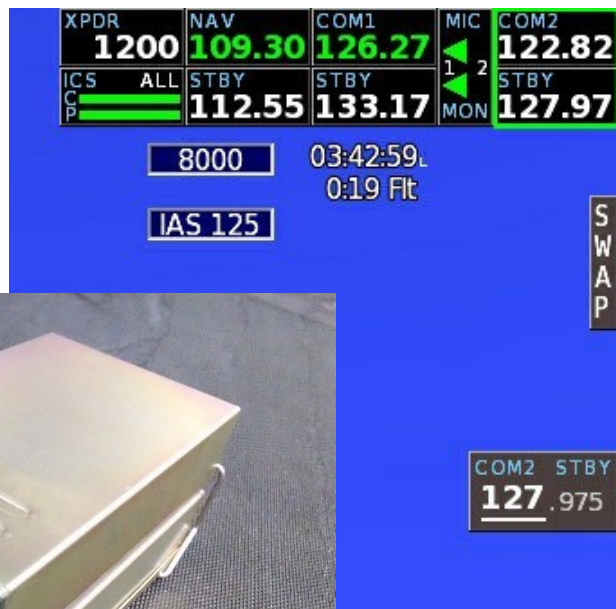




# Trig TY91 VHF Remote Mount Com Radio for Horizon 10.1 and Horizon HXr Equipment Supplement



Revision D

23-Nov-2021

## Trig TY91 Supplement Revision Notes

Revision	Date	Change Description
A	12-Dec-2013	Initial release
B	16-Sep-2021	TY91 Adapter Rev B wiring changes
C	16-Nov-2021	Main power input voltage changed to 5-14V
D	23-Nov-2021	Recommended main input power now from TY91 pin 12

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## Section 1: Introduction

### 1.1 About the Trig TY91

The Trig TY91 com radio is useful to Horizon 10.1 users because it interfaces with the EFIS remotely, eliminating the need for a separate control head on the instrument panel. This supplement is designed to help you connect the radio to the Horizon 10.1 display unit and program it to allow optimal performance of both units.

Download the current TY91 installation manual from the Trig website and follow all instructions thoroughly. This supplement does not cover items such as antenna installation and power requirements for the radio.

The interface between this radio and the Horizon 10.1 allows for:

- Remote mounting, saving space on the panel and providing a clean, integrated design
- Clearly-visible and easy controls through the Horizon 10.1 remote avionics interface and the optional GRT Remote App for Android.

### 1.2 Data Port and Hardware Requirements

#### Adapter Module

The TY91 requires a small RS-232 adapter module to interface remotely with the Horizon 10.1. It allows one display unit to interface with the radio.

TY91-ADPT-SC GRT TY91 Adapter, Single Control

## Section 2: Installation & Wiring

### 2.1 Suggested Connections

For more information on Display Unit pins and connectors, see pin out diagrams in the Appendix of the Horizon 10.1 Installation Manual. See Figures 2-3 and 2-4 of this supplement for radio and adapter wiring diagrams.

#### Horizon 10.1 Display Unit to Trig Adapter - Suggested Connections

Display Unit Pin Number	Display Unit Function	Trig Adapter Pin	Trig Function
Display 1, A2	Serial 1 Out (TX)	Pin 2 CH1-RX	Control interface from Display Unit 1
Display 1, A20	Serial 1 In (RX)	Pin 3 CH1-TX	Trig status communication to Display Unit 1

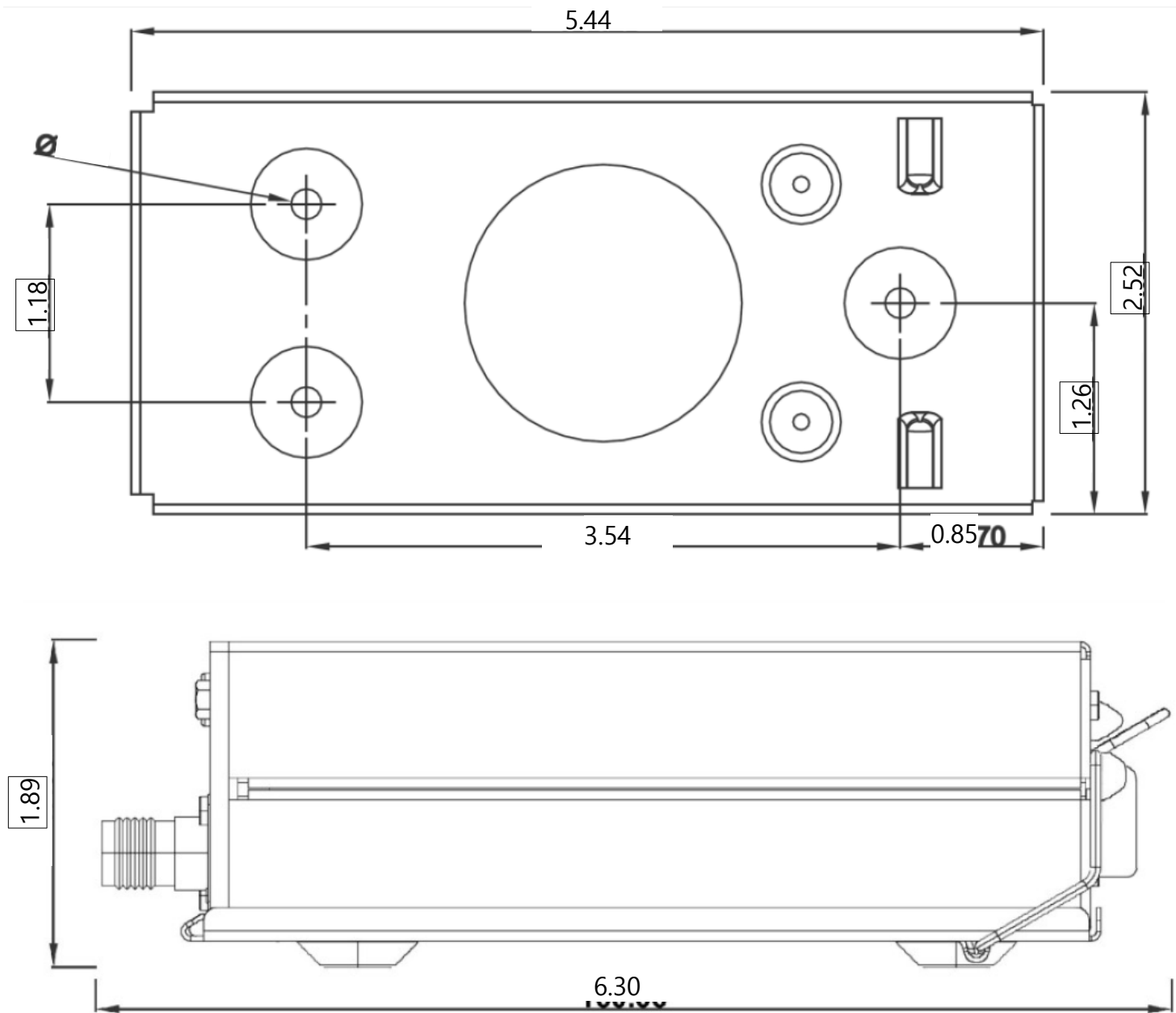
### 2.2 Worksheet: My System

You may use this form to make a record of your own serial port choices.

Display Unit	Display Unit Pin	Display Unit Port	Trig Adapter Pin	Wire Color	Notes
Display 1		Serial_____Out	Pin 2 CH1-RX		
Display 1		Serial_____In	Pin 3 CH1-TX		

### 2.3 Mechanical Installation

Keep the TY91 and its antenna at least 2 feet away from the aircraft magnetometer; otherwise, it may be mounted anywhere that complies with instructions in the TY91 installation manual.

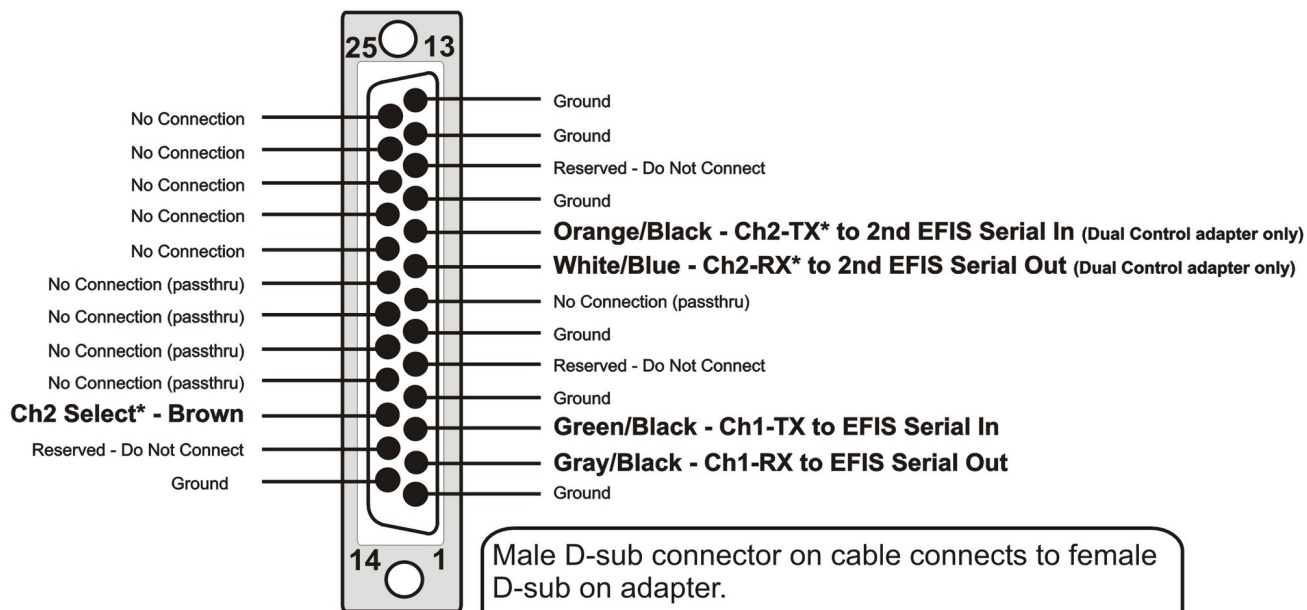
**Figure 2-1**

Note: Dimensions shown in inches.

## Trig TY91 Remote Com Radio Mounting Tray & Overall Dimensions

## TY91 Adapter Rev B Hardware Cable Connections

Unlike original adapter, Rev B adapter genders and pin numbers don't match TY91 and can't plug in directly!



### Rear View of Connector Housings

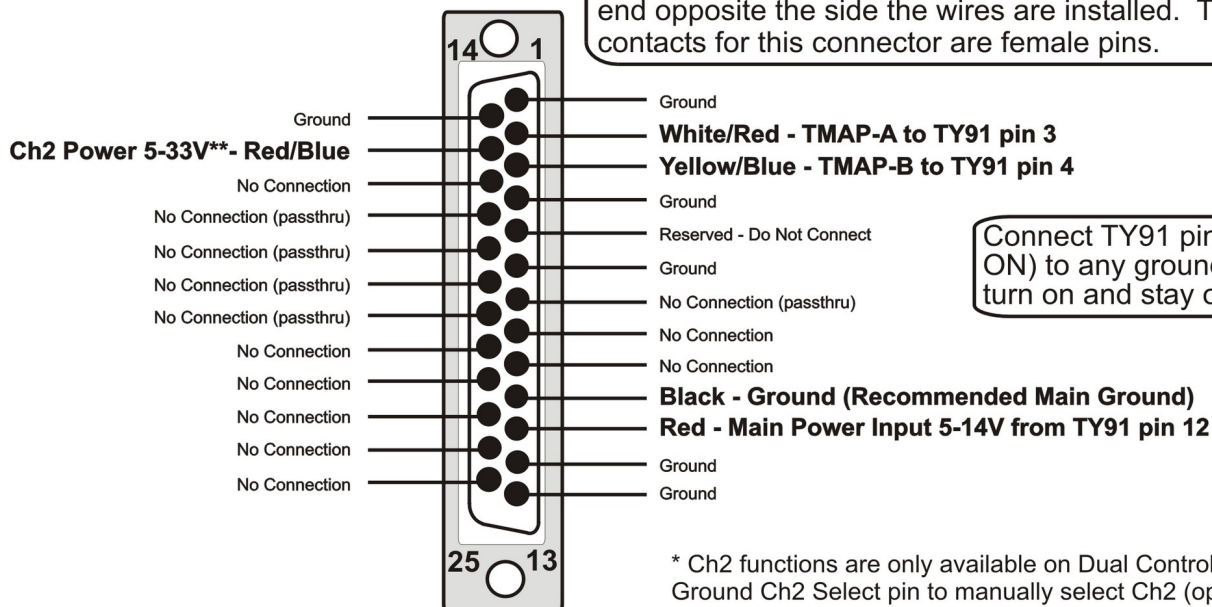
This view shows the side of the connector housing that the wires are inserted into.

Male D-sub connector on cable connects to female D-sub on adapter.

The connector can be identified by its hollow end opposite the side the wires are installed. The contacts for this connector are male pins.

Female D-sub connector on cable connects to male D-sub on adapter.

The connector can be identified by its plastic filled end opposite the side the wires are installed. The contacts for this connector are female pins.



Connect TY91 pin 13 (Power ON) to any ground. It won't turn on and stay on without it.

\* Ch2 functions are only available on Dual Control (DC) adapter. Ground Ch2 Select pin to manually select Ch2 (optional). Ch2 pins have no function on Single Control (SC) adapter.

\*\* Power pin 15 is only required by Dual Control adapter.

Only one ground is required. See pin 10.

## Section 3: Setup & Programming

### 3.1 Display Unit & Radio Setup

1. After the display unit and radio are installed and wired, use the following procedure to program the display unit to communicate with the TY91.
2. From the home screen, press the MORE soft key, then the SET MENU soft key. Turn the lower right knob to place the cursor bar over General Setup, then press the knob to select it and go to the General Setup menu.
3. Turn the lower right knob to highlight the Settings of the serial port that you wired to the radio. Enter the Values shown below to program the EFIS for the radio.

Set Menu Page	Setting	Value
General Setup	Serial Port_Rate	9600
General Setup	Serial Port_Input	Trig Com-1 (or Trig Com-2)
General Setup	Serial Port_Output	Trig Com-1 (or Trig Com-2)



## 3.2 Post-Installation Checkout

When you set serial ports up as "TRIG COM 1" or "TRIG COM 2", a menu for each radio will appear on the Display Unit Maintenance menu screen. From this page, you can verify device communication, check software versions, and control various options.

Setting/Item	Notes & Values
DU-Adapter Communication	Indicates communication between the Horizon 10.1 display and the GRT Trig COM adapter
Adapter-Trig Communication	Indicates communication between the GRT Trig Com adapter and the radio
Remote Status	Displays unacknowledged warnings from the radio unit.
Intercom Volume	Sets volume for the built-in intercom
Intercom Squelch	Sets squelch level for built-in intercom
Aux In Muting	Set to ON to mute the Aux input (music, etc) while transmitting and receiving
Aux In Volume	Sets volume for Aux input
Side tone Volume	Sets volume for feedback of transmitted audio
Receiver Squelch Offset	Adjusts automatic squelch point if factory setting is too sensitive. See TY91 manual for more information.
Trig Com Versions	Displays the hardware and software versions of the radio unit
Adapter Software Version	Displays software version reported by GRT Trig Com Adapter
Load Adapter Software	Updates software in GRT Trig Com Adapter

## Verify Device Communications

Check *DU-Adapter Communication* and *Trig Communication* at the top of the TRIG-COM page to see if data is flowing between the display unit, adapter and the TY91. If they are not wired properly, the words "No Communication" will display.

The *Trig Com* and *Adapter Software Version* fields display the version of the software in both the radio and the adapter.

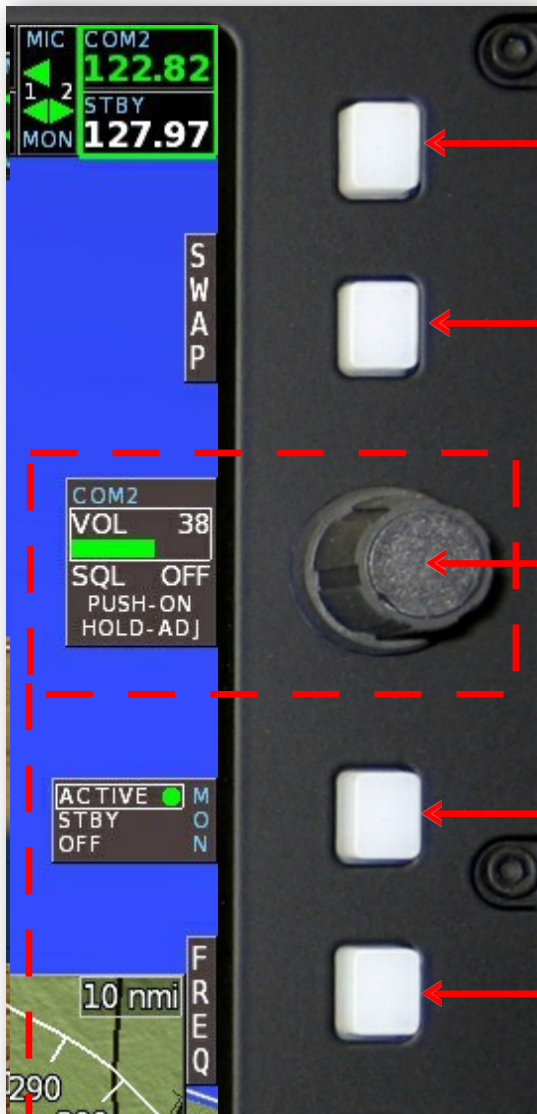
## Update Adapter Software

Software comes pre-installed in the Trig Adapter. Like the Display Unit and AHRS, periodic updates of this software may be necessary. Load software to the adapter in the same way that you update software on the Display Unit. If new software is available, it will be available for free download from the GRT Avionics website. To update software:

1. Click the link and save the new software file(s) onto a USB memory stick. Do not rename the files when you save them.
2. With the display unit powered OFF, plug the memory stick into a USB port in the display unit that the TY91 is wired to.
3. Turn ON the display unit and access the Set Menu page, followed by the TY91 setup menu.
4. Select Load Adapter Software and press the knob. The EFIS may prompt you to select the file from a list of files and folders on the USB stick. Select the file and answer YES, you are sure you want to update the adapter software. The software will load onto the Trig adapter automatically from there. The system will reboot itself after loading the new software.
5. Once the system reboots, you may remove the USB memory stick from the display unit.

## Section 4: Using the Remote Trig TY91

In this example, COM 2 is selected and the Volume controls are active.



**SELECT:** Press to toggle through remote devices and select desired Com or Nav radio.

**SWAP:** Press to swap Standby frequency in highlighted radio to Active.

**VOL/SQUELCH:** Turn Upper Knob to adjust volume. Push to toggle squelch ON or OFF. Press and hold to activate squelch adjustment, then release and turn to adjust.

**MONITOR:** Press to monitor Active or Standby frequency. NOTE: OFF is not an option for the Active Transmitting radio because its audio is always monitored.

**FREQ/VOL Toggle Softkey:** Press to activate Frequency controls. When Frequency controls are active, this softkey changes to VOL.

### To Enter a Frequency:

1. Press FREQ softkey if necessary.
2. Turn Upper Knob to change underlined digits in knob box and Standby box in Avionics Inset. Push knob to shift between MHz and KHz.
3. Press SWAP softkey to make Standby frequency active.

