ATCK
(Automatic Tunet Controller with Knobs)

Table of Contents

What is it

ATCK is an automatic tuner controller that automates the tuning process when using an external mast automatic tuner.
It also provides programmable knobs to control some of the transceiver's parameters.

Automatic Tuner Controller

As an automatic tuner controller, it takes all necessary steps needed to initiate a tuning, like changing the modulation to AM, change the power level to 10 Wats etc.
It checks the reported SWR and restores the transceiver settings to what they were before the tuning started.
It has a variable time of tuning depending on the antenna, the band, if the tuner has previously tuned on a specific frequency etc.
The target SWR level for a tuned antenna is <2:1

Programmable Knobs

The device also has 4 knobs (rotary encoders) that can control 4 of the transceiver's parameters.
The following parameters are available for assigning to each knob:

- Squelch
- Memory channel
- Notch filter (Narrow/Wide)
- Contour width
- Contour level
- Power Level
- Frequency (variable step) *

I will add additional parameters available for each button in a future version

*The step of frequency change is controlled in the systems menu. More on that below.

Installation of ATCK

Prerequisites

In order for ATCK to work properly the following should be set:

- RS232C rate on the transceiver should be set to 38400 bps
- Tuner Select on the transceiver should be set to “INT”
- The antenna using the external automatic tuner needs to be connected to the ANT 1 output of the transceiver.
- The RS232 of the transceiver should not be used by another device.

Connections

The following connections need to be done between ATCK and the transceiver:

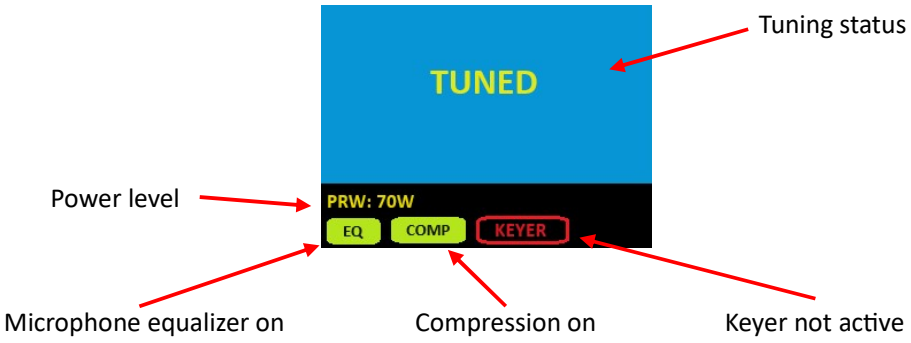
- Connect your microphone to the U1 jack of ATCK
- Connect the Microphone jack of the transceiver with the U2 jack of ATCK
- Connect power to ATCK. Uses 9 to 15 Volts DC. (U3 on the schematic)
- Connect the TX-GND jack of the transceiver to the U6 jack on ATCK
- Connection the RS232 port of the transceiver to the U7 jack on ATCK

The U1 to U7 jacks are described in the ATCK schematic.

User Interface

ATCK has a simple user interface consisting of a Tune button (SW2), four rotary encoders (KN1 to KN4) and a TFT display (TFT1)

The display provides various information as shown in the sketch bellow:



Operation

Tuning

The tuning process is initiated with one of the following ways:

- by momentarily pressing the microphone's PTT
- by momentarily pressing the MOX button on the transceiver
- by briefly pressing the Tune button on the ATCK device.

The first two actions will start the tuning process only if we are in a non-tuned frequency, while the third action will force a tune process anyway.

The tuning time is variable depending on the antenna, the band, if the tuner has beem previously tuned on a specific frequency etc.
The target SWR level for a tuned antenna is <2:1

When the antenna is tuned, ATCK will display a "TUNED" message and will briefly report the level of SWR achieved, as it is reported by the transceiver.

If a tuning is not achieved after 7 seconds, the ATCK will display a «Tune Failed» message.

Assign a parameter to a knob and change its value.

To assign a parameter to a knob, proceed as follows:

- Press the knob that you need to assign a parameter to.
- Turn the knob to select the parameter that you want.
- Press the knob again.

ATCK will exit the menu and when you turn the concerned knob you will see that the value of the assigned parameter is changing.

There is an option to save the different knob assignments to ATCK's memory so that they are set every time that you start the device. See the system menu paragraph below.

The system menu

ATCK has a system menu that allows some parameters to be adjusted.

To access the System menu, you need to keep the Tune button pressed for more than 1 second. When you do that, the system menu appears on the display.

In the system menu you can do the following:

- Set the frequency step to be used when changing the frequency using the knobs on the ATCK device
- Can optionally select a specific roofing filter to be applied after a tuning. Otherwise, the filter stays as it was before the tuning
- Select between some predefined values for the output power.
- Save the current configuration
  Save the device configuration that will be used every time the device starts. The setting that are stored are:
  - The parameters that are assigned to each of the knobs
  - The frequency step that we use
  - The roofing filter that is applied after each tunning (if we have selected one)

In order to make a selection when you are in the system menu, you need to turn and press the KN1 knob. It is the only knob that can navigate the system menu.