

Reference Board Setup

After successfully installing new firmware as described in Firmware Upload Instructions setup for use requires

1. establishing a serial port connection
2. modifying the SSID:PASSWORD to match a local WiFi network access point/router
3. (optional at this time) changing the 'dacnom' value to match that of your hardware
4. restarting the unit either with a power cycle or by pushing the white reset button once [note that the restart may cause loss of a prior serial connection so that connection may need to be re-established.
5. Sending an 'S' or <CR> to the unit in order find the assigned WiFi IP address:port
6. Using the above address to access the unit via a web browser's

If the serial connection is (re)established at first power or reset you should see some details of the startup operation showing FW revision, power-on state, device discovery and the results of attempted WiFi connection. As seen below that connection will fail giving a warning that "Attempting to connect to Network named: changeToYourSSID" failed. The next step is (2) above which will change and save the expected SSID and password to match your local network.

```
-----  
May 20 2023 07:22:35 FE vTR02.2rc1d default scaling/cpi  
Compiled as Reference
```

```
EEPROM doesn't yet contain valid data, writing default to power-on state
```

```
Power-On State is:  
current web page is http://0.0.0.0:8078
```

```
=====  
01) SSID = changeToYourSSID  
02) PASSWORD = changeToYourPassword  
03) clock1 = 25000000  
04) user clock2 = 100000000  
05) discipline = Ext10  
06) autoPromote = true  
07) cpcurrent = 3  
08) pfdScaling = 64  
09) DACNOM = 20448  
10) tnominal = 27.00  
11) xtaltc = 0.00  
13) CPI DISABLE = false  
(UPPER case parameters can be modified here, others from web)  
=====
```

```
PCB temperature is 41.3C
```

```
Si5351 detected ...  
12 bit mcp47x6 found and set to 19.969 Volts.  
Found a GNSS via I2C. reset to factory default  
uBlox Protocol Version: 34.10, UBX_CFG_TP5 version: 1, configuring timepulse  
Discipline changed from None ==> Ext10  
PFD Scaling 1/64  
WIFI FW is v1.4.8 latest is v1.5.0 upgrade via IDE if desired
```

Attempting to connect to Network named: changeToYourSSID
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Attempting to connect to Network named: changeToYourSSID
No connection to Network so no web server
Enabling 8000 ms watchdog timer.

Module Inventory:
si5351 HW Present
DAC HW Present
adf4001 HW Present
tp Capable uBlox Present
wiFi HW Present

Function Inventory:
DAC available
timePulse NOT Present
cleanupPLL Locked
PCB Temp is 41.5C
numSats = 6

The SSID and password are changed by sending “M01” to the unit via the serial connection and then typing in your local name for SSID. This step is then repeated for the PASSWORD field and once verified to be correct the values are saved to non-volatile memory by sending an “A”.

The unit may now be restarted and if the WiFi network is accessible the previous start-up text will contain something similar to :

WiFi FW is v1.4.8 latest is v1.5.0 upgrade via IDE if desired
MAC address: 40:91:51:A4:45:DC
Connected to SSID:Corridor
IP Address: 10.0.0.246 with signal strength (RSSI):-41 dBm
To access the web page open a browser to
<http://10.0.0.246:8078>

which displays a URL that can be pasted into the address bar of a web browser such as Chrome or Firefox. Entering this address should result in the home web page for the board becoming accessible.

N6GN Disciplined Reference

=====**User Clock**=====

----- Presets -----

10 MHz 20 MHz 50 MHz 80 MHz 100 MHz

SDRs

Icom

Yaesu

----- Manual Set -----

Note: It's possible to pick very bad values and get spurious & unexpected output !

Target VCO, 600-900 MHz| 800.000000

Target VCO Divider (6 or 8.0-255)| 8.000000

Set Output Divider /1 /2 /4 /8 /16 /32 /64 /128

Approximate User Clock = 100.000000 MHz

Actual User Clock = 25 * (32+0/25) / (1*(8+0/1)) MHz -----Discipline-----

GNSSDO Ext10 TCXO XO Only

Promote to Locked Leave discipline as selected

Reference PLL is Locked to Ext10

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While the serial connection just used allowed configuring web access, this was its main purpose and future display and changes are normally done by way of the web interface. The one exception to this is that once user preferences have been selected by way of the web interface, one may return to the serial interface and once again send an 'A' to store them into non-volatile memory. In this manner upon the next power-on or reset of the unit, the modified values will be used instead of the default configuration.

These modification will persist until new firmware is upload to the device, at which time configuration as just described must be repeated.