



# WA6TOW Repeater Plans Feb 2025

- .Current status
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# Current Status



- Yaesu DR-2X repeater
  - Serving 146.925 MHz
  - Capable of doing two channels e.g.
    - Not full duplex
      - VHF and UHF cannot transmit at the same time
  - Battery backup always on
    - Transmit limited to 25W
      - Need A/C power to transmit at 50W
    - Unplugged from wall socket
  - Control via Radio DTMF and on-device control panel



# Motorola Radio

- All of the following is to accommodate the Motorola XPR 8400 radio
  - Far more complex requirements than Yaesu DR-2X
- Alternative
  - Use another Yaesu DR-2X for UHF operation
  - No hardware needed - only cabling



# SCOM 7330 Repeater Controller

- Part of the original replacement repeater
  - RS232-based interface
    - Could not communicate with it
  - Discontinued part
    - No replacement
  - Need something to talk via RS232





# OpenRepeater

- Open Source Repeater Controller System
  - Based on Raspberry Pi 4
  - Debian OS, running web server
  - <https://openrepeater.com/>
  - Repeaters controlled via HTTPS/SSH





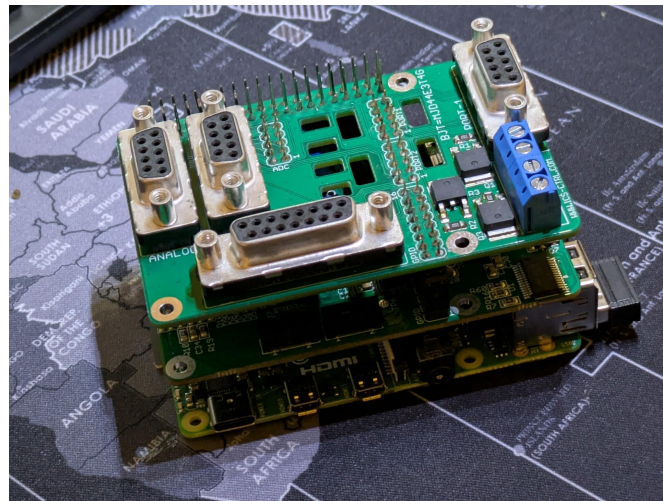
# Repeater Control Options

- HTTPS/SSH via Inseego ATT Cellular Modem
  - Service is \$300 per year
  - Encrypted comms OK as not via ham frequencies
  - Need cert for OpenRepeater local web site
- VHF/UHF Control Radio
  - DTMF
  - RTTY
  - Requires extra antenna
  - No encryption
- SSH via Ethernet
  - Need to be at repeater site
- Anything else?
- Which one?
  - Why not both?



# ICS Controllers Pi-Repeater-2x

- Pi-Repeater-2x
  - A Raspberry Pi HAT
    - Attaches to GPIO Pins
    - Controlled by OpenRepeater OS
  - Controls two radios
  - <https://ics-ctrl.com/pi-repeater/>
  - Cost: \$200





# Target Repeater Configuration

- Controller
  - Raspberry Pi 4 running OpenRepeater
    - ICS Controllers Pi-Repeater-2x
- VHF
  - Motorola XPR 8400
- UHF
  - Yaesu DR-2X running System Fusion
- Control?
  - SSH/HTTPS via Cellular modem
  - DTMF via Control Radio
  - RTTY via Control Radio
  - SSH via Ethernet
  - Anything else?





# System Fusion

- Yaesu specific technology
- Provides
  - Voice
  - Data
  - Pictures
  - Location