

## UK Microwave Group 10GHz Loan Equipment DB6NT Unit Basic Description and Operating Instructions.

### Introduction

As part of its membership benefits, the UKuG loans out items of GHz bands equipment for short periods, usually 6 months. This allows members to get an idea about operation on the various bands before committing time and money to their own equipment. The equipment represents the type of equipment that can be assembled from a combination of homebrew, surplus and commercial parts.

### SYSTEM DESCRIPTION



Built by G4BAO, it consists of a DB6NT 10GHz – 144MHz transverter and a 2W PA in a weatherproof diecast box (1) All transmit receive switching is provided in the box, controlled by the external transceiver. It connects to a feedhorn on a 45cm Sky dish via a short SMA patch lead. It has a mounting bracket for an up to 2-inch pole and a lightweight tripod. Many people use an FT817 as an IF rig, but other rigs can be used. If so, great care must be taken not to exceed the drive levels. The Transverter produces approximately 2W on 10368MHz with a maximum 144MHz drive of 2 Watts.

**UNDER NO CIRCUMSTANCES INCLUDING TRANSIENT, SHOULD THE DRIVE EXCEED THIS POWER so many rigs will need an attenuator.**

This corresponds to the FT817 "two bar" power level with a 13.8V supply and it is strongly recommended that the "**one bar**" setting is used.

The transverter has the following, clearly marked, connectors and cables:

- Powerpoles for connection to the 12V supply
- N female for 144MHz IF input/output
- BNC female for 10MHz reference input
  - The transverter can be run with or without an external 10MHz reference but if run without, it will be unlocked and may be slightly "off frequency"
- SMA female for 10GHz in/out connection to feedhorn
- There is a red LED which lights when the transverter is locked to an external 10MHz source

## **BASIC OPERATION**

Mount the dish on a vertical pole or the tripod with the feedhorn at the bottom. As the dish is an offset one, the dish face points downwards by about 24 degrees to beam at the horizon. This can be adjusted in the field on a suitable beacon by loosening (and re-tightening!) the two 10mm bolts behind the dish. Connect up 12V to the powerpoles and connect the SMA patch lead to the feed and transverter (Do not overtighten! Use fingers only unless you have the correct torque wrench for SMA connectors!)

## **PTT**

To enable the transverter in transmit mode, PTT can only be provided by a current limited 12V supply down the centre of the coax.

Some 144MHz rigs provide this or can be modified to do so. **Notes 2,3 and 4 below show some common rigs, or you can Google "<insert your rig name here>12V down coax PTT mod" to see if yours is covered.**

***Under no circumstances should you operate the transverter without the feed connected, there is no VSWR protection for the PA!***

## **Notes**

1. ***While the box is weatherproof, the connectors etc are not, so for any operation outdoors you are responsible for providing weather protection. For short portable operations, a plastic bag can be used to keep the rain off, but for more permanent installations, proper weatherproofing of all connectors and leads is the responsibility of the loanee.***
2. ***Mods to FT290R to provide 12v at antenna on PTT:- <http://g4ddk.com/FT290R2.html>***
3. ***Mods to IC202 for 12v at antenna on PTT:- <https://shop.kuhne-electronic.de/kuhne/en/onlineshop/faq/>***
4. ***Mods to FT817 for 12v at antenna on PTT:- <https://shop.kuhne-electronic.de/kuhne/en/onlineshop/faq/>***