



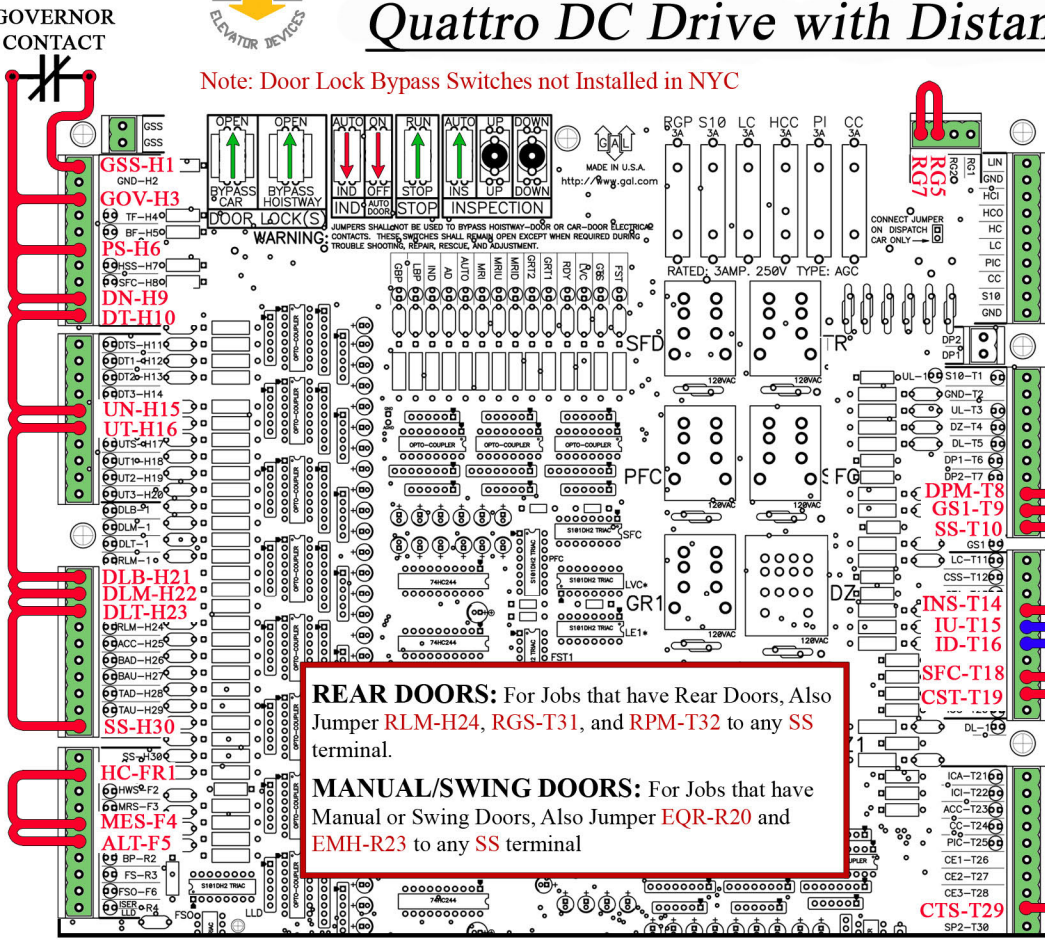
# Quick Start-up Guide for GALaxy Controller Quattro DC Drive with Distance Feedback

Note: Door Lock Bypass Switches not Installed in NYC

**To Get a Running Platform:**

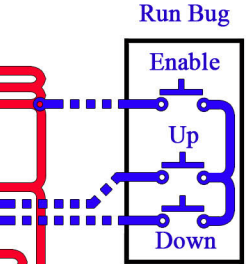
**WARNING:** Jumping inputs high can be dangerous because important safety circuits will not function. Inputs should only be jumped for the purpose of running the car on inspection during initial start-up.

**Remove all jumpers before placing a car in service.**



**REAR DOORS:** For Jobs that have Rear Doors, Also Jumper RLM-H24, RGS-T31, and RPM-T32 to any SS terminal.

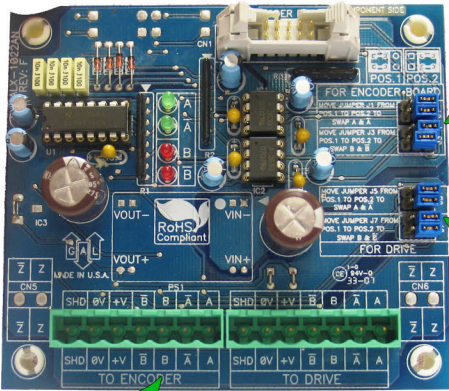
**MANUAL/SWING DOORS:** For Jobs that have Manual or Swing Doors, Also Jumper EQR-R20 and EMH-R23 to any SS terminal



1. Wire Motor and main line power as shown in diagrams.
2. Install and wire Governor.
3. Add Jumpers and Set Switches on main I/O board GALX-1038 as shown in Figure 1.

Figure 1

4. Check/Set Parameters in Drive. -see **Drive Settings** page of this guide



Jumpers for encoder quadrature from Motor to Controller CPU

Jumpers for encoder quadrature from Motor to Drive

Wire Encoder Here

Figure 2

5. Wire Encoder to Encoder Isolation Board (Figure 2) and Check Encoder PPR.

-Set PPR and RPM on Controller (Large LCD) under: Adjustable Variables >> Car Motion >> Encoder PPR  
Adjustable Variables >> Car Motion >> Encoder RPM

6. Check PIC and PAL inhibit LEDs (Figure 3).

-If either the "PIC Inhibit" LED or the "PAL Inhibit LED is lit on the Safety Processor Board check the "ELEV SERV" Menu (when "ELEV SERV" is on the screen, press the "ENTER" button to view the status)

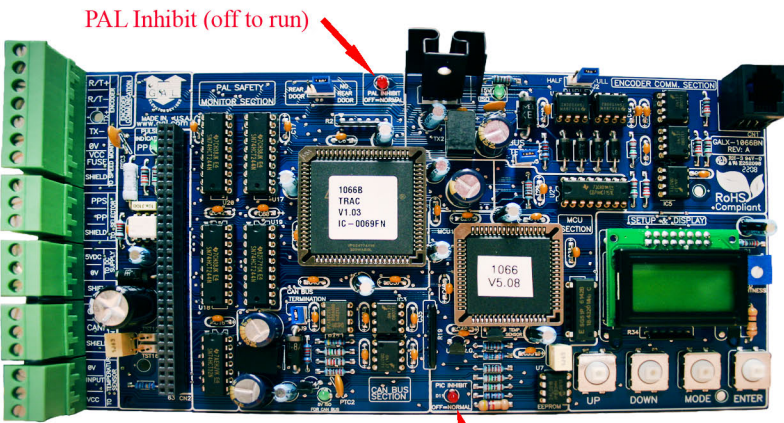
-If LCD displays "open" - check door lock/gate switch jumpers

-If LCD displays "INS ERR" - make sure that the "INS" input is high and that the "ACC", "MRI", "ICI", and "AUTO" inputs are off.

7. Check Speed and Direction of Motor Rotation.

-If Platform Runs Slow or OverCurrent Fault on Drive, Change Encoder Quadrature on Encoder Isolation Board (Figure 2) to the Drive. Change the J5 Jumpers to switch A and /A, or change the J7 Jumpers to switch B and /B.

-If Motor Rotation is backwards, Change "Motor Rotation" Parameter on Drive. User switches C1 submenu.



PAL Inhibit (off to run)

PIC Inhibit (off to run)

Figure 3



# Test Procedures

If there is any uncertainty about performing these tests with a GALaxy controller, please call G.A.L. toll free at 1 (877) 425-3538 for free technical assistance.

**WARNING:** When performing any of the following tests, the mechanic should follow the required precautions and procedures set forth in the local and national elevator codes.

## **Buffer Test**

The following test procedure explains how to override the car's position system so that it will run into the terminal landing at contract speed but is not intended to circumvent any procedure mandated by the elevator code.

1. Inspect and prepare the car according to the "Elevator Industry Inspection Handbook". Make sure that the car is loaded properly for the test and that the appropriate car or counterweight safety is tied.
2. For the car buffer test, jump DT, DT1, DT2, DT3 and DTS terminal limits to SFC (110VAC). For the counterweight buffer test, jump UT, UT1, UT2, UT3 and UTS terminal limits also to SFC. Refer to the job schematics specific terminal wiring locations.
3. From the Controller's LCD display, select the "Elevator Setup" menu and then select "Car Buffer Test" or "Counterweight Buffer Test".
4. Turn off the automatic door switch. To execute the test, the car must be level at the floor and on automatic operation.
5. The test also cannot be started from a terminal landing. If the car is at a terminal landing, the LCD display will show "To position the car press Enter". Pressing "Enter" will place a car call in the middle of the hoistway. If the car is already positioned properly for the run, the display will give the option to position the car or the skip to the next step.
6. Once the car is located in the correct starting position, select "Run Buffer Test". When the "Enter" button is pressed, the car's position will be modified internally to the top of the hoistway for a car buffer test or to the bottom of the hoistway for a counterweight buffer test. The car will then run once high speed to the appropriate buffer.
7. While the car is in motion, the LCD display will change to "Press Enter Button to Cancel Buffer Test". Pressing the "Enter" button will cause the car to execute an emergency slowdown.
8. After the test is complete, place the car on inspection and inspect the car and buffer.
9. **Remove all jumpers, remove load weights and untie the car or counterweight safeties if previously tied.**
10. Return the car to automatic operation.

## **Normal Terminal Slowdown Test**

The following test procedure explains how to override the car's position system so that it will run into the terminal landing at contract speed but is not intended to circumvent any procedure mandated by the elevator code.

1. Inspect and prepare the car according to the "Elevator Industry Inspection Handbook". Make sure that the car is loaded properly for the test.
2. For the bottom normal terminal slowdown test, jump DTS terminal limit to SFC (110VAC). For the top normal terminal slowdown limit test jump UTS terminal limit also to SFC. Refer to the job schematics for specific terminal wiring locations.
3. From the Controller's LCD display, select the "Elevator Setup" menu and then select "Car Buffer Test" to perform a bottom normal terminal slowdown test or "Counterweight Buffer Test" to perform a top terminal slowdown limit test.
4. Turn off the automatic door switch. To execute the test, the car must be level at the floor and on automatic operation.
5. For this test only adjust parameters UT Vel and DT Vel on the Safety Processor Board to contract speed.
6. The test also cannot be started from a terminal landing. If the car is at a terminal landing, the LCD display will show "To position the car press Enter". Pressing "Enter" will place a car call in the middle of the hoistway. If the car is already positioned properly for the run, the display will give the option to position the car or the skip to the next step.
7. Once the car is located in the correct starting position, select "Run Buffer Test". When the "Enter" button is pressed, the car's position will be modified internally to the top of the hoistway for a car buffer test or to the bottom of the hoistway for a counterweight buffer test. The car will then run once high speed to the appropriate limit.
8. While the car is in motion, the LCD display will change to "Press Enter Button to Cancel Buffer Test". Pressing the "Enter" button will cause the car to execute an emergency slowdown.
9. **After the test is complete remove all jumpers and adjust the UT Vel and DT Vel parameters on the Safety Processor Board back to their original values.**
10. Return the car to automatic operation.



# Test Procedures

If there is any uncertainty about performing these tests with a GALaxy controller, please call G.A.L. toll free at 1 (877) 425-3538 for free technical assistance.

**WARNING:** When performing any of the following tests, the mechanic should follow the required precautions and procedures set forth in the local and national elevator codes.

## **Emergency Terminal Limit Test**

The following test procedure explains how to override the car's position system so that it will run into the terminal landing at contract speed but is not intended to circumvent any procedure mandated by the elevator code.

1. Inspect and prepare the car according to the "Elevator Industry Inspection Handbook". Make sure that the car is loaded properly for the test.

2. For the bottom emergency terminal limit test, jump the bottom normal terminal slowdown limit switches DT, DT1, DT2, DT3 depending on how many normal slowdown switches the job has to SFC (110VAC). For the top emergency terminal limit test jump the top normal terminal slowdown limit switches UT, UT1, UT2, UT3 also to SFC. Refer to the job schematics specific terminal wiring locations.

3. From the Controller's LCD display, select the "Elevator Setup" menu and then select "Car Buffer Test" to perform a bottom emergency terminal limit test or "Counterweight Buffer Test" to perform a top emergency terminal limit test.

4. Turn off the automatic door switch. To execute the test, the car must be level at the floor and on automatic operation.

5. The test also cannot be started from a terminal landing. If the car is at a terminal landing, the LCD display will show "To position the car press Enter". Pressing "Enter" will place a car call in the middle of the hoistway. If the car is already positioned properly for the run, the display will give the option to position the car or the skip to the next step.

6. Once the car is located in the correct starting position, select "Run Buffer Test". When the "Enter" button is pressed, the car's position will be modified internally to the top of the hoistway for a car buffer test or to the bottom of the hoistway for a counterweight buffer test. The car will then run once high speed to the appropriate limit.

7. While the car is in motion, the LCD display will change to "Press Enter Button to Cancel Buffer Test". Pressing the "Enter" button will cause the car to execute an emergency slowdown.

**8. After the test is complete remove all jumpers.**

9. Return the car to automatic operation.

## **Overspeed Test**

1. With the car on automatic, run the car to the top or bottom (away from the desired test run direction).

2. Access the Overspeed Mult parameter (sub menu A1) in the drive and set the % overspeed.

3. Set the Overspeed Test flag (sub menu U4) in the drive. This will cause the drive to run over speed for one run.

4. On the controller main LCD interface, select "Run Overspeed Test" under the Elevator Setup menu. Follow the directions on the LCD display to make sure the automatic door switch is off and the car is level at the floor on automatic operation. Enabling the overspeed test will prevent the CPU from detecting an overspeed condition for one run.

5. Place a car call to run the car in the desired direction to perform the overspeed test.

6. Place the car on inspection and inspect the car.

7. Return the car to automatic operation.

## **Resetting the Rope Gripper**

1. Go to the "Elevator Setup" Menu on the CPU (GALX-1021N).

2. Scroll down to "Reset Gripper Fault"

3. Press the Enter Button.

4. Press and hold the Enter button for 10 seconds until the screen displays "Rope Gripper is Reset."



# Quattro DC Drive Settings

\* Need to be entered on job site as per Motor and Encoder, and G.A.L. specifications.

| Drive A1           |  |      |               |         |  |
|--------------------|--|------|---------------|---------|--|
| PARAMETER          | DESCRIPTION                            | UNIT | RANGE         | DEFAULT | SETTING  |
| CONTRACT CAR SPEED | ELEVATOR CONTRACT SPEED                | FPM  | 0.0 - 1500.0  | 100.0   | CONTRACT SPEED OF CAR (FPM)                    |
| CONTRACT MTR SPEED | MOTOR SPEED AT ELEVATOR CONTRACT SPEED | RPM  | 30.0 - 3000.0 | 50.0    | MOTOR RPM NEEDED TO ACHIEVE CONTRACT CAR SPEED |
| ENCODER PULSES     | ENCODER COUNTS PER REVOLUTION          | PPR  | 600 - 20000   | 5000    | RATED PULSES PER REVOLUTION (PPR) ON ENCODER   |

| Motor Side Power Convert A4 |                     |      |         |         |         |
|-----------------------------|---------------------|------|---------|---------|---------|
| PARAMETER                   | DESCRIPTION         | UNIT | RANGE   | DEFAULT | SETTING |
| UV ALARM LEVEL              | UNDER VOLTAGE LEVEL | %    | 80 - 99 | 90      | 80      |

| Line Side Power Convert A5 |                                |       |         |         |                                |
|----------------------------|--------------------------------|-------|---------|---------|--------------------------------|
| PARAMETER                  | DESCRIPTION                    | UNIT  | RANGE   | DEFAULT | SETTING                        |
| INPUT L-L VOLTS            | RMS LINE-LINE AC INPUT VOLTAGE | VOLTS | 200-552 | 200     | RMS L-L VOLTS APPLIED TO DRIVE |

| Motor A6           |                             |       |              |         |                           |
|--------------------|-----------------------------|-------|--------------|---------|---------------------------|
| PARAMETER          | DESCRIPTION                 | UNIT  | RANGE        | DEFAULT | SETTING                   |
| RATED MTR CURRENT  | MOTOR ARMATURE CURRENT      | AMPS  | 1.0 - 400.0  | 0.0     | ON MOTOR NAMEPLATE (AMPS) |
| ARMATURE VOLTAGE   | RATED ARMATURE VOLTAGE      | VOLTS | 55.0 - 600.0 | 0       | ON MOTOR NAMEPLATE (V)    |
| FULL FLD CURRENT   | LOW SPEED MOTOR FIELD AMPS  | AMPS  | 1.0 - 40.0   | 0.0     | OM MOTOR NAMEPLATE (AMPS) |
| WEAK FIELD CURRENT | FULL SPEED MOTOR FIELD AMPS | AMPS  | 1.0 - 40.0   | 0.0     | ON MOTOR NAMEPLATE (AMPS) |
| STANDBY FIELD      | STANDBY MOTOR FIELD AMPS    | AMPS  | 0.0 - 40.0   | 0.0     | ON MOTOR NAMEPLATE (AMPS) |

| User Switches C1 Submenu |               |                |
|--------------------------|---------------|----------------|
| PARAMETER                | DEFAULT       | SETTING        |
| SPD COMMAND SRC          | MULTI-STEP    | SERIAL         |
| RUN COMMAND SRC          | EXTERNAL TB   | SERIAL + EXTRN |
| FIELD ENA SOURCE         | ENABLE ON RUN | EXTERNAL TB    |
| CONTACT CONFIRM SRC      | NONE          | EXTERNAL TB    |
| FAULT RESET SRC          | EXTERNAL TB   | SERIAL         |
| RAMPED STOP SEL          | NONE          | RAMP ON STOP   |
| RAMPED DOWN EN SRC       | EXTERNAL TB   | RUN LOGIC      |

| Logic Inputs C2 Submenu |               |                |
|-------------------------|---------------|----------------|
| PARAMETER               | DEFAULT       | SETTING        |
| LOGIC INPUT 1           | CONTACT CFIRM | CONTACT CFIRM  |
| LOGIC INPUT 2           | CTR PWR SENSE | CTR PWR SENSE  |
| LOGIC INPUT 3           | NO FUNCTION   | EXTERN FAULT 1 |
| LOGIC INPUT 4           | DRIVE ENABLE  | DRIVE ENABLE   |
| LOGIC INPUT 5           | RUN           | RUN            |
| LOGIC INPUT 6           | UP/DWN        | NO FUNCTION    |
| LOGIC INPUT 7           | STEP REF B0   | FIELD ENABLE   |
| LOGIC INPUT 8           | STEP REF B1   | NO FUNCTION    |
| LOGIC INPUT 9           | FAULT RESET   | FAULT RESET    |

| Logic Outputs C3 Submenu |               |               |
|--------------------------|---------------|---------------|
| PARAMETER                | DEFAULT       | SETTING       |
| LOGIC OUTPUT 1           | CLOSE CONTACT | CLOSE CONTACT |
| LOGIC OUTPUT 2           | RUN COMMAND   | NO FUNCTION   |
| LOGIC OUTPUT 3           | MTR OVERLOAD  | MTR OVELOAD   |
| LOGIC OUTPUT 4           | ENCODER FLT   | NO FUNCTION   |
| LOGIC OUTPUT 5           | FAULT         | NO FUNCTION   |
| LOGIC OUTPUT 6           | SPEED REG RLS | NO FUNCTION   |
| LOGIC OUTPUT 7           | SPEED REG RLS | NO FUNCTION   |
| SOLID STATE RLY1         | NO FUNCTION   | SPEED REG RLS |
| SOLID STATE RLY2         | NO FUNCTION   | NO FUNCTION   |
| RELAY COIL 1             | NO FUNCTION   | FAULT         |
| RELAY COIL 2             | NO FUNCTION   | NO FUNCTION   |

## Auto Tune (A4)

If Auto Tune says "Not Available" you must clear any Active Faults (F1). To prepare the controller simply put a jumper from S10 (120v) to terminal MC on the main controller board. This will energize the MC contactor coil. Go to Auto Tune (A4) and press enter, it will take about 30 seconds to finish. When the Auto Tune finishes you must enable the parameters by choosing: Gain Selection (A4) -> Use Saved Parameters (these parameters can be changed) the parameters will be saved to the A6 submenu.

Or

Gain Selection (A4) -> Use Auto Tune (these parameters cannot be changed) the parameters will be saved to the D2 submenu.

## Inertia Calculation (D1)

With a balanced car, run the car at 100% contract speed from the top floor to the bottom floor and back to the top floor while observing the Est Inertia (D1) for both the up and down direction. Average the two values and enter the number into Inertia (D1).

## Useful for troubleshooting:

D1 Submenu -> Logic Inputs: This displays the C2 submenu above starting from the right to the left.

D1 Submenu -> Logic Outputs: This displays the C3 submenu above starting from the right to the left.

Does the drive see the "Run" command? Logic Input 5=1 (fifth digit from the right) means yes.

