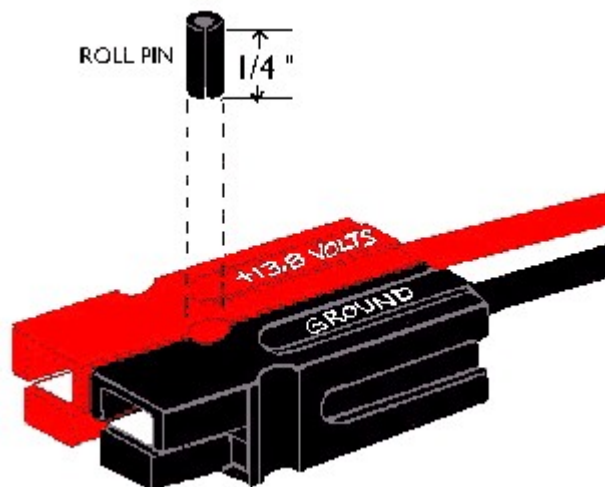


Calgary Free-mo Module Interconnection Standards

The Calgary Free-mo Group has decided to adopt Anderson Power Poles as the connector of choice for their modules. The group will maintain a supply of adapter kits that will plug into the power pole harnesses on a module, and terminate with the proper cinch-jones connectors and trailer plug to meet North American Free-mo standards. These will be available for use by any group member who has converted their module to attend other Free-mo setups, and at group setups to interface to visiting modules. All members must understand that this is a Recommended Practice for Calgary Free-mo and is not intended to replace the North American standard for Free-mo module interconnections. In order to minimize cost, it has been decided that the group will buy a supply of housings and contact sets in the RED/BLACK and BLUE/BLACK combinations, as these are the readily available combinations that come with 30 amp contacts. To eliminate ambiguity, the RED and BLUE housings will be used for track busses, the BLACK housings used for the accessory bus.

Anderson Power Pole Interconnection Standards



Power Pole Figure 1. Housing assembly showing parts orientation.

NOTE: For terminology used in this document, the above picture shows the power poles housings with the TABS DOWN.

General Assembly

1. 30 amp Anderson Power Poles with 14 Gauge wire will be used.
2. Housings may be assembled as a horizontal block, like Power Pole Figure 1, or a vertical block. When polarity or colour orientation is required, positioning with tabs down or tabs up will be specified.
3. As you face the end of the module, the LEFT HAND Rail track bus connects to a BLUE housing.
4. As you face the end of the module, the RIGHT HAND Rail track bus connects to a RED housing,
5. Track Bus Connections between modules will be plugged in so that Blue Housings mate with Red Housings.
6. Both Accessory Bus Wires will be connected to BLACK Housings. These housings will be assembled horizontally.
7. Track connections below are listed from Left to Right as you face the end of the module. This applies to each end of the module.
8. It is recommended that the busses be terminated to a terminal strip and the housing assembly with its wires attached to the terminal strip instead of directly to the bus. 18" wire leads off the terminal strip are recommended.

Calgary Free-mo Module Interconnection Standards

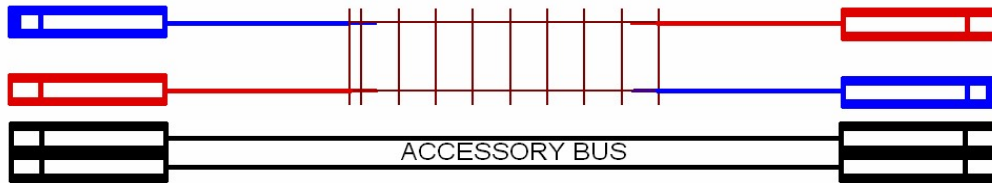
Housing Connections and Wiring Configurations

1. One Track Bus and Accessory Bus

This will apply to single or double track modules that have one track bus to feed all rails.

Housing Connections.

- a. Blue – Left Hand Rail Bus Wire
- b. Red – Right Hand Rail Bus Wire
- c. **a** and **b** will be assembled vertically, Red over Blue with tabs down
- d. Black – Accessory Bus Wire – polarity neutral
- e. Black – Accessory Bus Wire – polarity neutral
- f. The 2 track bus housings on a one track bus module will be assembled vertically, with the Red housing above the Blue housing, tabs down.



Power Pole Figure 2. One Track Bus and Accessory Bus Connection

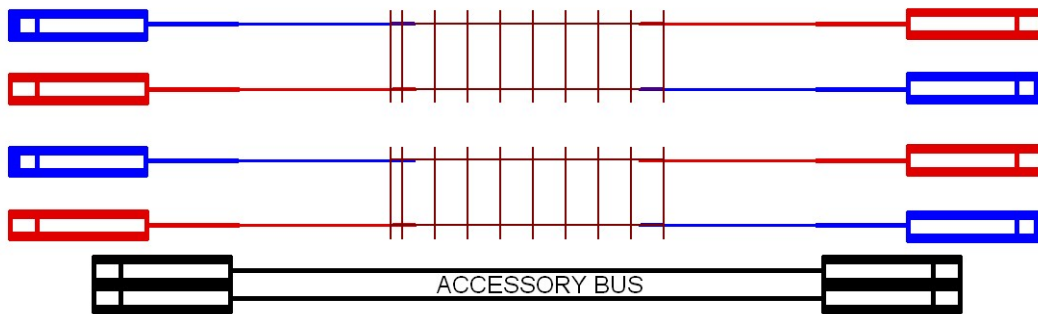
Calgary Free-mo Module Interconnection Standards

2. Two Track Busses and Accessory Bus

This will apply to modules that have 2 track busses, normally double-tracked modules where each main line is fed by separate busses. Connections will be made Red to Blue between modules.

Housing Connections:

- a. Red – Right Hand Rail Bus Wire from the Right Hand Track
- b. Blue – Left Hand Rail Bus Wire from the Right Hand Track
- c. **a** and **b** will be assembled vertically, Red over Blue with tabs down
- d. Red – Right Hand Rail Bus Wire from the Left Hand Track
- e. Blue – Left Hand Rail Bus Wire from the Left Hand track
- f. **e** and **f** will be assembled vertically, Red over Blue tabs down
- g. The **a-b pair** will be assembled vertically over the **c-d pair**, tabs down – this will give you a vertical stack, starting on the top with Red/Blue/Red/Blue. There is only one way to interconnect this assembly between modules.
- h. Black – Accessory Bus Wire – polarity neutral
- i. Black – Accessory Bus Wire – polarity neutral
- j. **h** and **i** will be assembled horizontally



Power Pole Figure 3. Two Track Buses and Accessory Bus Connection

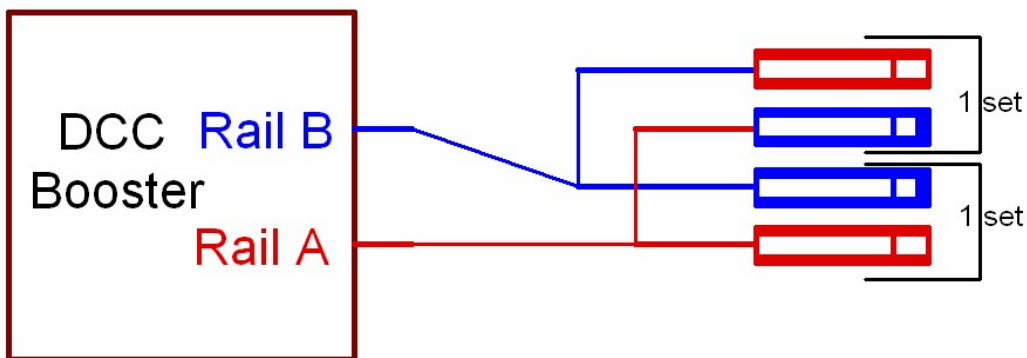
Calgary Free-mo Module Interconnection Standards

3. Booster Connection Harness to One Track Bus Module

This will apply to the Rail A and Rail B connections from a booster, and provides quick adjustment of the connection to reverse incorrect rail sync polarity. One of each colour housing will be connected to each Rail output. Leads from the housing to the booster should be about 48" long.

Housing Connections:

- a. Red – Rail A Wire
- b. Blue – Rail B Wire
- c. Blue – Rail A Wire
- d. Red – Rail B Wire
- e. Both sets (**a-b** and **c-d**) will be assembled vertically as separate assemblies, Red over Blue with tabs down.



Power Pole Figure 4. Booster Connection Harness

When connecting a booster to the end of a power district, only one set from the booster harness will be used. Connect one booster set, connected Red to Blue, to the end of the module at the end of the power district. If there is a short as a locomotive crosses into the district, use the other booster harness set connected Red to Blue.

When connecting a booster between two modules in the same power district, connect both harness sets to the adjacent modules Red to Blue. If there is a short a locomotive crosses into the power district, exchange the connection sets between the two modules to which they are connected.

The accessory bus connection between the modules is done normally, connecting between the 2 modules..

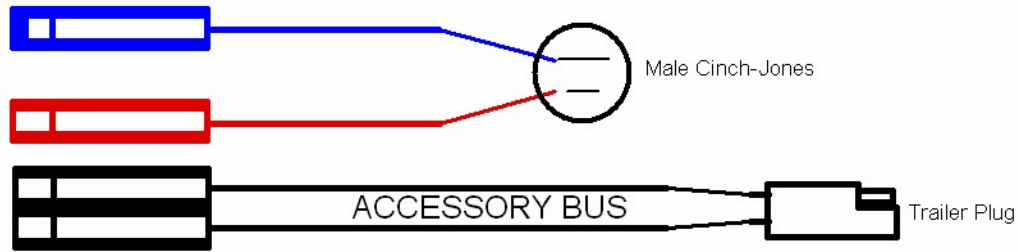
Calgary Free-mo Module Interconnection Standards

4. One Track Bus/Accessory Bus Converter to Cinch-Jones & Trailer Plug

This is the adapter to convert the normal Red/Blue and Black/Black assembly to Free-mo standards. **Track Bus housings will be plugged in Red to Red, Blue to Blue**

Housing Connections:

- a. Blue – to Large Male on 2 pin Male Cinch-Jones
- b. Red – to Small Male on 2 pin Male Cinch-Jones
- c. **a and b** will be assembled vertically, **BLUE OVER RED** with the tabs down
- d. Black – Accessory Bus Wire – to 2-pin Trailer connector
- e. Black – Accessory Bus Wire – to 2-pin Trailer connector
- f. **c and d** will be assembled horizontally



Power Pole Figure 5. One Track Bus/Accessory Bus Power Pole To Free-mo Standard Connectors

5. Specialized connections

There are some special configurations that may need to be made for setups. These will require special housing arrangements or adapters and will be designed by the run chief prior to the setup.

Some examples:

- a. The connection between a booster harness and the accessory bus.
- b. Interconnection between Two Track Bus and One Track Bus modules. Plugging a one track bus module into a two track bus module will only power one bus. A special interconnection will be needed to power both busses from one power district, or the other bus could be powered from a different district on the other side of the module.
- c. 2 boosters connecting to a double bus module for 2 power districts on the module