Car Call Floor 10	10	10A	Car Call Acknowledgment Light Floor 10
11	11C	Car Call Floor 11	11	11A	Car Call Acknowledgment Light Floor 11
12	12C	Car Call Floor 12	12	12A	Car Call Acknowledgment Light Floor 12
13	13C	Car Call Floor 13	13	13A	Car Call Acknowledgment Light Floor 13
14	14C	Car Call Floor 14	14	14A	Car Call Acknowledgment Light Floor 14
15	15C	Car Call Floor 15	15	15A	Car Call Acknowledgment Light Floor 15
16	16C	Car Call Floor 16	16	16A	Car Call Acknowledgment Light Floor 16
17	OPN	OPEN FOR FUTURE USE	17	DHL	Door Hold Light
18	28H/DH	Door Hold Button	18	HWL	High Water Light
19	28HR/DHR	Door Hold Button Rear	19	DHLR	Door Hold Light Rear
20	62/SB	S Button	20	OPN	OPEN FOR FUTURE USE
21	70/ATTN	Attendant Service On	21	OPN	OPEN FOR FUTURE USE
22	71/ATTD	Car Down Run on Attendant	22	5/ATBO	Attendant: Buzzer Output to tell the attendant that a hall call was pressed
23	72/ATTU	Car Up Run on Attendant	23	6/ATDL	Attendant Car Down Light Indicator
24	73/ATTB	Car Bypass/Non Stop on Attendant	24	7/ATUL	Attendant Car Up Light Indicator
25	24/DC	Door Open Button - Front	25	DG	Down Car Travel Lanterns - Front Doors
26	28/DO	Door Close Button - Front	26	UG	Up Car Travel Lanterns - Front Doors
27	50/IND	Independent Service	27	61/SPG	Stop/Pass Gong
28	95/FC2N	Fire Phase 2 - Fire Control Car Switch On	28	97/FCL	Fire Control Light
29	100/FC2O	Fire Phase 2 - Fire Control Car Switch Off	29	97B/FB	Fire Buzzer
30	96/FC2C	Fire Phase 2 - Fire Control Car Switch Cancel	30	67/LWLB	Load Weighing Light & Buzzer
31	24R/DCR	Door Close Button - Rear	31	DGR	Down Car Travel Lanterns, Rear Doors
32	28R/DOR	Door Open Button - Rear	32	UGR	Up Car Travel Lanterns, Rear Doors

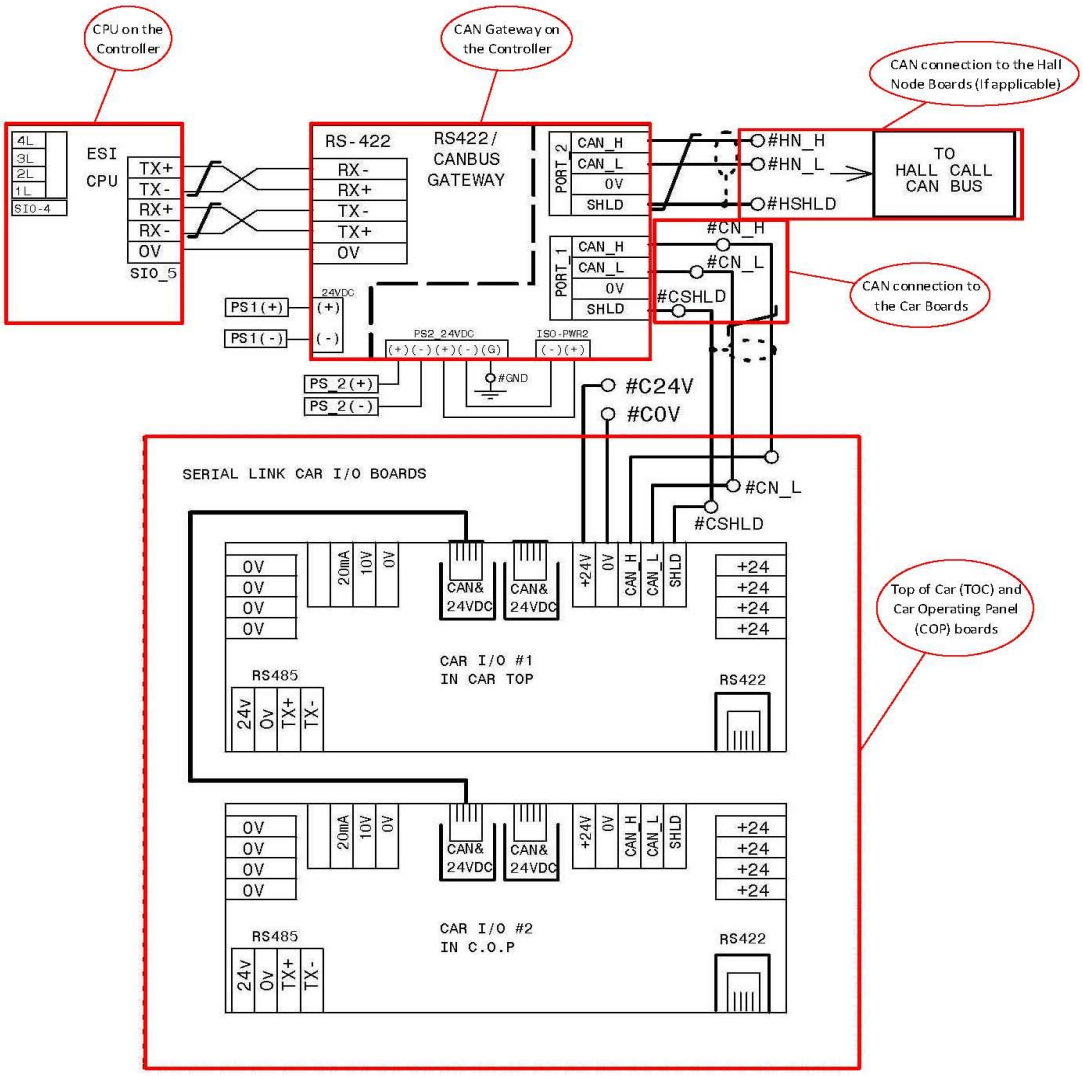
10.2. COP DIP SWITCH SETTINGS



11. Hall Network

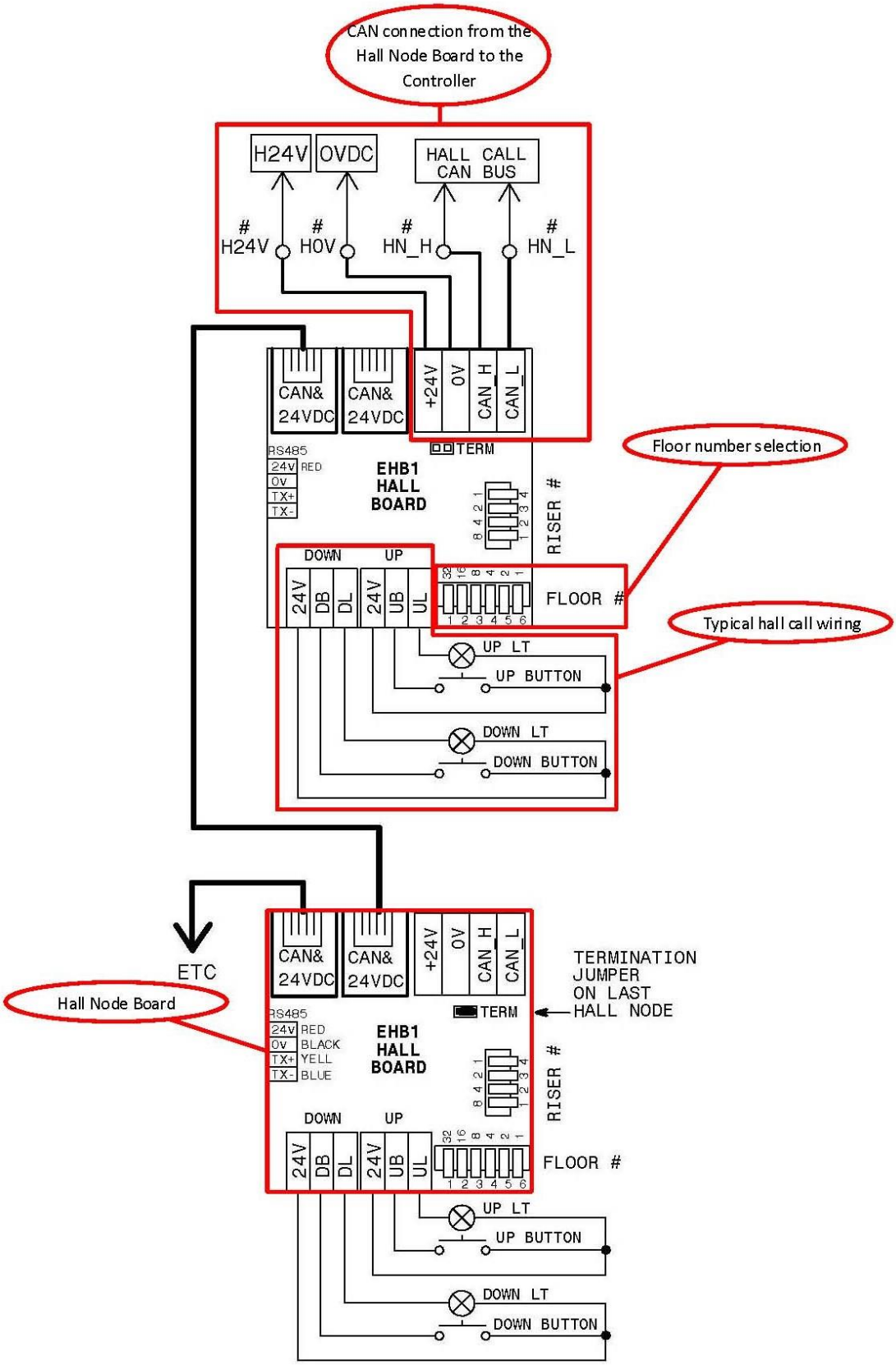
Serial/Hall Network

Elevator Systems Serial Controller does away with most discrete connections from the elevator car, and optionally hall stations (Hall Nodes), to the controller to the controller. This includes car calls and acknowledgments, car key switches, door operator signals, various in car buzzers and lights/lanterns, tape selector signals, and optionally hall calls and acknowledgments. The Serial Controller will require less than 25 traveler cables regardless of the number of landings. These signals are replaced with a single CAN connection back to the controller. If opting for the optional serial hall, hall calls and acknowledgments will be replaced with an additional CAN connection back to the controller.



11.1. Hall Board Wiring

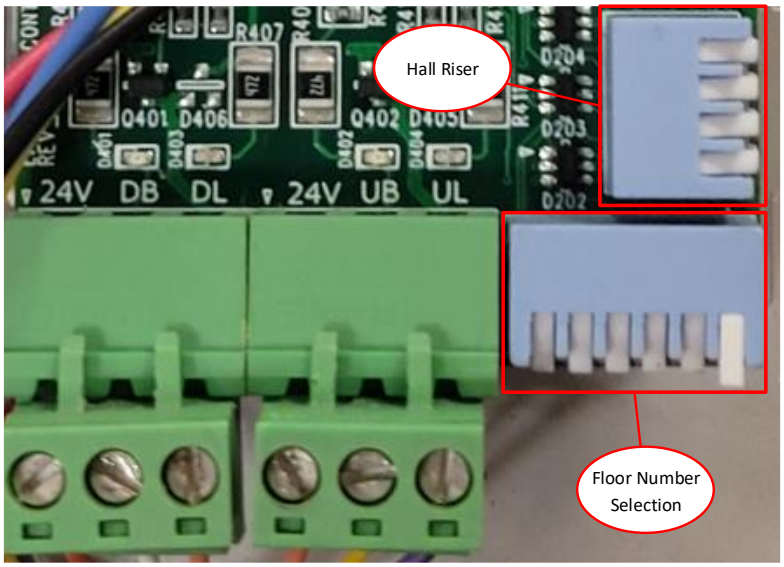
Hall Board Wiring



11.2. Hall Board Dip Setting-Front/Rear

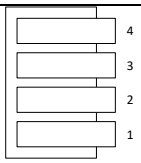
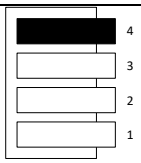
Setting Hall Node Floor and Riser: SETTINGS FOR 128 FLOORS

Each Hall Node needs to be set based if it is front or rear and the floor number. The Hall Riser dip switches will set that floor's Hall Node for either the front or rear side of the car. The Floor Number Selection dip switches will set the floor where that Hall Node is located. Follow the charts below to set the Hall Riser and Floor Number Selection dip switches.



Dip Switch is in the Up Position

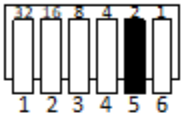
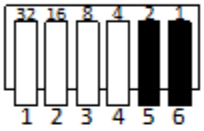
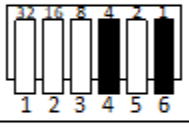
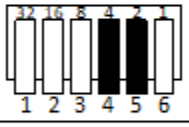
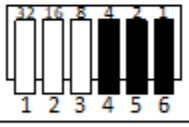
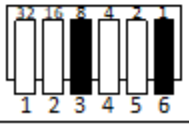
Dip Switch is in the Down Position

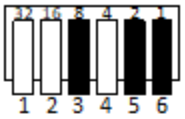
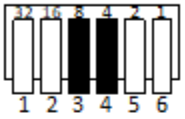
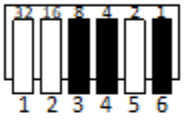
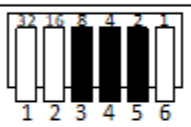
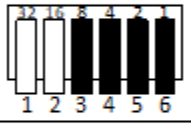
Hall Riser Dip Switch Setting	
Side	**Hall Riser Setting**
Front	
Rear	

12. Hall Board DIP Setting Floors

12.1. Floors 1- 20

*** Consult ESI for DIP Settings beyond 32 floors**

Floor Number Dip Switch Setting	
Floor Number	Floor Number Setting
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Floor Number Dip Switch Setting	
Floor Number	Floor Number Setting
11	
12	
13	
14	
15	
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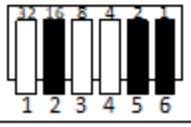
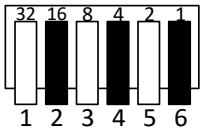
17	
18	
19	
20	

12.2. Floors 21-32

Floor Number Dip Switch Setting	
Floor Number	**Floor Number Setting**
21	
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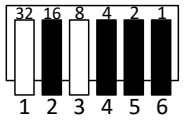
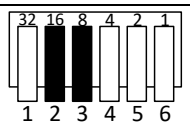
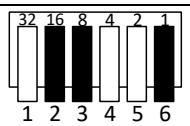
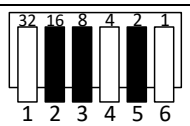
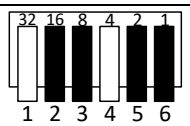
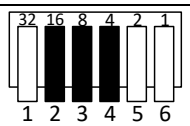
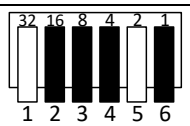
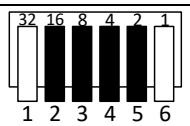
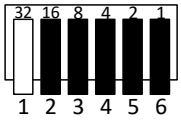
23	
24	
25	
26	
27	
28	
29	
30	

Floor Number Dip Switch Setting	
Floor Number	**Floor Number Setting**
31	
32