



QO-100 DX-Patrol GroundStation

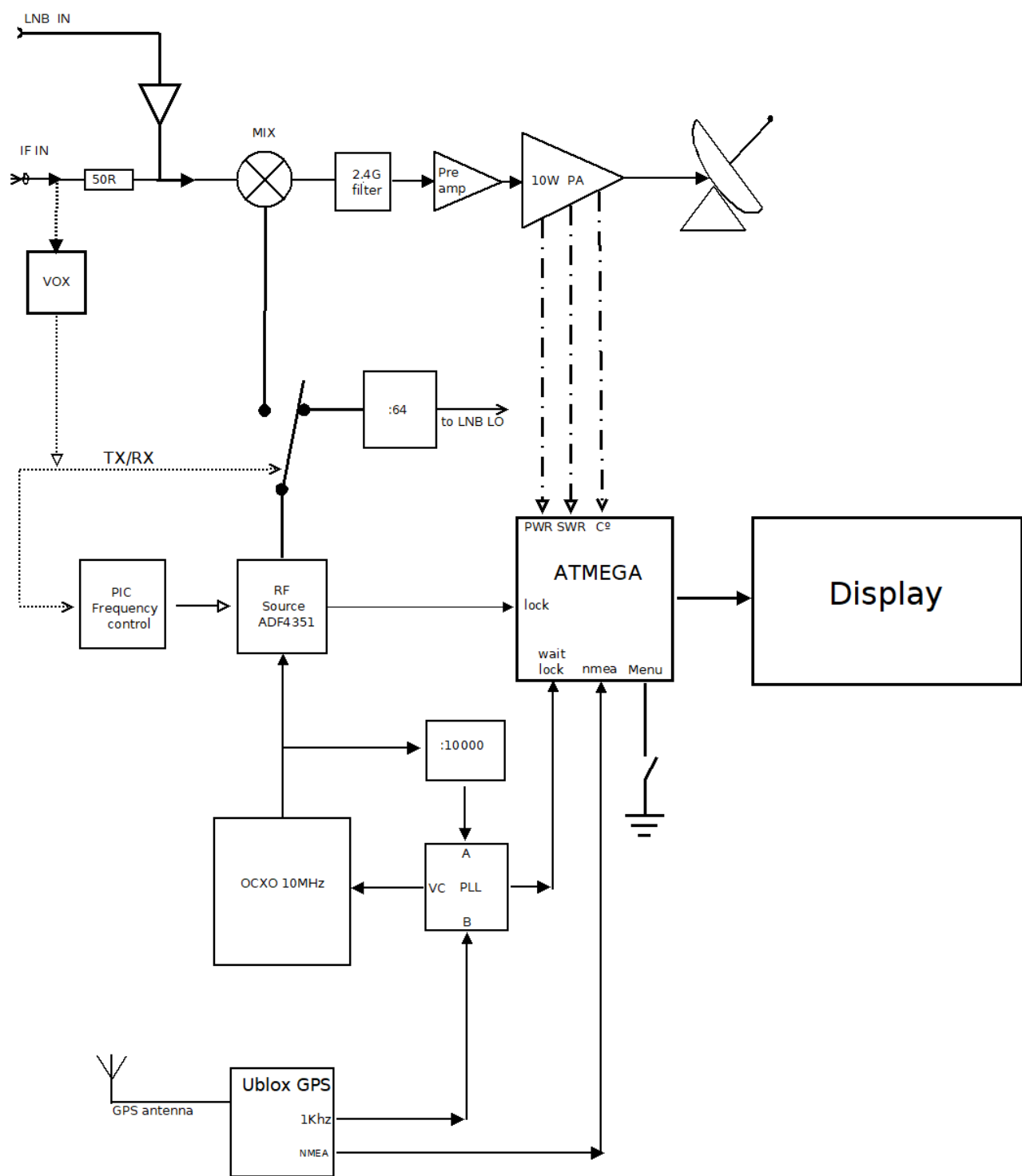


A all-in-a-box station for easy QO-100 operation

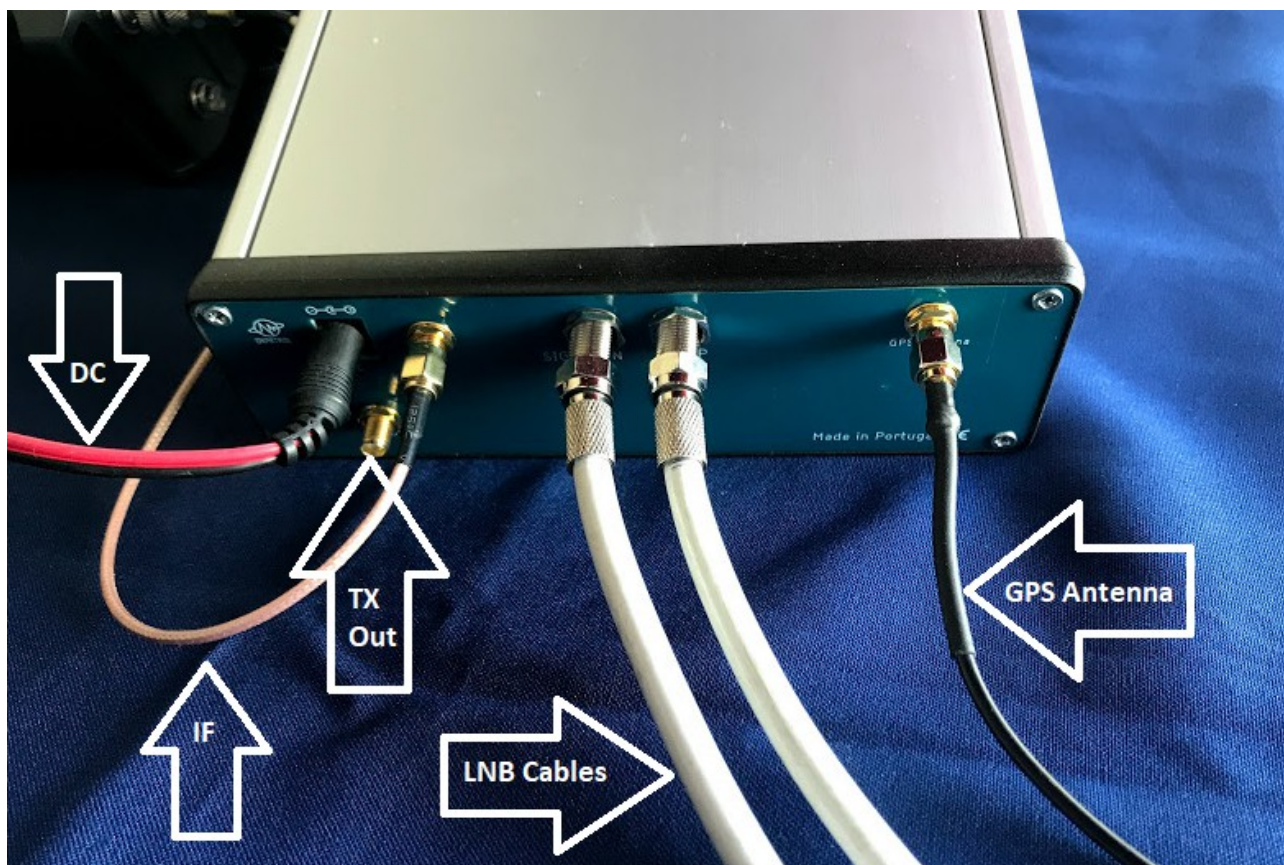
Main Characteristics:

- Reception frequency 10 489.500 to 10 490.000MHz
- Transmission Frequency 2400.000 to 2400.500 MHz
- IF Frequency 432.500 to 433.000 Mhz
- Linear UP and Down Converter
- GPS Lock internal 10Mhz reference
- Maximum Output RF Power 12W
- Maximum input RF 5W (500mW optimum drive)
- Input Voltage 12V to 14V
- Thermal $> 60^{\circ}$ C protection
- SWR $> 1:3$ protection
- High Voltage input protection
- Satellite Strength signal indication
- Power output Bar and Watt indication
- SWR Bar and ratio indication
- Internal 5A fuse protection
- NMEA GPS indication
- Number of GPS satellites in range
- GPS coordinates
- QTH Locator presentation on screen
- UTC Clock and Date.
- Auto TX and RX by Vox PTT
- Easy operation.
- No tune require from TX to RX

Block Diagram



Back panel connections



Home Assembling:

Connecting GroundStation it's easy.

Only need a PSU for 12V or (13,8V) 5A minimum,
two coaxial TV 75 Ohm cables for satellite with the size
you find necessary to connect Groundstation to the outside
LNB fitted on the dish.

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Connect the F connectors correctly from Groundstation

Cable 1 : LO UP to LNB's input LO

and

Cable 2 : SIG IN to LNB's SIG

WARNING- Never make these connections with
Groundstation **ON**. There is 12V Phantom Power on the
cable and a short-circuits will be very easy to happen if life
wire touches the shield, damaging the Groundstation.

Connect the GPS antenna to GPS input (SMA connectors)
GPS antenna must be outside with clear visibility to sky.

The antenna is waterproof, but will be good to fit it inside a
plastic bag to avoid rain damage.

In some cases it can work on a window, even inside.

With a SMA cable or adaptor connect IF to your UHF SSB
radio.

OUT RF to the transmitting antenna

DC in 12V to 14V (centre pin Positive)

Starting.



When turning ON you will see for some seconds the Splash Screen Logo of *Dxpatrol* and then the display will present a page as show in the picture.

RX mode, no Power/SWR detected, Clock and Wait.

The Clock is UTC time and it takes a few seconds to be visible. (only visible with GPS sats in rage)

Wait is flashing and it means OCXO (oven-controlled crystal oscillator) is warming up. This can take a few minutes.

Pressing the Menu Button once you will enter the second page.

(Press and hold the button will keep the display on the same page.)



Second page shows input satellite strength.

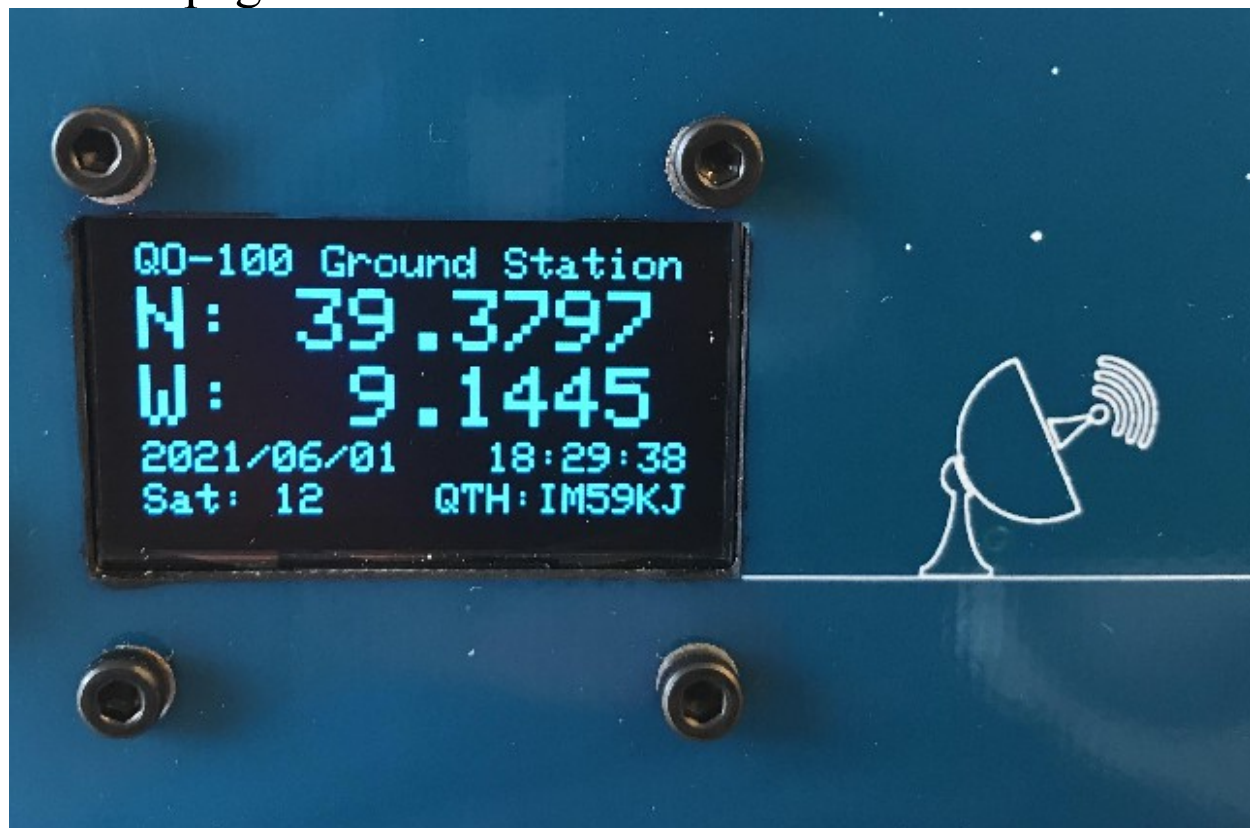
This is shown in dBs and it's very useful to point the dish and fine adjustment of LNB on focus.

Second page on Menu



This page show the input DC voltage, PA temperature
Internal LO source ADF4351 is Locked to OCXO but not
yet to GPS. (this can take a few minutes)

Third page on screen



Presenting the GPS data.

Geographic Coordinates, Date, UTC time, Number of GPS satellites in range and your QTH locator

Pressing again Menu



GroundStation serial number and FW version

When both LOCK indications are shown on screen, you are ready to start using the QO-100.

Any UHF SSB radio as IF will receive very loud and clear satellite signals.

Lower beacon should be at 432.500 and upper beacon should be at 433.000 MHz.

The GroundStation will receive the QO-100 very clearly with our LNB (included) with any dish, even small ones as 30cm.

However, in transmission, to have a clear loud signal, you should use a minimum 60cm dish and an efficient antenna feed, such as a Helix or a Patch antenna.

Low loss cable and short as possible, should be preferred to feed the 2.4Ghz up to the dish.

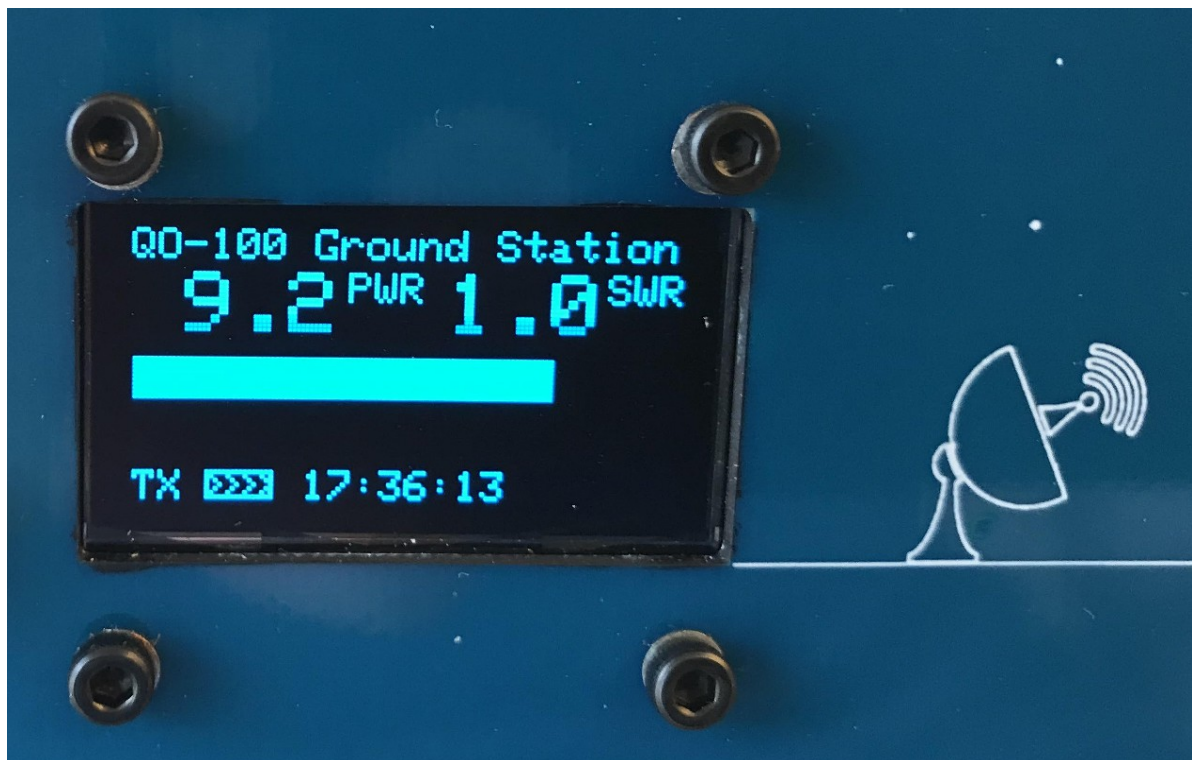
Transmission.

There is no need for any PTT, switch or cable to activate the Groundstation into TX mode.

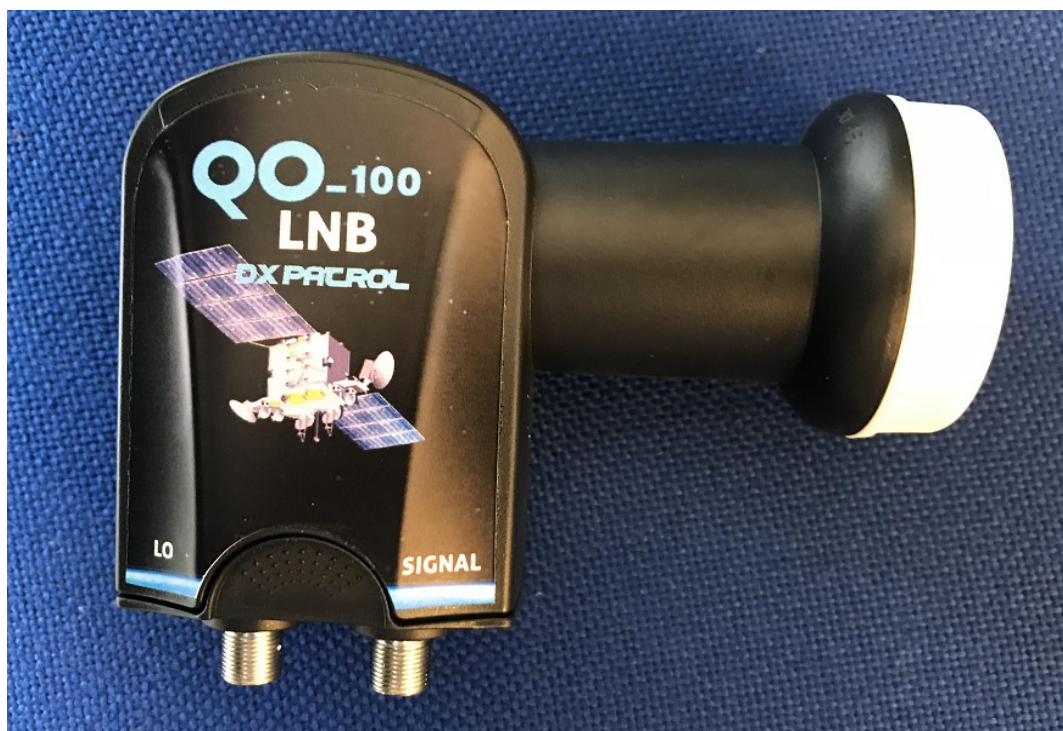
Even 250mW of RF is enough to trigger the Vox and switch to TX mode.

The TX indication will be visible, as well the Output Power in Watts and in a bar-graph. Maximum power is 10W. SWR bar and ratio will be presented if reflected power is detected.

Alarm will display if SWR rises more than 1:3



SWR or Temperature Alarm, press Menu to clear.



The Dxpatrol LNB



Dxpatrol GPS + Glonass antenna

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