Instructions for TF2 Digitrax Dual Function Decoder w/Transponder

DiGiTraX ® Digitrax Command Control

TF2
DCC Dual Function Decoder with Transponder

Two 125mA function outputs for lights or other functions
(Peak rating is 250mA)

Each function output can be operated independently

Supports Both 2 Digit & 4 Digit Address Modes

Programmable from DCC compatible equipment

Configurable Strobe feature lets you simulate flashing lights on locos like
FRED, Strobes, Mars Lights, etc.

Programmable strobe effect & rate of lighting effects

Integrated Digitrax DCC Transponder

Can be used as a stand alone transponder
or added to a unit that already has a non-transponding DCC decoder

Compatible with Digitrax DCC Transponding Systems

Can be used as a function only decoder
with transponding enabled or disabled

Digitrax manuals & instructions are updated periodically.
Please visit www.digitrax.com for the latest version.
These instructions were updated 02/02.

Made in USA

Installation Instructions
For TF2 Dual Function Decoder/Transponder

See your DCC system manual for information about programming decoders, Digitrax manuals are available from your local dealer. If your dealer is out of these manuals they are available in PDF format at www.digitrax.com.

A TF2 should not be connected to an existing transponder equipped DCC decoder unless the DCC decoder's transponder is disabled. This avoids having 2 transponders responding to the same address in the system.

Program the TF2's Address & Function Outputs

1. Before using your TF2, set its address. This may or may not be the same address as a mobile decoder already installed in the loco or car depending on how you are planning to use the TF2. In the case of TF2s being used as a stand alone transponder or as a function decoder, choose an address that is not the same as another mobile decoder address in use on the layout.

2. Connect the RED & BLACK wires of the TF2 to a service mode DCC programmer and program the TF2's address as you would any mobile decoder address. Follow the instructions for programming mobile decoders in your command station manual for the exact steps to use. The TF2 can be programmed with a 2 digit (Ad2/AD01/CV01) or 4 digit address (Ad4/CV17 & CV18). Remember to set CV29 to the appropriate value per your Decoder Manual for 2 digit or 4 digit operation. For 2 digit addressing CV29 is most commonly set to x06/006 decimal*. For 4 digit addressing, CV29 is most commonly set to x26/038 decimal*.

3. Set up which function numbers control the TF2's white and yellow function leads. Program values for CV61 & CV64 per TABLE I.

4. Set up the configurable strobe effect for the TF2's function lead by programming a value between 00 & 07 into CV49 for the white lead and CV50 for the yellow lead. (See Table II).

5. Set up the rate of the effect by programming a value between 00 & 07 into CV62 for the white lead and CV63 for the yellow lead. See TABLE III.

6. When programming is complete, exit programming mode. Test for correct operation of the function after you install the TF2 in the locomotive.

7. Programming a TF2 after it is installed in tandem with a DCC decoder may yield unexpected results because of differences in the way various DCC decoders respond to programming. If you are not able to program your installed TF2, first try a different programming method. If this does not work, remove the TF2 and program it separately on the service mode track, then reinstall it in the loco.

Note: The TF2 does not use Operations Mode Programming.

TA

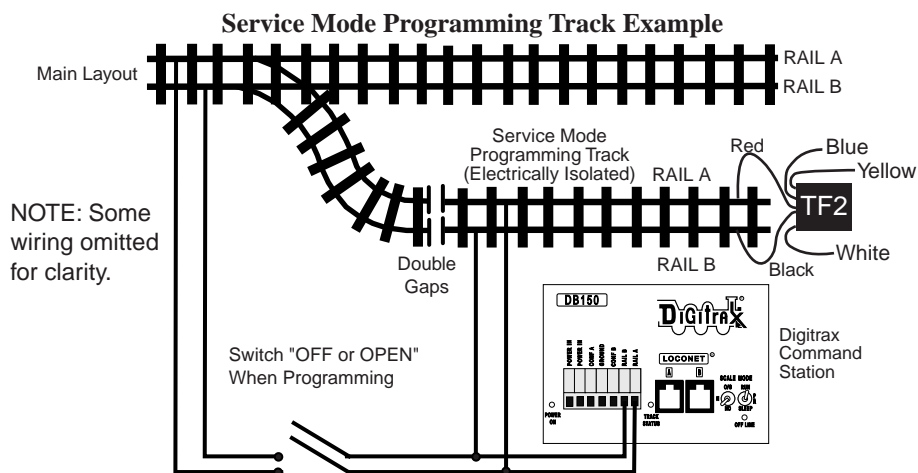| |
|---|
| **TF2s are shipped with the two digit address (CV01) set at 03, CV61 set at 02 and CV64 set at 00 to enable transponding and use F1 for the white lead and F2 for the yellow lead, CV49 & CV50 are set at a value of 00 for on/off function control.** |

Service Mode Programming Track Example

Main Layout

RAIL A
RAIL B

Service Mode
Programming Track
(Electrically Isolated)   RAIL A

Red   Blue
Yellow

TF2

NOTE: Some
wiring omitted
for clarity.

Double
Gaps

RAIL B   Black   White

Switch "OFF or OPEN"
When Programming

DB150   DigiTrax   Digitrax
Command
Station

LOCONET

POWER ON   TRACK STATUS   OFF LINE

TABLE I: Function mapping for TF2's function outputs

CV64 Value	CV61 Value	White Lead	Yellow Lead	TX	
x00/000	x00/000	F1	F2	OFF	
x00/000	x01/001	F0	F1	OFF	
x00/000	*x02/002*	*F1*	*F2*	*ON*	*Factory Default Value*
x00/000	x03/003	F0	F1	ON	
x01/001	x02/002	F3	F4	ON	
x02/002	x02/002	F5	F6	ON	Please refer to your
x03/003	x02/002	F9	F10	ON	Decoder Manual for
x01/001	x00/000	F3	F4	OFF	additional information
x02/002	x00/000	F5	F6	OFF	about CV61 & its uses.
x03/003	x00/000	F9	F10	OFF	

TABLE II: CV49 (White Lead) & CV50 (Yellow Lead)
CV Values for Configurable Strobe Effect Selection

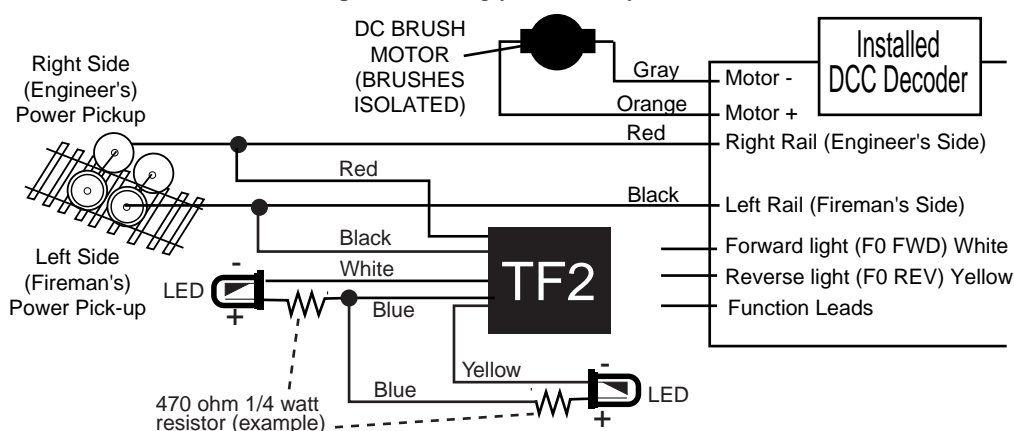| CV Value	Configurable Strobe Effect	
x00/000	*Normal on/off*	*Factory Default Value*
x01/001	Simulated FRED	
x02/002	Simulated Mars	
x03/003	Slow Strobe	
x04/004	Single Pulse	
x05/005	Double Pulse	
x06/006	Medium Pulse	
x07/007	Mostly on blinking off	

TABLE III: CV62 (White Lead) & CV63 (Yellow Lead) Values for Setting Effect Rate

x00/000 (Slowest) to x07/007 (Fastest)

*Some systems use hex notation and others use decimal notation. Here both values are given. The number preceded by the "x" is the hex number and the other number is the decimal value corresponding to the hex number. Simply use the correct notation for the system you are using. CV values shown as 2 digits are the same in hex & decimal.

Install the TF2 in the Loco or Rolling Stock

1. Connect the TF2's RED and BLACK wires to the matching RED and BLACK track feed wires of an installed DCC mobile decoder.

2. If the TF2 is used by itself, for example in a caboose or box car without a DCC mobile decoder installed, connect the TF2's RED wire to the right hand track pickup and the TF2's BLACK wire to the left side track pickup.

3. No other parts are required to set up the transponder current pulses, since this is self-contained in the TF2.

4. Install the lamps using the TF2's blue, white & yellow leads. The example below shows how to install two LEDs. Note that resistors must be installed as shown. Different resistor values can be used depending on how bright you want the LEDs to be. This is limited by the current ratings of the LEDs & the function lead used.

5. Test for correct function operation using your DCC system.

Test the installed TF2 for correct transponder operation

1. Place the unit with the installed TF2 on an empty transponding track section. This test assumes that the transponding track section is already set up, tested and is working before you start TF2 testing.

2. Using a DCC throttle, select the TF2 address that was programmed into the TF2 and verify that the transponder detector identifies the presence of the transponder device. Depending on how you have set up your transponding reporting to the system, your system should detect the presence of the address in that transponding section. For example, if you have an LT5 connected to the same BDL16 Zone plug as the track's Zone, you should show a blinking Zone power light that blinks when the TF2 equipped unit is placed on the empty transponding track section, and is steady when the TF2 is removed. This confirms correct installation and function of the TF2.

3. Another way to check the newly installed TF2's transponder address and location is to use any of the following:
   - a. The Find feature of a DT400 (See the DT400 or Super Chief Manual)
   - b. The transponder display of an attached PC with transponder capable software
   - c. Checking for <D0> type LocoNet messages with a LocoNet monitor program like the LocoMon Application running on a Palm OS PDA.

Damaged decoders should be returned directly to Digitrax for repair.
See www.digitrax.com for repair charges.

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