

QO-100 Amsat-DL UPconverter with 6W PA

Commissioning

- Selection of the transceiver transmit frequency: The UpCon6W can convert different input frequencies to 2.4 GHz. The desired band is selected with two jumpers, see chapter "Connections". Example: if you want to be heard on 10 489.700 MHz, you have to transmit on 2400.200 MHz (see QO-100 band plan on the AMSAT-DL website). If no jumper is set, you have to transmit on 430,200 MHz, the UpCon6W converts this signal to 2400,200 MHz. If both jumpers are set, one must transmit on 1290.200 MHz.
- Activate PTT: Connect PTT to ground with a jumper, see picture above.
- Switching on the supply voltage: The 12 V supply voltage is applied. A voltage source between 9 and 15 V and approx. 3 A load capacity can be used. If the power supply is very far away from the upconverter (>10 m) or thin cables are used, it is recommended to connect an electrolytic capacitor approx. 1000 mF/25 V between +12 V and ground directly before the upconverter. You can solder the electrolytic capacitor e.g. between the +12 V banana jack (plus) and the tinplate case (minus).
- Antenna connection: as usual for all radios, an antenna suitable for 2.4 GHz or dummy load must be connected to the antenna connector. Without antenna it is not allowed to transmit! No matter if you connect a patch feed, a helix or any other suitable antenna: the antenna output must not be left open under any circumstances. A dummyload must be able to handle the maximum output power of 6 W.
- When commissioning, please make absolutely sure beforehand that the 2.4 GHz feed is properly matched and all connectors/cables are in order. A bad SWR and mismatch of the antenna can lead to permanent damage and even destruction of the power amplifier!!! In this case we can not give any warranty. Cheaper than a repair with costs is then perhaps a 2.4 GHz ISOLATOR. At eBay you can find such isolators/circulators already for little money, for example UTE CT3240-OT.
- Transmit mode: The input of the upconverter can handle power up to 1 W continuous or 3 W SSB. At higher powers there is a risk of overheating of the input resistor. Set the transceiver to the desired transmit frequency (see jumpers) and the lowest possible output power. If the output power is still too high, reduce the microphone gain, which also reduces the output power, a compressor should be switched off. The transmit signal is converted to 2.4 GHz and output at the antenna output.

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