



Complete Train Control  
Run Your Trains, Not Your Track!

# UR93E

Duplex Transceiver For Duplex Equipped LocoNet Throttles

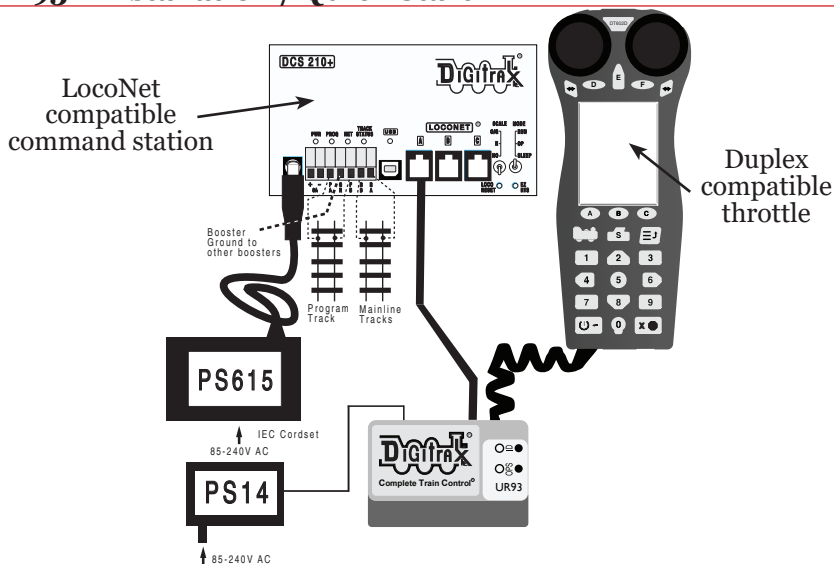
## Features:

- LocoNet makes it easy to add UR93E Duplex Radio support to your layout.
- Provides a Full Duplex radio link to/from the layout with compatible Digitrax Duplex Equipped Throttles.
- CE conforming and Class B RFI.

## Parts List

- |                            |                     |
|----------------------------|---------------------|
| 1 UR93E Duplex Transceiver | 1 2' LocoNet cable  |
| 1 PS14 Power Supply        | 1 Instruction Sheet |

## UR93E Installation / Quick Start



The UR93 is simple to install and begin using on your LocoNet layout.

1. It is recommended the UR93 be placed near the physical center of a layout.
2. Connect the PS14 DC power supply to your UR93 via the DC power jack. Plug the PS14 into an AC wall outlet. The green and red LEDs will blink.
3. Connect the UR93 to your working LocoNet system using one of the RJ12 jacks at the rear of the UR93. The red LED will go on and the GREEN ID LED will blink at about 2-second interval to indicate that it is working.
4. If there are more UR93 or UR92's added to the layout, use a throttle to turn track power OFF and then back ON. This will match Duplex Group Names.

**That's all that's required for installation of your UR93 on LocoNet!**

## **To Join Your Throttle to the layout Duplex Group**

1. Connect a DT602D or other Duplex enabled Throttle, with a known good installed batteries, to a LocoNet RJ12 jack on the layout with one or more working UR93/UR92's.
2. The throttle will initialize, and log on to the network, automatically detect layout Duplex support exists and obtain the Duplex Net/Group Name, Channel and Key number.
3. When this throttle disconnects it will change to Duplex wireless radio operations and perform most tasks as if it were plugged in to the LocoNet system.
4. Use the e.g. DT602D throttle to select one of the locomotives on your system. The UR93's GREEN ID LED will wink OFF about 1 sec to show that good duplex messages are being received. When there is no Duplex traffic the ID will do a short wink OFF very about 2 seconds to indicate it has an active Duplex beacon supporting Duplex throttle with the correct Group Name and settings.
5. If the Duplex RF messages are not acknowledged by the UR93, the e.g. DT602D will blink its white "flashlight" LED to show there is a duplex communication problem. This usually indicates a range or interference issue. (See troubleshooting section.)
6. DT602Ds and other Duplex throttles remember the last joined Duplex Group, even if the batteries are removed, so when re-powered they will automatically wirelessly rejoin this particular Group if it is within Duplex radio range.

*This 'tethered' LocoNet method of joining the UR93 or layout Duplex Group will always work to join any Duplex throttle to a particular Duplex Group. This method bypasses the need to know the Key number if it is not 0000, and active.*

*Alternatively, you can also join in wireless mode! See the DT602 manual for instructions on; joining a Group without plugging in, and changing Duplex settings.*

## **Troubleshooting Your Installation**

To get the best performance out of your initial duplex radio installation, walk around the layout and verify Duplex operation, to check you have adequate signal coverage and reliability.

If the Duplex link has a connection problem, when you e.g. change speed on an active throttle the white LED will flash. Note that throttle orientation and body position of you and your operators may also affect the UR93's range and reception.

Depending on the layout size, geometry and surrounding materials it is often possible to move the UR93(s) to better cover possible dead spots. Experimenting with UR93 location will usually help you locate a position that is best for your layout and allow reliable operations.

On larger layouts, or layouts with problem areas, it is simple to add more than one UR93. Adding extra units will automatically provide space-diversity coverage overlap and signal reliability.

Other devices such as Microwave ovens, 2.4GHz Wifi Cameras and Wifi Routers may cause interference on one or more of the Duplex channels 11 to 25. Try changing channels with the DigiGroup PC app or a throttle.

## Regulatory Information

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FCC: UR93 and UR93E contain FCC Module ID: LV3RF28

Declaration of Conformity: “This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.”

“This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures: Reorient or relocate the receiving antenna. Increase the separation between the equipment and receiver. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected. Consult the dealer or an experienced radio/TV technician for help.”

OEM RF28 Manufacturer/Responsible Party: Digitrax Inc., 2443 transmitter Rd, Panama City, FL 32404, USA. (850) 872 9890. Model: RF28

“Changes or modifications not expressly approved by Digitrax Inc., the party responsible for original RF28 Certification compliance under 47 CFR15.212, could void the user’s authority to operate the equipment”

Canada ISED RSS: Contains Canadian ID module: IC:3015A-RF28

This device complies with Industry Canada’s licence-exempt RSS’s. Operation is subject to the following two conditions: (1) This device may not cause interference; and (2) This device must accept any interference, including interference that may cause undesired operation of the device.”

“Le présent appareil est conforme aux CNR d’Industrie Canada applicables aux appareils radio exempts de licence. L’exploitation est autorisée aux deux conditions suivantes : 1) l’appareil ne doit pas produire de brouillage; 2) l’appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d’en compromettre le fonctionnement.”

RF28 RF Exposure Guidance: “In order to comply with FCC / ISED RF Exposure requirements, this device must be installed to provide at least 20 mm separation from the human body at all times.” “Afin de se conformer aux exigences au moins 20 mm de séparation du corps humain en tout temps.”

CE/ C-Tick/ R-NZ /RCM etc: The UR93E conforms to; CE and Australia/ New Zealand requirements of EN 300 328 V2.2.

## Warranty & Repair

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Digitrax gives a one year “No Worries” Warranty against manufacturing defects and accidental customer damage on all Digitrax command stations, boosters, throttles, decoders, power supplies and layout control devices.

### **That’s it! A simple, straightforward warranty with no tricky language!**

Visit [www.digitrax.com](http://www.digitrax.com) for complete warranty details and instructions for returning items for repair.

**Please return warranty items directly to Digitrax - DO NOT** return items to place of purchase.

Digitrax, Inc. reserves the right to make changes in design and specifications, and/or to make additions or improvements in its products without imposing any obligations upon itself to install these changes, additions or improvements on products previously manufactured.

*Digitrax, Inc. is not responsible for unintentional errors or omissions in this document.*



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