

# PACIFICON<sup>SM</sup> 2024

ARRL Pacific Division Ham Radio Convention  
Produced by the Mount Diablo Amateur Radio Club



## Remote Operation of Your Ham Radio Station

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These slides, and more, are at my website [k6ufo.com](http://k6ufo.com)

K3/0 RemoteRig



FlexRadio Systems<sup>®</sup>  
Software Defined Radios

Maestro<sup>™</sup>

Win PC runs digitals

FlexRadio Systems **MAESTRO** è la nuova console di controllo per i ricetrasmittitori della serie 8000 che permette l'uso immediato dell'apparato senza bisogno del PC, tramite connessione alla rete LAN anche WiFi, oppure direttamente all'apparato.

## ***Today's Schedule:***

- 11:00 – 11:05 Get seated, late-comers, early questions.
- 11:05 – 11:20 K6UFO on basic needs, and common approaches.
- 11:20 – 11:40 AK7MG demonstration of RemoteTX.net
- 11:40 – 11:50 Q & A

Using **other people's stations** is a good learning experience, and a backup.

Receive-only sites: [websdr.org](http://websdr.org) [rx.kiwisdr.com](http://rx.kiwisdr.com) [rx-tx.info](http://rx-tx.info)

Receive AND Transmit (You will have to register, and pay \$0 to \$\$\$.):

[RemoteHams.com](http://RemoteHams.com) has many shared stations and club stations globally.

[RemoteHamRadio.com](http://RemoteHamRadio.com) has very good stations, free to “youth”, \$99/yr + airtime.

Remote operators need to be properly licensed for the location of the transmitter. Always follow the rules of the regulatory authority. Must use callsign correct for the transmitter location. Transmitter location is the location for purposes of LoTW, contest operation, and award chasing.

## **To setup your own station for remote use requires choices.**

- > Station used at home AND remotely, or dedicated to remote?  
Do you need a human operator position at station?
- > How much re-configuration to go from local to remote use?  
Will you re-configure every day before leaving to work?
- > Is the station easily accessible (in the garage), or is it a trip to the hills?
- > How much equipment will you haul around with you? Just a smartphone or tablet? Laptop (adds a keyboard)? Or extra control head? Paddles?
- > Modes: Voice, Digital, CW? CW by keyboard only, or key and paddle?
- > Will you keep a PC on-line at the remote station (useful),  
or does everything have to be extended across the internet (harder)?

### **Basic Needs for remote operation:**

1. Audio In/Out of radio, and across the internet to the operator.
2. Radio control (Band, Freq, Mode, Filters, all the buttons and knobs.)
3. Station Control (AC power, antenna switch, rotators, tuners, amp, ...)
4. “Good” Internet service (Low delay, low variation, reliable.)  
Wired (cable, fiber, DSL)=good. WiFi, Cellular Data, StarLink = ok.



VE3VEE

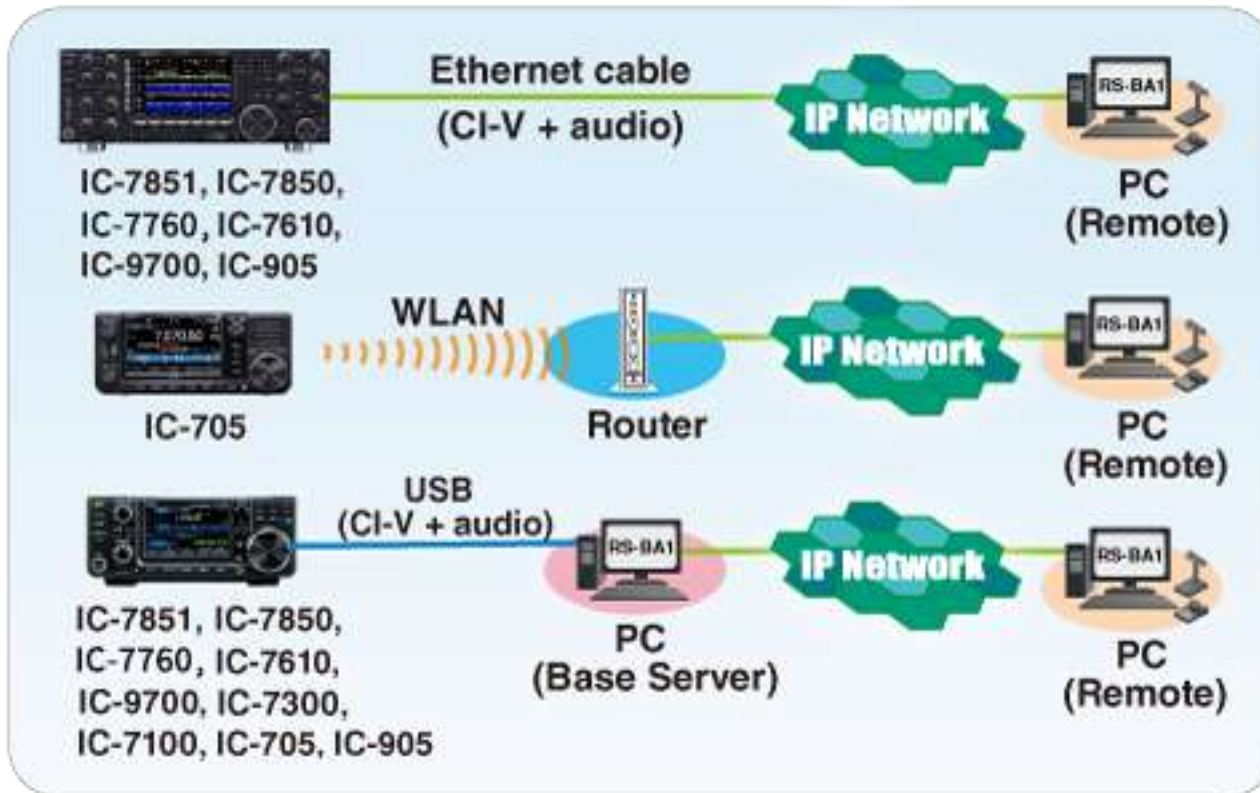


# Some common splits: (Stuff at transmitter vs. stuff at operator.)

Example: ICOM RS-BA-1 IP Remote Control software. \$160.

Also need antenna, tuner, amp on this side.

...and power supplies, internet modem and router, ...



This “PC” could just be a Phone or Tablet, plus headphones.

But there’s no tuning knob or CW key!

You will want the “PC(Base Server)” to also control the AC power, rotator, and other station items. Can run software there, too (WSJT, CW keying, logging, ...) If you run “remote desktop” software like AnyDesk, the two PCs are easy to manage. If you run a VPN, all the equipment can be on one local network.

# Remote with Knobs and Buttons! Microbit RemoteRig



[www.remoterig.com](http://www.remoterig.com)

Use a pair of RemoteRig “modems” to send audio and control signals across internet. These have been a “gold standard” for years with Elecraft K3 radios. Hard to find. Hard to configure.



Elecraft is designing their K4 radio to control another K4 remotely. And planning a control head, a “K4/0,” to control a remote K4. Visit their booth...

# Remote with Knobs and Buttons! FlexRadio “Maestro”

All FlexRadios are controlled from a software program (SmartSDR) locally or remotely. “Maestro” control panel can also be used locally or remotely. (WiFi or wired) There are also tablet and smartphone apps. Visit their booth...



The image shows three pieces of equipment: a black FlexRadio MAESTRO control panel with a color display and various knobs and buttons; a black FlexRadio radio unit with a small antenna on top; and a laptop displaying the SmartSDR software interface. The background is a light blue gradient with the FlexRadio Systems logo at the top.

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Software Defined Radio

**Maestro™**

**Win PC runs digitals**

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FlexRadio Systems **MAESTRO** è un moderno e funzionale pannello radio dotato di schermo touch, pulsanti e manopole, connessioni per microfono e tasto/paddle con il quale usare l'apparato senza rinunciare alla operatività tradizionale di una qualsiasi apparecchiatura radio, oltre che a permetterne la remotizzazione in qualsiasi punto coperto dalla vostra rete LAN.

## *Summary: ... how to build a remote station:*

Use other people's stations as a learning experience.

Start simple, gain experience, then expand or change.

Different solutions have different advantages/problems.

Do not select a remote site without Low Delay and Reliable internet service!

Consider a remote desktop or VPN to use your home station from elsewhere.

The real problems are control of “everything else”: AC power outlets, antenna switching, rotators, tuners, ...

Remember the goal: get a transmitter on the air, for more hours of operating.

Not to learn to program or solve network problems...

Other resources: YouTube videos by:

VE6WZ - “The control setup at VE6WZ”

FlexRadioSystems VA3MW - Setting up my First HF Remote Station

- How To Build A HF Remote Station with Mike VA3MW

**Now, a demo! Thanks to Marcus, AK7MG of RemoteTX.net**

Since 2018, Marcus has been developing an easy, affordable, and expandable remote control system for popular radios.