

# W2PH Universal Antenna Switch (UAS) Installation Instructions (7/1/2020)

## Overview

The UAS is designed to interface most of the following manufacturer's HF transceivers with up to four antennas. It can be connected directly to the transceiver with the appropriate cable supplied by us with your UAS. Connections are made through a plug in barrier strip that provides jumpers as needed to match the UAS to various transceivers. The UAS is then programmed via three buttons using a backlit LCD display. Values are then stored in EEPROM and will be remembered at each power up. Turning off the +12VDC to the UAS automatically grounds all 4 antenna ports. The UAS is rated at 1500 watts continuous and so may be installed with an amplifier.

## Connections

The UAS requires 12VDC at current less than 200ma. The 12VDC is provided via a power jack. The appropriate plug is provided and 12V needs to be on the center pin (red wire). A 6 pin Din cable 6 feet long comes pre-wired and is used to connect the antenna switch box to the UAS controller. A six foot extension cable is available if needed. Individual cables are available for various rigs from ICOM, Kenwood, Flex, Elecraft and Yaesu. Be sure to check the latest model compatibility list on our website (W2PH.COM). The UAS has one antenna input and 4 possible outputs. Up to four antennas can be supported, or three plus a dummy load. With the dummy load configuration, any band from 630-6 meters can be programmed to go to the dummy load, thus protecting your amplifier should transmission be attempted on a band for which there is no antenna. A ground lug is provided on the switch box as well.

## Programming

W2PH, Inc. offers free programming of the UAS at time of purchase. However it is very easy to program or reconfigure in real time for special events. There is a four line LCD that provides guidance with three active push buttons to both program and monitor the UAS. A 4<sup>th</sup> red push button applies power to the UAS.

### **Mode Button**

This button selects the appropriate menu for viewing status and for programming each band from 630-6m.

### **Step Button**

The Step Button steps through the various choices within each menu. Some choices rotate through a list, some choices are simple on/off function.

### **Save Button**

The Save button stores whatever choices were made using the Step button into an EEPROM.

## Menu Screens (In Order)

**Operating Screen:** Shows the Frequency, Antenna and Software Version

**Current Settings Screen:** Shows Radio Type, Baud Rate, Hex Code and Polling Status

**Mfr Screen:** Allows selection of the radio manufacturer

**Hex Address:** This is for ICOM radios only. This is the CIV address of the Radio

**Polling Screen:** Chooses whether the ABS needs to poll the radio or not

**Baud Rate Screen:** Sets the Baudrate for communications (2400-38400)

**630m Antenna:** Select which Antenna to use on this band (0-4) 0 = No antenna

**160m Antenna:** Select which Antenna to use on this band (0-4) 0 = No antenna

**80m Antenna:** Select which Antenna to use on this band (0-4) 0 = No antenna

**60m Antenna:** Select which Antenna to use on this band (0-4) 0 = No antenna

**40m Antenna:** Select which Antenna to use on this band (0-4) 0 = No antenna

**30m Antenna:** Select which Antenna to use on this band (0-4) 0 = No antenna

**20m Antenna:** Select which Antenna to use on this band (0-4) 0 = No antenna

**17m Antenna:** Select which Antenna to use on this band (0-4) 0 = No antenna

**15m Antenna:** Select which Antenna to use on this band (0-4) 0 = No antenna

**12m Antenna:** Select which Antenna to use on this band (0-4) 0 = No antenna

**10m Antenna:** Select which Antenna to use on this band (0-4) 0 = No antenna

**6m Antenna:** Select which Antenna to use on this band (0-4) 0 = No antenna

## Procedure

Programming the UAS should be done only after completing the programming sheet attached to these instructions. You will need to choose a radio manufacturer. Please note that there are two types for Yaesu identified by the type of CAT connector on the radio). Next comes the Hex Address screen. This only applies to ICOM radios. The ICOM CIV Hex address for your radio is taken from the setup menus in the radio or the manual. For ICOM radios, the UAS can either let the radio send frequency data whenever it changes frequency by setting the "CIV transceiver" function ON in the radio or use its own polling to accomplish this. We recommend letting the UAS do the polling with the ICOM "Transceive" function turned off. If the radio is set to transceiver in the CIV menus, leave polling on the UAS to 0 (Off). There are many configurations possible with logging software, amplifier band control, etc. Logging software can create the polling of the radio in which case we can get frequency info from the radio as it is polled by the logging software. This is not recommended as the UAS will not get frequency info if the user has the logging software turned off. The UAS polls only once per second, when polling is turned on (= 1) so the chance for CAT conflicts is minimal. The hex addresses are only used for ICOM. Polling may be used with all manufacturer radios.

### Step 1:

Connect the cable purchased with the UAS for your particular radio. Supply 12VDC via the supplied power plug. If you can provide switched 12VDC that comes on and off with the radio, this is helpful as it will ground all antenna ports when the radio is turned off. The red power switch can be turned off in lieu of rig switched power.

**Step 2:**

Connect the 6 pin din cable from the antenna box to the UAS Controller.

**Step 3:**

A ground is recommended on the antenna box.

**Step 4:**

Connect the Radio antenna cable or the output of your amplifier to the center UHF jack on the antenna box.

**Step 5:**

Connect your antennas and a dummy load (if using fewer than 4 antennas) to ports Ant1-4 on the antenna box. Make note of which antennas are connected to which ports for the programming instructions that will follow

**Step 6:**

Follow the programming sheet you should have previously completed. It tracks the Menu functions in order. If you have had your UAS programmed at the factory, you can step through the menus by quickly touching the Mode button once for each item. You can hold the Mode button down to scroll through them rapidly. After 30 seconds of no button pushes, the UAS reverts back to the Operating Screen.

**Things to Watch**

There are many ways a transceiver can communicate frequency information to accessories like logging software, amplifiers, etc. As mentioned earlier, ICOM and Flex have more options available for communicating with accessories like the UAS. Using the polling function of the radio and turning off (0) the UAS polling function works well when the ICOM is set to "Transceive" (Auto Report = Enabled in the Flex). You need to be sure that it works with any logging software turned off. If the frequency display on the Status Screen does not change when you move the radio frequency dial, you need to turn on the polling feature (1) on the Polling Screen and save it. This assures that you should never lose synch between the radio and your antennas. A Blue LED should flash once each second if the UAS is doing the polling indicating a successful frequency download. If the UAS is set to NOT poll, the blue led will flash whenever the radio changes frequency. The blue LED is visible through the clear portions of the display.

**Tech Support**

Tech support is available by calling 321-574-6522 or via email at [ed@w2ph.com](mailto:ed@w2ph.com). We do not provide support for virtual serial port software as it is very complex and should only be used by those with a thorough understanding of serial port technology.