

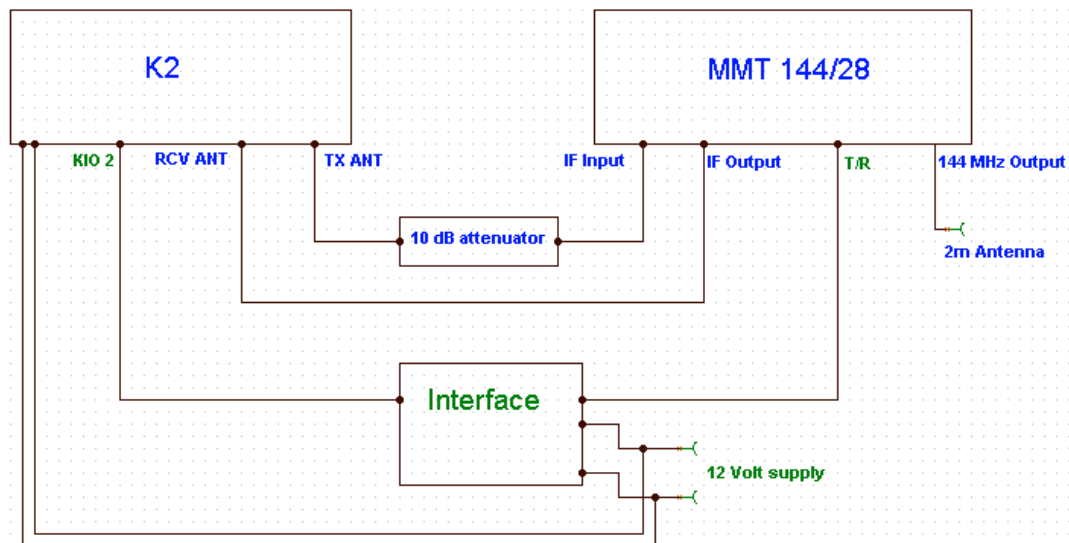
Using an Elecraft K2 with a Microwave Modules MMT144/28 Transverter

Requirements

The K2 must be fitted with KIO2 and K160RX options in order to utilise these instructions. There is no need to open the K2 or modify it in any way. The KIO2 provides an RS232 interface and also a switching output for a transverter, or linear. The K160RX adds 160 Metre coverage and also gives a second receive antenna socket. This second antenna socket can be selected on any band. Later version firmware is needed in the K2 in order to provide “Transverter” bands, in addition to displaying the correct 2 Metre frequency, this option allows the power to be set at a fixed level when operating a transverter. I understand that at least version 2 firmware is needed in order to operate a transverter in the manner described here. Details of the firmware version in a K2 can be obtained by powering up the K2 while holding down any key. Firmware upgrades and additional modules can be obtained from Elecraft (<http://www.elecraft.com>)

For anyone not familiar with the MMT144/28, this is a transverter produced in the late 1970s and early 1980s by Microwave Modules of Liverpool, England. It is a 144 MHz linear transverter producing 10 Watts of SSB, or CW, from a 28 MHz drive level of 5 mW to 500 mW. Current requirements are 2.1 Amps on transmit. See photograph lower down the page.

Connecting the units



K2 to MMT 144/28 connections

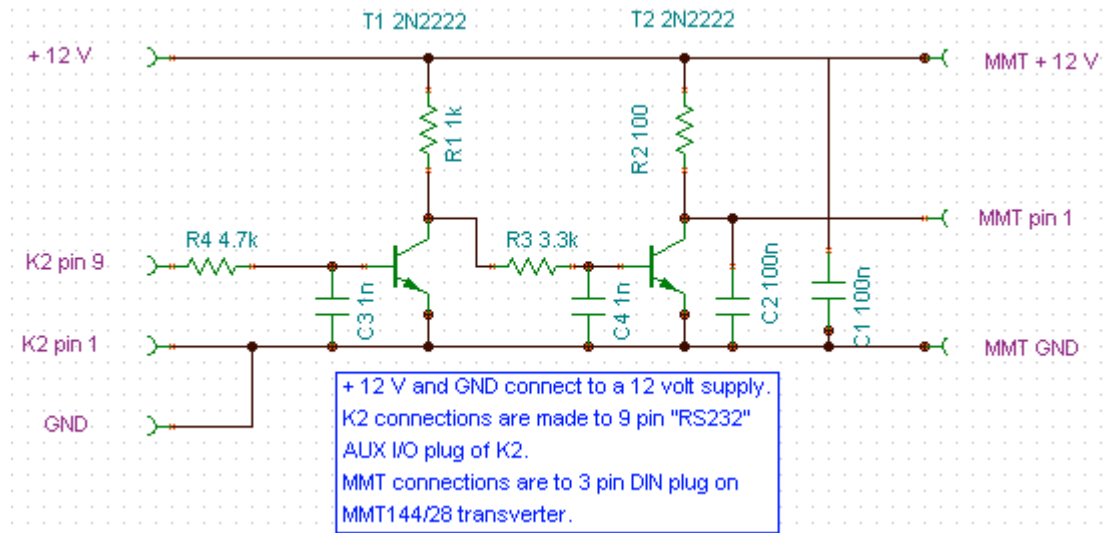
The above diagram shows the interconnections between a K2 and MMT144/28. It is assumed the MMT144/28 is of the type shown in the photograph below:



The red cap covers a socket marked “144 MHz Input” which is not generally used in these transverters.

Interfaces

Building an interface for the K2 is fairly straightforward, the diagram below should be self explanatory and uses no special parts. It should be noted that turning off the K2, or disconnecting the KIO2 cable, with switch the MMT144/28 to “transmit” – this does not damage the MMT144/28 but should be borne in mind when using it.

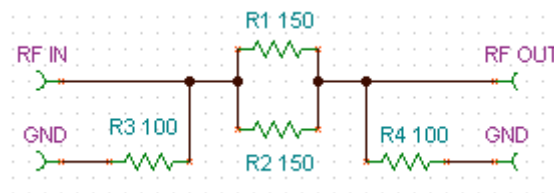


The interface can be made on Veroboard or a simple home etched print board, there is no need to provide a shielded enclosure.

The picture below left shows the 10 dB 2 Watt attenuator, on the right is the interface.



The attenuator uses “off the shelf” 2 Watt resistors and has been tested to over 300 MHz with a surprisingly flat frequency response. The exact amount of attenuation is not important for this project as the drive levels aren’t critical and can be adjusted from either the K2 or the MMT144/28. The diagram of the attenuator is shown below:



Operation

The first setting that needs to be made is to choose the transvert band on the K2 and to set the “offset” frequency. This latter setting allows for the frequency error of the 116 MHz transverter crystal to be compensated for with the K2.

The power level of the K2 should be set to 1 Watt via the secondary menu, this only effects the chosen transverter band. The output of the MMT144/28 is then set using the level setting pot within the MMT144/28.

Many QSOs have been made using the above combination, while not being a state of the art transverter, they are available for little cost on the second hand market and work well with a K2.

Parts list

Interface

T1, T1, 2N2222 (general purpose NPN)

R1, 1K

R2, 100

R3, 3K3

R4, 4K7

C1, C2, 100nF

C3, C4, 1nF

Small plastic project box, 5 pin (or 3 pin) latching DIN plug (probably supplied with MMT144/28), 9 pin plug to fit K2's KIO2 and various lengths of wire.

Attenuator

R1, R2, 150 Ohms, 2 Watt

R3, R4, 100 Ohms, 2 Watt

2 x 50 Ohm BNC sockets, small aluminium project box. BNC patch leads.

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