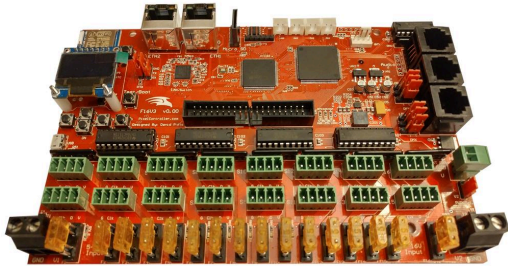




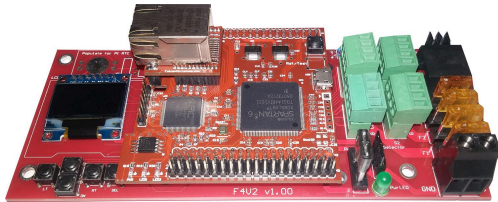
Falcon Controllers and Expansion Boards

The Falcon controller and expansion board system gives the end user a great deal of flexibility when designing their show. This document outlines the various configurations that are possible to help you make the best decision when buying controllers and expansion boards.

The following are the fundamental products that make up the Falcon controller system.



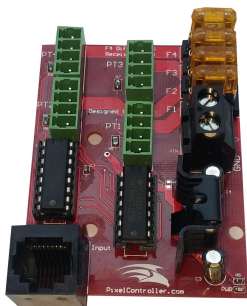
[F16V3 Pixel Controller](#) - 16 port controller capable of 1024 pixels per port. E131 and Artnet is supported.



[F4V2 Pixel Controller](#) - 4 port controller capable of 680 pixels per port. E131 and Artnet is supported.

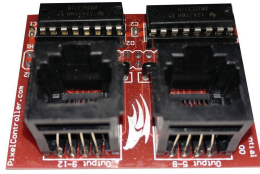


[F16V2/F16V2R Differential Expansion](#) - Connects to F16V2/F16V3 via ribbon cable with ability to drive four differential receivers. The receivers can be located up to 250 ft (76m) from expansion board. The new expansion boards will have two 40-pin IDC connectors to daisy-chain two expansion boards. Both differential or local expansions can be connected together.



[Differential Receiver](#) - Connects up to two to a F4V2 differential expansion or up to four to a F16V2/F16V3 differential expansion board. One can also be directly connected to a F16V2/F16V3 (This replaces outputs 13-16 and all DMX ports). The receivers can be located up to 250 ft from differential expansion boards.





[F4V2 Differential Expansion Board](#) - Connects directly to F4V2 without the need for a ribbon cable. Can connect to two 4-port differential receivers.

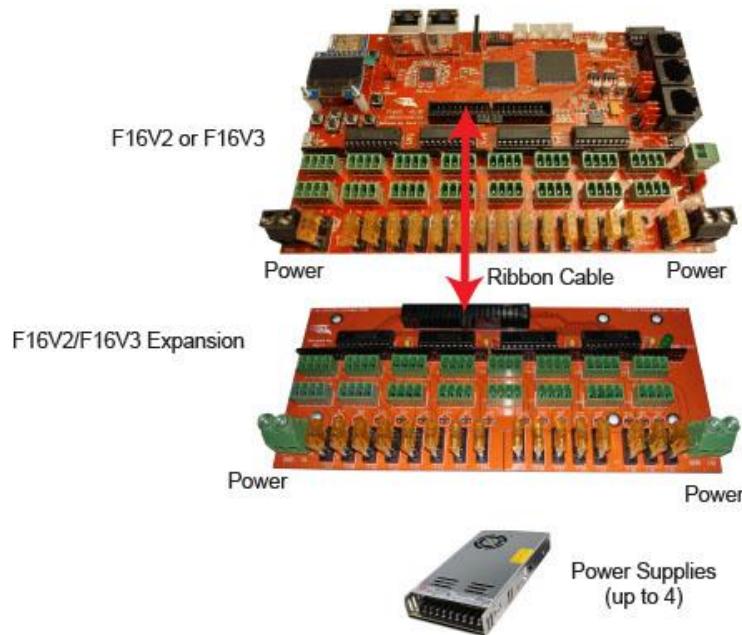


[F16V2/F16V3 Expansion Board](#) - Connects to F16V2/F16V3 to expand controller by 16 local ports. Two boards can be connected to controller. The new expansion boards will have two 40-pin IDC connectors to daisy-chain two expansion boards. Both differential or local expansions can be connected together.



Typical Configurations

F16V2/F16V3 and Expansion Board



This configuration expands the main controller which has 16 local ports to 32 ports. The settings of the additional ports are made available by selecting “Main Board with Expansion” in the web user interface (Web UI).

Use case:

- Mega-trees and matrices where the string count is greater than 16 strings.
- Mega-trees and other props that are located within 20-25ft from the controller and expansion board and the string count is greater than 16.

Power Supplies:

- Up to four power supplies can be used. Two for expansion and two for main controller board. Each supply can be different voltages for a total of four different voltages if needed.

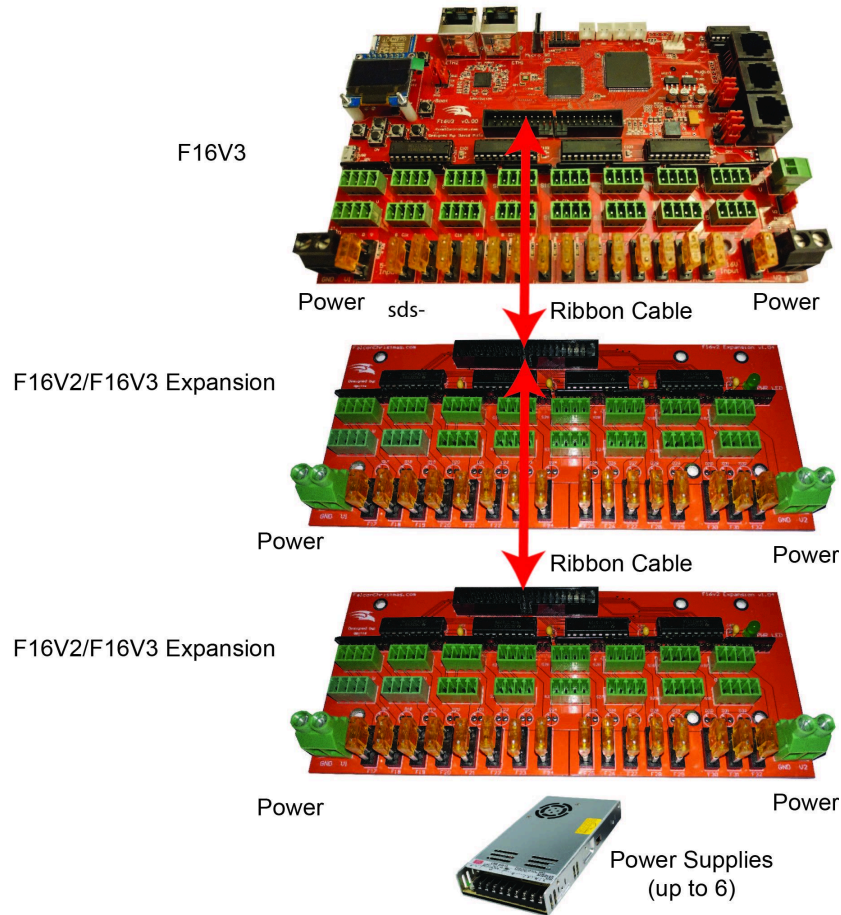
Number of Pixels:

- F16V2 - Main Board and Expansion ports are limited to 340 max.
- F16V3 - The Main Board and Expansion share the 1020 pixels per port and the amount for each board is configurable from Web UI in 10 pixel increments.
 - Example: If the main board were set to 680 the expansion would have 340 ($680+344=1024$), or vice-versa.



F16V2/F16V3 and Two Expansion Boards

Note: New Expansion Boards have two connectors. (Not Shown)



This configuration expands the main controller which has 16 local ports to 48 ports. The settings of the additional ports are made available by selecting “Main Board with Two Expansions” in the web user interface (Web UI).

Use case:

- Mega-trees and matrices where the string count is greater than 32 strings.
- Mega-trees and other props that are located within 20-25ft from the controller and expansion board and the string count is greater than 32.

Power Supplies:

- Up to six power supplies can be used. Four for expansion boards (2 each) and two for main controller board. Each supply can be different voltages for a total of six different voltages if needed.

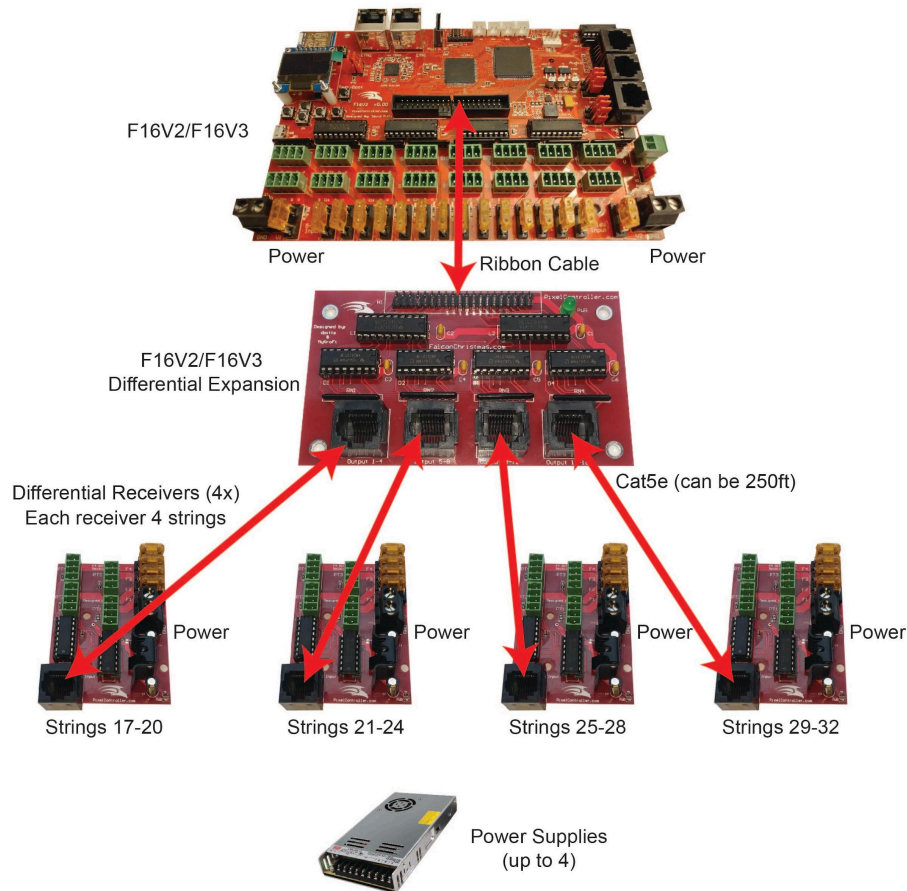
Number of Pixels:

- F16V2 - Two expansions not supported yet.
- F16V3 - The Main Board and Expansions share the 1024 pixels per port and the amount for each board is configurable from Web UI in 10 pixel increments.
 - Example: If the main board were set to 680 the expansions could have 170 and 170, respectively (680+172+172=1024).



F16V2/F16V3 and a Differential Expansion Board

Note: New Diff Expansion Boards have two connectors. (Not Shown)



This configuration expands the main controller which has 16 local ports to have an additional 16 ports that can be located up to 250 ft (76m) from controller. The settings of the additional ports are made available by selecting “Main Board with Expansion” in the web user interface (Web UI).

Use case:

- Mega-trees, matrices, mini trees (large dense area of lights) and objects within 25 ft (7m) of controller for the local 16 strings, but you also need to reach roof lines, arches, stars mini trees and other props that may be further than 25 ft (7m).

Power Supplies:

- Up to two for the main board and one each for the receivers. The differential expansion board is powered from ribbon cable. You may also place two receivers in the same location and they may share a common power supply.

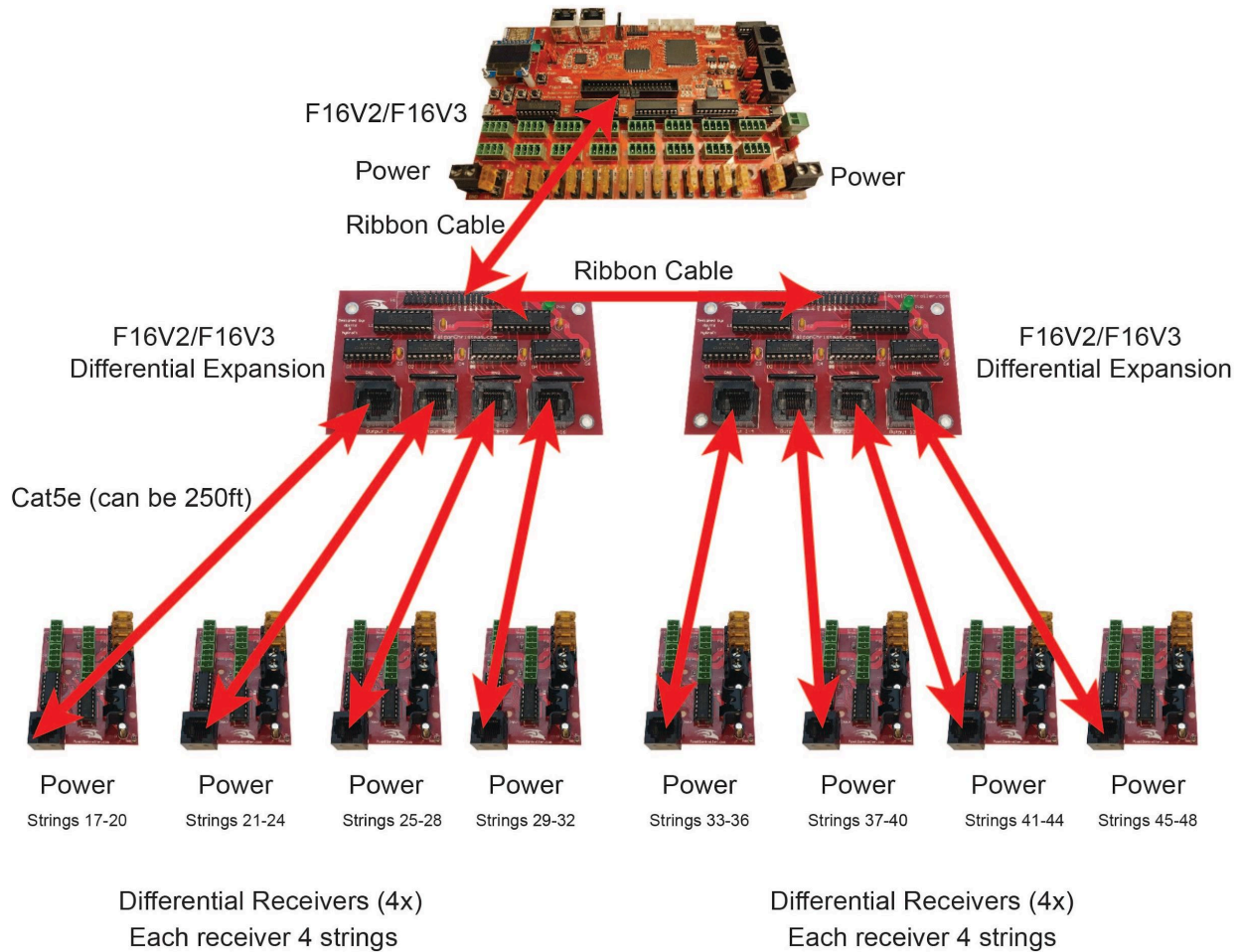
Number of Pixels:

- F16V2 - Main Board and Expansion ports are limited to 340 max.
- F16V3 - The Main Board and Expansion share the 1024 pixels per port and the amount for each board is configurable from Web UI in 10 pixel increments.
 - Example: If the main board were set to 680 the expansion would have 340 ($680+344=1024$), or vice-versa.



F16V2/F16V3 and Two Differential Expansion Board Up to 8 receivers

Note: New Diff Expansion Boards have two connectors. (Not Shown)



Power Supplies
(up to 10)

○

This configuration expands the main controller which has 16 local ports to have an additional 32 ports that can be located up to 250 ft (76m) from controller. The settings of the additional ports are made available by selecting "Main Board with Expansion" in the web user interface (Web UI).

Use case:

- Mega-trees, matrices, mini trees (large dense area of lights) and objects within 25 ft (7m) of controller for the local 16 strings, but you also need to reach roof lines, arches, stars mini trees and other props that may be further than 25 ft (7m).



Power Supplies:

- Up to two for the main board and one each for the receivers. The differential expansion board is powered from ribbon cable. You may also place two receivers in the same location and they may share a common power supply.

Number of Pixels:

- F16V2 - Main Board and Expansion ports are limited to 340 max.
- F16V3 - The Main Board and Expansion share the 1024 pixels per port and the amount for each board is configurable from Web UI in 10 pixel increments.
 - Example: If the main board were set to 680 the expansion boards could split the remainder (344). The total sum of all three boards will be 1024 pixels but the user can configure how many go to each board.

