GALaxy IV – Quickstart
Quattro DC Drive

⚠️ **CAUTION** 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.

⚠️ **CAUTION** 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.

1.0   Requirements for a running platform during initial startup

1.1   Wire Motor and Main Line Power as shown in the job connection diagrams.
1.2   Install and wire Governor as shown in the job connection diagrams.
1.3   Wire the motor encoder cable as shown in the job connection diagrams.
1.4   Add temporary connections on the GALX-1102 Main I/O Board and Expansion I/O boards as shown in Figures 1, 2, 3, and 4.
1.5   Set the toggles switches on the GALX-1102 Main I/O Board as show in Figure 4.
1.6   Check/set parameters in the controller LCD user interface. See "GALaxy IV Controller Settings" in Table 1.
1.7   Check/set parameters in the Quattro DC drive. See "Quattro DC Drive Settings" in Table 2.
1.8   Verify the PIC and PAL fault LED's are off. See the GALX-1102AN Main I/O Board in Figure 4. If these LED's are on, refer to the GALaxy IV adjustment manual for possible causes of these faults.
1.9   Perform the Quattro DC Drive "Auto Tune Procedure" described on page 4.
1.10   Verify that the motor rotation direction and speed are correct. If the motor rotation direction and speed are not correct, see page 4 for determining the correct motor rotation direction and speed

⚠️ **CAUTION** All temporary connections must be removed before placing the elevator in service. Refer to the GALaxy IV Manual for complete adjustment procedures.
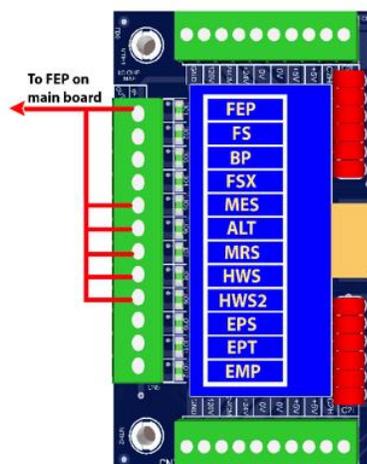
Figure 1: Typical I/O Expansion Board Fire I/O Board

Figure 2: Typical I/O Expansion Board Earthquake I/O Board (if used)
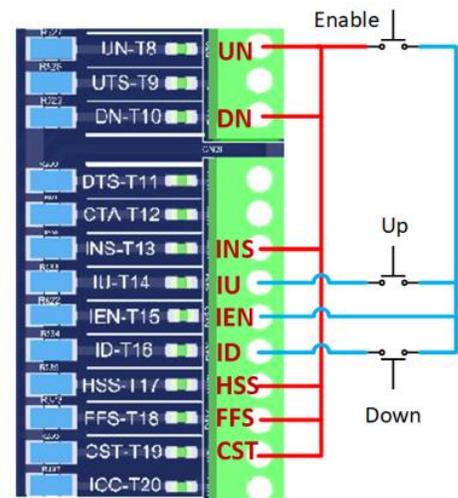
Figure 3: GALX-1102AN Main I/O Board With Run Bug. See Figure 4 For Run Bug Stop Switch
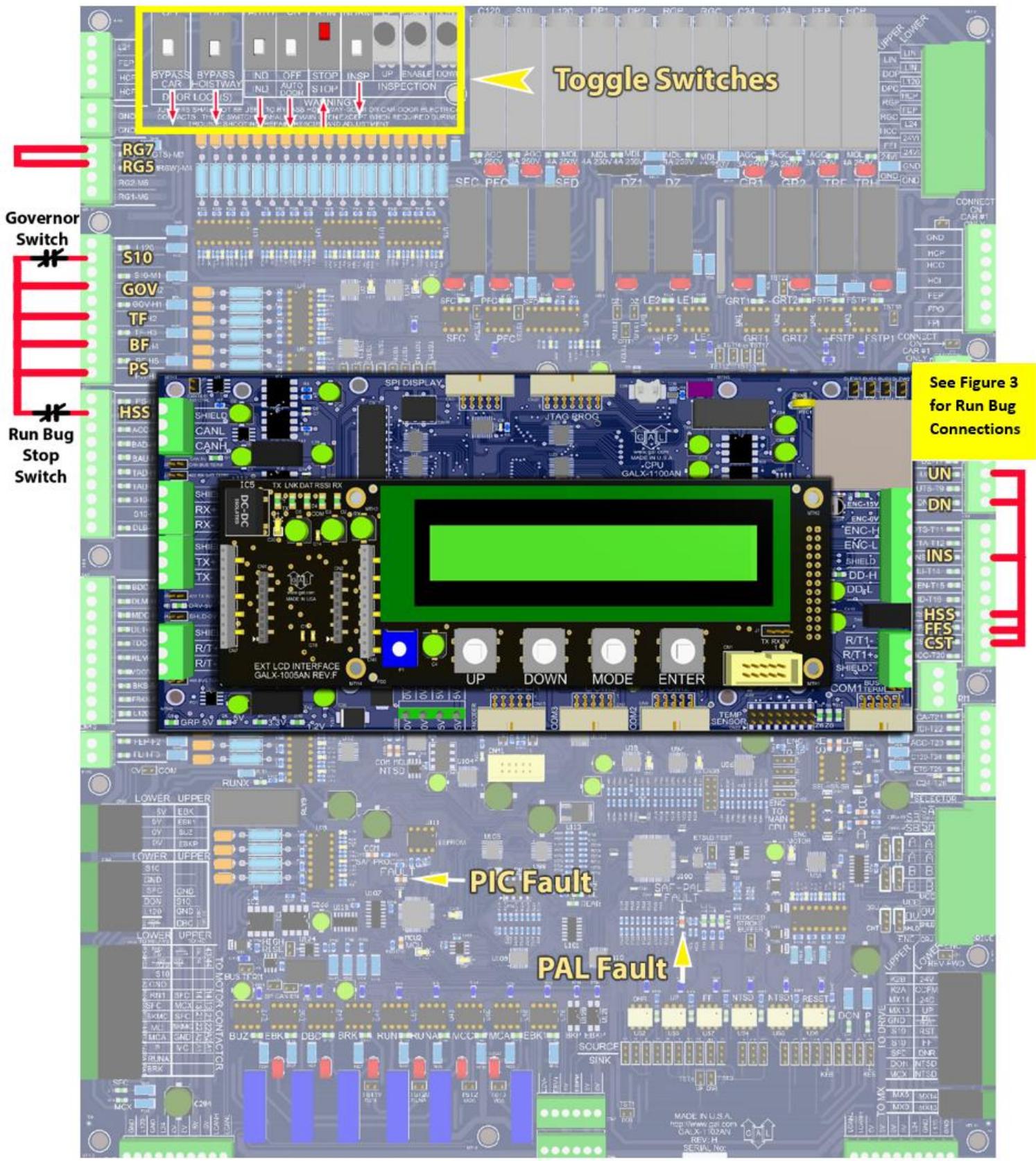
Figure 4: GALX-1102AN Main I/O Board

Labels visible on the board diagram:

- Toggle Switches
- BYPASS CAR (DOOR LOCKS), BYPASS HOISTWAY, NO/IN1, OFF/AUTO DOWN, STOP/STOP, INSP, UP, ENABLE, DOWN, INSPECTION
- Governor Switch
- Run Bug Stop Switch
- RG7, RG5
- S10, GOV, TF, BF, PS, HSS
- See Figure 3 for Run Bug Connections
- UN, DN, INS, HSS, FFS, CST
- PIC Fault
- PAL Fault
- UP, DOWN, MODE, ENTER
- EXT LCD INTERFACE GALX-1005AN REV.F

Table 1: GALaxy IV Controller Settings

Preset the following parameters from the LCD User Interface "Adjustable Variables" menu.

Safety Processor Adjustable Variables Submenu (Motor Encoder Speed Feedback):	
Top Speed (contract speed fpm)	INSP Velocity (set to 140)
Encoder RPM (set to value in drive parameter A1-CONTRACT MTR SPD)	Leveling Vel (set to 140)
Encoder PPR (set to value in drive parameter A1-ENCODER PULSES)	ETS UP VEL (set to Top Speed – only used for reduced stroke buffer)
Encoder Type (set to 4 = incremental)	ETS DOWN VEL (set to Top Speed – only used for reduced stroke buffer)
Control Type (set to 2 = Tract DF)	Soft Stop Time (set to 3)
2 Stop (0 = Multi – Stop; 1 = 2 Stop)	PAL ETS UP Vel (set to Top Speed)
Rear Doors (0 = Front Only; 1 = Rear)	PAL ETS DN Vel (set to Top Speed)
UTS Velocity (set to Top Speed)	
DTS Velocity (set to Top Speed)	
NTS Processor Adjustable Variables Submenu	
Top Speed (contract speed fpm)	DT Velocity (set to Top Speed)
Encoder RPM (set to value in drive parameter A1-CONTRACT MTR SPD)	UT1 Velocity (set to Top Speed)
Encoder PPR (set to value in drive parameter A1-ENCODER PULSES)	DT1 Velocity (set to Top Speed)
Encoder Type (set to 0 if using APS; set to 1 if using tapeless selector)	UTn Velocity (set to Top Speed)
UT Velocity (set to Top Speed)	DTn Velocity (set to Top Speed)
Car Motion Submenu	
When Using Tapeless Selector:	When Using APS Selector:
Top Speed (set to Contract Speed)	Top Speed (set to Contract Speed)
Inspect Speed (set to 25 FPM)	Inspect Speed (set to 25 FPM)
Encoder PPR (set to 10,000 PPR)	Encoder PPR (not Used)
Encoder RPM (set to governor RPM)	Encoder RPM (not used)
Motor RPM (set to value in drive parameter A1-CONTRACT MTR SPD)	Motor RPM (set to value in drive parameter A1-CONTRACT MTR SPD)
System Options Submenu	
Drive Baud Rate = 0 (19,200)	
Encoder Type = 0	

Table 2: Drive Settings Quattro DC Drive

Preset the following parameters from the Quattro DC drive digital operator

A1 Drive Submenu	
CONTRACT CAR SPD	= CONTRACT CAR SPEED FT / MIN (OR FPM)
CONTRACT MTR SPD	= NAMEPLATE MOTOR RPM
ENCODER PULSES	= ENCODER NAMEPLATE
A5 LS PWR CONVRT Submenu	
INPUT L-L VOLTS	RMS L-L Applied to Drive
A6 MOTOR Submenu	
RATED MOTOR CURR	= NAMEPLATE (AMPS)
ARMATURE VOLTAGE	= NAMEPLATE (VOLTS)
FULL FLD CURRENT	= FROM CONTROLLER DATA (AMPS)
WEAK FLD CURRENT	= FROM CONTROLLER DATA (AMPS)
STANDBY FIELD	= FROM CONTROLLER DATA (AMPS)

Quattro DC Drive Auto Tune Procedure:
1) Navigate to the C3 menu and temporarily set "LOGIC OUTPUT 2" to "CLOSE CONTACT".
2) Disconnect power and install a temporary connection from terminal "S10" in the power cabinet to terminal "A1" on the "MC" contactor. This temporary connection will allow the "MC" contactor coil to energize during the Auto Tune Procedure.
3) Re-apply power and navigate to the A4-AUTO TUNE MOTOR menu on digital operator of the Quattro DC Drive.
4) The digital operator will display "START TUNE ?".
5) Press the "ENTER" key on the digital operator.
6) If there are no drive faults, the digital operator will display "CONFIRM REQUEST".
7) Press the "ENTER" key on the digital operator, and the "ME" contactor in the Quattro DC drive will energize for a short period of time.
8) After the Auto Tune Procedure has been successfully completed, the digital operator will display "DONE".
9) Record the values of the following parameters in the D2-MS Power Data menu.
    - AUTO MEAS ARM L
    - AUTO MEAS IR DROP
    - AUTO MEAS ARM R
    - AUTO FIELD RES
    - AUTO FIELD TC
10) Manually enter the values of the following parameters.
    - The value of parameter D2-MS Power Data, AUTO MEAS ARM L, should be manually entered into parameter A4-MS Pwr Convert, ARM INDUCTANCE.
    - The value of parameter D2-MS Power Data, AUTO MEAS ARM R, should be manually entered into parameter A4-MS Pwr Convert, ARM RESISTANCE.
    - The value of parameter D2-MS Power Data, AUTO FIELD RES, should be manually entered into parameter A4-MS Pwr Convert, MOTOR FIELD RES.
    - The value of parameter D2-MS Power Data, AUTO FIELD TC, should be manually entered into parameter A4-MS Pwr Convert, MOTOR FIELD TC.
11) After manually entering the values of the parameters listed above, set the A4-MS Pwr Convert, GAIN SELECTION parameter to "USE SELF TUNE".
12) Navigate to the C3 menu and set "LOGIC OUTPUT 2" to "NO FAULT".
13) Disconnect power and remove the temporary connection from terminal "S10" in the power cabinet to terminal "A1" on the "MC" contactor.

Determining the correct motor rotation direction and speed:
1) If the motor overspeeds and the drive generates a fault, disconnect power and change the encoder direction by swapping the positions of J44 and J45 on the GALX-1102AN Main I/O Board. Re-apply power and verify that the motor rotation direction and speed are correct.
2) If the motor speed is controlled and the rotation is not correct, disconnect power and swap the F1 and F2 motor field wires. Also, change the encoder direction by swapping the positions of J44 and J45 on the GALX-1102AN Main I/O Board. After swapping the F1 and F2 motor field wires and changing the encoder direction, re-apply power and verify that the motor rotation direction and speed are correct.