

NTRAK Alternate Wiring and Connectors

- Quick Reference -

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Wiring

Bus Wire (Track Busses and DC Power Bus): 12-gauge stranded copper. Red/black automotive “zip” wire, speaker wire or black low-voltage lighting wire with a “rib” molded along one conductor may be used. Wire must be continuous (i.e., uncut) and extend the length of the module plus 12 inches at each end for connectors.

Track Feeders: 22 AWG solid minimum, soldered to rail. Feeders should be provided every two feet starting one foot from each module end. Feeders should be attached to track bus using soldered, crimped or insulation displacement “Suitcase” (3M Scotchlok 567) connections. Front rail (Rail “A”) feeders connect to the red or ribbed bus wire, rear rail (Rail “B”) feeders connect to the black or plain wire. Turnouts should be fed from both ends (i.e., no “power routing”), with gaps or insulated joiners as required. Rail joiners should be soldered except for insulating gaps.

Connectors



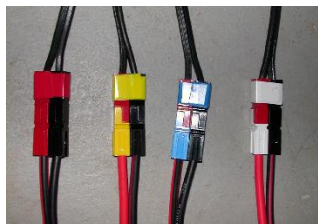
Track Bus Connector, Left End

Track Bus: Anderson PP30 “30 Amp Powerpole” red/black pairs. Housings to be stacked *vertically* using built-in dovetails, hood up, tongue down, *black over red* on left end of module and *red over black* on right end (memory aid: “Red-Right”). See figures at far left and right respectively.



Track Bus Connector, Right End

DC Power Bus: Anderson PP30 red/black pairs. Housings at *both ends* stacked *horizontally* using built in dovetails, hood up, tongue down, *red on the left, black on the right*. Red is DC+, black is DC-. See figure at lower right.



Red/Black and Colored Powerpole Pairs

Color Identification: Connector pairs to be marked with tape or paint (red/yellow/blue/white, etc.), or use appropriate colored housings in place of the red housing of each pair (i.e., Yel/Blk, Blu/Blk, Wht/Blk etc.) as shown at left.



Power Bus Connector

Connector Assembly

Connector: The Anderson PP30 Powerpole connector is comprised of a PP15/45 housing and contact a # 1331 contact. The contacts will accommodate 12 to 16 gauge stranded wire.

Contact attachment: Strip wire back approximately 5/16”. Orient contact on wire for proper insertion into housing. Smaller gauge wire may be folded double or triple as necessary. Crimp or solder contact to wire. (For a review of some available crimping tools, see <http://home.comcast.net/~dstuard/powerpoles/PPcrimp.htm>).

Assembly: Hold housings with hood up and tongue down. Insert wires with contacts attached (barrel up and tip down) into the appropriate connector housings. Push the contacts in until the contact tips “click” over the retaining springs as shown below. If you have difficulty, check for deformation of the contact barrel or excess solder remaining after attachment or excessively thick insulation which may interfere with contact insertion. You may need to trim insulation and/or re-shape or file the contact barrel slightly to get an easy fit. A new, unused contact makes an excellent guide to use as a check after crimping).



**Anderson 30A Powerpole® Connector -
Cutaway View**



Mated Powerpole Connectors

Refer to http://www.w5fc.org/pse_docs/KNOWLEDGE/anderson_powerpole_instructions.htm for more complete procedures.

Cinch-Jones Adapters:

For each Powerpole equipped module or module set, one set of Left End and Right End adapters is must be provided. Adapters should be 6” long and color coded with tape, paint or by using colored Powerpole shells in place of the red shell.

Right End Adapters:

- Track Bus** - Powerpole Left End connector (black over red) to CJ male, wide pin (#1) to red, narrow pin (#2) to black), 6” long.
- DC Power Bus** - Powerpole Power Bus connector (red on left, black on right), to CJ male, wide pin (#1) to red, narrow pin (#2) to black).

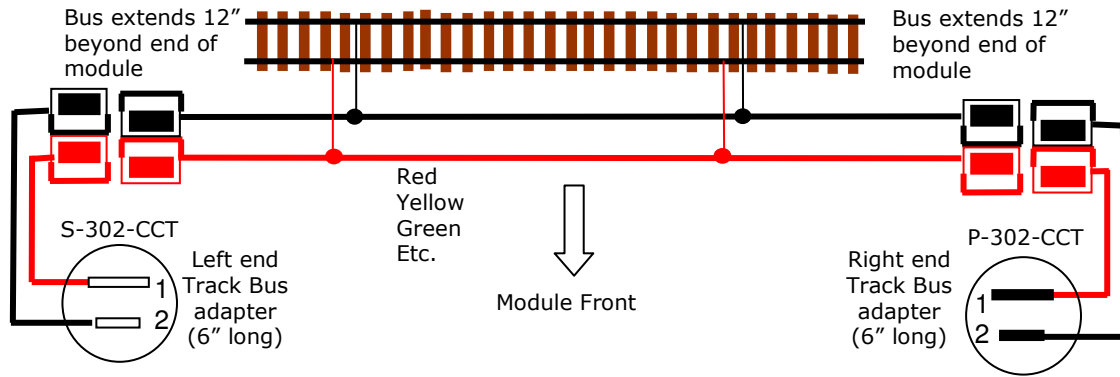


Left End Adapters:

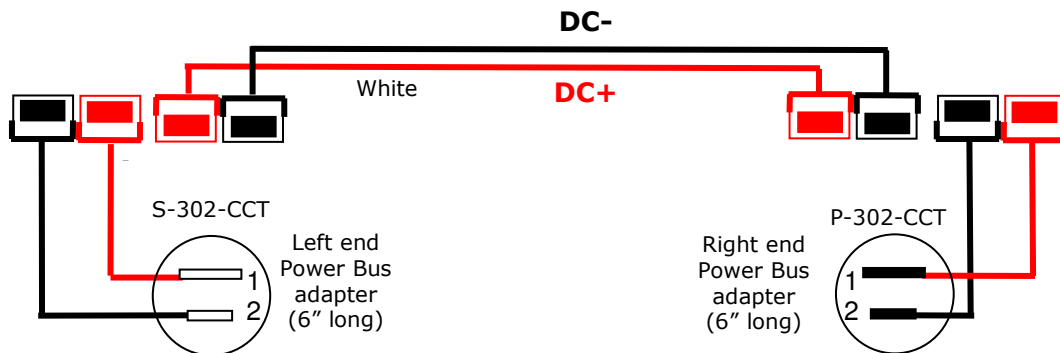
- Track Bus** - Powrpole Right End connector (red over black) to CJ female, wide pin (#1) to red, narrow pin (#2) to black).
- DC Power Bus** - Powerpole Power Bus connector (red on left, black on right), to CJ female, wide pin (#1) to red, narrow pin (#2) to black.



Track Bus and Power Bus Adapters



Track Bus and Adapters



DC Power Bus and Adapters

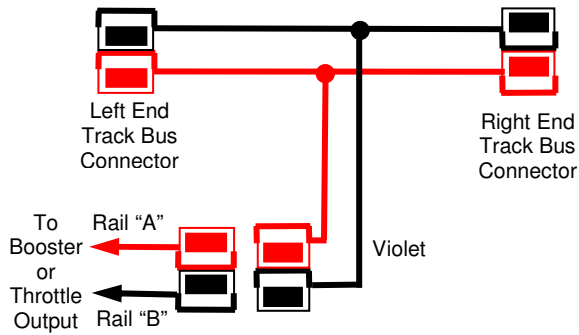
Track Power Feeders ("Y" Cables)

Wire: 12-gauge stranded copper. Either black low-voltage lighting wire with a "rib" molded along one conductor, red/black automotive "zip" wire, or speaker wire may be used. Arms of the Y should be no more than 12 inches. Stem of the Y should be at least 4 ft long to allow connection to a floor mounted booster or throttle.

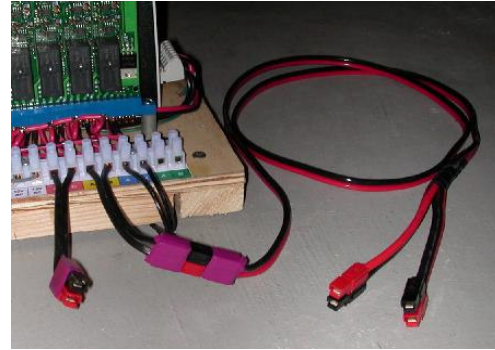
Connections: Consistent with module Track Bus convention. Red or ribbed wire (front rail) is designated "Rail A", black or plain wire (rear rail) is "Rail B".

Connectors: -Arms of Y equipped with one Left End and one Right End Track Bus Powerpole PP30 connector (as described above) for track bus connection. Stem of Y connects to throttle or booster output either directly or via Powerpole connectors mounted *vertically*, *red over black* (Y cable end) and *black over red* (booster/throttle end).

Color Identification: Red/black connector pairs at the stem of the Y should be marked with violet tape or paint, or purple connector housings used in place of the red housing of each pair. No color coding is specified for Y cable arms, as they can connect to any NTRAK line.



Track Power Feeder Connections



Track Power Feeder "Y" Cable

Connector Specifications

Specifications for Powerpole connectors can be found at the Anderson Power Products Website at <http://www.andersonpower.com/products/pdf/DS-PP30.pdf> .

Part Numbers and Sources

30 Amp Anderson Powerpole connectors are typically packaged in red/black sets, although colored housings are also available. The following table lists Anderson part numbers for the various connector parts:

Anderson Powerpole Part Numbers

Housing Color	Complete PP30 Connector (Housing & Contact)	15-45A Housing Only	30A Contact Only
Red	1330	1327	1331
Black	1330G4	1327G6	1331
Yellow	1330G11	1327G16	1331
Blue	1330G12	1327G8	1331
Green	1330G2	1327G5	1331
Orange	1330G13	1327G17	1331
White	1330G5	1327G17	1331
Purple	1330G17	1327G23	1331

Powerpole connectors are available from a number of sources via the internet, including:

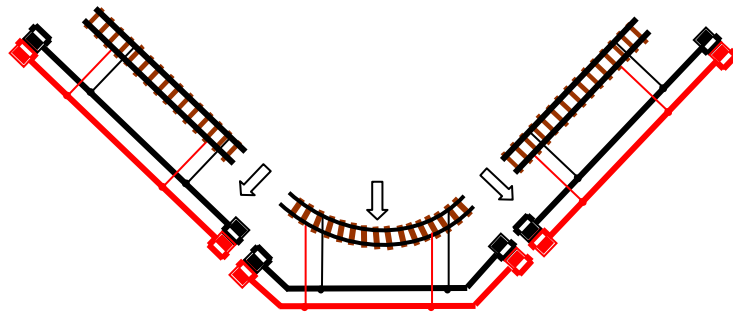
- Powerwerx <http://www.powerwerx.com>
- Connex Electronics <http://www.connex-electronics.com>
- Cablexperts <http://www.cablexperts.com>
- Quicksilver Radio Products <http://www.qsradio.com/DCpower.htm>
- Hometek <http://www.cheapham.com/page10.html>

Most of these suppliers also stock 12 gauge red/black zip cord, which makes for a clean installation.

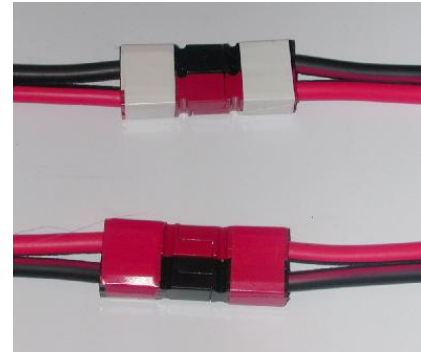
Powerpoles are also carried by major industrial electronics distributors, including Newark InOne (<http://www.newark.com>) and Allied Electronics (<http://www.alliedelec.com>).

Reversible Modules

The connector convention described above permits modules to be reversed in place without cross-over wiring or other adapters. This makes reversible corner modules and reversible oNeTRAK modules particularly easy to implement. The figure below shows two standard modules on either side of an outside corner module. Red/black (front rail/rear rail) integrity is maintained in this standard configuration. The photo to the right illustrates the mating connectors.

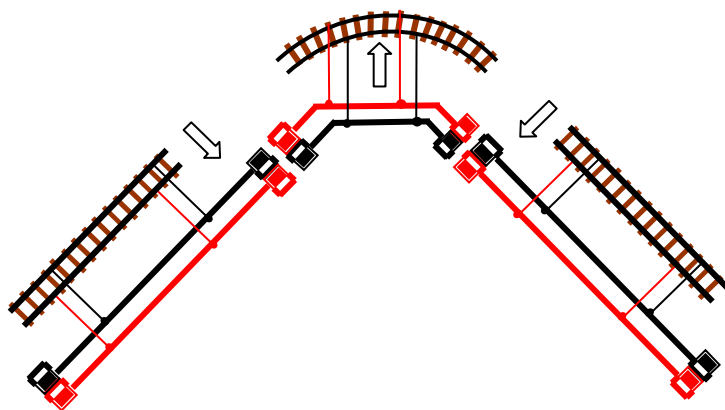


Corner Module – Outside (Normal) Configuration

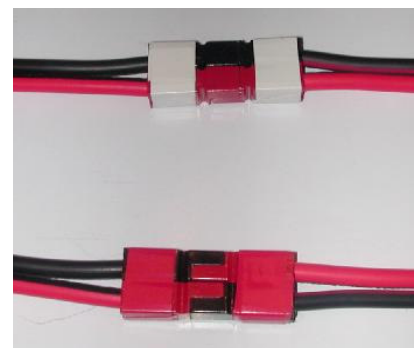


Powerpole Connections (Normal)

If a module is reversed in place, two left end connectors will be facing each other, as will two right end connectors (similar to a “same sex” standoff with CJs). Unlike CJs, adapters or double terminations are not required, as black will connect to red and red to black, thereby performing the cross-over function and maintaining proper front rail/rear rail integrity (Note: In the case of NTRAK, red and blue line connections must still be swapped, but no adapters are required). The figure below illustrates the same outside corner in its reversed position, showing how front/rear rail connections are maintained, while the right-hand photo below shows the mating connectors for a reversed module..In both cases, the DC Power Bus (white) is not affected.



Corner Module – Inside (Reversed) Configuration



Powerpole Connections (Reversed)