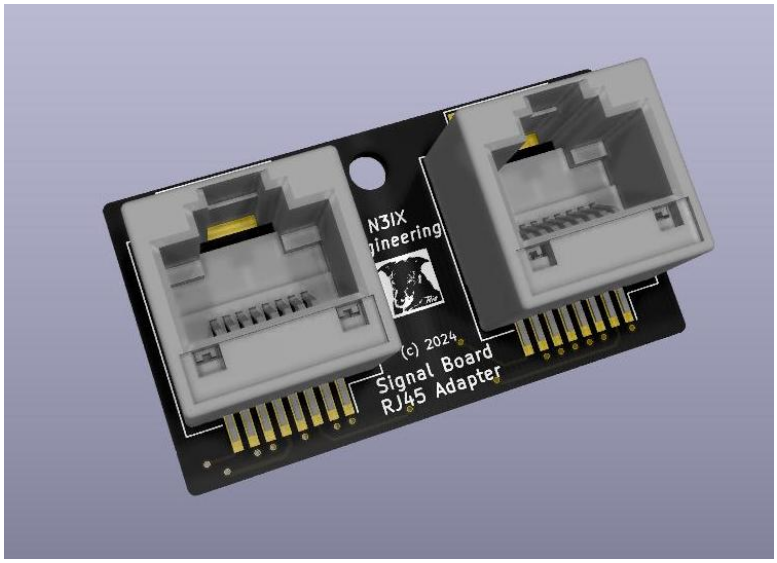
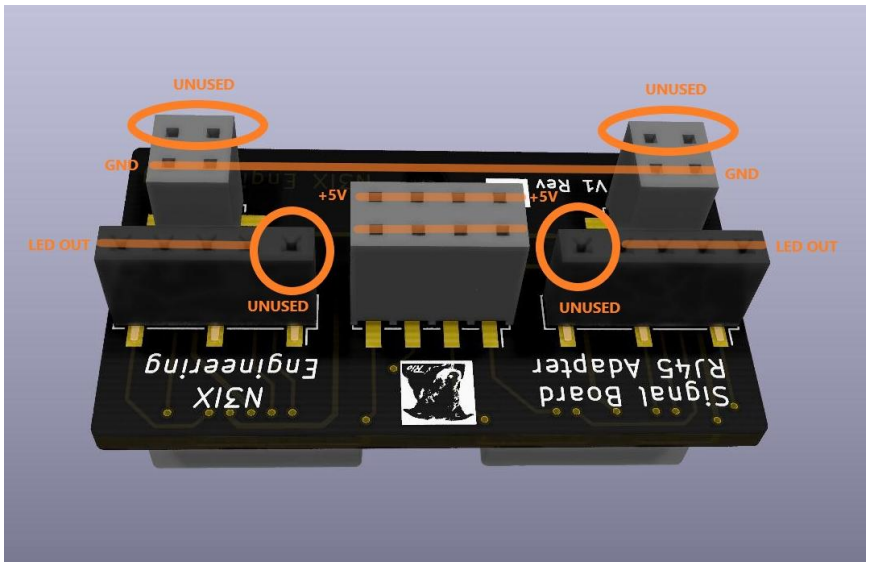
Signal Board RJ45 Instructions

1. Signal Board RJ45 Adapter Instructions

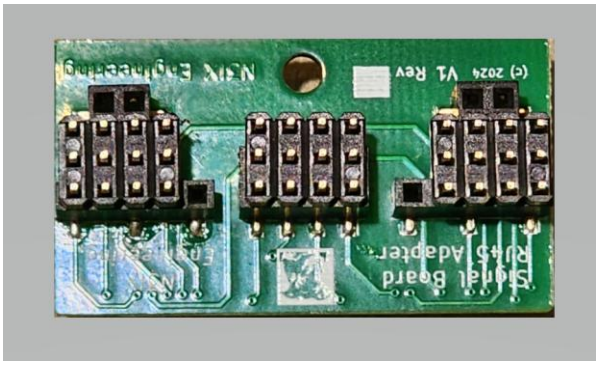
Each Signal Board RJ45 Adapter converts 12 of the Signal Board LED outputs from 3-pin headers to RJ45 sockets. Each RJ45 socket provides access to 6 LED outputs plus +5V and GND. Each Signal Board RJ45 Adapter can be easily mated with two Signal Connector RJ45 Interface Boards using Ethernet cables.

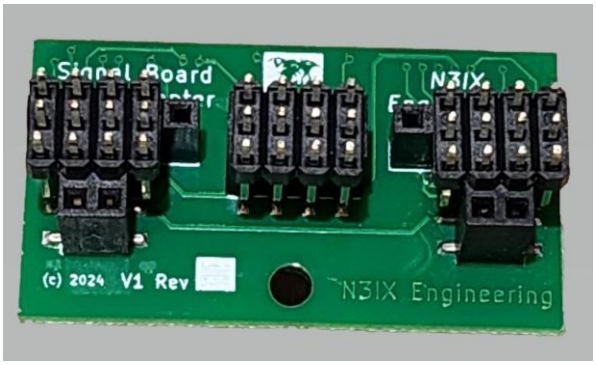


The Signal Board RJ45 Adapter has female headers on the bottom side that plug directly into the male headers on the Signal Board.

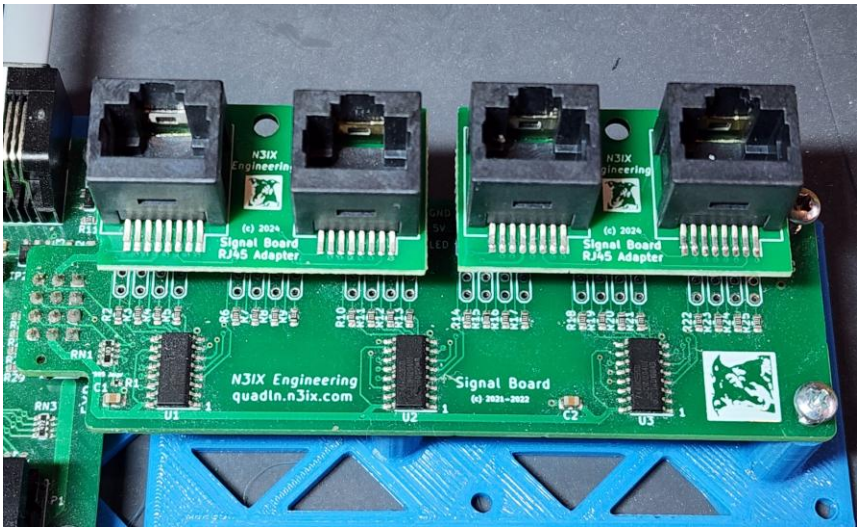


Use care to ensure that all pins are properly aligned when inserting the headers. Do not use force when inserting the board. The bottom view images below have male header pins inserted into the female headers on the RJ45 Adapter to illustrate the proper alignment between the Signal Board header and the RJ45 Adapter. The LED pins on the left and right ends must match up to ensure that all 12 LED outputs on the Signal Board header are connected to the RJ45 Adapter. Only 4 of the +5V pins and 4 of the GND pins are connected to the RJ45 Adapter, leaving 8 of the +5V and 8 of the GND pins unused. 6 of the female header connections are unused.





The next image shows 2 RJ45 Adapters properly installed on a Signal Board.

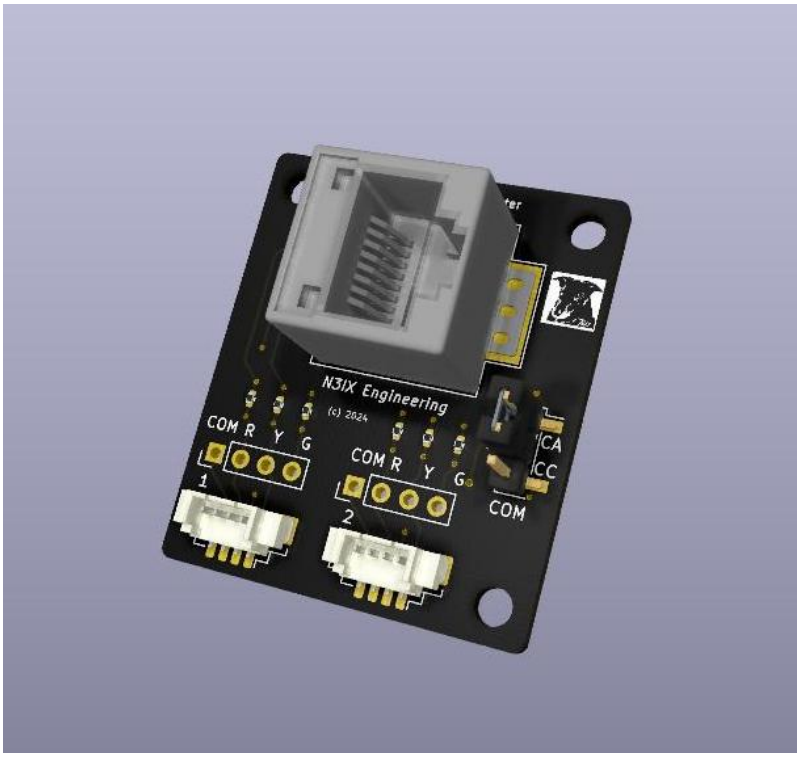


The connections from the Signal Board to the RJ45 socket, and from there to the RJ45 Signal Wiring Board, are shown in the following table. The cable wire colors are for Ethernet T568B cable pinout, which is the most common consumer cable pinout used in the US.

QuadLN_S Signal Board RJ45 Connections			
Signal Board Output	RJ45 Connector - Pin	CAT Wire Color (T568B)	RJ45 Signal Wiring Board LED Head - Color
1 or 13	1 - 8	Brown	1 - RED
2 or 14	1 - 2	Orange	1 - YELLOW
3 or 15	1 - 6	Green	1 - GREEN
4 or 16	1 - 7	Brown-White	2 - RED
5 or 17	1 - 1	Orange-White	2 - YELLOW
6 or 18	1 - 3	Green-White	2 - GREEN
7 or 19	2 - 8	Brown	1 - RED
8 or 20	2 - 2	Orange	1 - YELLOW
9 or 21	2 - 6	Green	1 - GREEN
10 or 22	2 - 7	Brown-White	2 - RED
11 or 23	2 - 1	Orange-White	2 - YELLOW
12 or 24	2 - 3	Green-White	2 - GREEN
+5V	1 - 4, 2 - 4	Blue	Common Anode Jumper
GND	1 - 5, 2 - 5	Blue-White	Common Cathode Jumper

2. RJ45 Signal Wiring Board Instructions

The RJ45 Signal Wiring Board connects to two signal heads using a JST 1.25mm-type connectors, as found on Atlas® signals. Solder pads are provided so that other types of signal heads can be directly wired to the board. The board is connected to a QuadLN_S Signal Board RJ45 Adapter using a standard Ethernet cable. There is no special requirement on the cable – any straight-through 8)8C cable terminated in RJ45 connectors should work fine.

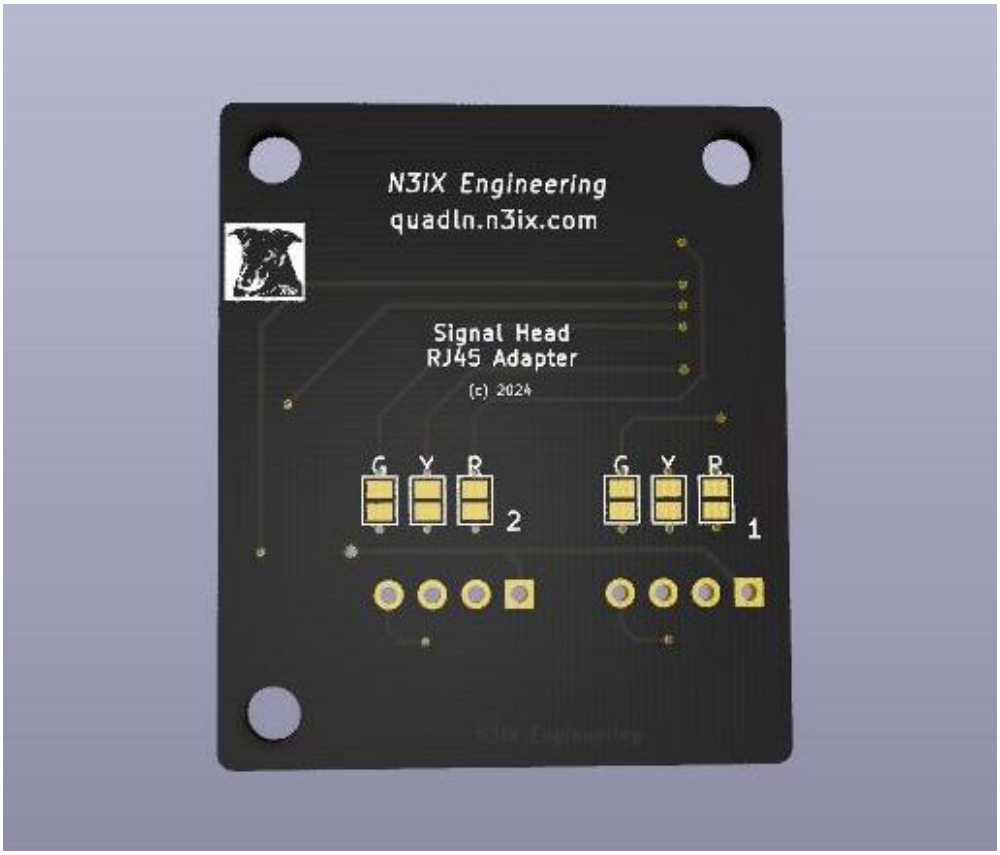


There are 2 JST signal head connectors labeled “1” and “2”. These labels correspond to the LED Head numbers shown in column 4 of the Signal Board RJ45 Adapter Connections table in the preceding section. The JST signal connector pinout is Common, Red, Green, Yellow. Align the connector from the Atlas® signal so that the Black or Gray wire is towards the left. The connector will only insert one way. Make sure it is aligned correctly before pressing it gently into place.

If using your own JST cable, please note the conductor order, from left to right, is Common, Red, **Green, Yellow**. Your cable wire colors may not match those colors.

If using the solder pads, the LED connections are ordered Common, Red, **Yellow, Green** which correspond to the matching Signal Board output pin entries shown in the Signal Board RJ45 Adapter Connections table in the preceding section.

The Signal Connector RJ45 Interface Board includes an onboard jumper to either Common Anode (CA) as used on newer Atlas/BLMA signals or Common Cathode (CC) as used on older Atlas signals.



Separate current-limiting resistors are provided for each LED. The default value is 470 ohms, which is in addition to the 330 ohm resistor on the Signal Board itself. This value was found to work well with an Atlas® dual-head mast. If an LED is too dim at the maximum brightness setting, the 470 ohm resistor can be bypassed using the corresponding solder jumper on the bottom of the board. Readjust the fader as needed to achieve the desired brightness after adding the solder jumper.