GPSDO Instructions for Use

GPSDO (Global Positioning System Disciplined Oscillator Global Positioning System Disciplined Oscillator) is also called GPS tamed constant temperature crystal oscillator, GPS tamed clock, and 10MHz standard signal source. Compared with ordinary time bases, it has higher accuracy, lower temperature drift, and more stable output.

It uses the 1PPS signal of GPS. After comparison with the microcontroller, the microcontroller outputs 16Bit PWM to control the output accuracy of the constant temperature crystal. The frequency of the constant temperature crystal is fine-tuned to 0-5V. Then the 1Bit PWM can control the output voltage to 0.000076V. The length, width and height of the whole machine are 150*88*38mm (excluding protrusions). The front panel has a display screen and encoder, and the rear panel has a 10MHz output interface, 1PPS output interface, GPS antenna interface, power switch and 12V DC power interface. Standard configuration includes 1 host computer and 1 GPS antenna.

GPSDO is suitable for high-end audio decoders, instruments, meters, frequency meters, signal sources and other equipment with external 10MHz reference source input

parameter:

Power supply voltage: DC12V ±2V

Working current: 650mA during preheating, 350mA after stabilization

Output frequency: 10.000000.000MHz ±0.001Hz

Output waveform: square wave

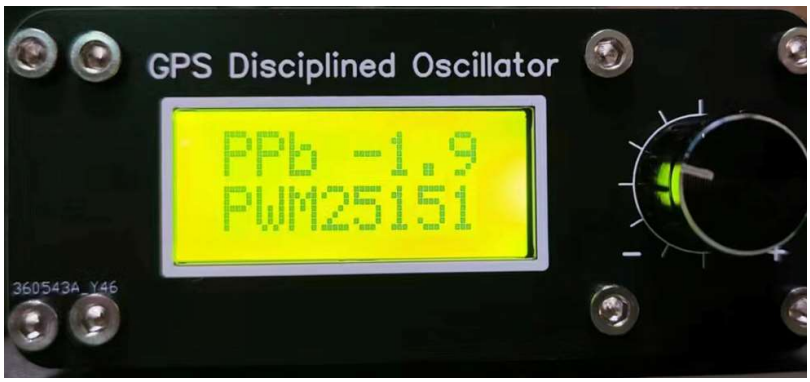
Output amplitude: -45dBm

Constant temperature crystal: ISOTEMP OCXO 143-141

GPS module: NEO-6M

When turned on, the screen displays "10.00MHz

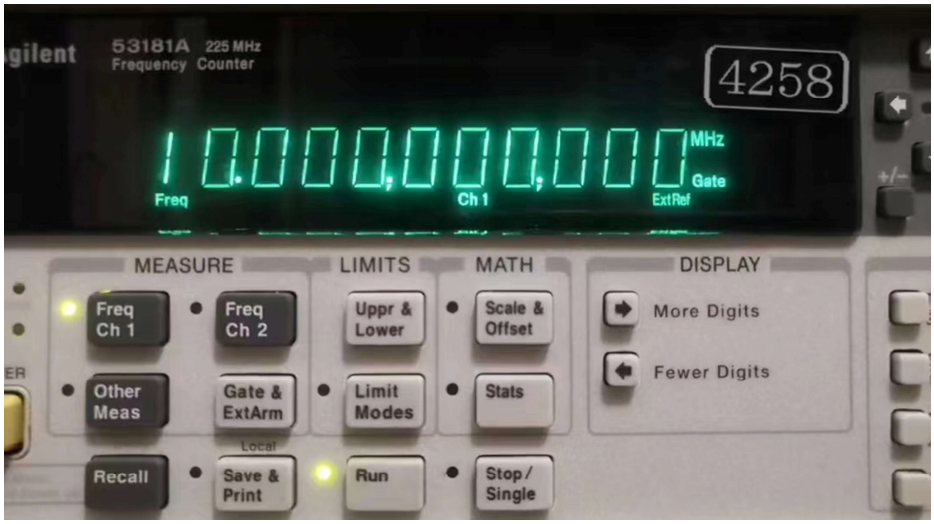
GPSDO". If no GPS antenna is installed at this time, this content will always be displayed. When the GPS antenna is installed and the satellite is locked, the screen will display the PPb correction value after comparing the 1PPS signal and the current PWM adjustment value.



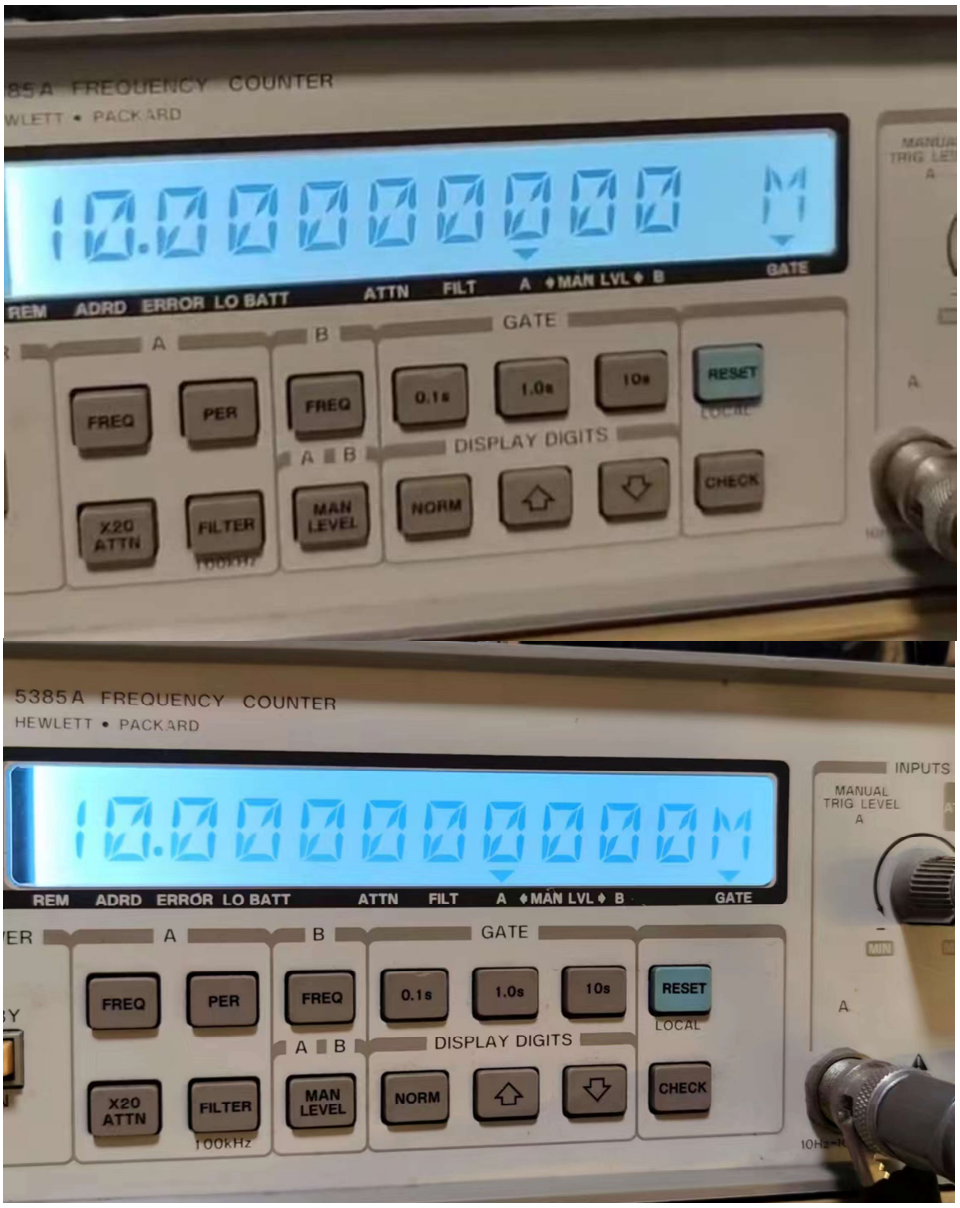
When used for the first time, it takes about 30 minutes to calibrate and correct. When the PPb value is observed to be 0.0±1, press the encoding switch to enter the menu, rotate the encoder to find the "PWMSET" option and press the encoder switch to save the current PWM value.

Rotate the encoder again, find "EXIT!! OK" and press the encoder switch to exit the menu. At this point, the calibration is basically completed.

After calibrating and saving the PWM value, the GPS antenna does not need to be installed the next time it is used.



This photo is using an Agilent 53181A frequency meter and using a rubidium clock as the external clock and a 1S gate to test the GPSDO.



These two photos are using HP 5385A frequency meter and using GPSDO as the external clock, testing GPSDO for 1S gate and 10S gate respectively.