

# GALaxy IV – Quickstart

## DSD 412 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 DSD 412 drive. See “DSD 412 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 DSD 412 drive “Self-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.

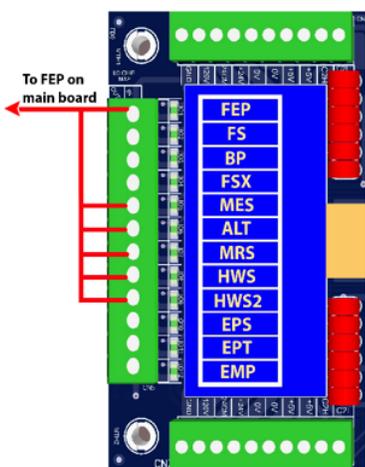


Figure 1: Typical I/O Expansion Board  
Fire I/O Board

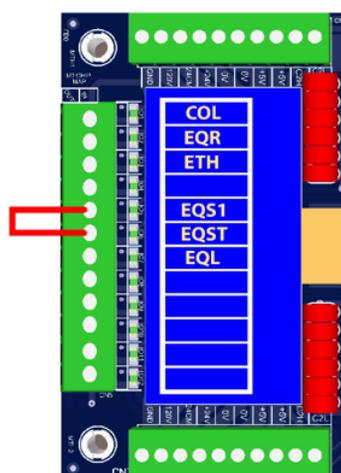


Figure 2: Typical I/O Expansion Board  
Earthquake I/O Board  
(if used)

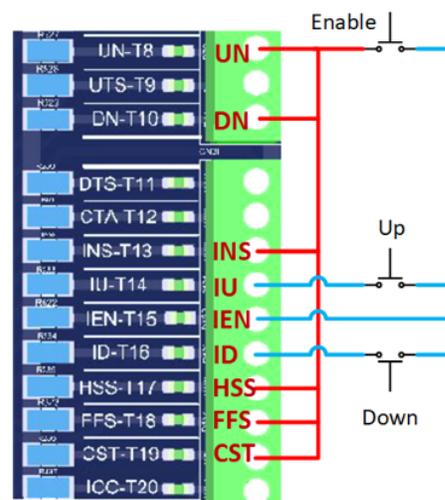


Figure 3: GALX-1102AN Main I/O Board  
With Run Bug. See Figure 4  
For Run Bug Stop Switch



## 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 Function #11)	Leveling Vel (set to 140)
Encoder PPR (set to value in drive Function #10)	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 Function #11)	UT1 Velocity (set to Top Speed)
Encoder PPR (set to value in drive Function #10)	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 Function #11)	Motor RPM (set to value in drive Function #11)
System Options Submenu	
Drive Baud Rate = 0 (19,200)	
Encoder Type = 0	

## Table 2: DSD 412 Drive Settings

Preset the following parameters from the DSD 412 drive keypad.

Funct #	Description	Unit	Range	Setting
1	CURRENT LIMIT	%	0 – 300	250
2	USE SELF-TUNE VALUES	LOGIC	0 – 1	0 = OFF
3	RTD. ARMATURE AMPS	ADC	2.0 – 1250.0	MOTOR NAMEPLATE
4	ARMATURE OHMS	OHMS	0.001 – 5.000	FROM SELF TUNE
6	ARMATURE INDUCTANCE	HENRY	0.0010 – 1.000	FROM SELF TUNE
7	RTD. ARMATURE VOLTS	VDC	150 – 550	MOTOR NAMEPLATE
9	NOMINAL AC INPUT	VAC	150 – 525	A/C LINE TO LINE VOLTAGE @ DRIVE
10	ENCODER PPR	PPR	600 – 19999	ENCODER NAMEPLATE
11	RATED MOTOR RPM	RPM	50.0 – 1999.0	MOTOR NAMEPLATE
16	ENCODER / MOTOR RATIO	--	1.000 – 19.000	1
17	RATED CAR SPEED	FPM	1.0 – 1900.0	CONTRACT SPEED
32	FULL FIELD DETECT	%	30 – 90	80
39	HI SPEED BANDWIDTH	RAD	1 – 15	6
40	LO SPEED BANDWIDTH	RAD	1 – 15	6
41	PER-UNIT INERTIA	SEC	0.10 – 9.99	2
42	STIFFNESS	--	0.2 – 9.9	1
49	WEAK FIELD CURRENT	ADC	0.2 – 40.00	40
50	FULL FIELD CURRENT	ADC	0.2 – 40.00	MOTOR NAMEPLATE
51	MOTOR FIELD L/R	SEC	0.10 – 10.00	FROM SELF TUNE
52	RTD. FIELD VOLTS DC	VDC	50 – 525	MOTOR NAMEPLATE
53	STANDBY FIELD AMPS	%	10 – 100	25

### DSD 412 Drive Self-Tune Procedure

- 1) Place the NVRAM protect switch in the OFF position. (Note: The unprotect LED will now be lit.)
- 2) Disconnect power and temporarily remove the "RST" wire from TB1 terminal "49" on the DSD 412 Drive.
- 3) Re-apply power and perform the drive Self-Tune procedure in Function # 997. During this procedure, the "MC" contactor will energize for a short period of time. After completing the Self-Tune, the SCDU should display *PASS*.
- 4) Record the values in drive Function # 613, # 614, and # 615.
- 5) Enter the value of Function # 613 into Function #4. Enter the value of Function # 614 into Function #6. Enter the value of Function # 615 into Function # 51.
- 6) If the Self-Tune procedure is not successful, refer to the drive manual for troubleshooting.
- 7) Follow the procedures in the drive manual to save the parameters using Function # 994.
- 8) Place the NVRAM switch back to the ON position. (Note: The unprotect LED will turn off.)
- 9) Disconnect power and re-connect the "RST" wire that was temporarily removed from TB1 terminal "49" on the DSD 412 Drive.

### DSD 412 Drive Self-Diagnostics Test

- 1) Place the NVRAM protect switch in the OFF position. (Note: The unprotect LED will now be lit.)
- 2) Perform the *Test* procedure in Function # 998.
- 3) If the *Test* procedure is successful, the SCDU will display *PASS*.
- 4) If the *Test* procedure fails, refer to the drive manual for troubleshooting.
- 5) Place the NVRAM switch back to the ON position. (Note: The unprotect LED will turn OFF.)

### 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.

Table 3: Useful DSD 412 Drive Diagnostic Functions

Funct #	Description	Funct #	Description
22	Clear Errors List	613	Measured Resistance – Ohms
000	View Fault List	614	Measured Inductance – Henry
800	View Error List	615	Measured Field L/R Constant – Sec
600	Car Speed – FPM	616	Measured Speed Error – %
601	Motor RPM – RPM	617	Line Frequency – Hz
602	Speed Reference – FPM	618	Heat Sink Temp. – Deg. C
603	Pre-Torque Signal – %	619	Measure AC Line Volts – VAC
609	CEMF Volts – VDC	620	Field Tracking – PU
610	Motor Armature Volts – VDC	621	Serial Comm. On – Logic
611	Motor Armature Current – ADC	688	Cube I. D.
612	Motor Field Current – ADC	689	Field Range