



# North Raleigh Model Railroad Club

## Digital Command Control

### Summary Throttle Operations Digitrax UT4R and UT4D Radio Throttles

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The UT4 throttles are simpler to use than the DTxxx throttles. It integrates intuitive operation with simple design so everyone can run trains. It features a large knob for speed control and 3 position toggle switch for direction control and braking, either 2- or 4-digit addressing and Control Functions F0-F12.



This throttle is ideal for the Basic and Advanced Consisting to be used on NTRAK layouts. However the UT4 family of throttles cannot operate "switch" functions such as may be needed for turnout control on modules so equipped, turnoff/on layout power or program decoders.

**Throttle Orientation.** The optimum orientation to hold the throttle in normal usage is from horizontal to 30° upward in a natural hand position about 12" out from your body. This gives the best radio coverage. Although there are usually several UR91 and UR92 radio receivers located in and about the layout, occasionally wiring, metal plumbing, HVAC ducting and other items may cause small areas of poor radio reception. **Moving about 6" – 24" in any direction or varying the orientation of the UT4R or UT4D will typically overcome any dropouts.**

**Battery Conservation Mode.** The UT4R and UT4D throttles have an automatic battery conservation mode when not plugged into LocoNet. After about 8 seconds of no action, the normal Status light blink rate, either green or red, of about once per second will slow down to once every 3 seconds to indicate the throttle is conserving battery power. Any user action (knob turned, toggle switch moved or button pushed) will exit this mode automatically and the Status light will return to the faster blink rate.

#### UT4R Simplex Throttle Operating Instructions

Locomotive Selection	Forward/Brake/Reverse	Function Buttons
<ul style="list-style-type: none"> <li>Install 9V battery into the unit.</li> <li>With the UT4R unplugged from LocoNet, dial up the 2- or 4-digit address using the 4 rotary address selectors (use the 2 rightmost selectors for 2-digit addresses).</li> <li>Plug the UT4R into a LocoNet port and Auto selection occurs — a <b>green status light</b> confirms selection.</li> </ul> <p style="text-align: center;">or</p> <ul style="list-style-type: none"> <li>If you are already plugged into LocoNet dial up the address as above.</li> <li>Press the <b>SEL</b> button and look for the <b>green</b> status light confirmation.</li> <li>For radio operations simply unplug the UT4R from LocoNet.</li> </ul>	Changing the Direction switch from Forward (F) to the center Brake position causes the locomotive to stop at the locomotive's programmed deceleration rate. Changing quickly from F to R causes the locomotive to stop at the programmed deceleration rate, then reverse direction and accelerate at the locomotive's programmed acceleration rate.	There are 8 physical buttons assigned for functions F0-F12. The blue F7-F12 function buttons share the same buttons as the F1 through F6 function buttons. To use function F7-F12 you must <b>press and hold down</b> the <b>SHIFT</b> button on the lower left row as you push the F7 through F12 buttons.  The function buttons work exactly like all other Digitrax throttles

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When finished operating a train with the UT4R dispatch the locomotive so another user can use the Command Station memory slot. Do the following:

- Unplug the UT4R from LocoNet
- Press **and hold** the **Dispatch** button
- Plug the UT4R back into a LocoNet port. The **status light** will turn red.

**UT4D Duplex Throttle Operating Instructions**

The UT4D duplex throttle must be joined to a Duplex Group for tetherless operation.

**Joining a Duplex Group for the First Time**

- Insert a known good 9V battery into the UT4D.

- Plug the UT4D into LocoNet on a layout equipped with a UR92 Duplex Radio transceiver to join that layout's Duplex Group. Be sure this is the desired layout on which you wish to operate.
- After the UT4D has joined a Duplex Group, any time a battery is inserted into the UT4D while it is unplugged, it will search for that Duplex Group, and will join the Group if it is within range.
- When the throttle has re-joined the Group, the Status light will blink Green 5 times. The UT4D will attempt to select the locomotive address on the 4 rotary address selectors.
- If the UT4D's Status light blinks red 5 times this means no UR92 with the Group Name is within range. Either move closer to the UR92 to re-join the Duplex Group or plug into LocoNet to join another Duplex Group that is available.

Locomotive Selection	Forward/Brake/Reverse	Function Buttons
<ul style="list-style-type: none"> <li>• Install 9V battery into the unit.</li> <li>• Dial up the 2- or 4-digit address using the 4 rotary address selectors (use the 2 rightmost selectors for 2-digit addresses).</li> <li>• If a Duplex Group has already been joined simply press the <b>SEL</b> button to begin operating the locomotive address, otherwise plug the UT4D into LocoNet and automatic selection of the address will occur. A <b>green status light</b> will blink about once per second to confirm the selection.</li> <li>• If you are already plugged into LocoNet dial up the address as above.</li> <li>• Press the <b>SEL</b> button and look for the <b>green</b> status light confirmation.</li> <li>• If the Status light blinks red this means the locomotive address shown on the address selectors is not selected or is already selected by another throttle.</li> <li>• For radio operations simply unplug the UT4D from LocoNet.</li> </ul>	<p>Changing the Direction switch from Forward (F) to the center Brake position causes the locomotive to stop at the locomotive's programmed deceleration rate. Changing quickly from F to R causes the locomotive to stop at the programmed deceleration rate, then reverse direction and accelerate at the locomotive's programmed acceleration rate.</p>	<p>There are 8 physical buttons assigned for functions F0-F12. The blue F7-F12 function buttons share the same buttons as the F1 through F6 function buttons. To use function F7-F12 you must <b>press and hold down</b> the <b>SHIFT</b> button on the lower left row as you push the F7 through F12 buttons.</p> <p>The function buttons work exactly like all other Digitrax throttles</p>

When finished operating a train with the UT4D dispatch the locomotive so another user can use the Command Station memory slot. Do the following:

- Change the rotary address selectors to a different address. The Status light will change to blinking red showing that the locomotive address is *released*.
- If you wish to Dispatch this address and make it available for selection by another throttle press the **Dispatch** button.

**UT4R and UT4D Throttle Consisting**

The UT4R and UT4D throttles cannot by themselves create a consist of locomotives. They can, however, acquire a consist that has been set up on a DT-type throttle. The address of the top locomotive of the consist should be dispatched from the DT throttle. The UT4 throttle would then dial up the top locomotive address and acquire the consist the same way any address is acquired. The YT4 throttle can then control the consist in the normal manner.

**Programming Decoders**

UT4R or UT4D throttles cannot be used to program decoders..

**Throttle Problems & Maintenance**

If problems with a throttle are encountered during the show check the following items. If these do not solve the problem the throttle should be taken to the on-duty Digital Master or a Programming Station, to be checked out.

**Battery.** Be sure the battery is installed with the correct polarity. Check this especially if the throttle has no response at all when unplugged from LocoNet.

A good battery is key to successful operation in the radio (tetherless) mode. A battery is not needed when the throttle is plugged into LocoNet. Whatever may appear to be wrong with a throttle, the first thing to suspect is the battery. Replace the 9V battery with a new or known good battery. Try two or three batteries before deciding there is a fault with the throttle. Examples of problems caused by weak or dying batteries include:

- The throttle operates correctly when plugged into LocoNet, but you cannot control the train after it is unplugged.
- The throttle loses control of a train after a period of time.
- The throttle makes beeping noises.

Don't assume that a newly purchased battery will always be a good battery. A new battery can have a high internal resistance that prevents it from putting out sufficient voltage and/or current to operate the throttle. Always purchase batteries from a store that sells lots of batteries and therefore always has fresh batteries on hand. Batteries have a "shelf life" as they will deteriorate even if not used.

**Batteries for UT4D Duplex Throttles.** Unlike the UT4R simplex throttle which transmits only when the knob is moved, the toggle switch is moved or a button is pushed, the UT4D duplex throttle transmits and receives continuously. This it drains batteries much faster than the simplex throttle.

It is highly recommended that the user of Digitrax duplex throttles consider purchasing rechargeable batteries with a higher start voltage when fully charged. A recommended battery and charger are the following:

- Powerex Model MHR9v, Part No. MH-96V230 9.6V 230mAh Rechargeable NiMH Battery
- The recommended charger is the Model MH-C490F which charges 4 of these batteries at the same time in 2 hours:

- A kit which contains this charger and 3 of the batteries can be purchased. It is Model MH-C490F396VDC.

More information on the battery and charger is available at <http://www.mahaenergy.com>. The products are available from several online sources and locally at Batteries Plus.

**No Radio Operation.** If the throttle operates correctly when connected to LocoNet but not when untethered, even after ensuring the battery is good, bring the throttle to the on-duty Digital Master or a Programming Station to be checked out.

**RJ12 Plug.** There are 3 potential problems relating to the RJ12 plug on the end of the stubby LocoNet cable:

- The locking tab breaks off,
- The contacts on the plug are bent or otherwise damaged (rare), or
- The wires are not making a good connection with the contacts in the plug.

The solution to any of these problems is to replace the RJ12 plug. The on-duty Digital Master is equipped to replace your damaged RJ connector.

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