

Go. The Adventure Starts Now. Explore. Find Out. Live. Free

2024

Tiffin Byway

Integration Schematic











SPYDER
CONTROLS CORP



- 1** **Module Locations**
- 2** **Module Locations (Continued)**
- 3** **G12 Pinout**
- 4** **G12 Pinout (Continued)**
- 5** **M1 Overview**
- 6** **M1 Slide Card**
- 7** **M1 Slide Card Alternate**
- 8** **M1 HC Relay Card**

- 9** **M1 Breaker Card 1**
- 10** **M1 Breaker Card 2**
- 11** **Lighting**
- 12** **Slides**
- 13** **MaxxFans**
- 14** **Vent Fans (Non-MaxxFan)**
- 15** **LPG + Chassis Voltage**

Schematic Connections Legend









-  Constant Ground
-  Constant 12V+
-  Switched Ground
-  Switched 12V+
-  Reverse Polarity
-  Signal
-  120V AC Line
-  Network

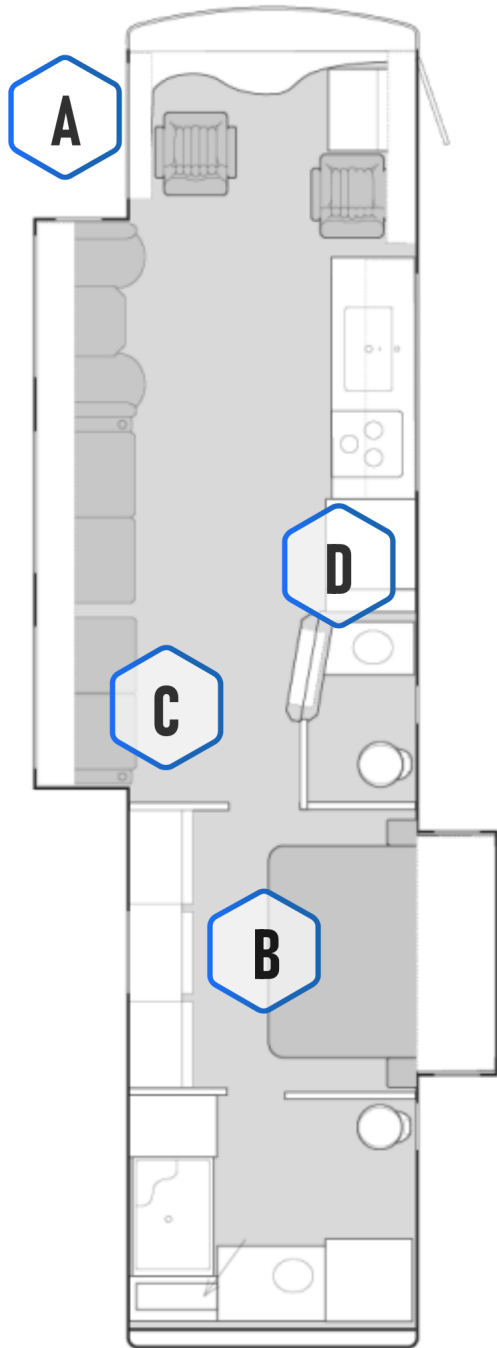


16	Tank Sensing
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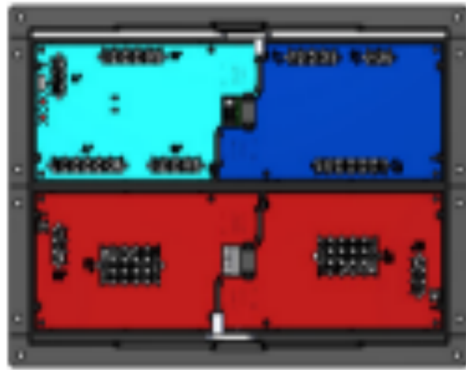
Schematic Connections Legend

	Constant Ground
	Constant 12V+
	Switched Ground
	Switched 12V+
	Reverse Polarity
	Signal
	120V AC Line
	Network



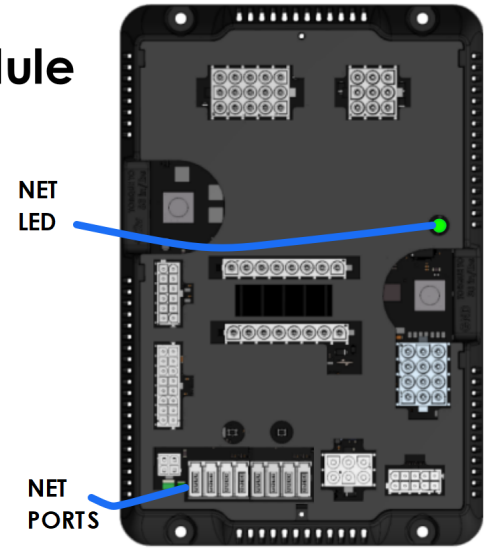
A M1 Front Panel

i
Spyder Part #
BENCZM2DS
Tiffin Part #
5126983
Dimensions
10" X 7.8"



B G12 Module

i
Spyder Part #
BMODZU2VU
Tiffin Part #
5126984
Dimensions
9" X 6"



C DCD Panel

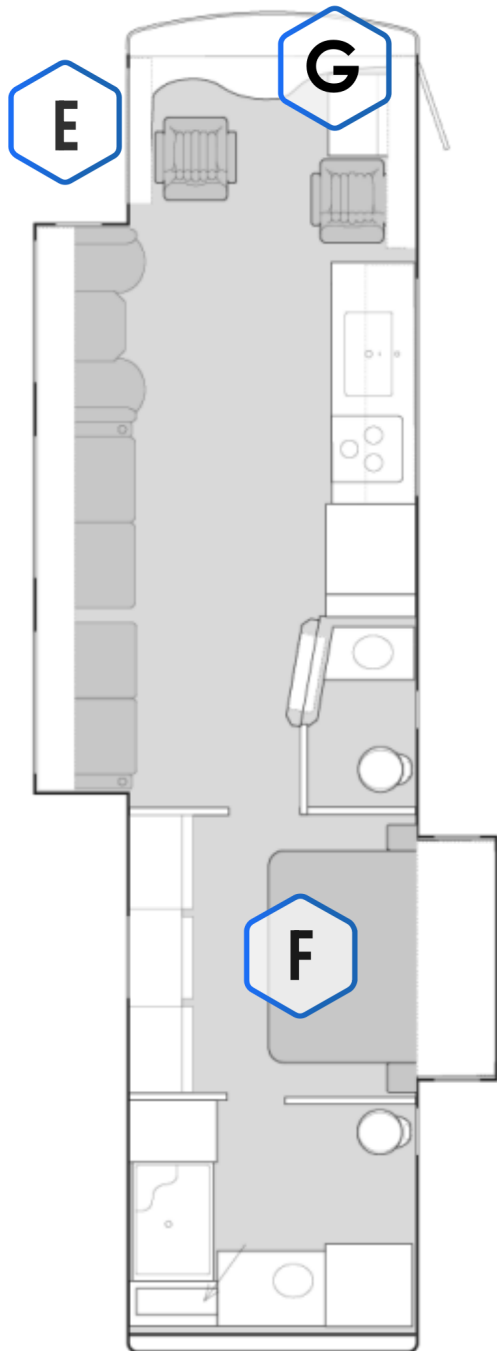
i
Spyder Part #
BENCZ38XD
Tiffin Part #
5129125
Dimensions
10" X 4"



D 5" Color LCD

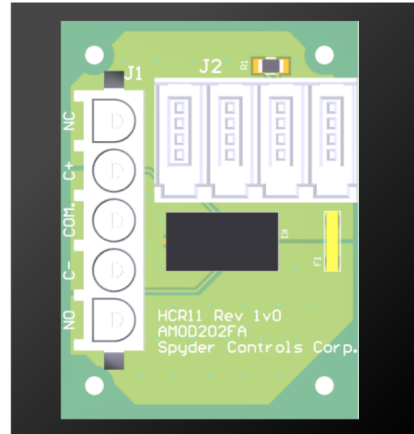
i
Spyder Part #
BSSPZZREK
Tiffin Part #
TBD
Dimensions
5.7" X 3.6"





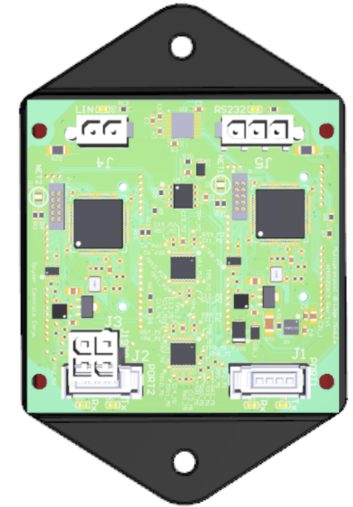
E HCR-11 (Terminator)

i
Spyder Part #
 BMODZGAN6
Tiffin Part #
 5105426
Dimensions
 2.5" X 2"



F Bridge Module

i
Spyder Part #
 BMODZTCT0
Tiffin Part #
 5127271
Dimensions
 2.7" X 2.7"



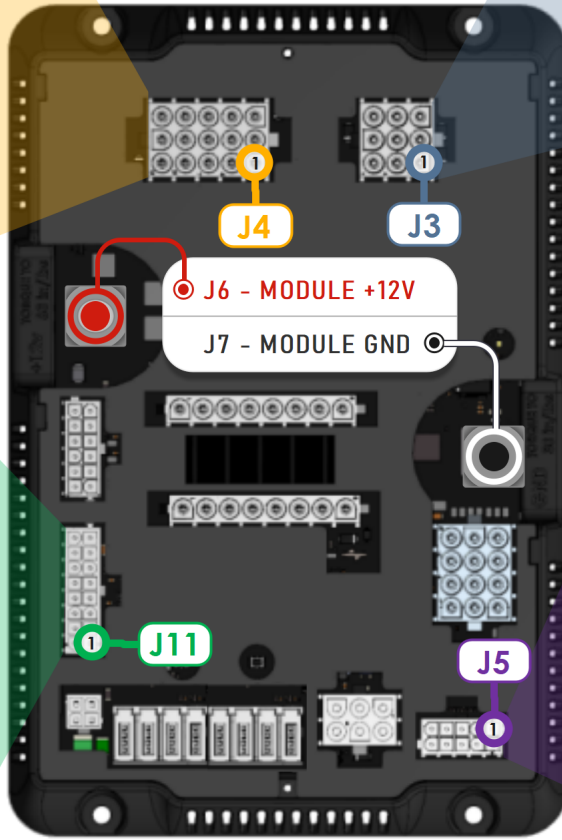
G Mira Module

i
Spyder Part #
 BMODZ56VF
Tiffin Part #
 5114034
Dimensions
 4" X 2.5"

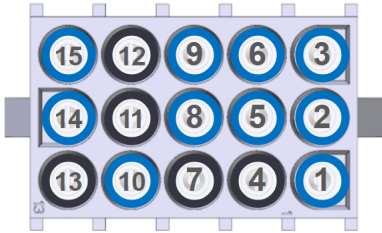


i
Note
 The G12 Module and Bridge Module may be located in the rear bath. Location will change depending on floor plan.

G12 Module @ Under Bed

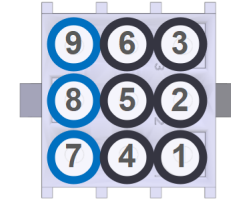


J4



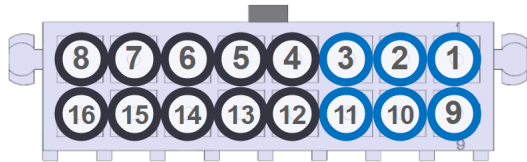
1 P/S Slide Lt (CH30)	9 Rear Bath Lt (CH38)
2 D/S Slide Lt (CH31)	10 Mid Bath Ceiling Lts (CH39)
3 Main OH/Liv Rm Lt (CH32)	11 Spare
4 Spare	12 Spare
5 Entry Lt (CH34)	13 Spare
6 Task Lt (CH35)	14 Galley Accent (CH43)
7 Spare	15 Galley (CH44)
8 Bedroom Ceiling Lt (CH37)	

J3



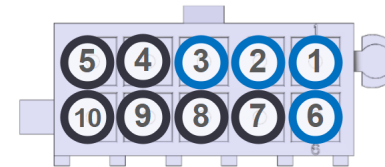
1 Spare	6 Spare
2 Spare	7 Galley Fan (CH27)
3 Spare	8 Mid Bath Fan (CH28)
4 Spare	9 Rear Bath Fan (CH29)
5 Spare	

J11



1 Fresh Tank Sensor Input	9 Tank Sensor GND
2 Grey Tank Sensor Input	10 Tank Sensor GND
3 Black Tank Sensor Input	11 Tank Sensor GND
4 N/A	12 N/A
5 N/A	13 N/A
6 Spare	14 Spare
7 Spare	15 Spare
8 Spare	16 Spare

J5



1 Park Brake (GND)	6 IGN Input (+12V)
2 Water Pump SW (GND)	7 Spare (+12V)
3 Merge Status (GND)	8 Spare (+12V)
4 Spare (GND)	9 Spare (+12V)
5 Spare (GND)	10 Spare (+12V)

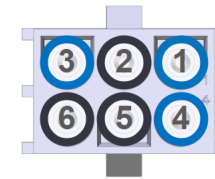
G12 Module @ Under Bed

J8

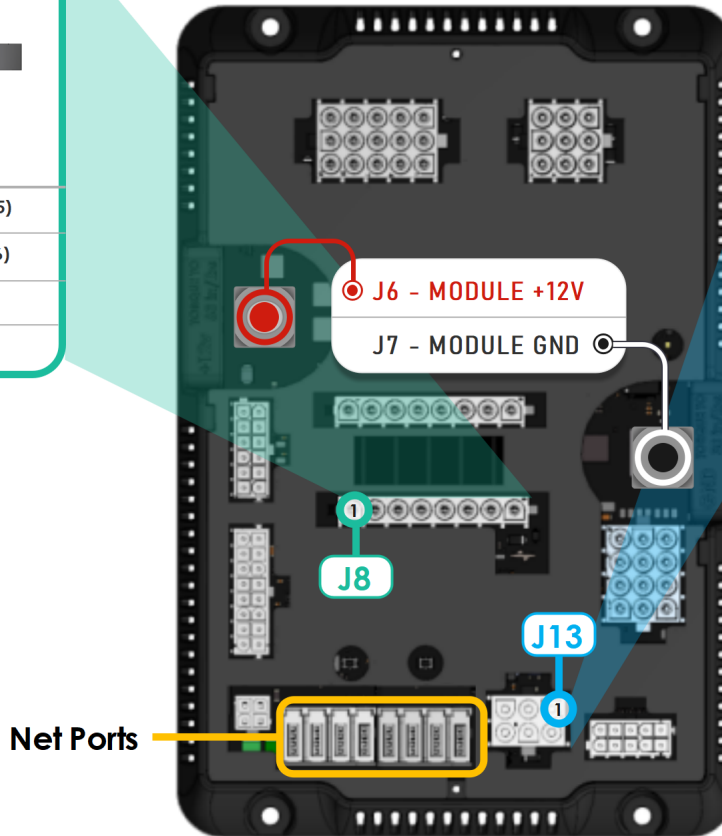


- | | |
|----------------------------|------------------------------|
| 1 Galley Fan Lid Up (CH1) | 5 Rear Bath Fan Lid Up (CH5) |
| 2 Galley Fan Lid Dn (CH2) | 6 Rear Bath Fan Lid Dn (CH6) |
| 3 Mid Bath Fan Lid Up(CH3) | 7 Spare |
| 4 Mid Bath Fan Lid Dn(CH4) | 8 Spare |

J13

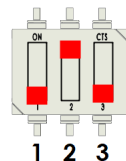


- | | |
|-------------------|-----------|
| 1 LPG Signal | 4 LPG GND |
| 2 Spare | 5 Spare |
| 3 Chassis Voltage | 6 Spare |



M1 Slide Card

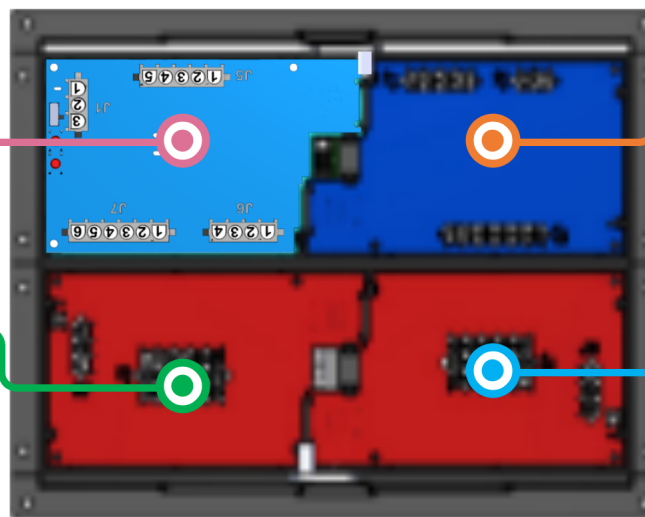
- Ignition (12V)
- Park Brake (GND)
- P/S FR Slide EXT
- P/S FR Slide RET
- D/S FR Slide EXT
- D/S FR Slide RET
- P/S RR Slide EXT
- P/S RR Slide RET
- D/S RR Slide EXT
- D/S RR Slide RET
- Hydraulic Pump



Dip Switch Settings

- | | |
|---|------------|
| 1 | OFF (Down) |
| 2 | ON (Up) |
| 3 | OFF (Down) |

Front M1 Panel



M1 HC Relay

- Door/Assist Handle
- Water Pump
- Porch
- Door Awning EXT
- Door Awning RET

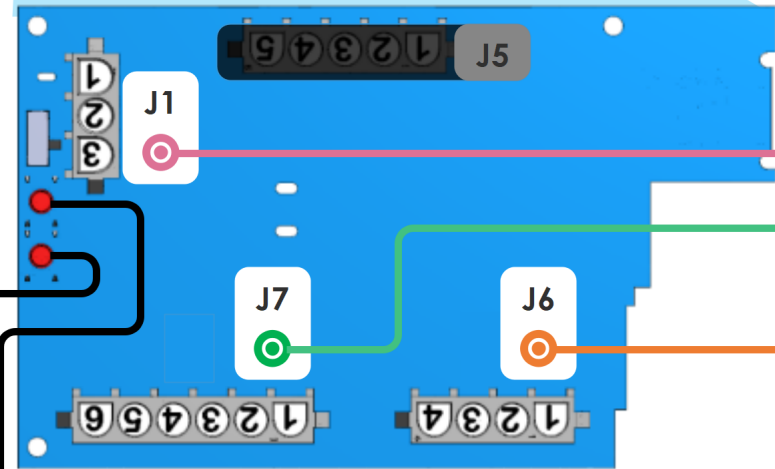
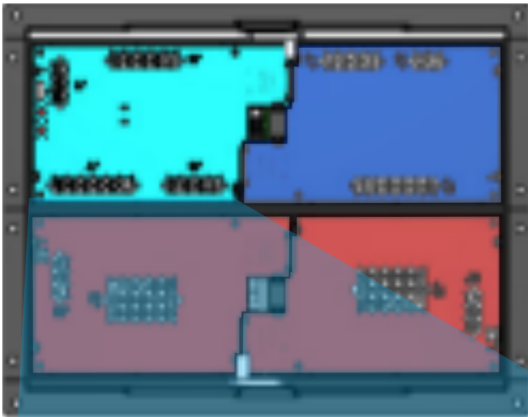
M1 Breaker (Card 3)

- Lights Lights (CHS)
- Jack Buzzer IGN
- CB/Satellite
- Panel Lamp/ Head Light (IGN)
- Front Furnace (HSE)
- Rear Furnace (HSE)
- HCR-11
- Oven Option (HSE)
- HVAC Denso (IGN)
- 12V Outlet 1/USB PWR
- Entry Step SW
- Slide #1/Slide #2 (HSE)
- IGN (+12V)

M1 Breaker (Card 4)

- 12V Outlet 2/ USB PWR
- AGS Power (CHS)
- Sat/IR/HD ANT/HDMI (HSE)
- Power Window (IGN)
- D/S Mirror PWR (IGN)
- P/S Mirror PWR (IGN)
- A/C Thermostat (HSE)
- Bed Slide 12V (HSE)
- Passenger Console
- Map Lt/Fans/Radio
- Truma (HSE)
- Awning PWR (HSE)
- IGN (12V)

Front M1 Panel



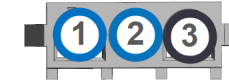
M1 Slide Card

OVERRIDE RET

OVERRIDE EXT

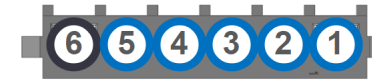
i **Emergency Override**
 For more information on the slide overrides please see Page 15

J1



- | | |
|--------------------|-------|
| 1 Ignition (+12V) | 3 N/A |
| 2 Park Brake (GND) | |

J7



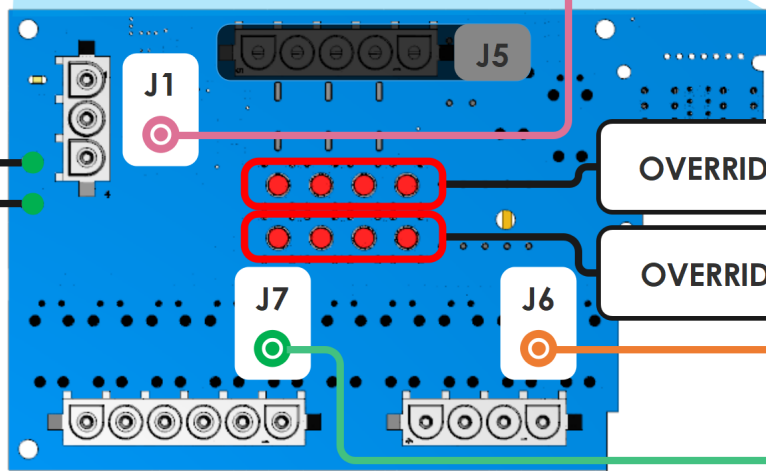
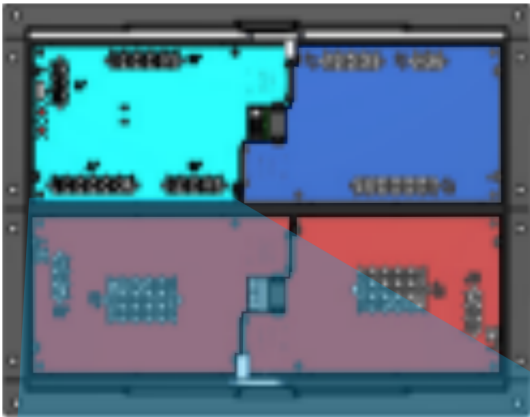
- | | |
|--------------------|--------------------|
| 1 P/S RR Slide Ext | 4 D/S RR Slide Ret |
| 2 P/S RR Slide Ret | 5 Hydraulic Pump |
| 3 D/S RR Slide Ext | 6 Spare |

J6



- | | |
|--------------------|--------------------|
| 1 P/S FR Slide Ext | 3 D/S FR Slide Ext |
| 2 P/S FR Slide Ret | 4 D/S FR Slide Ret |

Front M1 Panel



OVERRIDE RET

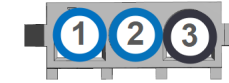
OVERRIDE EXT

M1 Slide Card

Slides Ready LED

Awnings Ready LED

J1

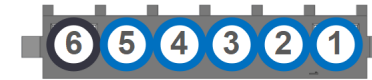


1 Ignition (+12V)

3 N/A

2 Park Brake (GND)

J7



1 P/S RR Slide Ext

4 D/S RR Slide Ret

2 P/S RR Slide Ret

5 Hydraulic Pump

3 D/S RR Slide Ext

6 Spare

J6



1 P/S FR Slide Ext

3 D/S FR Slide Ext

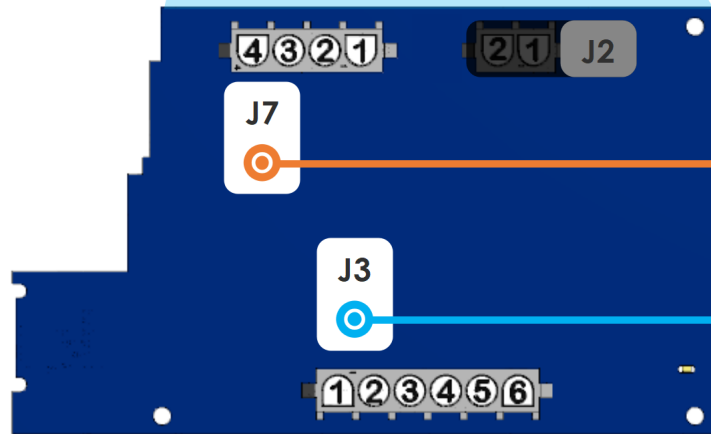
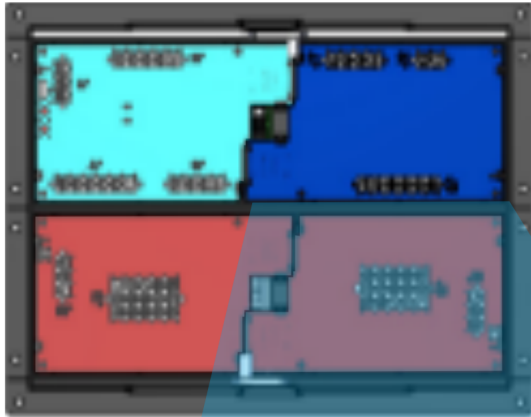
2 P/S FR Slide Ret

4 D/S FR Slide Ret

i Emergency Override

For more information on the slides please see Page 15

Front M1 Panel



M1 HC Relay

J7



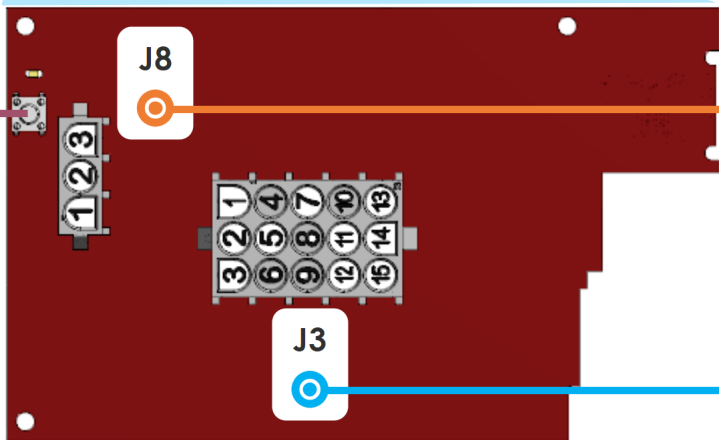
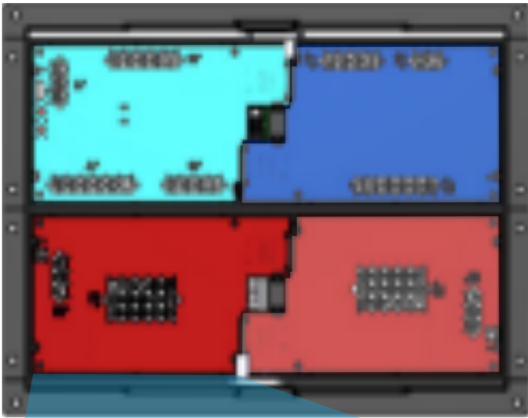
- | | |
|-------------------|---------|
| ① Door Awning EXT | ③ Spare |
| ② Door Awning RET | ④ Spare |

J3



- | | |
|----------------------|---------|
| ① Door/Assist Handle | ④ Spare |
| ② Water Pump | ⑤ Porch |
| ③ Spare | ⑥ Spare |

Front M1 Panel



M1 Breaker Card

Breaker Reset

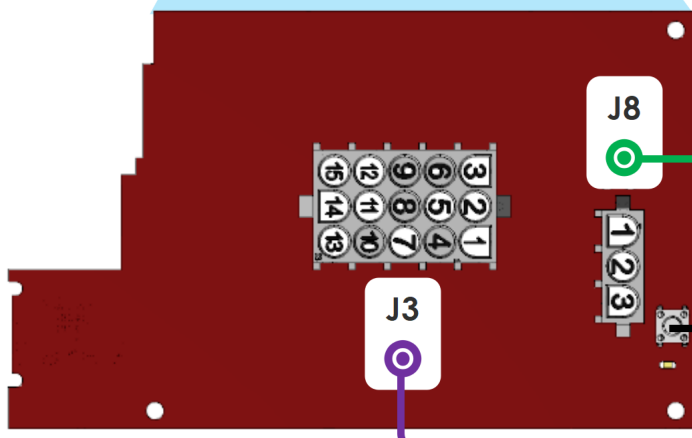
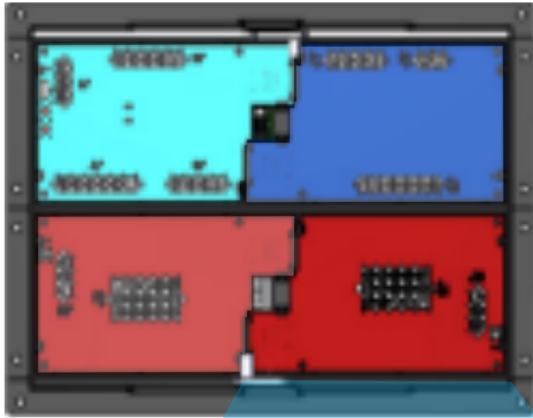
J8

① IGN (+12V)	② N/A
③ N/A	

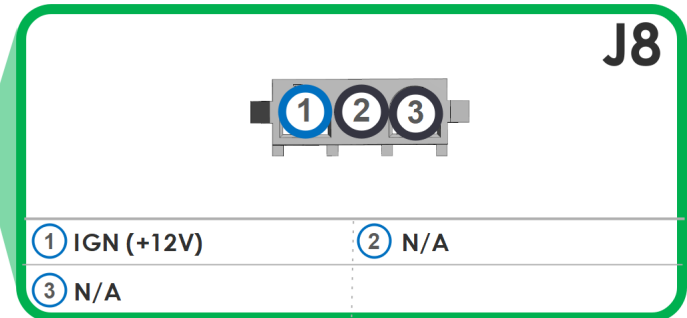
J3

① Slide #1/ Slide #2 (HSE)	⑨ Panel Lamp/Head Lt (IGN)
② Cargo Lights (CHS)	⑩ HVAC Denso (IGN)
③ Jack Buzzer (IGN)	⑪ N/A
④ Entry Step SW	⑫ Front Furnace (HSE)
⑤ N/A	⑬ Oven Option (HSE)
⑥ CB/Satellite	⑭ HCR-11
⑦ 12V Outlet 1/USB PWR	⑮ Rear Furnace (HSE)
⑧ N/A	

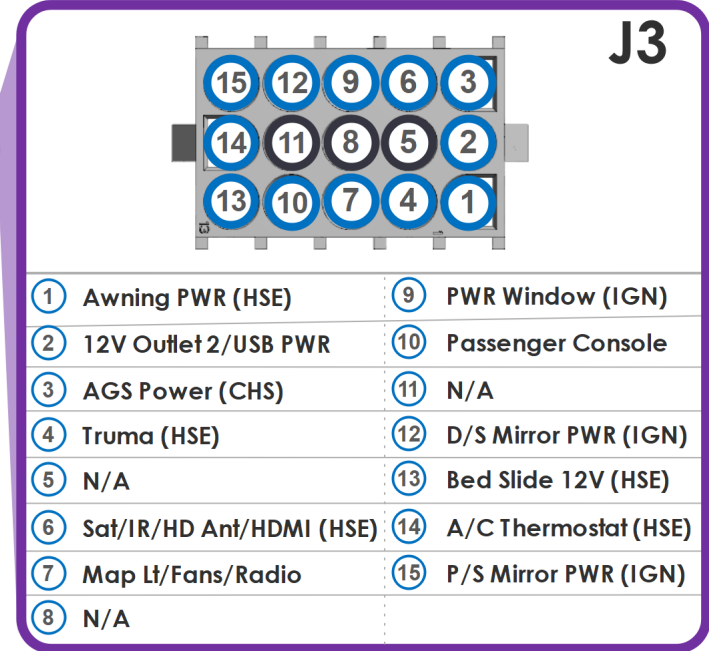
M1 Front Panel



M1 Breaker Card



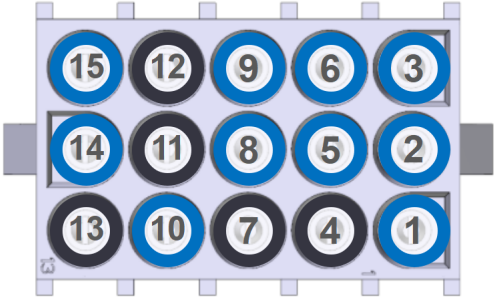
- | | |
|--------------|-------|
| ① IGN (+12V) | ② N/A |
| ③ N/A | |



- | | |
|----------------------------|------------------------|
| ① Awning PWR (HSE) | ⑨ PWR Window (IGN) |
| ② 12V Outlet 2/USB PWR | ⑩ Passenger Console |
| ③ AGS Power (CHS) | ⑪ N/A |
| ④ Truma (HSE) | ⑫ D/S Mirror PWR (IGN) |
| ⑤ N/A | ⑬ Bed Slide 12V (HSE) |
| ⑥ Sat/IR/HD Ant/HDMI (HSE) | ⑭ A/C Thermostat (HSE) |
| ⑦ Map Lt/Fans/Radio | ⑮ P/S Mirror PWR (IGN) |
| ⑧ N/A | |

G12 Module @ Under Bed

J4

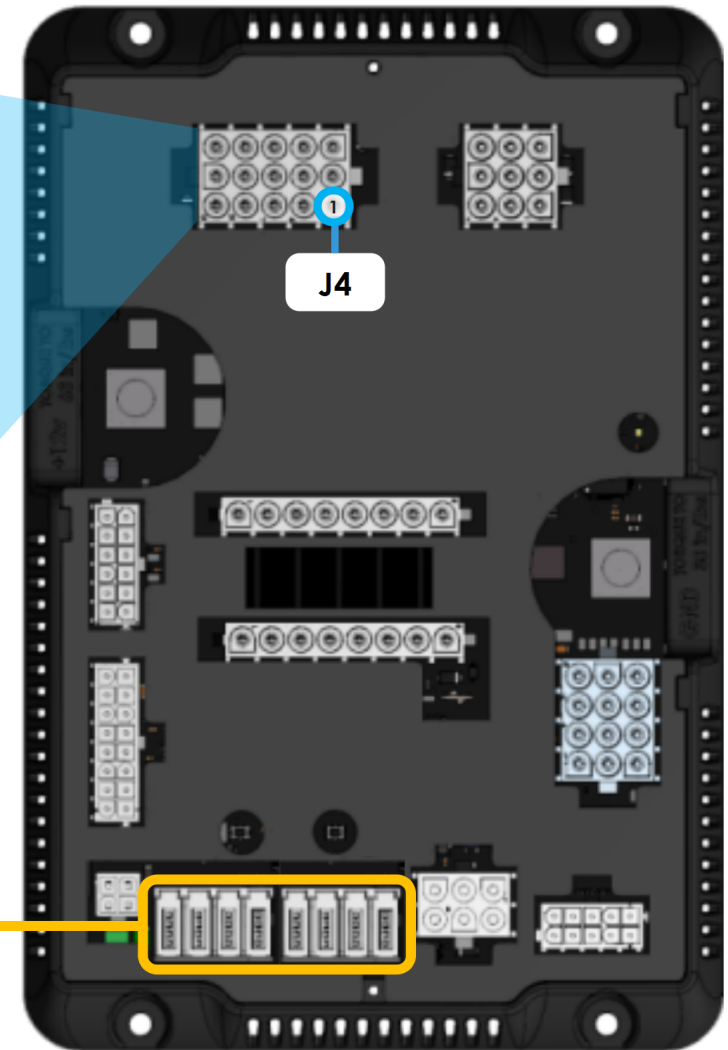


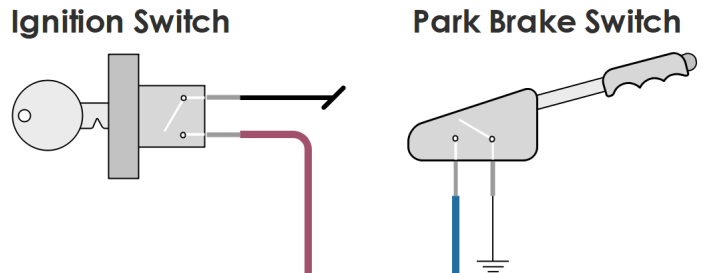
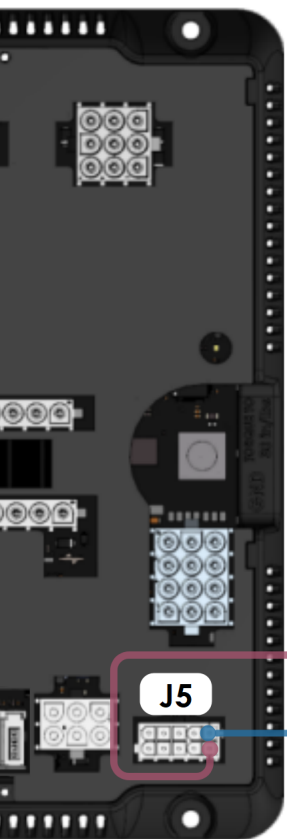
① P/S Slide Lt (CH30)	⑨ Rear Bath Lt (CH38)
② D/S Slide Lt (CH31)	⑩ Mid Bath Ceiling Lts (CH39)
③ Main OH/Liv Rm Lt (CH32)	⑪ Spare
④ Spare	⑫ Spare
⑤ Entry Lt (CH34)	⑬ Spare
⑥ Task Lt (CH35)	⑭ Galley Accent (CH43)
⑦ Spare	⑮ Galley (CH44)
⑧ Bedroom Ceiling Lt (CH37)	

* All Lights Listed Can Dim

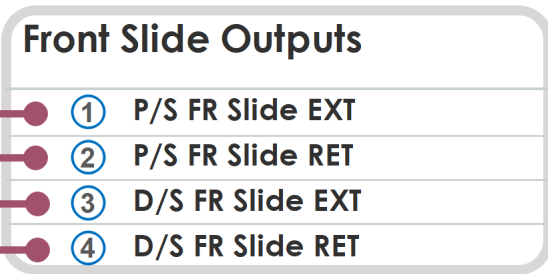
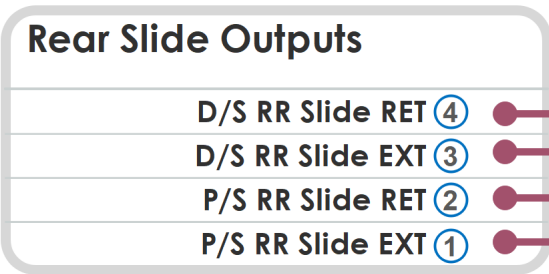
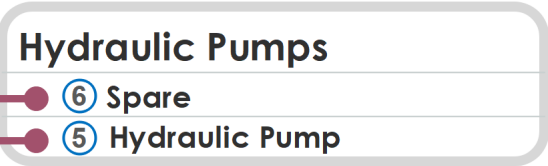
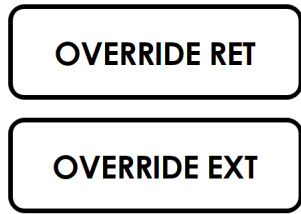
* All lights are grounded outside of the Spyder System. The G12 only provides 12V+

Network Ports

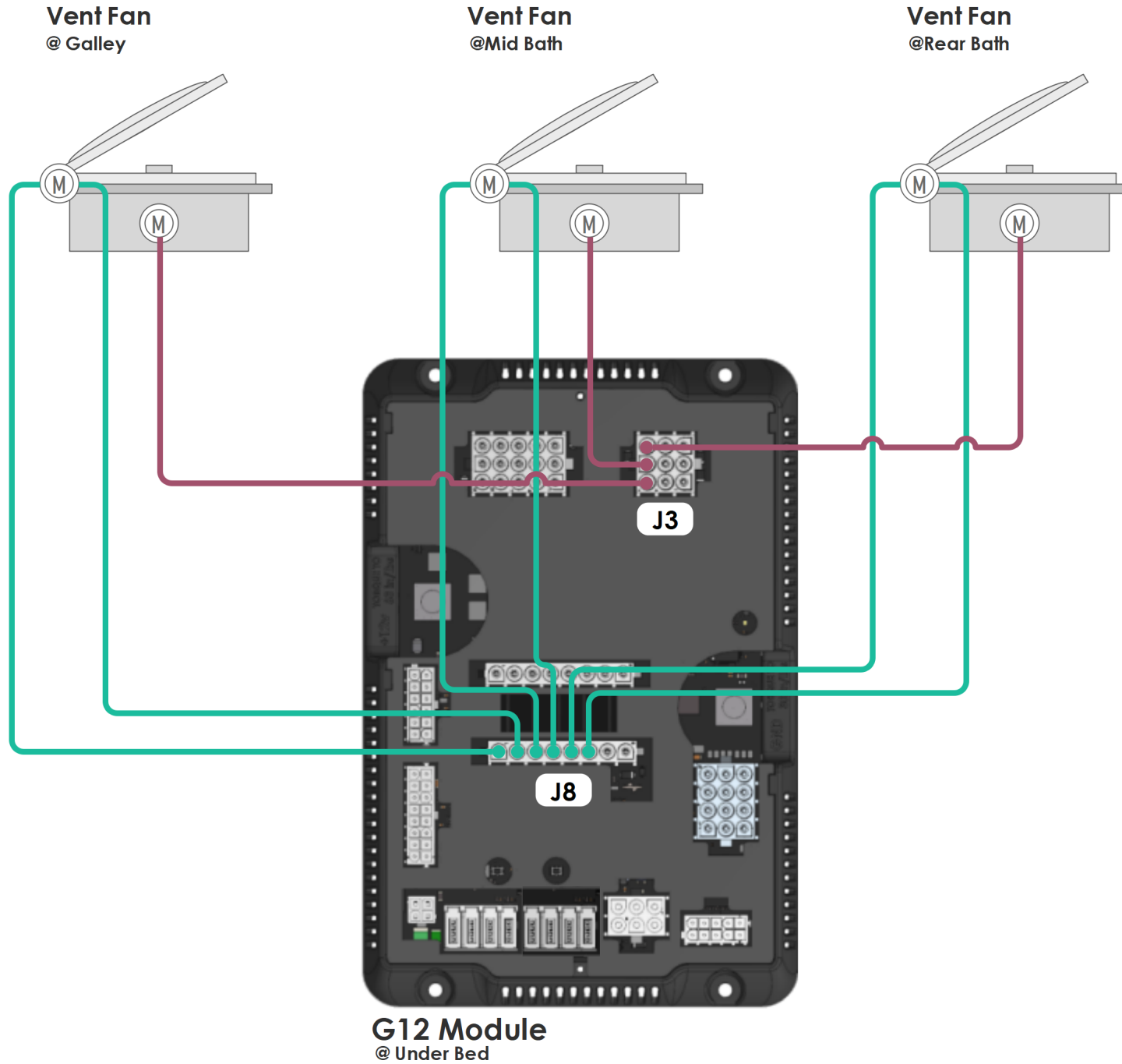




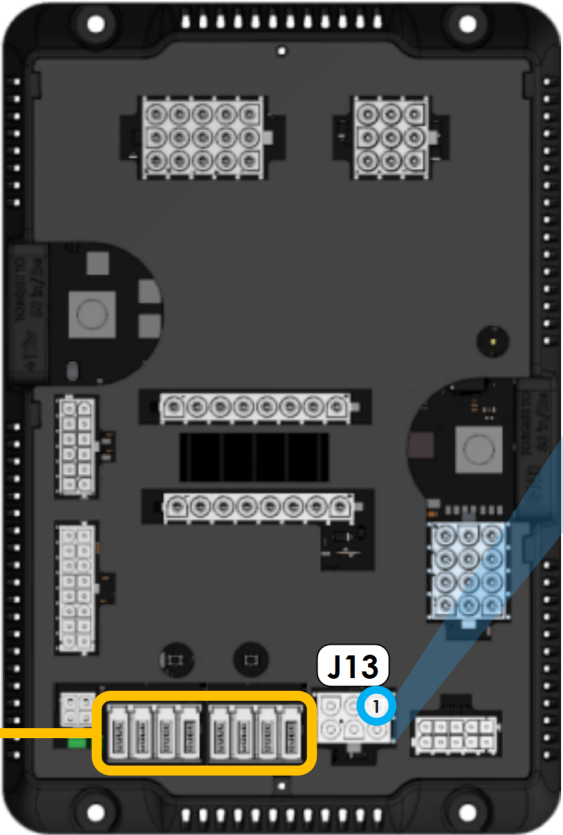
M1 Slide Card



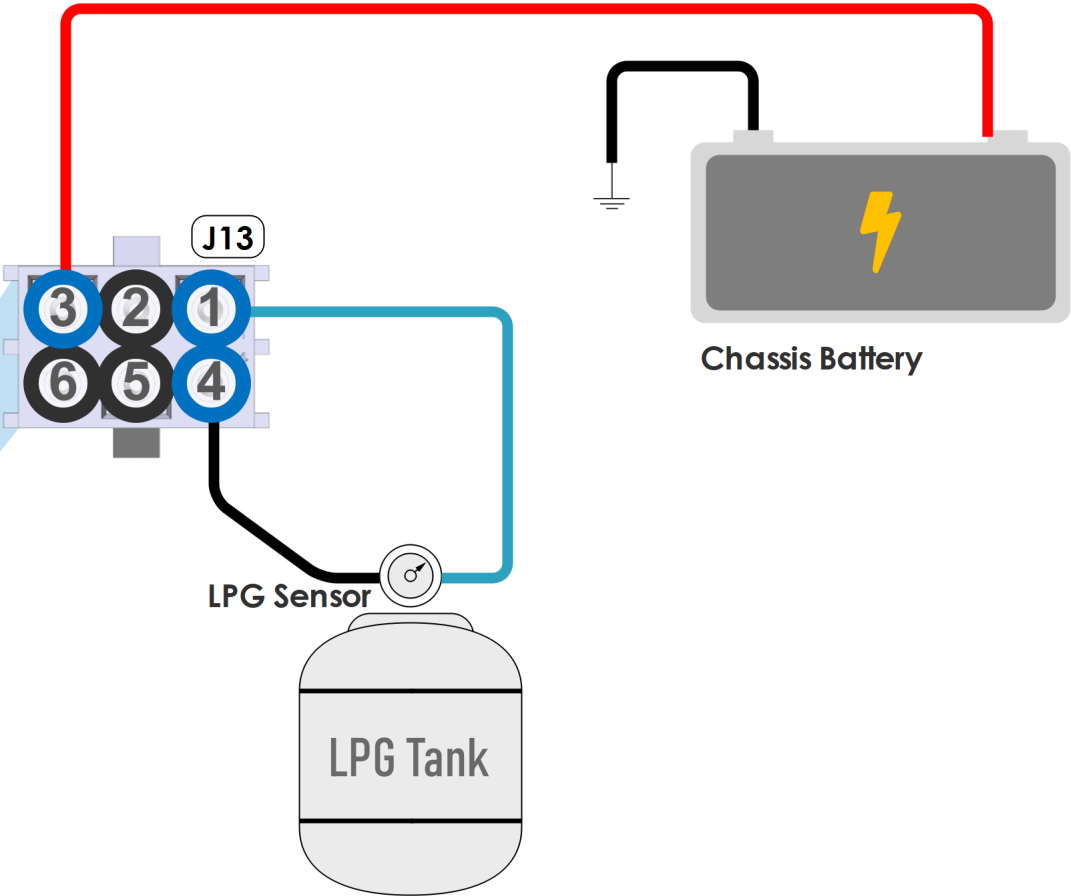
i **Emergency Override**
 Park brake and ignition must be on for slides to operate.
 In case of a system failure, use manual overrides on the slide card to operate slides. Engage overrides using a pen or other pointed object.



G12 Module
@ Under Bed



Network Ports

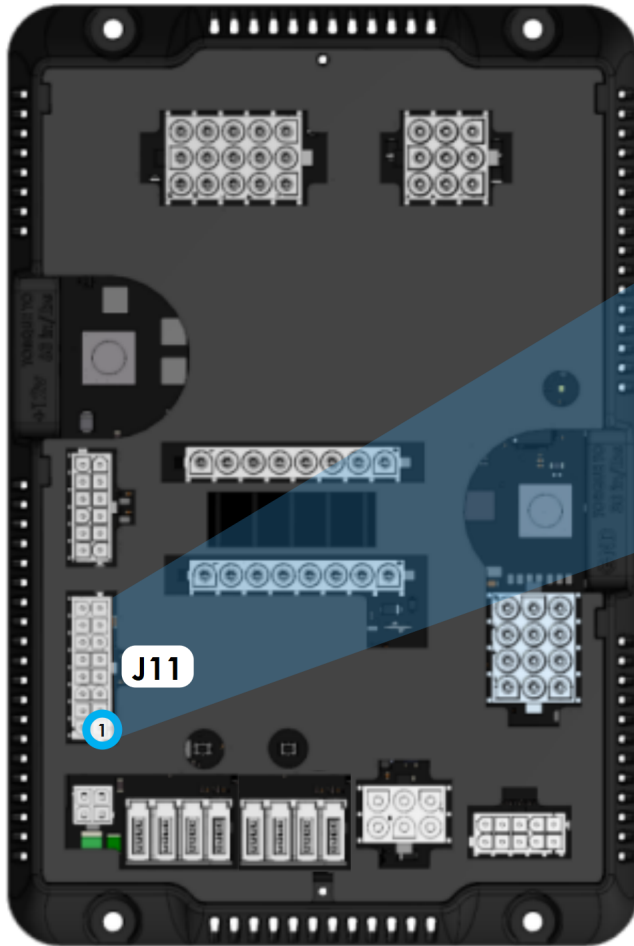


Chassis Battery

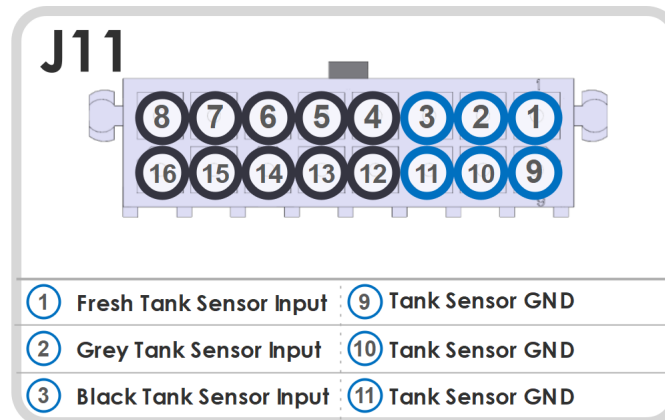
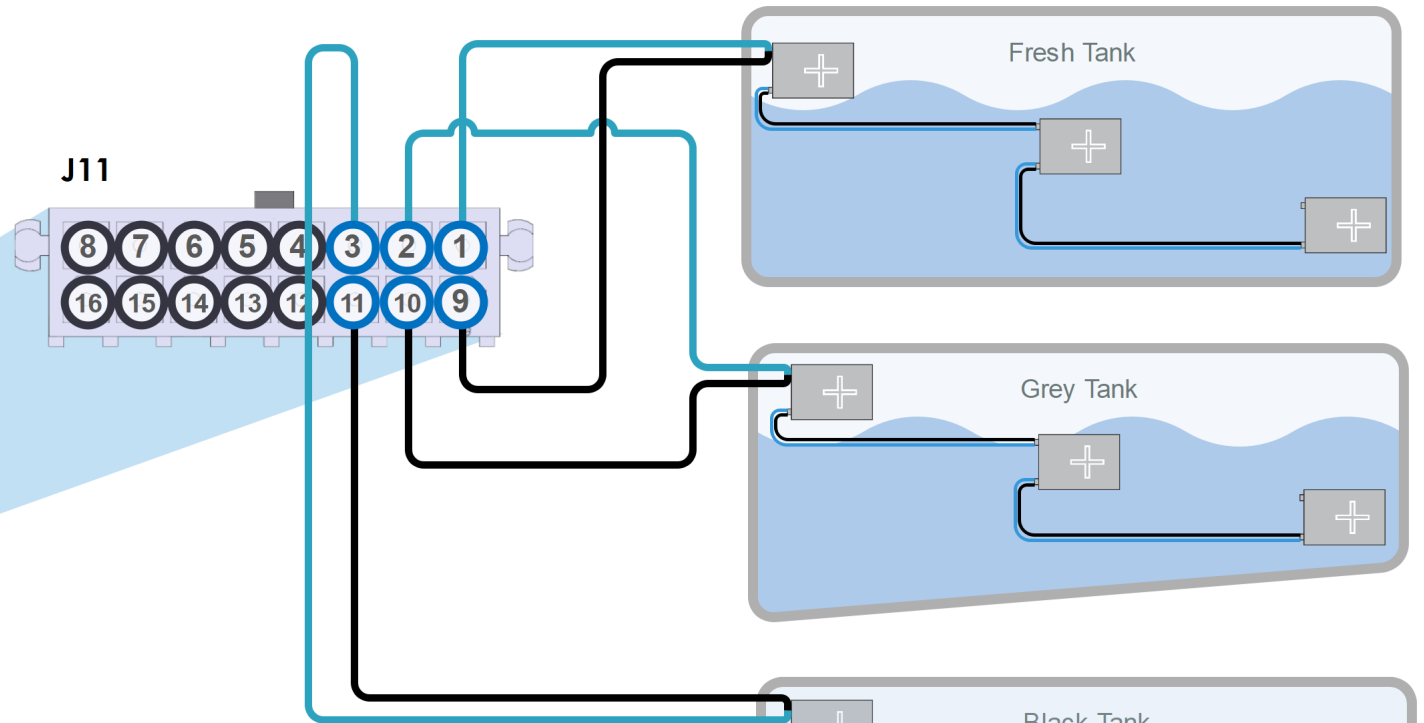
LPG Sensor


LPG Tank

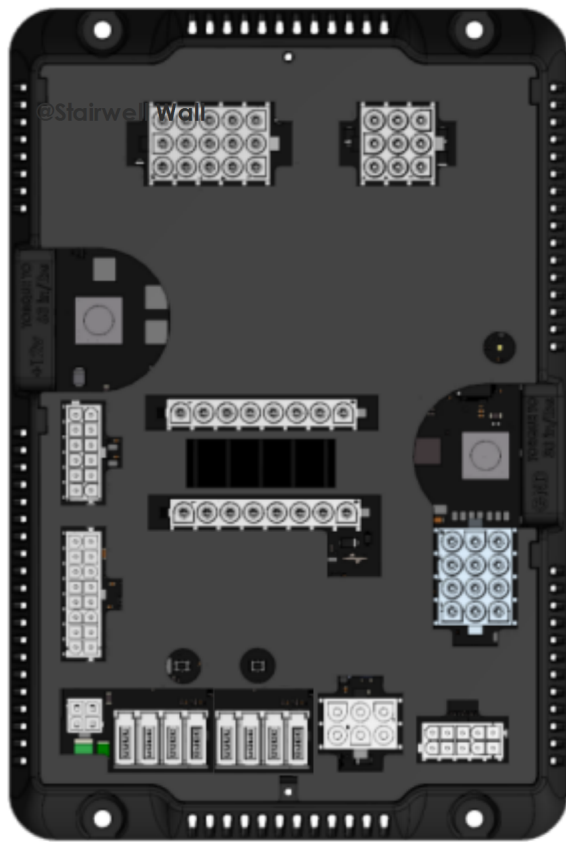
G12 Module



3 Level Tank Sensor System



If a switch has the  symbol nearby, it means the switch or module communicates via RF.



G12 Module
@ Under Bed



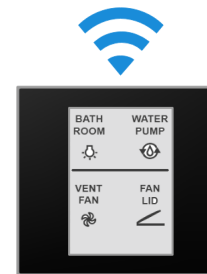
5" Color LCD
Tiffin P/N: 5127269



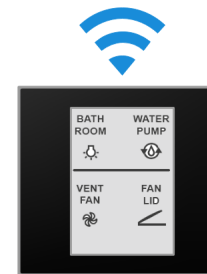
Entry
@Stairwell Wall
Tiffin P/N: 5106529



Galley
@Galley Wall
Tiffin P/N: 5103634



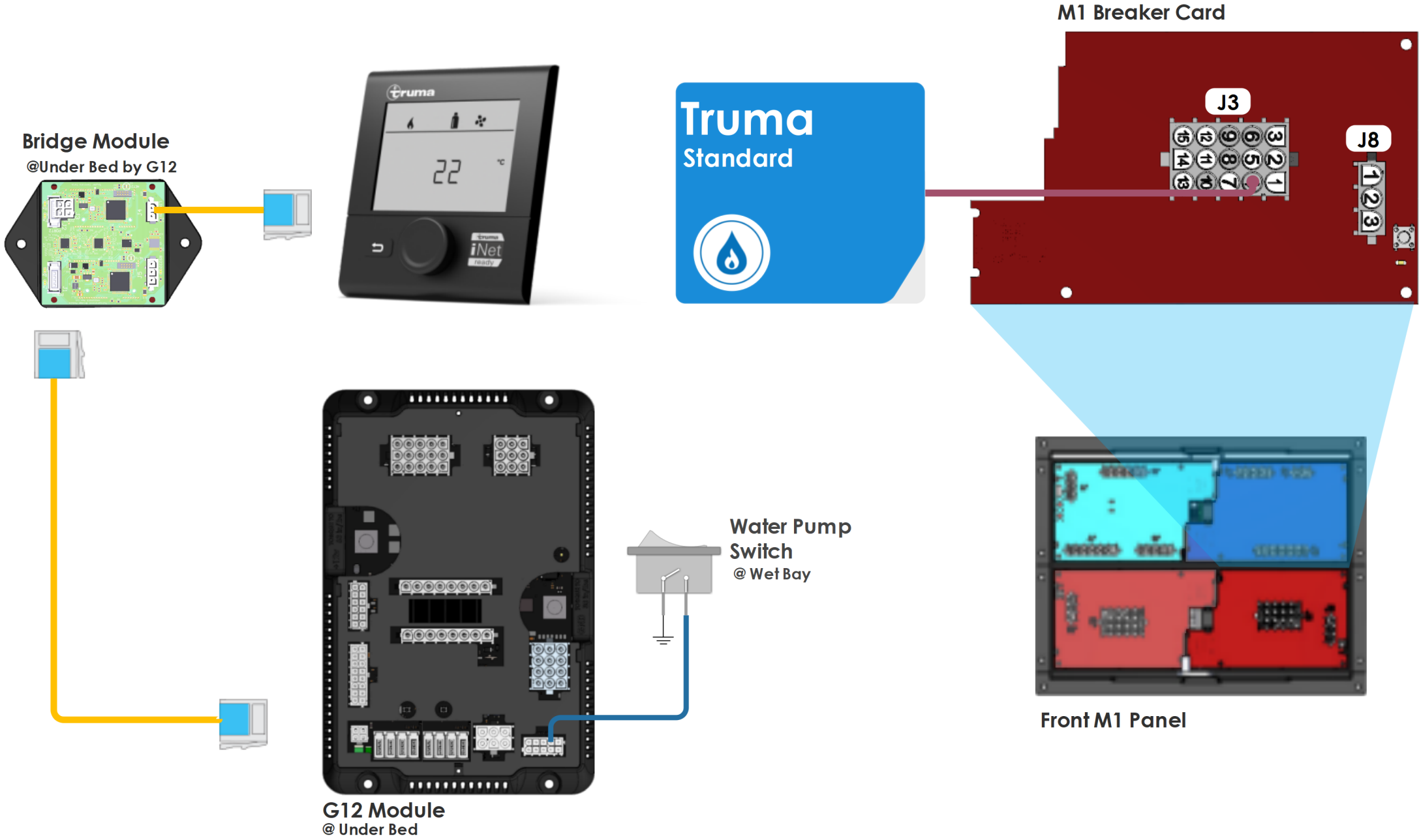
Rear Bath
@Bathroom Wall
Tiffin P/N: 5093651

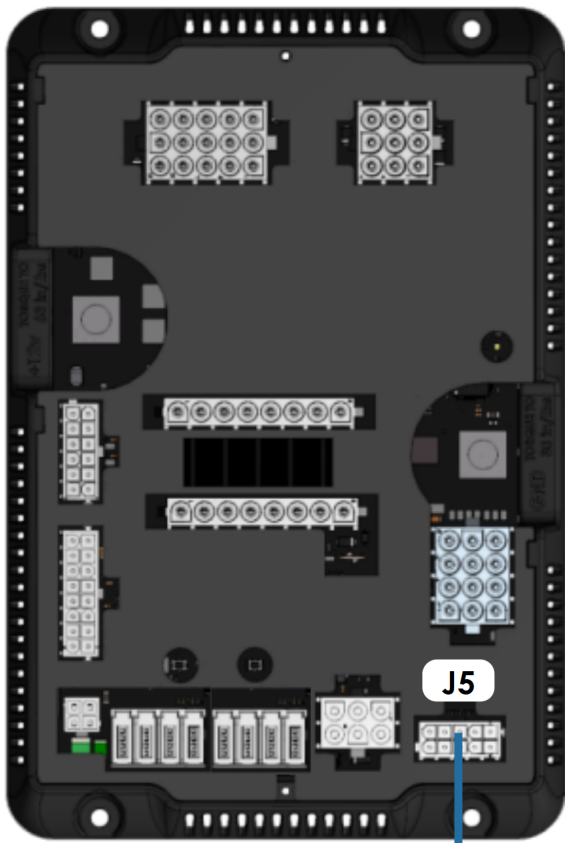


Mid Bath
@Bathroom Wall
Tiffin P/N: 5093651



Bedroom
@Bed Wall
Tiffin P/N: 5093649






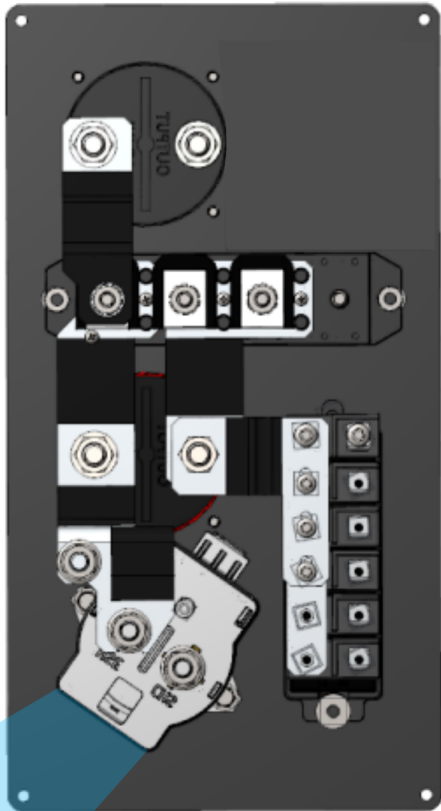
G12 Module
@ Under Bed

COACH RUNNING INPUT

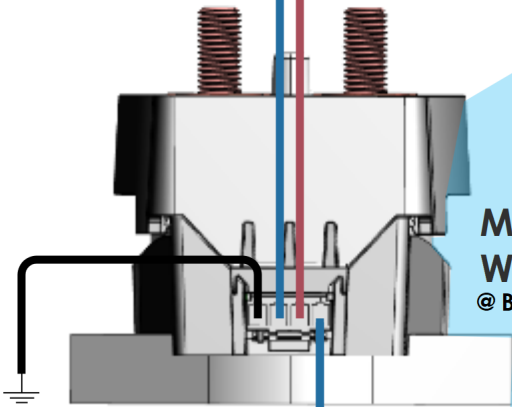
Depending on the chassis used in the coach the coach running input will either come from the engine (switched GND) or from the ignition (switched 12V+)



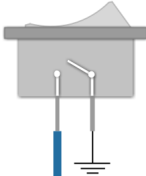
Two green circular icons are shown: one with an engine symbol and one with a key symbol. Blue and red lines connect these icons to the central solenoid assembly below.



DCD PANEL
@ Inverter Bay

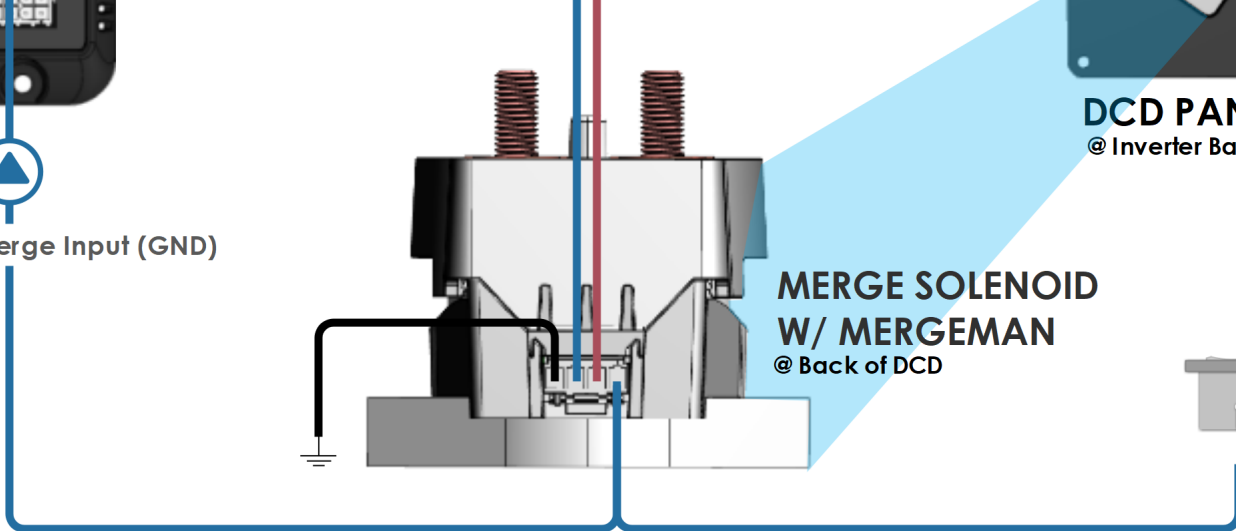


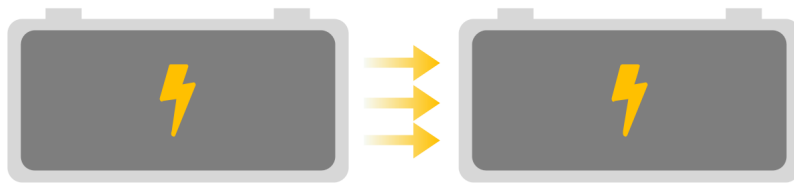
MERGE SOLENOID W/ MERGEMAN
@ Back of DCD



Manual Merge Override Switch
@ Dash

Auto / Manual Merge Input (GND)

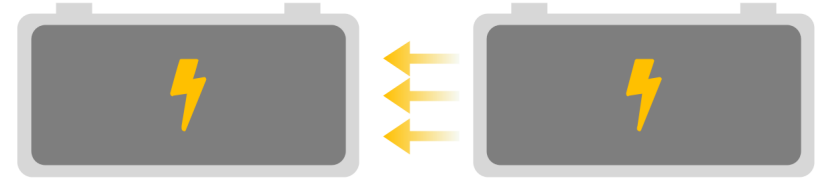


**CHASSIS BATTERY**

⚡ 13.3V+ Or Higher

🕒 30 Seconds

🔑 V+

HOUSE BATTERY**CHASSIS BATTERY**

⚡ 12.4V+ Or Lower

🕒 30 Seconds

V+

HOUSE BATTERY

⚡ 12.5V+ Or Higher

🕒 30 Seconds

V+

MERGE LOGIC - CHASSIS CHARGING HOUSE

The merge solenoid will engage if the following conditions are present:

- Engine run or ignition signal is present and chassis voltage is above 13.3V (charging) for 30 seconds.

The merge solenoid will disengage under either of the following conditions

- Engine run or ignition signal is removed
- Chassis voltage drops below 12.6V for more than 30 seconds (unmerge until engine is started again)

MERGE LOGIC - HOUSE CHARGING CHASSIS

The merge solenoid will engage if the following conditions are present:

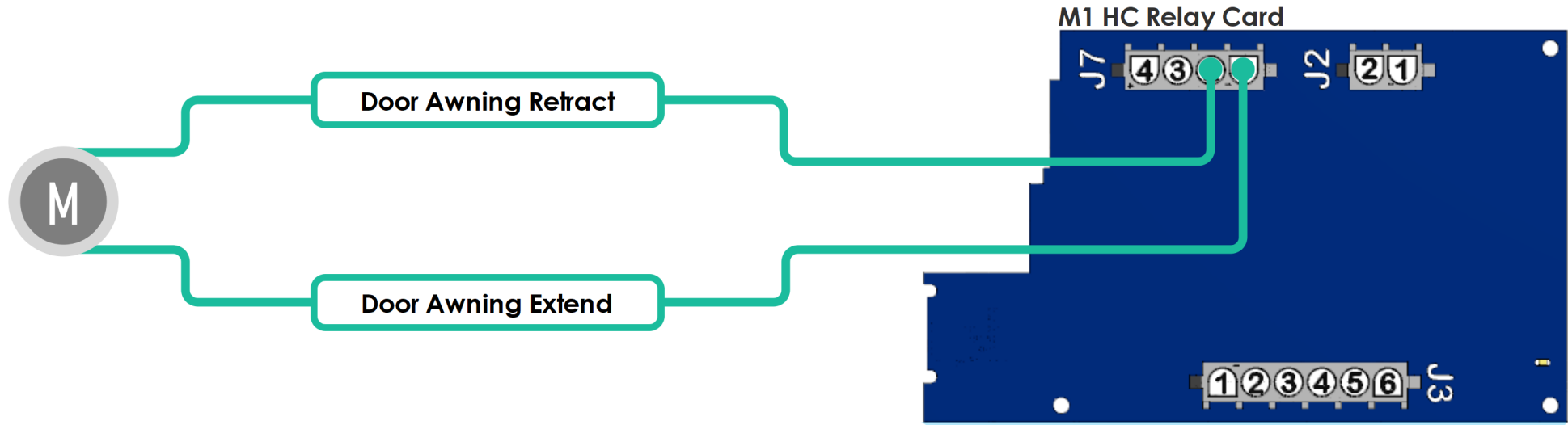
- House voltage is above 12.5V (charging) and chassis voltage is below 12.4V (low battery voltage) for 30 seconds

The merge solenoid will disengage under either of the following conditions:

- House voltage drops below 12.2V for more than 30 seconds, OR
- 60 minutes timed battery merge period expires. Re-merge will occur again if the merge conditions are still present



**Merge Logic - Note**

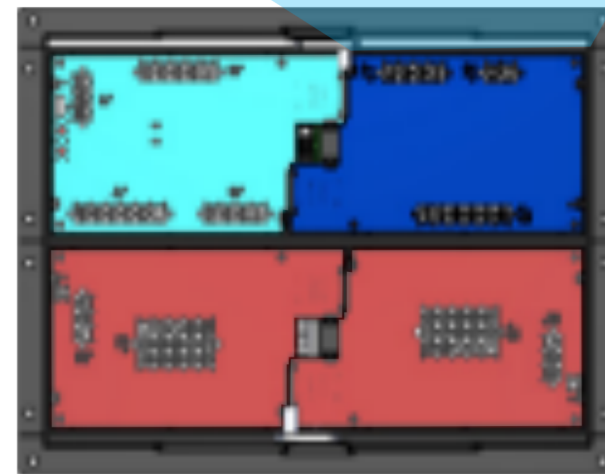
The voltages used in this spec are what are read directly at the MergeMan which is installed at the DCD panel and may vary from the voltages displayed on the LCD screens for general informational purposes



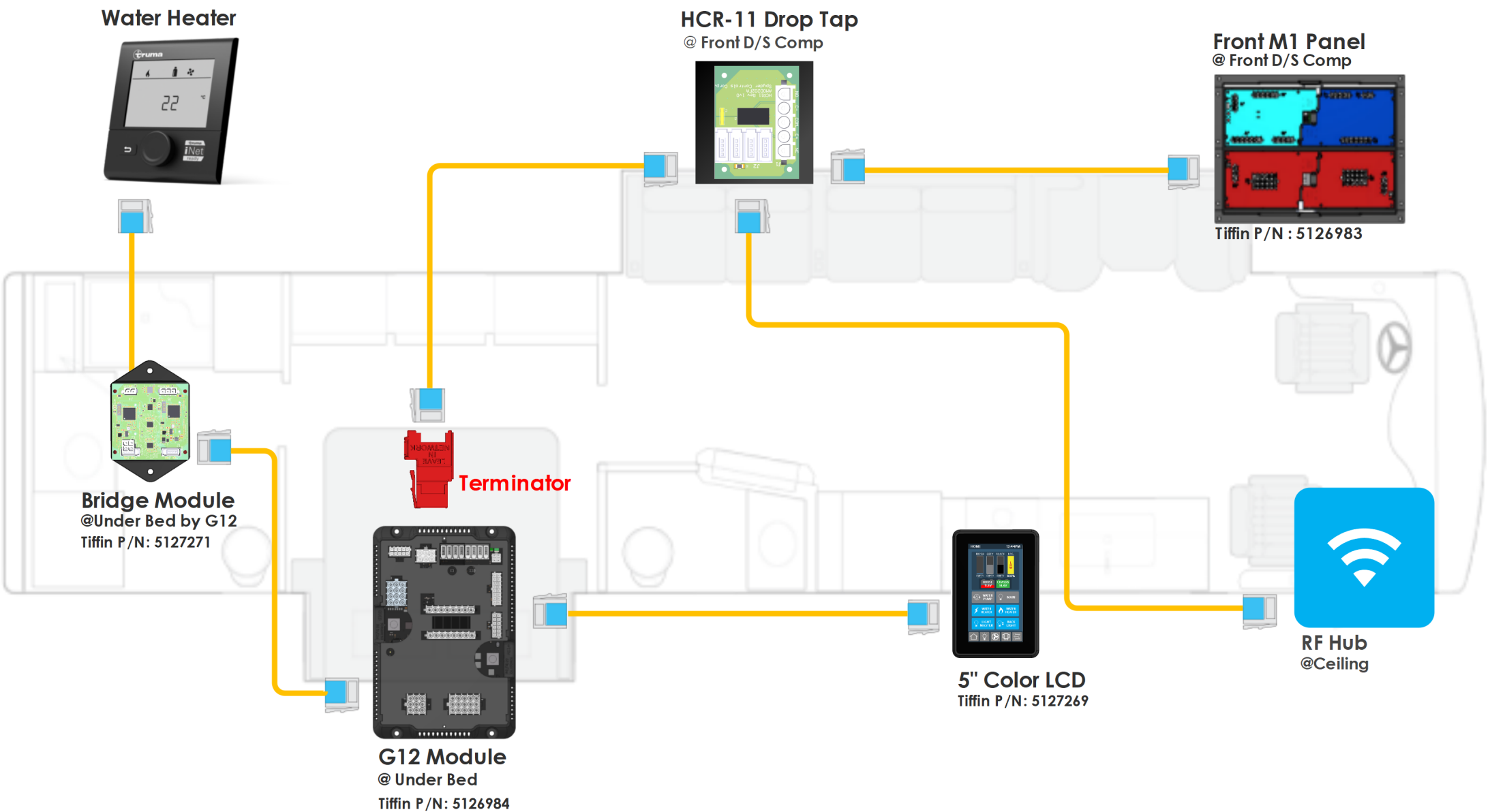
i **Awning Run Requirements**

The park brake signal is required for the awning to run. If ignition is present the awning will not run.



Front M1 Panel



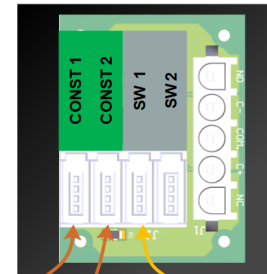
THE ORDER OF THE NETWORK CABLES AT THIS TAP IS IMPORTANT !

The RF Hub and M1 Panel **MUST** be plugged into the ports shown. The always on ports are powered when the house disconnect is off.



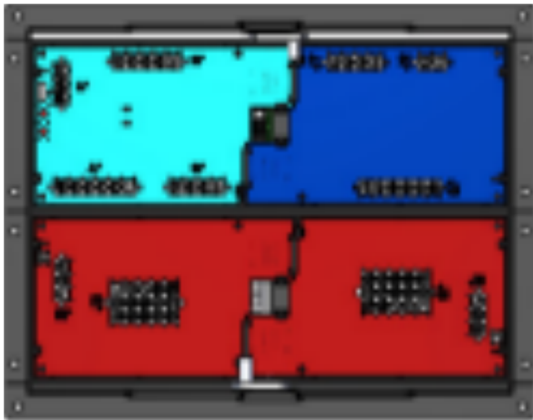
Terminator HCR-11 Drop Tap

@ Front D/S Comp



Front M1 Panel

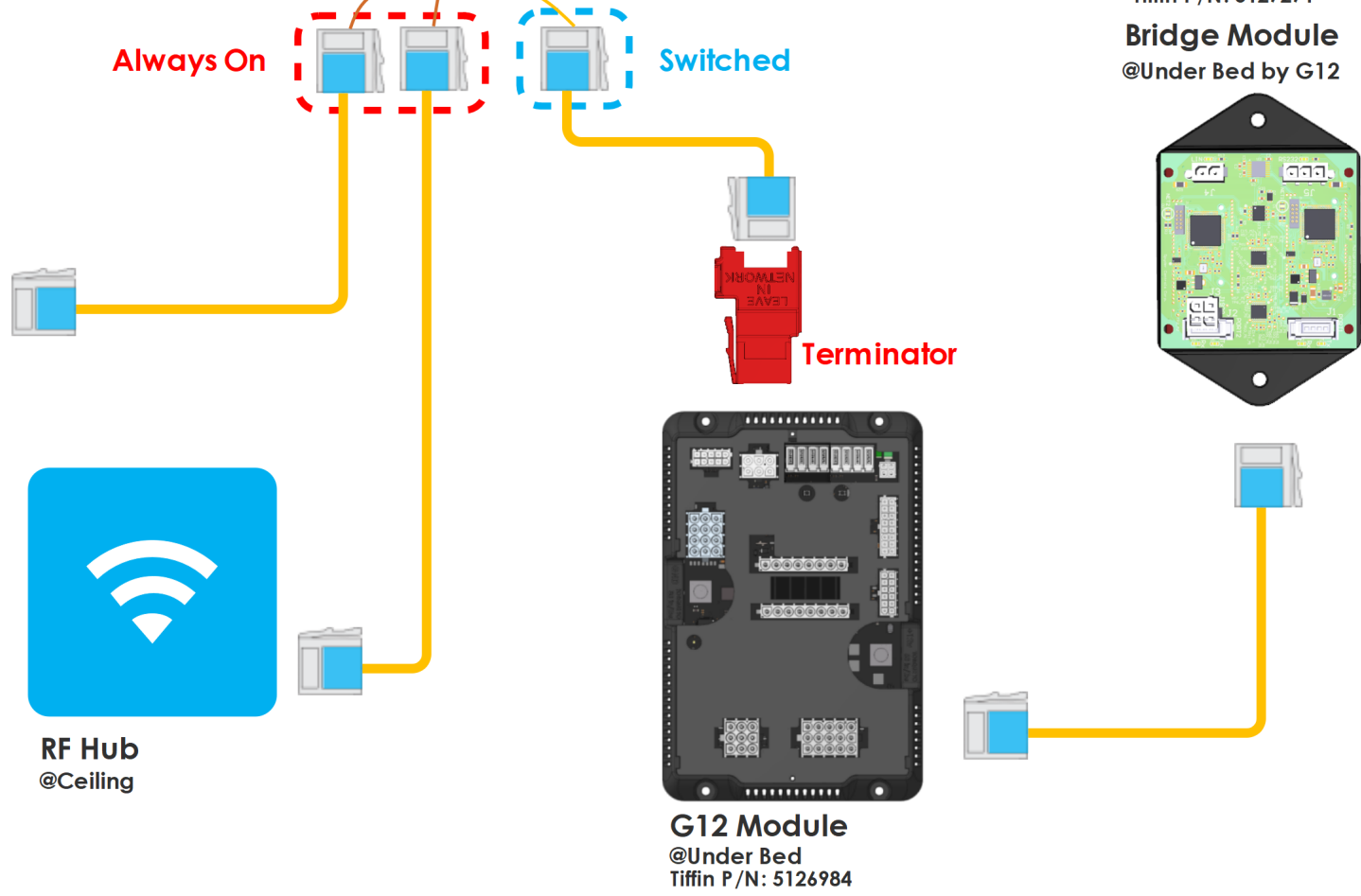
@Front D/S Comp



Tiffin P/N : 5126983

Always On

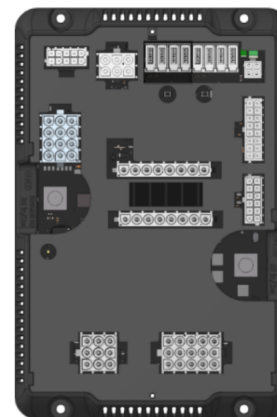
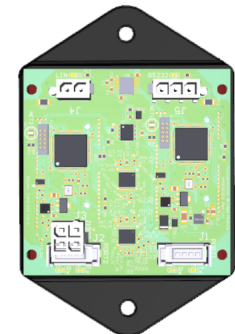
Switched



Tiffin P/N: 5127271

Bridge Module

@Under Bed by G12



G12 Module

@Under Bed
Tiffin P/N: 5126984

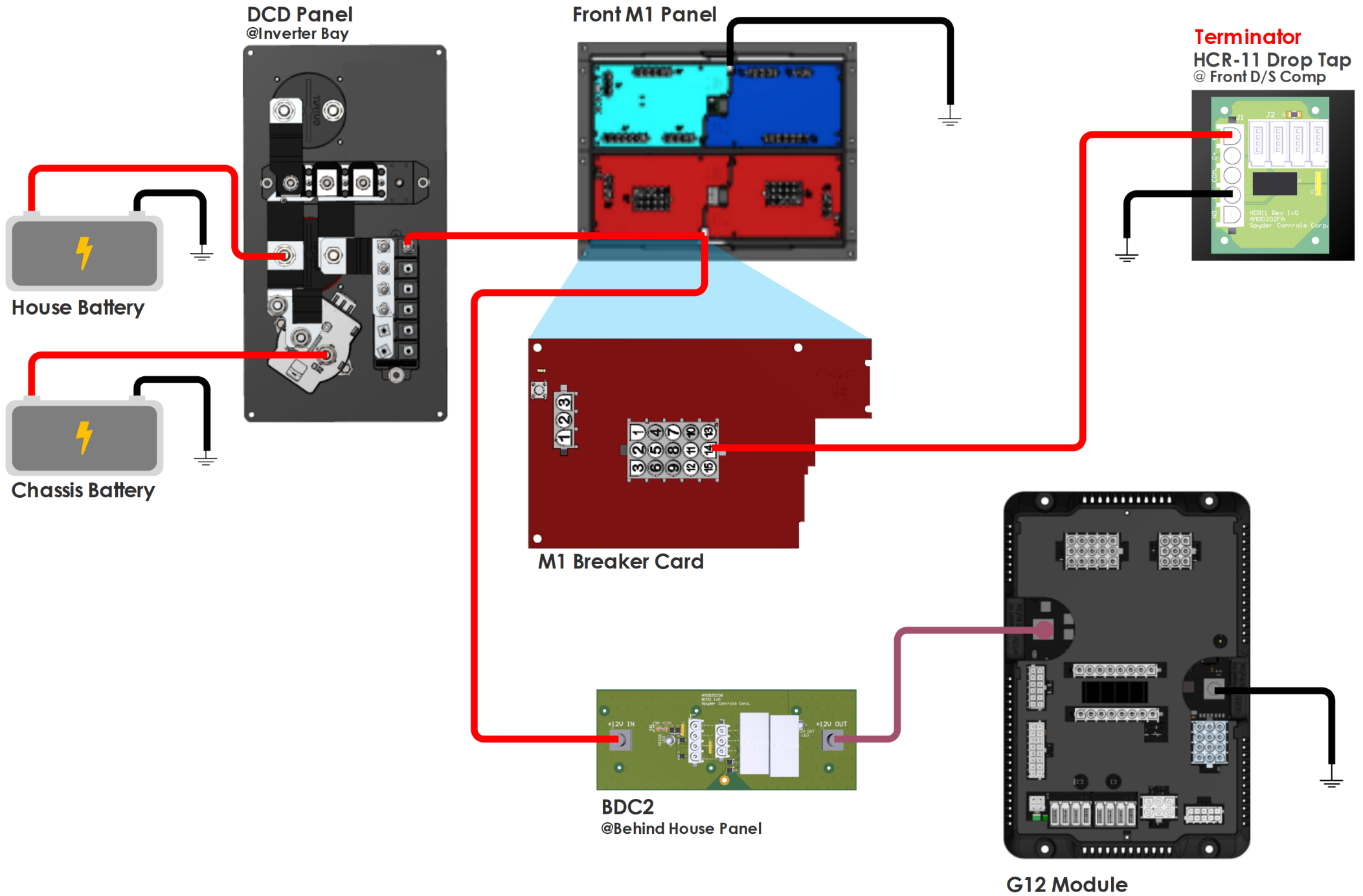


Always On Network

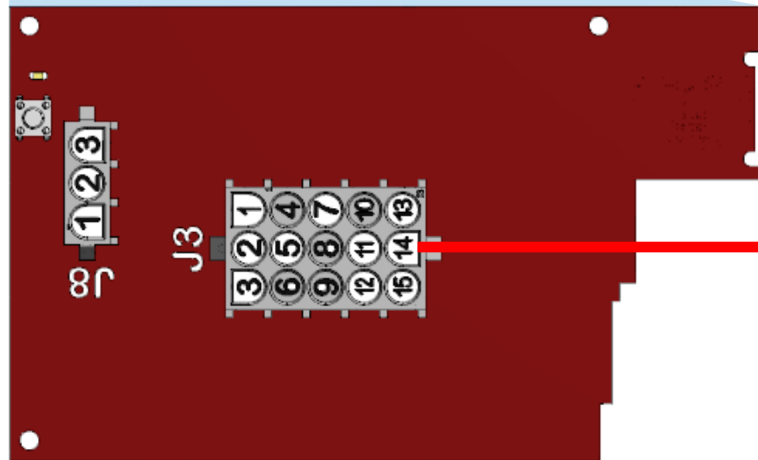
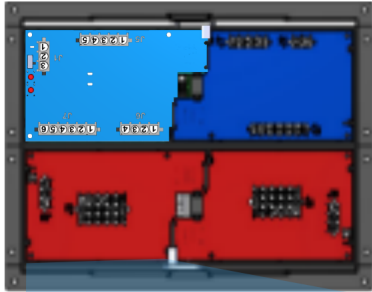
This network to remain powered while house disconnect is off.

This network can be turned off using the battery disconnect on the DCD panel.

*(Ensure power does not transfer through the network cable to the G12, but does transfer to the RF Hub)

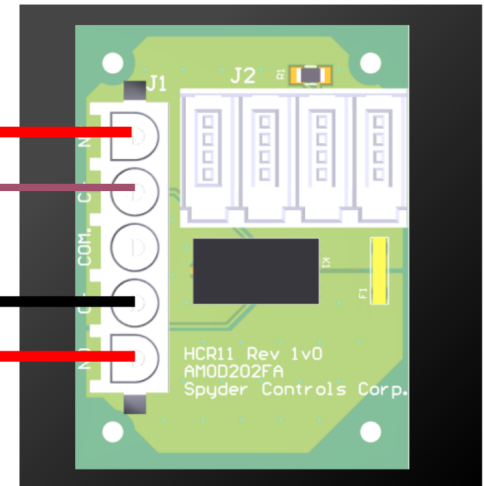


M1 Front Panel

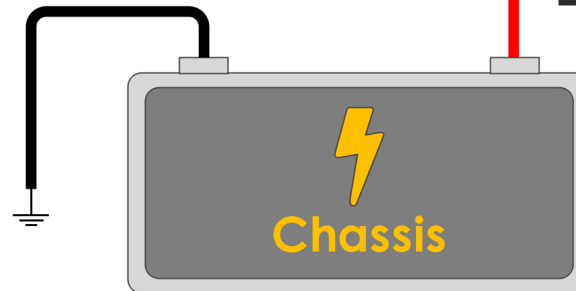
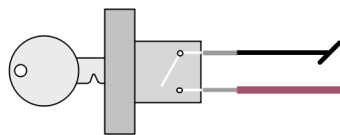


M1 Breaker Card

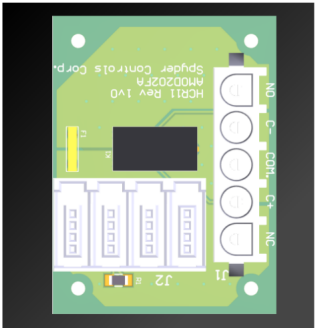
Terminator
HCR-11 Drop Tap
@ Front D/S Comp



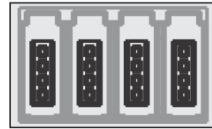
Ignition Switch



TERMINATOR
HCR-11
Tiffin P/N: 5105426



G4 Common Drop Tap
Tiffin P/N: 5016592



G4 Terminator Drop Tap
Tiffin P/N: 5051936



4 Pos Wago Connector
Tiffin P/N: 5015508



Wago Hook Tool
Wago P/N: 231-131



Mini-Clamp Plug
Tiffin P/N: 5066157

3M P/N: 37104-2165-000 FL 100

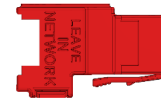


Mini-Clamp Socket
Tiffin P/N: 5066158

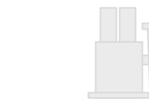
3M P/N: 37304-2165-000 FL 100



In-Line Terminator
Spyder P/N: BBCKZG700
Tiffin P/N: 5125008



Minifit Jr Pins
Digi-Key P/N: 0039000181



Minifit Jr Connector
Digi-Key P/N: 0039012040

