



GrahamEquipment

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Overview

The Graham Equipment Electric Planter Drive (EPD) replaces ground and hydraulics drives on planters. With the EPD, typically the motor is a direct mount. For some planter installations an offset motor is required due mainly to clearance problems.

There are two main components along with the electric motors. The Interface Box connects to the rate controller on the tractor/planter. The rate controller normally controls a hydraulic drive. With out system, the Interface box will make two connections to the rate controller; rate control output and rate control feedback. The Interface Box uses the rate control output signal from the rate controller to determine the desired RPM. The rate control feedback connection is to let the rate controller know that the motors are running at the desired RPM.

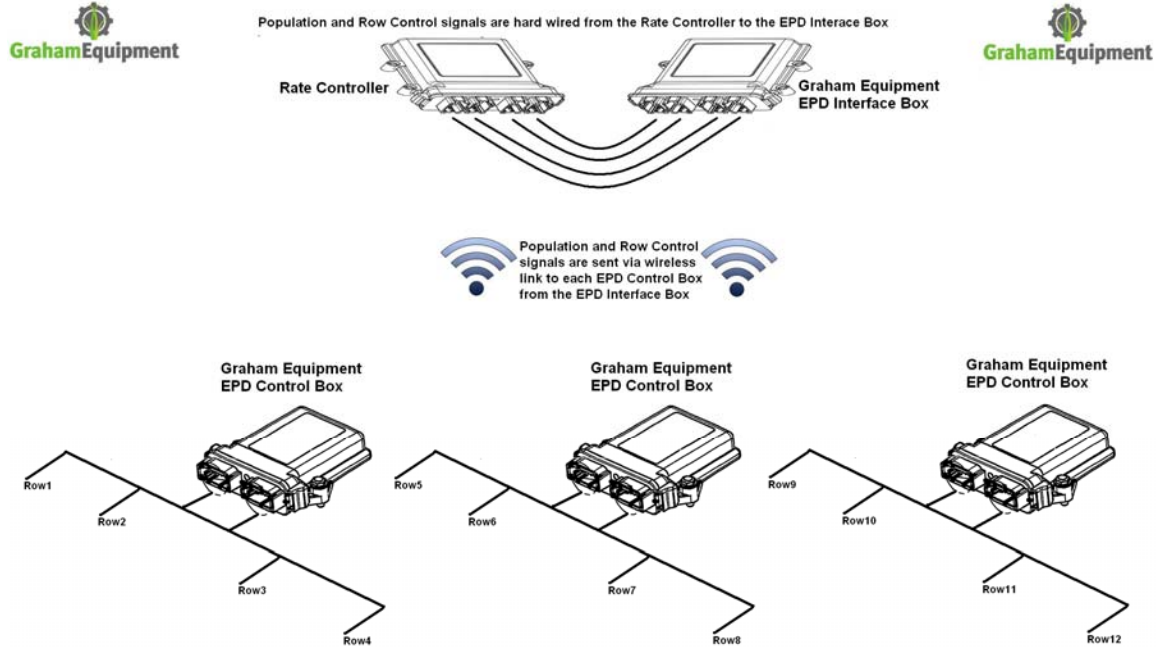
If the tractor/planter does not have a rate controller, the use of our Touchscreen Monitor is required. Connect the monitor to a GPS or radar for ground speed. The GPS sensor must be a speed-only type of output. If a Touchscreen is needed, the Interface Box will not be needed in the system.

Each planter row will have one motor. For each group of four motors, there is one control box and control harness. Between each control box and between the tractor are two cables to supply power and ground connections to the control boxes. Depending on the number of rows, alternator output capabilities and the amount of power consumed from other devices on the tractor/planter a hydraulically driven alternator might be needed. If the tractor/planter is using a vacuum fan, the hydraulically driven alternator can be plumbed into the return side of the hydraulic system.

On each control harness, there are two connections to be made for each motor. The two pin Deutsche connector supplies power and ground to the motor. The three pin Deutsche connector is for the feedback signal from the motor to the control box. Both connections must be made otherwise the row will not operate. Also on the control harness is power & ground eyelets to connect tractor power to the control box. Each motor under normal operating conditions will use 3 amps of power. In the center of the control harness are two 12 pin Deutsche connectors that attach the control harness to the control box. On each side of the harness, there are two ATC style 15 amp fuses.

Layout

Below is an illustration of a typical 12 row EPD system connected to a rate controller.



Interface Box Installation

The interface box will connect to the rate controller's PWM output, the feedback input and the row shut-off's. The interface box has three connections labeled 'A', 'B', and 'C'. There are three interface harnesses. Each harness has a 12 pin Deutsche connector on one end. The gray connector plugs into 'A', black to 'B' and green to 'C'. The interface harness with the gray connector will connect to the hydraulic drive PWM and feedback. The green and black connector are for row shut-offs. Gray is rows 1-12 and black is rows 13-24. The wire color determines the corresponding row. The colors are sorted alphabetically based on color. For example, row 1:blue, row 2:brown, row 3:gray,row 4:green. See the schematics at the end of the manual for more details on each harness.

Control Box Installation

Mount each control box to the main bar of the planter with the supplied brackets. Each box needs to be connected to a specific group of rows. On the back of control box is a number that represents the Control Box ID. Standing at the back of the planter, the furthest left is Control Box ID #1. If you are using this on a 12 row planter, the center Control Box is ID #2 and the far right is #3.

The brackets must be used. The wireless chip on the control box must not be shielded by any material to operate at its best. If the included brackets cannot be used, contact Graham Equipment. The control box **MUST** be mounted with the gray connector on the left and black connector to the right when standing at the back of the planter.

After mounting each control box, lay out the power harnesses. Note some power harnesses are different lengths. The longer are used at stack/fold points. Also connect the tractor battery power and ground to the planter harness.

All the included control harnesses are identical, meaning any one harness can be connected to any one control box. Connect the gray and black Deutsche connectors at the center of the harness to the control box. When first connecting, make sure the connection is free from any shipping material. There is an audible click when the connection is made successfully. To disconnect any Deutsche, press down the locks and pull on the housing. **Do not ever pull on the wires to disconnect.** All Deutsche connectors are 'keyed' meaning they have to be orientated correctly for a connection to be made. After connecting the gray and black Deutsche connectors lay out the harness and make both connections at each of the four rows.

It is very important to consider pinch points when laying out the control harness. To prevent a pinched harness and damaged electronics, make sure the harness is free from pinch points when the planter is transforming from transport to planting operation and also when the planter moves either up or down.

Configuration

Rate Controller

Within the rate controller software, the seed cell plate count will need to be entered the same as with a hydraulic drive. The feedback pulses per revolution will need to be set at 360. If possible set the PWM frequency (Hz) to 150.

Row Shut-Off

Each row can be activated/deactivated independently of all the other rows if the rate controller has the capability.

Calibration

The rate controller software will need to know the motor ratio. Enter 1:1 for the gear ratio, if the motor is directly mounted to the seed plate. On some applications the electric drive will be remotely mounted and use a chain to drive the seed plate. In this instance, enter the ratio between the two sprockets. When going through the calibration process on a Precision rate controller, the desired ratio calculated by the Precision software will most likely not be exactly 1.000. It's not the fault of the Precision Just enter 1.000 into the 'Gear Ratio' text box.

Troubleshooting

Determining the cause of a problem with the operation of your EPD is usually quite simple. It's a process of breaking up the system into smaller pieces. Below is a step by step process to determining the problem if your EPD's are not operating correctly.

None of the EPD's operate

- First verify with a meter power and ground to the control boxes and interface box.
- Ensure that the rate controller is connected to the interface box.
- Check row shut-off state. Connect a volt meter to one row shutoff signal from the rate controller and to either power or ground, depending on your rate controller. Your rate controller supplier will be able to tell you if the row control output is either power or ground. Connect the other side of your volt meter to the opposite of what the rate controller outputs for row control. For example an Ag Leader row shutoff signal activates/deactivates ground. So connect one side of the volt meter to a row shutoff signal and the other side of the volt meter to power. If it reads approximately 12v, the row shutoff signal is telling the Interface box to run that respective row.
- Check the control harness fuses.

Many EPD's operate except for one.

- Check the control loom fuses
- Ensure both connectors on the motor are connected to the control loom.
- Swap motors, for example row 1 isn't running and row 2 operates correctly. Swap motors on the row units and see if the problem follows the motor or stays with row 1.
- If the problem stays on the same row, check the loom for damage.
- Make sure your row shutoffs are configured correctly

Row Shutoffs don't work correctly.

- Make sure the row shutoffs are connected to the Interface Box
- Ensure the clutch type is configured correctly in your rate controller.

Wrong row(s) turn on/off.

- Check Control Box ID is correct.
- Look at the configuration in the rate controller.

Rate is not correct

- Ensure correct seed plate is installed
- Check cell count configuration in rate controller
- If direct drive, gear ratio is 1:1, if chain driven make sure correct ratio is entered.

Maintenance

When pressure washing your planter, do not apply high pressure water around the motor. It is sealed however the seal cannot tolerate a high pressure spray.

Every 2,000 hours of operation, it's a good idea to replace the brushes in each motor. Contact Graham Equipment for replacement brushes. It's a quick and cheap maintenance procedure that will help ensure your motors operate correctly.

Schematics

Below are schematics for common rate controllers. If your rate controller is not found, please contact Graham Equipment.

There are several terms used in the schematics that might not make sense initially.

VINVSS	The signal that is constantly provided to each row shutoff. Some rate controllers turn on/off ground while others turn on/off power. VINVSS is the signal that remains on.
SO1-SOXX	SO1 is the term used for row shutoff 1, SO2=row shutoff 2 through the end of the shutoff capability of the rate controller.
PWMIN	This is the signal that is pulse modulated to normally control a hydraulic drive.
Motor Power	The constant signal to the other side of the hydraulic drive
Feedback	The frequency output of the Interface box that lets the rate controller know the speed of the hydraulic drive in essence. The rate controller is expecting to control a hydraulic drive and needs to know the speed to adjust the PWMIN signal. The Feedback output provides this feedback signal for the rate controller.

Graham EPD to Precision Planting Row Flow

Precision RowFlow

R1 (Output 1-4)	6 Pin W/P	Color	Gage	Dest.
A	VINVSS	Lt Blue	16	A-11
B	SO1	Blue	16	C-1
C	SO2	Brown	16	C-2
D	SO3	Gray	16	C-3
E	SO4	Green	16	C-4
F	Plug	Plug	NC	NC

R6 (Output 21-24)	6 Pin W/P	Color	Gage	Dest.
A	Plug	Plug	NC	NC
B	SO21	Blue/Pink	16	B-9
C	SO22	Brown/Pink	16	B-10
D	SO23	Gray/Pink	16	B-11
E	SO24	Green/Pink	16	B-12
F	Plug	Plug	NC	NC

R2 (Output 5-8)	6 Pin W/P	Color	Gage	Dest.
A	Plug	Plug	NC	NC
B	SO5	Orange	16	C-5
C	SO6	Purple	16	C-6
D	SO7	Tan	16	C-7
E	SO8	White	16	C-8
F	Plug	Plug	NC	NC

R7 (Output 25-28)	6 Pin W/P	Color	Gage	Dest.
A	Plug	Plug	NC	NC
B	SO25	Brown	16	D-1
C	SO26	Red	16	D-2
D	SO27	Yellow	16	D-3
E	SO28	Orange	16	D-4
F	Plug	Plug	NC	NC

R3 (Output 9-12)	6 Pin W/P	Color	Gage	Dest.
A	Plug	Plug	NC	NC
B	SO9	Blue/Pink	16	C-9
C	SO10	Brown/Pink	16	C-10
D	SO11	Gray/Pink	16	C-11
E	SO12	Green/Pink	16	C-12
F	Plug	Plug	NC	NC

R8 (Output 29-32)	6 Pin W/P	Color	Gage	Dest.
A	Plug	Plug	NC	NC
B	SO29	Green	16	D-5
C	SO30	Blue	16	D-6
D	SO31	Purple	16	D-7
E	SO32	Gray	16	D-8
F	Plug	Plug	NC	NC

R4 (Output 13-16)	6 Pin W/P	Color	Gage	Dest.
A	Plug	Plug	NC	NC
B	SO13	Blue	16	B-1
C	SO14	Brown	16	B-2
D	SO15	Gray	16	B-3
E	SO16	Green	16	B-4
F	Plug	Plug	NC	NC

R9 (Output 33-36)	6 Pin W/P	Color	Gage	Dest.
A	Plug	Plug	NC	NC
B	SO33	White	16	D-9
C	SO34	White/Black	16	D-10
D	SO35	White/Red	16	D-11
E	SO36	White/Green	16	D-12
F	Plug	Plug	NC	NC

R5 (Output 17-20)	6 Pin W/P	Color	Gage	Dest.
A	Plug	Plug	NC	NC
B	SO17	Orange	16	B-5
C	SO18	Purple	16	B-6
D	SO19	Tan	16	B-7
E	SO20	White	16	B-8
F	Plug	Plug	NC	NC

F Hyd. Drive	DTP06- 8S	Color	Gage	Dest.
1	NC			
2	PWMIN	Green	16	A-12
3	Feedback	White	16	A-5
4	NC			
5	NC			
6	NC			
7	Motor Power	Yellow	16	A-1
8	NC			

Graham Equipment Interface Box

A	DT06-12S Grey	Color	Gage	Dest.
1	Motor Power	Yellow	16	F-7
2	SO37	Blue	16	R10-B
3	SO38	Brown	16	R10-C
4	SO39	Gray	16	R10-D
5	Feedback	White	16	F-3
6	SO40	Green	16	P9-4
7	Ground	Black	16	P10-1
8	Battery Power	Red	16	P10-2
9	SO41	Orange	16	R11-B
10	SO42	Purple	16	R11-C
11	VINVSS	Lt Blue	16	R1-A
12	PWMIN	Green	16	F-2

C	DT06-12S Green	Color	Gage	Dest.
1	SO1	Blue	16	R1-B
2	SO2	Brown	16	R1-C
3	SO3	Gray	16	R1-D
4	SO4	Green	16	R1-E
5	SO5	Orange	16	R2-B
6	SO6	Purple	16	R2-C
7	SO7	Tan	16	R2-D
8	SO8	White	16	R3-E
9	SO9	Blue/Pink	16	R3-B
10	SO10	Brown/Pink	16	R3-C
11	SO11	Gray/Pink	16	R3-D
12	SO12	Green/Pink	16	R3-E

B	DT06-12S Black	Color	Gage	Dest.
1	SO13	Blue	16	R4-B
2	SO14	Brown	16	R4-C
3	SO15	Gray	16	R4-D
4	SO16	Green	16	R4-E
5	SO17	Orange	16	R5-B
6	SO18	Purple	16	R5-C
7	SO19	Tan	16	R5-D
8	SO20	White	16	R5-E
9	SO21	Blue/Pink	16	R6-B
10	SO22	Brown/Pink	16	R6-C
11	SO23	Gray/Pink	16	R6-D
12	SO24	Green/Pink	16	R6-E

D	DT06-12S Pink	Color	Gage	Dest.
1	SO25	Blue	16	R7-B
2	SO26	Brown	16	R7-C
3	SO27	Gray	16	R7-D
4	SO28	Green	16	R7-E
5	SO29	Orange	16	R8-B
6	SO30	Purple	16	R8-C
7	SO31	Tan	16	R8-D
8	SO32	White	16	R8-3
9	SO33	Blue/Pink	16	R9-B
10	SO34	Brown/Pink	16	R9-C
11	SO35	Gray/Pink	16	R9-D
12	SO36	Green/Pink	16	R9-E

Graham EPD to Trimble

R1 (Output1-4)	6 Pin W/P	Color	Gage	Dest.
A	VINVSS	Lt Blue	16	A-11
B	SO1	Blue	16	B-1
C	SO2	Brown	16	B-2
D	SO3	Gray	16	B-3
E	SO4	Green	16	B-4
F	Plug	Plug	NC	NC

R6 (Output 21-24)	6 Pin W/P	Color	Gage	Dest.
A	Plug	Plug	NC	NC
B	SO21	White	16	C-9
C	SO22	White/Black	16	C-10
D	SO23		16	C-11
E	SO24	White/Green	16	C-12
F	Plug	Plug	NC	NC

R2 (Output5-8)	6 Pin W/P	Color	Gage	Dest.
A	Plug	Plug	NC	NC
B	SO5	Orange	16	B-5
C	SO6	Purple	16	B-6
D	SO7	Tan	16	B-7
E	SO8	White	16	B-8
F	Plug	Plug	NC	NC

R7 (Output 25-28)	6 Pin W/P	Color	Gage	Dest.
A	Plug	Plug	NC	NC
B	SO25	Brown	16	D-1
C	SO26	Red	16	D-2
D	SO27	Yellow	16	D-3
E	SO28	Orange	16	D-4
F	Plug	Plug	NC	NC

R3 (Output9-12)	6 Pin W/P	Color	Gage	Dest.
A	Plug	Plug	NC	NC
B	SO9	Blue/Pink	16	B-9
C	SO10	Brown/Pink	16	B-10
D	SO11	Gray/Pink	16	B-11
E	SO12	Green/Pink	16	B-12
F	Plug	Plug	NC	NC

R8 (Output 29-32)	6 Pin W/P	Color	Gage	Dest.
A	Plug	Plug	NC	NC
B	SO29	Green	16	D-5
C	SO30	Blue	16	D-6
D	SO31	Purple	16	D-7
E	SO32	Gray	16	D-8
F	Plug	Plug	NC	NC

R4 (Output13-16)	6 Pin W/P	Color	Gage	Dest.
A	Plug	Plug	NC	NC
B	SO13	Brown	16	C-1
C	SO14	Red	16	C-2
D	SO15	Yellow	16	C-3
E	SO16	Orange	16	C-4
F	Plug	Plug	NC	NC

R9 (Output 33-36)	6 Pin W/P	Color	Gage	Dest.
A	Plug	Plug	NC	NC
B	SO33	White	16	D-9
C	SO34	White/Black	16	D-10
D	SO35	White/Red	16	D-11
E	SO36	White/Green	16	D-12
F	Plug	Plug	NC	NC

R5 (Output17-20)	6 Pin W/P	Color	Gage	Dest.
A	Plug	Plug	NC	NC
B	SO17	Green	16	C-5
C	SO18	Blue	16	C-6
D	SO19	Purple	16	C-7
E	SO20	Gray	16	C-8
F	Plug	Plug	NC	NC

P9 (CONTROLV/LV)	DT-04-4P	Color	Gage	Dest.
1		Black	NC	NC
2		Red	NC	NC
3	Motor Power	Yellow	16	A-1
4	PWMIN	Green	16	A-12

P8 (FLOW METER)	DT-04-3P	Color	Gage	Dest.
1	Power	Red/White	16	A-8
2	Feedback	White	16	A-5
3	Ground	Black/White	16	A-7

Graham Equipment Interface Box

A	DT06-12S Grey	Color	Gage	Destination
1	Motor Power	Yellow	16	P9-3
2	SO37	Blue	16	R10-B
3	SO38	Brown	16	R10-C
4	SO39	Gray	16	R10-D
5	Feedback	White	16	P8-3
6	SO40	Green	16	P9-4
7	Ground	Black	16	P10-1
8	Battery Power	Red	16	P10-2
9	SO41	Orange	16	R11-B
10	SO42	Purple	16	R11-C
11	VINVSS	Lt Blue	16	R1-A
12	PWMIN	Green	16	P9-4

C	DT06-12S Green	Color	Gage	Destination
1	SO1	Blue	16	R1-B
2	SO2	Brown	16	R1-C
3	SO3	Gray	16	R1-D
4	SO4	Green	16	R1-E
5	SO5	Orange	16	R2-B
6	SO6	Purple	16	R2-C
7	SO7	Tan	16	R2-D
8	SO8	White	16	R3-E
9	SO9	Blue/Pink	16	R3-B
10	SO10	Brown/Pink	16	R3-C
11	SO11	Gray/Pink	16	R3-D
12	SO12	Green/Pink	16	R3-E

B	DT06-12S Black	Color	Gage	Destination
1	SO13	Blue	16	R4-B
2	SO14	Brown	16	R4-C
3	SO15	Gray	16	R4-D
4	SO16	Green	16	R4-E
5	SO17	Orange	16	R5-B
6	SO18	Purple	16	R5-C
7	SO19	Tan	16	R5-D
8	SO20	White	16	R5-E
9	SO21	Blue/Pink	16	R6-B
10	SO22	Brown/Pink	16	R6-C
11	SO23	Gray/Pink	16	R6-D
12	SO24	Green/Pink	16	R6-E

D	DT06-12S Pink	Color	Gage	Destination
1	SO25	Blue	16	R7-B
2	SO26	Brown	16	R7-C
3	SO27	Gray	16	R7-D
4	SO28	Green	16	R7-E
5	SO29	Orange	16	R8-B
6	SO30	Purple	16	R8-C
7	SO31	Tan	16	R8-D
8	SO32	White	16	R8-3
9	SO33	Blue/Pink	16	R9-B
10	SO34	Brown/Pink	16	R9-C
11	SO35	Gray/Pink	16	R9-D
12	SO36	Green/Pink	16	R9-E

Graham EPD to AgLeader

Ag Leader				
Switches Ground				
PO2 (Shutoff1-12)	Molex 19418-0030	Color	Gage	Destination
1	SO1,2	Black	20	C-1,C-2
2	SO3	Gray	20	C-3
3	SO4	Orange	20	C-4
4	SO5	Blue	20	C-5
5	SO6	Tan	20	C-6
6	SO7	Pink	20	C-7
7	SO8	Green	20	C-8
8	SO9	Yellow	20	C-9
9	SO10	Purple	20	C-10
10	SO11,12	Brown	20	C-11,C-12

P01 (PWR OUT)	DTP06-2P	Color	Gage	Destination
1	Battery Power	Black	16	A-7
2	Ground	Red	16	A-8

P9 (CONTROL VLV)	DT06-8S	Color	Gage	Destination
1	Feedback Power	NC	NC	NC
2	Motor Power	Yellow	16	A-1
3	Feedback Signal	White	16	A-1
4	Feedback Ground	NC	16	NC
5	NC	NC	NC	NC
6	NC	NC	NC	NC
7	PWMIN	Green	16	A-12
8	Ground	Black	NC	NC

Clutch Power	DT04-2P	Color	Gage	Destination
1	VINVSS	Blue	20	A-11
2	NC	NC	NC	NC

Graham Equipment Interface Box

A	DT06-12S Grey	Color	Gage	Destination
1	Motor Power	Yellow	16	P9-2
2	SO37	Blue	16	R10-B
3	SO38	Brown	16	R10-C
4	SO39	Gray	16	R10-D
5	Feedback	White	16	P9-3
6	SO40	Green	16	P9-4
7	Ground	Black	16	P01-1
8	Battery Power	Red	16	P01-2
9	SO41	Orange	16	R11-B
10	SO42	Purple	16	R11-C
11	VINVSS	Lt Blue	16	P0-1
12	PWMIN	Green	16	P9-4

C	DT06-12S Green	Color	Gage	Destination
1	SO1	Blue	16	PO2-1
2	SO2	Brown	16	PO2-1
3	SO3	Gray	16	PO2-2
4	SO4	Green	16	PO2-3
5	SO5	Orange	16	PO2-4
6	SO6	Purple	16	PO2-5
7	SO7	Tan	16	PO2-6
8	SO8	White	16	PO2-7
9	SO9	Blue/Pink	16	PO2-8
10	SO10	Brown/Pink	16	PO2-9
11	SO11	Gray/Pink	16	PO2-10
12	SO12	Green/Pink	16	PO2-10

B	DT06-12S Black	Color	Gage	Destination
1	SO13	Blue	20	
2	SO14	Brown	20	
3	SO15	Gray	20	
4	SO16	Green	20	
5	SO17	Orange	20	
6	SO18	Purple	20	
7	SO19	Tan	20	
8	SO20	White	20	
9	SO21	Blue/Pink	20	
10	SO22	Brown/Pink	20	
11	SO23	Gray/Pink	20	
12	SO24	Green/Pink	20	

D	DT06-12S Pink	Color	Gage	Destination
1	SO25	Blue	16	
2	SO26	Brown	16	
3	SO27	Gray	16	
4	SO28	Green	16	
5	SO29	Orange	16	
6	SO30	Purple	16	
7	SO31	Tan	16	
8	SO32	White	16	
9	SO33	Blue/Pink	16	
10	SO34	Brown/Pink	16	
11	SO35	Gray/Pink	16	
12	SO36	Green/Pink	16	

Graham EPD to JD Greenstar

John Deere				
JD	AMP 206151-2	Color	Gage	Destination
1	VINVSS	Light Blue	16	A-11
2	NC			NC
3	NC			NC
4	SO1	Blue	16	C-1
5	SO2	Brown	16	C-2
6	SO3	Gray	16	C-3
7	SO4	Green	16	C-4
8	SO5	Orange	16	C-5
9	SO6	Purple	16	C-6
10	SO7	Tan	16	C-7
11	SO8	White	16	C-8
12	SO9	Blue/Pink	16	C-9
13	SO10	Brown/Pink	16	C-10
14	NC			NC
15	PWMIN	Green	16	A-12
16	Motor Power	Yellow	16	A-1
17	SO14	Brown	16	B-2
18	SO13	Blue	16	B-1
19	SO12	Green/Pink	16	C-12
20	SO11	Gray/Pink	16	C-11
21	NC			NC
22	NC			NC
23	NC			NC
24	NC			NC
25	NC			NC
26	Battery Power	Red	16	A-8
27	Battery Ground	Black	16	A-7
28	Feedback	White	16	A-5
29	NC			NC
30	NC			NC
31	NC			NC
32	NC			NC
33	NC			NC
34	NC			NC
35	NC			NC
36	NC			NC
37	NC			NC

Graham Equipment Interface Box

A	DT06-12S Grey	Color	Gage	Destination
1	Motor Power	Yellow	16	JD-16
2	SO37	Blue	16	NC
3	SO38	Brown	16	NC
4	SO39	Gray	16	NC
5	Feedback	White	16	JD-28
6	SO40	Green	16	NC
7	Ground	Black	16	JD-27
8	Battery Power	Red	16	JD-26
9	SO41	Orange	16	NC
10	SO42	Purple	16	NC
11	VINVSS	Lt Blue	16	JD-17
12	PWMIN	Green	16	JD-15

C	DT06-12S Green	Color	Gage	Destination
1	SO1	Blue	16	JD-4
2	SO2	Brown	16	JD-5
3	SO3	Gray	16	JD-6
4	SO4	Green	16	JD-7
5	SO5	Orange	16	JD-8
6	SO6	Purple	16	JD-9
7	SO7	Tan	16	JD-10
8	SO8	White	16	JD-11
9	SO9	Blue/Pink	16	JD-12
10	SO10	Brown/Pink	16	JD-13
11	SO11	Gray/Pink	16	JD-20
12	SO12	Green/Pink	16	JD-19

B	DT06-12S Black	Color	Gage	Destination
1	SO13	Blue	20	JD-18
2	SO14	Brown	20	JD-17
3	SO15	Gray	20	NC
4	SO16	Green	20	NC
5	SO17	Orange	20	NC
6	SO18	Purple	20	NC
7	SO19	Tan	20	NC
8	SO20	White	20	NC
9	SO21	Blue/Pink	20	NC
10	SO22	Brown/Pink	20	NC
11	SO23	Gray/Pink	20	NC
12	SO24	Green/Pink	20	NC

D	DT06-12S Pink	Color	Gage	Destination
1	SO25	Blue	16	NC
2	SO26	Brown	16	NC
3	SO27	Gray	16	NC
4	SO28	Green	16	NC
5	SO29	Orange	16	NC
6	SO30	Purple	16	NC
7	SO31	Tan	16	NC
8	SO32	White	16	NC
9	SO33	Blue/Pink	16	NC
10	SO34	Brown/Pink	16	NC
11	SO35	Gray/Pink	16	NC
12	SO36	Green/Pink	16	NC