

.: Model Railroad Signal Systems

Free-mo Turnout Module - Installation Instructions

The FTM-1 has been designed to route occupancy bus information through a turnout without the need to have signals to protect the turnout.

Please read these instructions before you begin to ensure the installation is done correctly. Failure to properly connect the board may result in damage to the circuitry. Ensure all power is turned off before you begin the installation.

Handling of the circuit board

Use care when handling the circuit board. Most electronic circuits are sensitive to static electricity and can easily be damaged. Be sure to work in an area where static is not an issue.

STEP 1 – Jumper Settings

The FTM-1 board has two modes of operation.

Mode 1 (jumper in place) is the cascade mode which cascades the signal information through the module. For example, a stop in will generate an approach out and an approach in will produce an advance approach out. Select this mode when the turnout module is used at the end of block or section of track in place of a cascade module.

Mode 2 (jumper removed) is the repeat mode. If a stop signal is present at the input, a stop signal will be generated at the output. This mode is used when the turnout is located in the center of a detected block on the main line.

Jumper 1				
On				- Turnout Module is in Cascade Mode
	Off			- Turnout Module is in Repeat Mode

Table 1

STEP 2 – Mounting the FTM-1 board

Choose an area under your Free-mo module that is suitable for mounting the FTM-1 board. Under or near the turnout is most likely the best place.

STEP 3 – Turnout Contacts

The FTM-1 board relies on a set of contacts connected to the turnout. The contacts can be a part of the turnout motor, or any other circuit that provides a set of closed contacts when the turnout is in the diverted route position. This allows the FTM-1 to divert the occupancy bus information from the approach end of the turnout to the diverted route providing your signals with realistic operation.

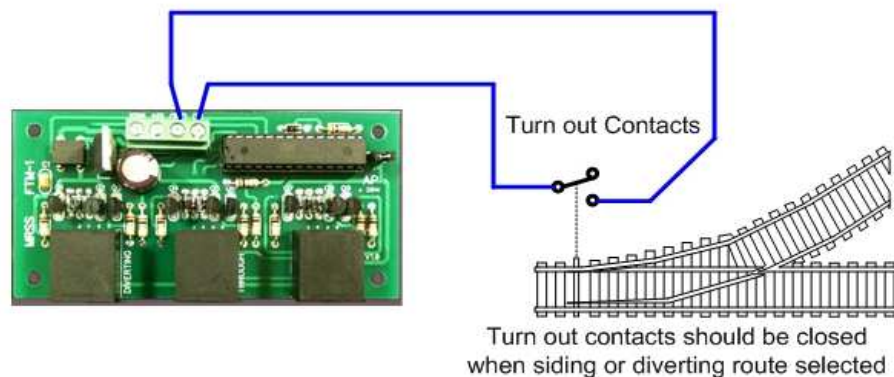


Figure 1

STEP 4 – Occupancy Bus

The RJ45 jacks are used to connect your Free-mo Turnout Module to other boards such as block detectors or cascade modules. This is called the Occupancy Bus. The cable type to be used between modules must be a Cat 5 cross over Ethernet cable. The use of just a strait through cable will not allow your signals to function properly.

If the module next to yours does not have a signal bus, you can extend your cable with a strait through cable as long as there is an odd number of cross over cables between circuit modules. See figure 2 on the next page for more details.

STEP 5 – Power Connections

The FTM-1 Free-mo Turnout Module has been designed to accept several different power supplies.

- A separate AC adapter that can supply between 8 and 18 volts AC or DC.
- Connecting the board to the accessory bus.
- Connecting the board to the DCC bus.
- A 12 volt battery.

Refer to figure 3 on the next page when making power connections.

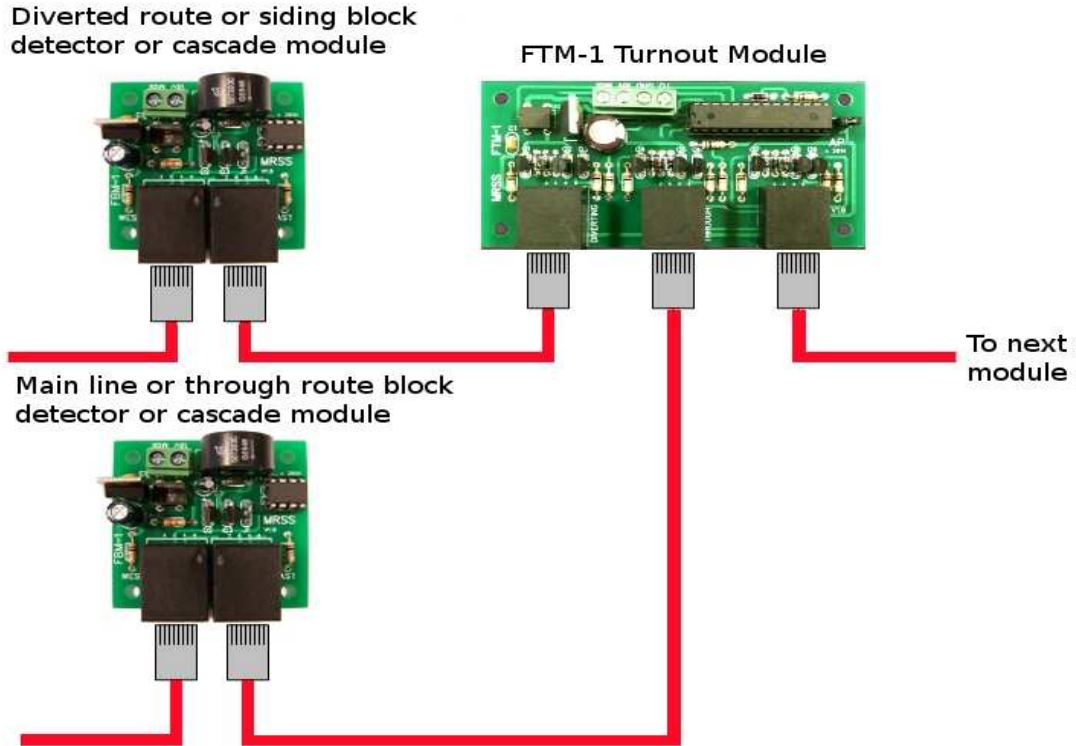


Figure 2
Occupancy Bus

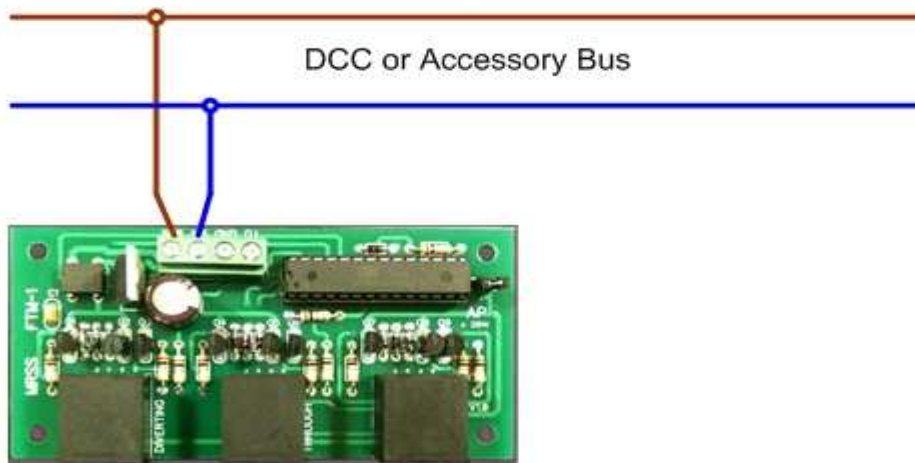


Figure 3
Power Connections

STEP 6 – Applying Power

The last step is to turn on the power and test your module. Double check all your connections prior to applying power. A second look can save you a lot of frustration if connections are made incorrectly.

Disclaimer

All the circuits designed and posted on the Model Railroad Signal Systems website have been designed and created as a hobby. Many hours of research and development have gone into the design of each circuit so that they will operate as described without any problems.

The circuits will work as designed and will not be dangerous to persons or property when used in their intended manner. However, if you choose not to follow the installation instructions as stated above and use the circuits in any other fashion, you may pose a risk to yourself and property.

I am not responsible for any injuries or damages whatsoever that may arise from the use or misuse of these circuits as I have no control over the actions of the user or installer.

Warranty

All the circuits here are inspected and tested before they are shipped. If there is a defect due to manufacturing or programming, I will gladly replace your board for a new one within 90 days of purchase.

Misuse, abuse, or the use of cheap power supply to power these circuits which will cause damage to the board, is not covered by warranty. If you have any doubts about the use of any type of power supply, please contact me before applying power to your board.

Questions or Comments

If you have any questions or comments please send them to me by using the email address on the Model Railroad Signal Systems Website.