

The material in this document will provide a brief overview of RV-C network wiring as it relates to the Firefly system. This information in this document is subject to change at any time without notice.

Multiplex Communication

Multiplex networking allows for multiple electronic components to send and receive messages along the same communication lines at the same time.

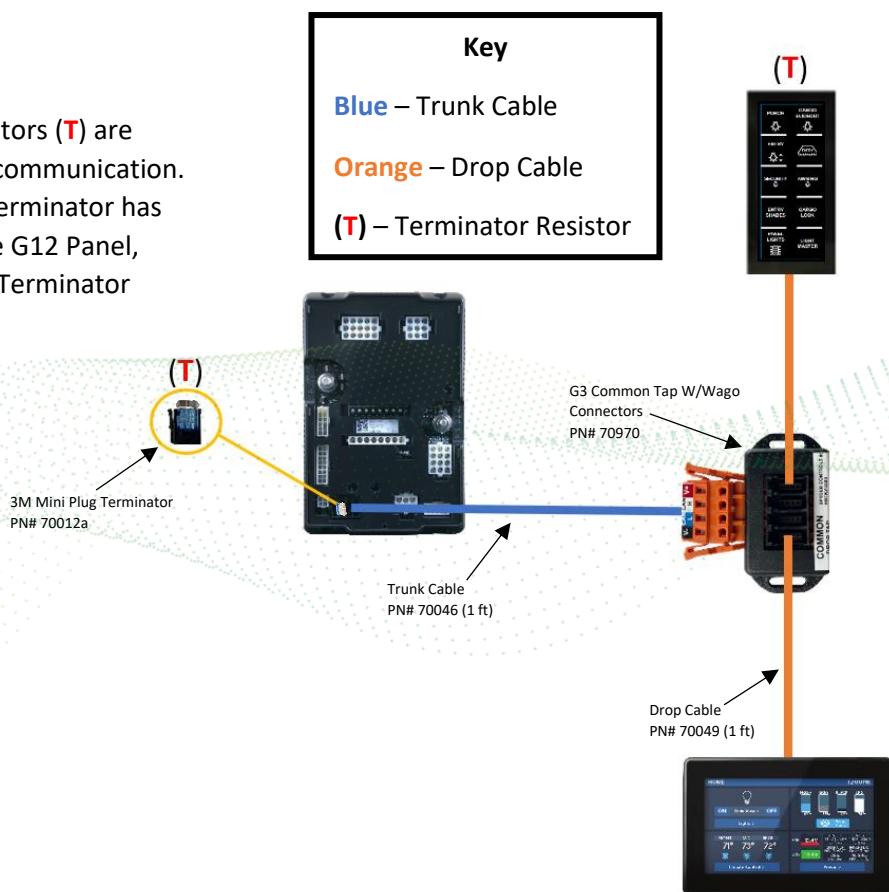
Each wired system component communicates via the RV-C Network via Trunk Cable and/or Drop Cable.

Trunk cable – designed for long runs (200' max).

Drop cable – designed for short runs (30' max).

Network Termination

(2) 120-ohm Terminator Resistors (T) are required for proper network communication. In this example, a Mini Plug Terminator has been plugged directly into the G12 Panel, and a Switch Panel has had a Terminator soldered into it.



1 – Ensure Correct Network Voltage

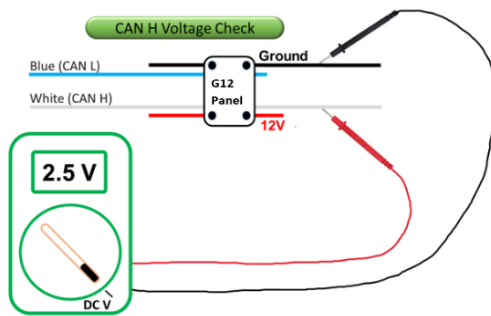
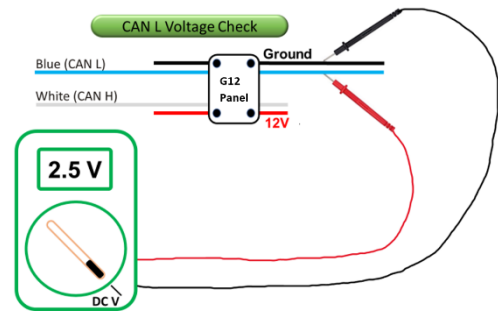
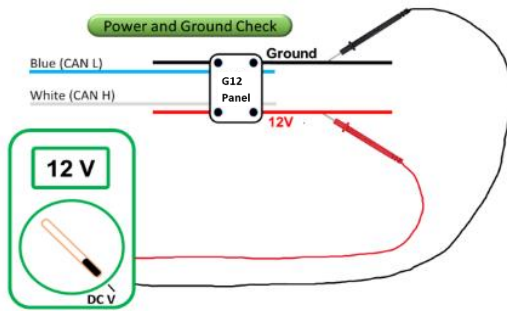
Measuring the orange communication cable:

12v between black and red

2.5v between black (negative) and blue

2.5v between black (negative) and white

If there is not 2.5v between negative and blue/white, the orange communication cable has been compromised.



2 – Testing Network Resistance

If you suspect a network issue, you'll need to do a resistance test. A fully functioning RV-C network will have a solid green NET LED and (2) 120-ohm terminator resistors actively working in the system.

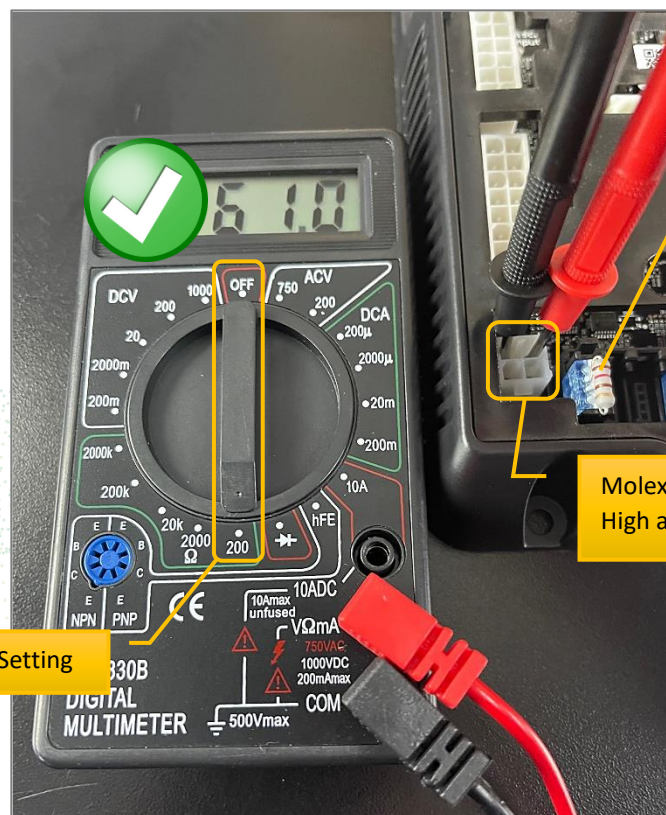
In the example below, the Network Resistance Test is being performed at the Molex Connector at the lower left corner of the G12. Note - Resistance can be measured using the middle 2 pins of any Net Port or Wago connector (CAN H and L).

NOTE - All power to the system must be disconnected before measuring resistance. Failure to completely power down the system will result in incorrect readings.

-  If the system has no active terminators:
 - A reading will be unavailable. Check the wiring for a dead short.
-  If a system has 1 active terminator:
 - The resistance test will read roughly 120 ohms. Check network wiring for loose connections.
-  If a system has 2 active terminators:
 - The resistance test will read roughly 60 ohms.



Note: Many systems will have a terminator soldered into a switch panel or touchscreen (indicated by a **T** sticker).



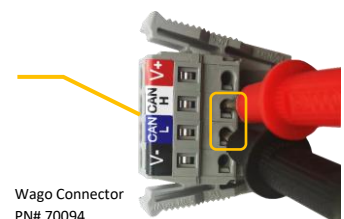
200 Ohms Setting

120 Ohm Mini Plug Terminator



Molex Connector - Test CAN High and Low

Wago Connectors offer convenient ports for probe access (can be orange or grey).



Wago Connector
PN# 70094

3 – Network Status Indicators

Each wired system component uses a NET LED to show network status. If a NET LED is displaying any status other than Solid Green, use the Key below to determine the status of the hardware in question.

Note – Always perform a power cycle before troubleshooting any system issue.

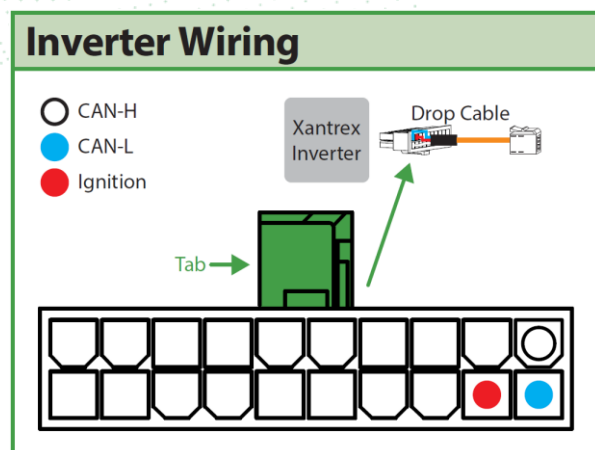
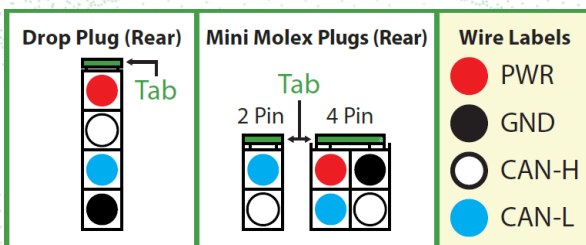


Panel Network Status Indicator – Applies to any device with a network indicator

-  /  Fast flashing Green Light (4 times/sec) – Device is attempting to make initial connection.
-  /  Slow flashing Green Light (1 time/sec) – Device was online but has been offline for at least 5 sec.
-  Solid Green – Device is connected to network and is communicating properly.
-  Solid Red – Device has gone offline and is not connected to a network.
-  /  Alternating Red & Orange – Device has gone offline and is trying to re-connect (within 30 sec).
-  /  Alternating Green & Orange – Device is currently online but has gone offline 2 or more times.

4 – Cable Connectors

Ensure all cable ends are installed correctly according to the information below.



Crimping Mini Plug Connectors

3M mini plug connectors offer easy, quick and reliable cable terminations using a Draper Crimping Tool. These are the only approved crimpers for this connection and can be ordered from Firefly.

To install:

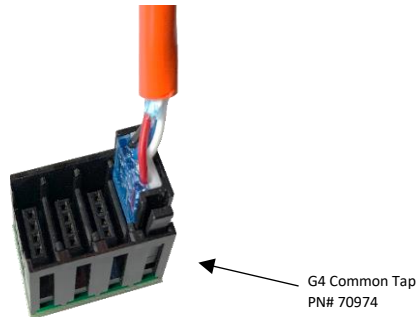
1. Strip the outer wire coating.
2. Cut away the inner fiberglass insulation.
3. Trim the 4 inner wires to an equal length (if needed).
4. Insert the 4 wires completely into the Mini Plug using the Network Pinout order above. Do not strip the individual wires.
5. Crimp the connector.



Note – The network may never be spliced and a 3M connector may never be reused.

Expanding the Network

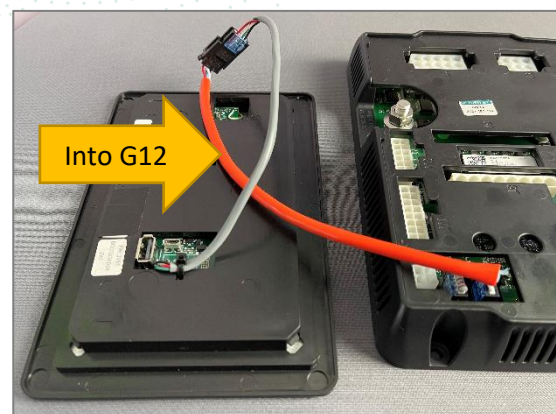
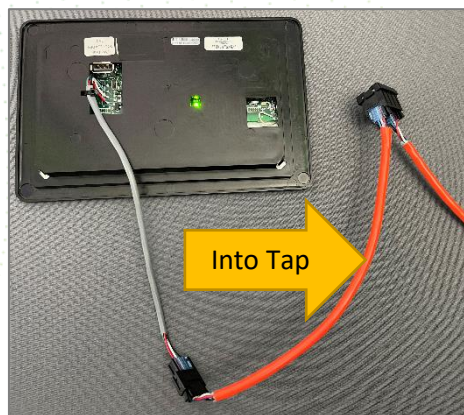
Adding Network Taps to the system (multiple varieties available) will add 4 Net Ports at a time by simply using a short drop cable to plug a Network Tap into an open Net Port.



5 – Checking Hardware in Other Locations

If your hardware is still not operating, move the hardware in a known working location. If it still does not operate, contact Firefly.

Tech Tip – create a short **drop cable pigtail** to test touchscreens and switches anywhere on the network. If a touchscreen w/pigtail works elsewhere in the coach but not in it's original location, you likely have a faulty cable running to the original location.

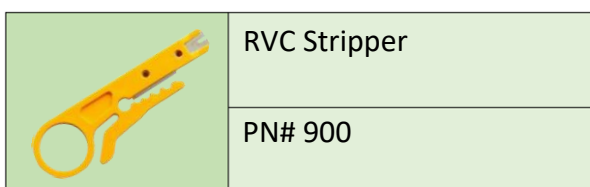
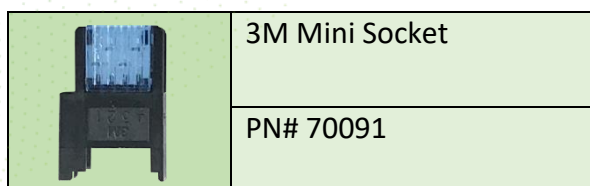
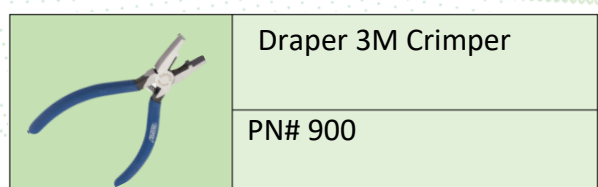
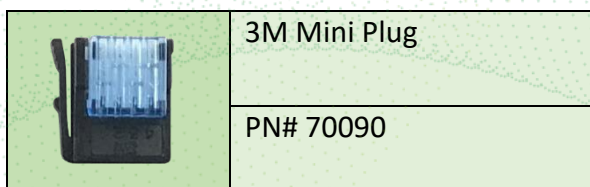
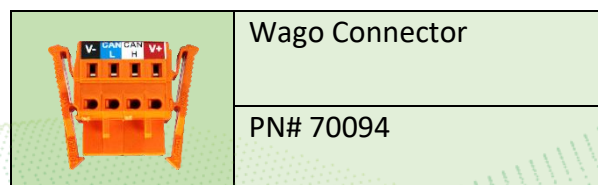
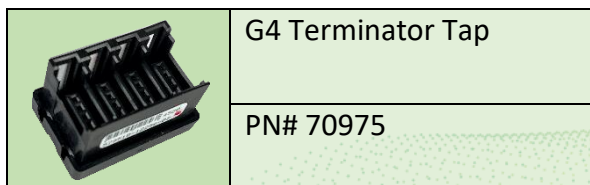
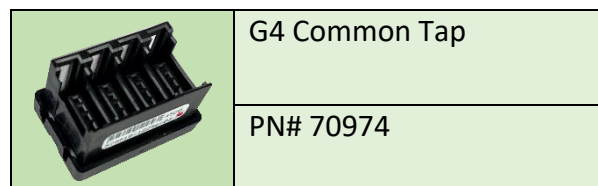
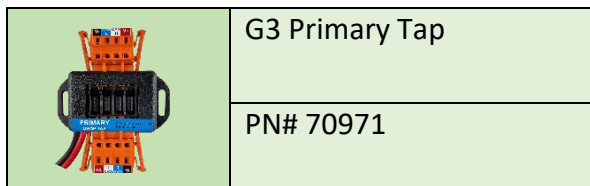
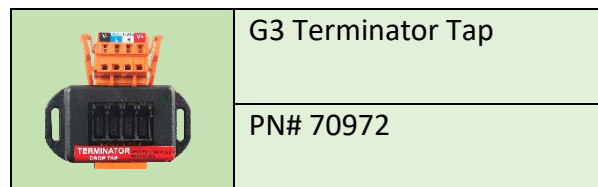
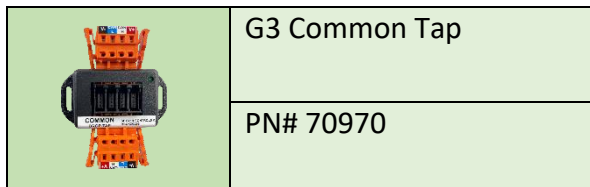
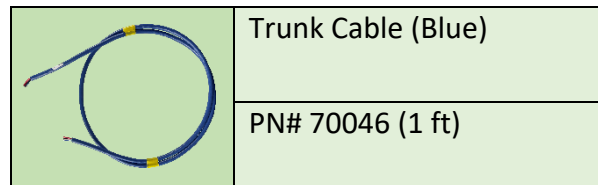
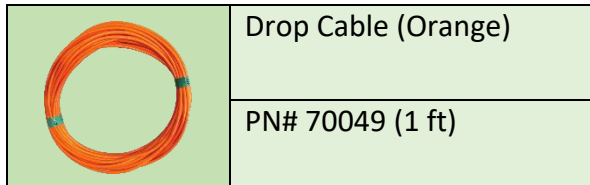


Networking Part Numbers

Only approved networking tools and components may be used unless otherwise specified. Networking cables (Trunk/Drop) are available in many different lengths and plug/socket terminations. Please contact a Firefly Customer Service Representative to discuss your specific needs.

Phone: 574-825-4600

Email: support@fireflyint.com



Technician Shop Kit PN# 70007 includes:

- 70049 – 50ft Drop Cable
- 70090 – (15) 3M Mini Plugs
- 70091 – (5) 3M Mini Sockets
- 900 – (1) 3M Crimper
- 900 – (1) RVC Stripper
- 900 – (1) USB Drive



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