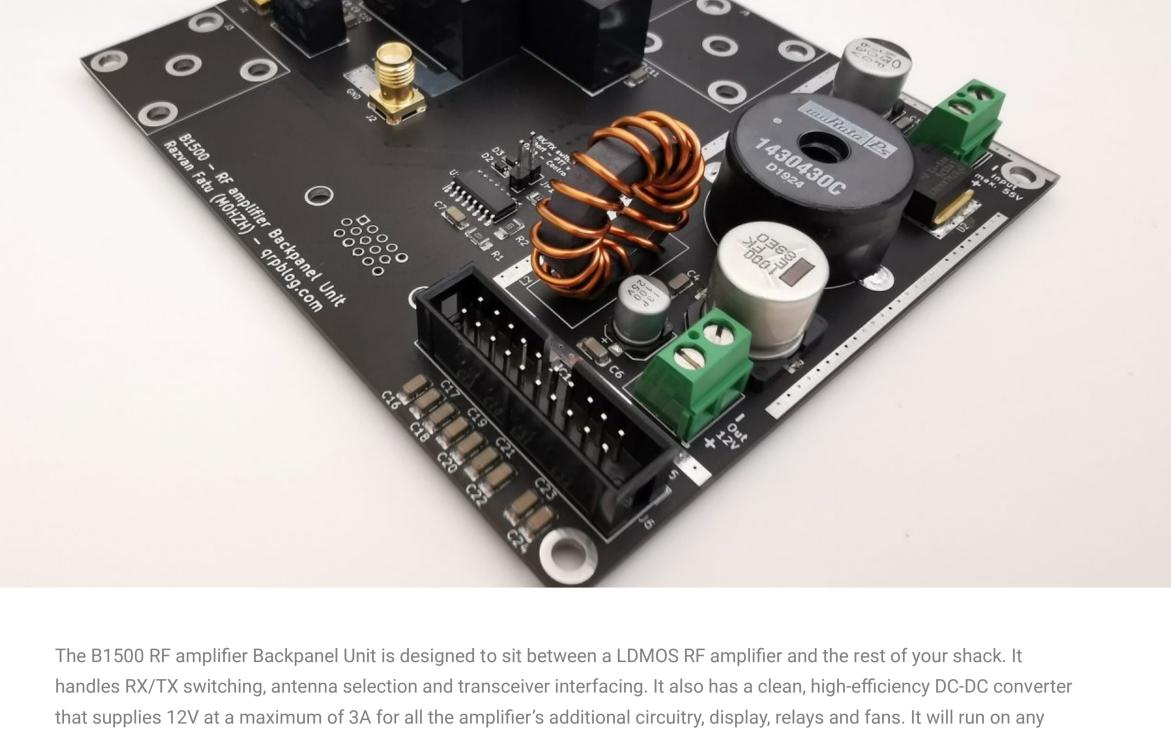
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B1500 – BACKPANEL UNIT FOR RF POWER AMPLIFIERS

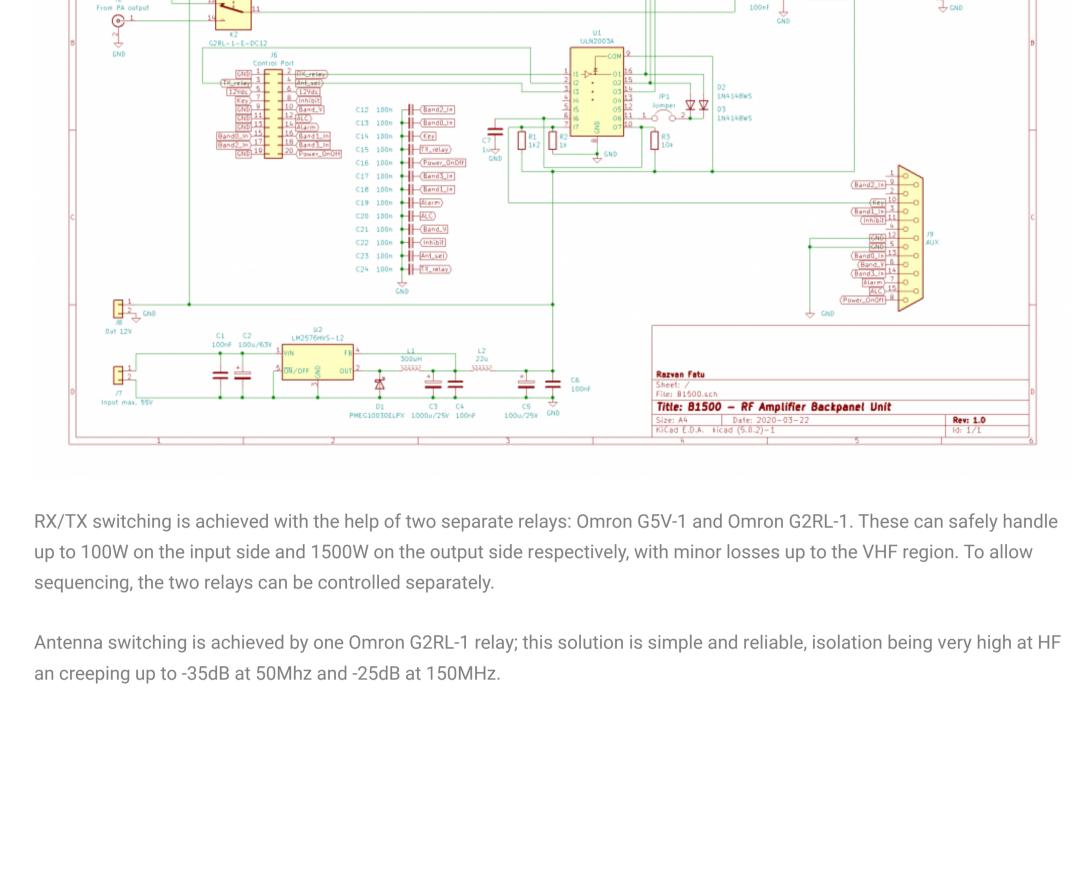
Posted by Razvan | Mar 29, 2020 | In the shack | 1 ● | ★★★★★



SCHEMATIC AND FUNCTIONALITY For the schematic and PCB design I used KiCAD, which one of the best (free) PCB design software; the files generated by KiCAD can then be sent to a PCB manufacturer. My preferred PCB manufacturer is PCBway, as the process is very simple and support is quite good. They check your files and send them to production and if you choose DHL delivery you could get the finished product in just a few days. Usually they have a special promo for hobbyists, 10pcs of a small PCB only costs US\$5

(!). Probably the best deal out there, if your board is under 100x100mm.

voltage from 15V to 55V.



The onboard DC-DC converter can take an input from 15V to 55V and provides a clean output of 12V DC at a total current

a power amplifier such as relays, fans, control units etc. It is built around the LM2576HVT-12 regulator, using high-quality

capacitors, inductors and additional output filtering. If it shares the same supply line with the Power Amplifier unit, a EMI

choke is recommended at the board input.

below:

Pin Signal Name

3 Band1 In

NC (Band Vref Icom)

NC (AuxBus I/O)

Power On/Off

Inhibit

8

Band2 In

output of maximum 3A, with an efficiency of up to 90%. This powers the onboard circuitry and can supply other peripherals in

Transceiver interfacing is done via the AUX port and uses the same standard as the Elecraft KPA1500. Pin signal description

Reference for Icom input – connect to 8V

Pulse low to turn amplifier on or off – do not hold low!

Notes

K3/K3S

Direction

In

In

In

In

4 NC 5 GND Analog band data Band V In Alarm Out Out Drives low for fault input

BCD Band Input - Bit 2*

BCD Band Input – Bit 1*

10	Key	In	Low enables amplification. Internally pulled up to +5V
11	Inhibit#		Low inhibits amplifier operation
12	GND		
13	Band0 In	In	BCD Band Input – Bit 0*
14	Band3 In	In	BCD Band Input – Bit 3*
15	ALC	Out	ALC output to transceiver
Most of the functionality should be implemented via a separate board, connected to the Control Port (20-port IDC connector):			
Pin	Name	Description	
1, 9, 1 13, 1		Reference ground.	
2	RX_relay (input)	Logic signal that sw mode.	vitches the input side relay. No signal = RX mode, apply +5V to switch to TX
3	TX_relay (input)	Logic signal that switches the output side relay. No signal = RX mode, apply +5V to switch to TX mode.	
4	Ant_sel (input)	Logic signal that switches the antenna port. No signal = ANT1 (J5) selected, apply +5V to select ANT2 (J4).	
5, 6	12Vdc (output)	12V supply, max 500mA combined	
7	Key	PTT signal. Stays around +5V during RX, external source (transceiver) pulls this down for TX.	

Voltage proportional to the amplifier output reflected power square root. Around 3.20V for

600W. (output) Analog band data from transceiver. 0-8V for Icom, 0-5V for Yaesu, 0-2.5V for Xiegu; refer to 10 Band_V transceiver specs for details. (output) ALC voltage for transceiver. From 0V to -11V depending of transceiver and settings. Please ALC (input) 12 note this is a negative voltage. Drives low for fault input. Alarm (input) 14 Band0_In BCD Band Input - Bit 0 (Yaesu & Elecraft standard) 15 (output) 16 Band1_In BCD Band Input – Bit 1 (Yaesu & Elecraft standard) (output) BCD Band Input – Bit 2 (Yaesu & Elecraft standard) 17 Band2_In (output) 18 BCD Band Input - Bit 3 (Yaesu & Elecraft standard) Band3_In (output) Pulse low to turn amplifier on or off – do not hold low! Power_OnOff 20 (output)

The B1500 unit can also operate in a standalone mode (without the need of anything connected to the Control Port); a jumper

(JP1) must be installed in this case, to allow the board to switch from RX to TX based on the AUX Key signal. ANT 1 will be

always selected and the other functionality will not work.

This is designed to work with amplifiers of up to 1500W, however it is recommended that above 600W the PA unit output

coaxial is soldered directly to the board instead of using the SMA connector. Special pads are added for this:

The board is designed to be mounted along the rear panel of a case, with the connectors exposed externally via adequate cut-

outs.

SHARE: F RATE: C C C C

The B1500 Backpanel Unit is available as a kit in the shop area:

Additional information can be found in the Assembly Manual:

INSTRUCTIONS

1 file(s) **3** 638.47 KB **3** 638.47 KB

B1500 RF amplifier Backpanel Unit

Icom IC-705 coming in April 2020, price announced

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15th July 2020

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ABOUT THE AUTHOR Razvan Interested in computers, electronics, building radio equipment, portable/SOTA operations and SDR. I think amateur radio is all about building, experimenting and testing new stuff. Licensed M0HZH / Y09IRF.

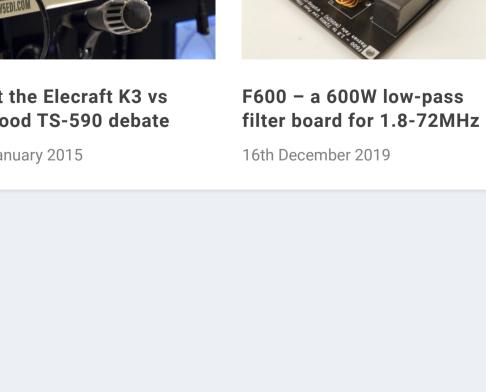
B1500 V1.0 BACKPANEL UNIT KIT FULL ASSEMBLY

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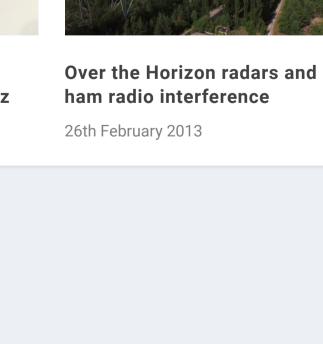
wonderful. looking forward to the V6



Jonathan Maykol Moreno Rey on 31st March 2020 at 6:07 am



hello I am also a promoter of kicad .. I have 3 years working professionally with this software and it is



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