Detailed Description of the Click2Tune Dongle for YAESU FT-817, 857 & 897 Radios

Generates Tuning Carrier with PTT double-click

Ideal for Mobile and Portable Operators

- eliminates multiple button presses
- provides full or ¼ power carrier
- plugs directly into CAT socket
- extremely small and lightweight
- very low power consumption (µA)
- radiates no spurious or noise

The Click2Tune dongle is designed to aid ATU and Auto-ATU adjustment when using supressed carrier modes such as SSB.

It contains a sophisticated low power microcontroller that communicates with the radio using a data rate of 9600 baud. To ensure correct operation, the radio's CAT rate must also be set to 9600 baud and FT-857 and FT-897 users must also correctly configure their radio's CAT socket by setting menu #085 to 'OFF', and menu #020 to 'CAT'.

The Click2Tune Dongle monitors the radios press to talk (PTT) line. When an unusually short press of less than 200ms is detected, it changes the radio's operating mode so that the following PTT press will generate a carrier suitable for ATU or Auto-ATU tuning. The radio's original operating mode is restored if no PTT press is detected within the next 200ms, or when the tuning carrier is no longer required i.e. when the PTT is released. This sounds rather complex but the practical effect is that a tuning carrier can be generated by a simple double-

click of the PTT i.e. a quick press and release followed by a press of the required tuning duration. Normal PTT operation is not affected as all 'normal' transmissions last more than 200ms.

The mode used by the Click2Tune Dongle to generate a tuning carrier can be set by the user. The two most useful modes are PKT which generates a full power carrier, and AM which generates a ¼ power carrier. PKT is the default setting. If AM (¼ power carrier) is selected, any unintentional modulation during tuning can be eliminated by setting the AM MIC gain to zero in the radios setup menu. This will not affect the MIC gain of other modes.

The Click2Tune Dongle can also be set to ignore a PTT double-click if a mode other than USB or LSB is in use. This is the default setting.

The Click2Tune Dongle only uses the official, rather restricted, CAT command set documented by YAESU. Unofficial CAT commands, such as those used to adjust the radio's output power have been avoided, as it is reasonable to assume that YAESU have good reason not to encourage their use.
Because battery drain is important to portable operators, the Click2Tune Dongle employs a low power microcontroller that is only powered up when needed – so power consumption negligible. What's more, unlike other devices that are powered from the radio's CAT socket, the Click2Tune Dongle draws absolutely no current from the radio's internal battery when the radio is turned off.

The operating mode used to generate a tuning carrier, can be set by plugging the Click2Tune Dongle into the radio whilst its PTT is pressed, and it is transmitting into a suitable antenna or load. This procedure sets the Click2Tune Dongle to use the mode currently being transmitted to generate future tuning carriers. Supressed carrier modes should be avoided as these will not result in the generation of a tuning carrier. The default setting is PKT.

The above procedure also sets the Click2Tune Dongle to ignore certain PTT double-clicks, depending on the last two digits of the selected radio frequency. If the last two digits are anything other than 00, PTT double-clicks will be ignored unless an SSB mode is being used. This is the default setting.

When using voice activated transmit (VOX), it should be noted that VOX delays of less than 200ms may cause spurious operation. Using a more typical VOX delay exceeding 200ms eliminates this potential problem.

If a very short CW break-in delay is required, the Click2Tune Dongle can be unplugged or set to ignore PTT double-clicks unless an SSB mode is being used. This is the default setting.

Instructions

Description

The Click2Tune Dongle is designed to aid ATU and Auto-ATU adjustment when using SSB. It monitors the radios PTT line, and changes the radios operating mode to produce a tuning carrier when a PTT 'double click' is detected.

Plugging the dongle in

The dongle body has an arrow on it. This should be at the top. Do not force it in as it will damage the pins on the dongle plug.

Installation - FT-817

Set Menu No. 14, CAT RATE = 9600
Plug Dongle in to the ACC Jack Socket

Installation - FT-857/897

Set Menu No. 019, CAT RATE = 9600
Set Menu No. 020, CAT/LIN/TUN = CAT
Set Menu No. 085, TUNER/ATAS = OFF
Plug Dongle in to the CAT/LINEAR Jack Socket

Operation

1. Press PTT twice. One short click then hold the second click, like sending a Morse 'A' but hold the 'dah' for the desired tuning duration.
2. The radio will change mode to PKT (or AM) and transmit a tuning carrier whilst the PTT is held.
3. You can tune your ATU, wait for you auto-ATU to tune, or measure your VSWR whilst the PTT is held.
4. Releasing the PTT will return the radio to its original mode.

Setting the Tuning Carrier Power

1. Remove Dongle.
2. Set the radio mode to PKT for full power tuning carrier, or AM for ¼ power tuning carrier.

3. Push and hold the PTT to transmit a carrier.
4. Plug Dongle into jack socket whilst transmitting and the Dongle will store the mode.

Option 1: The Dongle will operate on all modes if the last two digits of the radio frequency are 00 when Setting the Tuning Carrier Power. When using this option you will need to set CW break-in (BK) and voice operated transmit (VOX) delays greater than 200ms to prevent unintended Dongle operation. This is fine for VOX and slow CW operation, but too long for fast break-in CW.

Option 2: The Dongle will only operate on SSB modes if the last two digits of the radio frequency are between 01 and 99 when Setting the Tuning Carrier Power. This option allows the CW break-in (BK) delay to be set for fast break-in CW operation, but you will still need to set a voice operated transmit (VOX) delay greater than 200ms (which is normal) to prevent unintended Dongle operation.

Note: If the Dongle is set to use AM (¼ power), you can set the AM MIC gain in the radio setup menu to zero to eliminate any audio on the tuning carrier. This will not affect the MIC gain of other modes.