

QO-100 Amsat-DL Downconverter V3

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Special functions

Here you will find functions of the Amsat downconverter version 3, which go beyond the usual documentation.

The special functions (currently three) are permanently stored in the EEPROM, but can be deleted at any time.

The procedure to activate one of the special functions is as follows:

Switch off 12V if plugged in, then remove the GPS module. Connect pins 3 and 4 on the GPS connector with a jumper (pin 1 is on the left, closer to the center of the board). Set both LNB jumpers 10A and 10B with two jumpers. Set the rotary switch to a number between 0 and 9 (see below), this is the function selection. Switch on 12V as soon as the four LEDs flash, the setting is complete. Switch off and remove jumpers.

The position of the rotary switch selects one of these settings (may be added in the future):

0... Reset to standard settings (delivery condition). If a special function has been activated, it can be deleted again with function 0.

1... ONLY useful for the first firmware V1.0: Deactivate GPS frequency offset (for new GPS module V2 on circuit boards with old firmware).

In the documentation, section "Frequency stability and accuracy", the usual trick to avoid the low-frequency GPS jitter is described by setting a small frequency offset. This special function switches off this offset. This is required if you want to use the 10 MHz reference output as a frequency standard for a measuring device (e.g. counter). In normal QSO operation this function should not be activated.

2... OCXO with GPS module:

the OCXO version usually only works without a GPS module. If you plug in a GPS module, this special function must be activated. GPS data is then shown on the display. The clock is still synchronized to the OCXO (and not GPS). If a GPS module is plugged into a downconverter OCXO version, this special function must be set, otherwise operation is not possible! This is only useful if you are using an OLED display.

3... Use the TCXO version without GPS module

the GPS version must be operated with the GPS module fitted, otherwise there is no function. If special function 3 is set, a GPS downconverter can also be used without a GPS module. This function is useful if, for example, no GPS module is currently available but you still want to use the downconverter. The frequency then has the accuracy of the TCXO of 0.5ppm, so it will deviate a few kHz. For good stability, sheltered installation in a housing is essential.

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