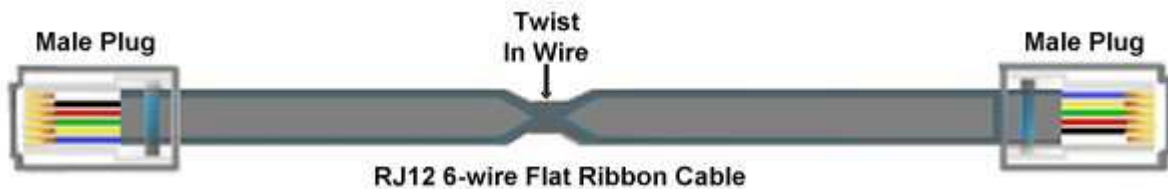


# The Digitrax RJ12 LocoNet Wiring Standard

Somewhere in the instruction manual, it says that "The RJ12 is the 6-pin version of the RJ11 connector with all pins loaded with conductors. This is the connector that Digitrax uses for LocoNet." At which point, your eyes start to glaze over and you go off into a trance.

Now before you go into a coma, let me explain a little bit. You are familiar with your telephone set and the cables and plugs that go into the telephone set. The LocoNet consists of the same type of wires and connectors - used in your telephone system - **with one very important difference**. Your telephone cables may have 2 or 4 small wires covered by that grey, black or white plastic insulation. **The Digitrax LocoNet uses components that use 6 wires**. Here is what this type of cable looks like. It is really not much different from the cable that goes into your telephone set.



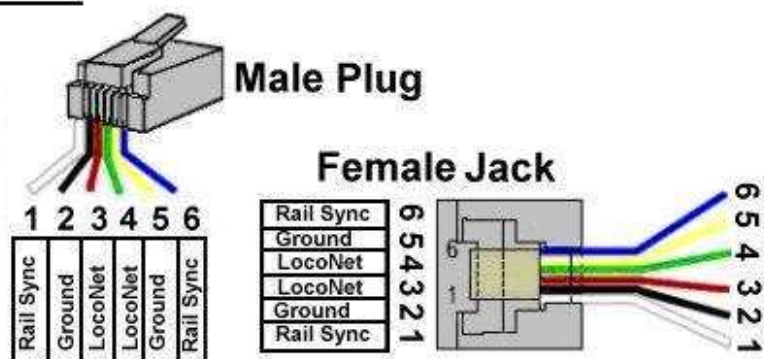
**If you have a Digitrax system, 6 wires are very important. Anything less and it would not work.**

Here are the wiring standards, wire colours, functions, and pin-outs for the Digitrax RJ12 6-wire LocoNet. (If you are using Lenz, Atlas, NCE, or any other systems, check your user manual.)

## Digitrax Wiring Standards

Pin No	Colour	Function
1	White	Rail Sync-B
2	Black	Ground
3	Red	LocoNet
4	Green	LocoNet
5	Yellow	Ground
6	Blue	Rail Sync-A

All components are RJ12 6-wire  
Do not use RJ11 4-wire.



Note the relationship between the Pin Number, the colour of the wire inside the cable and the function. If you look at the front of the male plug, you will see that the White wire (Pin 1) is on the left, and the Blue wire (Pin 6) is on the right side. If you look at the front of the female jack, you will see that the White wire (Pin 1) is on the right and the Blue wire (Pin 6) is on the left side.

When you plug the male plug into the female jack, please make sure that the white wire of the male plug connects to the white wire of the female jack, the black wire connects to the black wire, the red to the red, the green to the green, the yellow to the yellow, the blue to the blue. This is sometimes referred to as "Pin 1 to Pin 1, Pin 2 to Pin 2, Pin 3 to Pin 3, Pin 4 to Pin 4, Pin 5 to Pin 5, Pin 6 to Pin 6" wiring - or "Pin 1 to Pin 1" wiring to keep it short. It will help in troubleshooting if you always make sure that each coloured wire connects to its own colour.

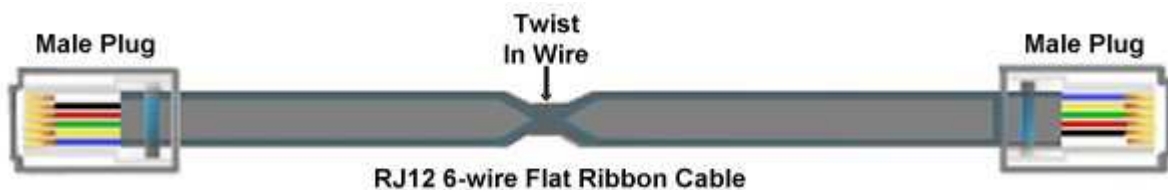
Also note that

- The blue wire has the same function as the white wire - Railsync
- The yellow wire has the same function as the black wire - Ground
- The green wire has the same function as the red wire - LocoNet

So, if you accidentally crimped a male plug onto the end of a cable the wrong way, it would not affect the operation of the LocoNet because the corresponding wires at the other end (blue - white, yellow - black, green - red) both have the same function. (It is not necessary to understand what Railsync, Ground, or LocoNet functions are.)

Note: If you have an Intellibox with Loconet Boosters and use Motorola protocol it is **very important** that the Railsync wires are not incorrectly connected, because the Motorola protocol has an **asymmetrical signal** in contrast to DCC.

So, it is highly recommend that you make sure that Pin 1 is connected to Pin 1, ....., Pin 6 is connected to Pin 6.



Here is that cable we showed you at the top of the page. You will note that, in order to keep the "Pin 1 to Pin 1" orientation, we have to put a twist in the cable. Actually what we do is crimp one of the male plugs with the tab on top of the cable and crimp the other male plug with the tab on the bottom of the cable. In the Digitrax manual you'll find this picture.

