

RK05 Emulator/Tester & Accessories

The RK05 Emulator/Tester system consists of a main unit, various cables, a terminator, and a power supply. These sub-components are available in kit form or parts can be purchased directly from the sources in the bill of materials.

The RK05 Emulator/Tester main unit can be configured to function either as an RK05 disk drive emulator or as an RK05 disk drive tester. The specific function is determined by the software in the Raspberry Pi Pico and the FPGA firmware. Currently, the RK05 disk emulator functions have been rigorously tested. The RK05 disk drive tester functions have been used to test the emulator but full tester functionality is not yet complete.

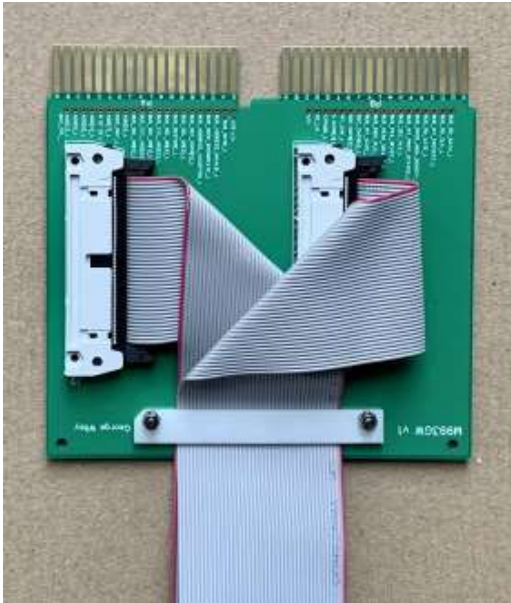
The emulator/tester and accessory kits have been designed to use commonly available tools for the assembly process, such as: soldering components to circuit boards and the use of fasteners to hold parts together.

Assembled versions of the RK05 Emulator/Tester & Accessories sub-components are shown below:

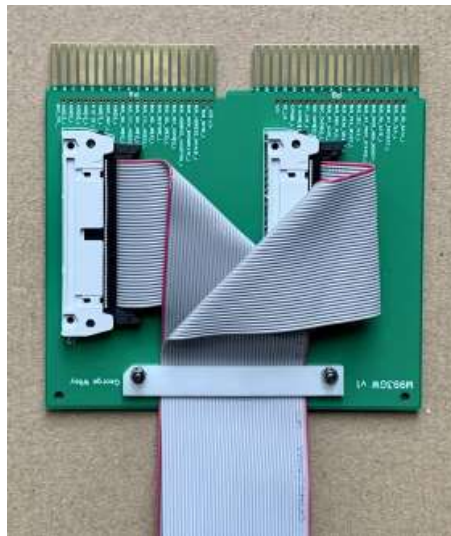
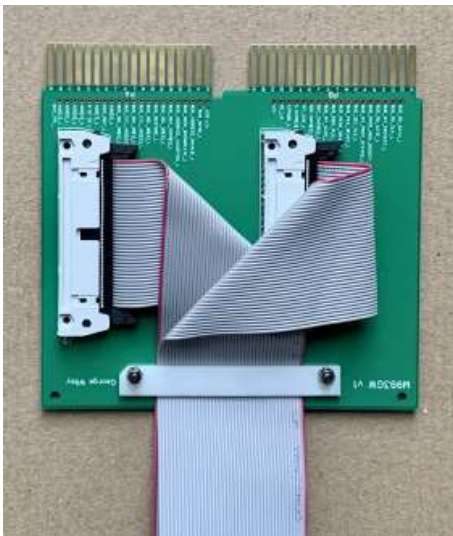
- **E1, RK05 Emulator/Tester main unit** – This main unit emulates an RK05 drive. It can also be configured as an RK05 tester by loading different software and FPGA code. The emulator is powered from a +5V DC source. A power cable is included in the kit but a power supply is not.



- **A1, RK05-to-RK8-E Cable, 1 meter length** – Cable to connect an RK05 Emulator/Tester main unit to a DEC RK8-E or Plessey PM-DC/8 disk controller for a PDP-8 Omnibus system. The A1 kit consists of an A4 plus two 1 meter 40-pin flat cables.



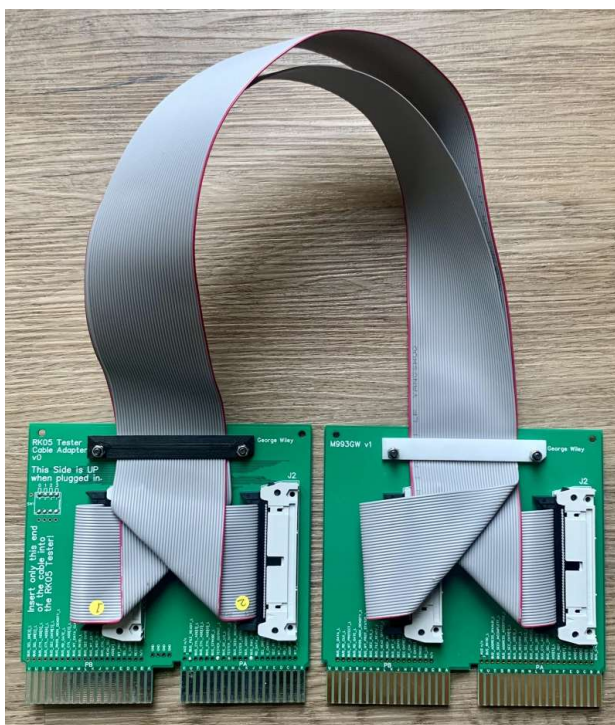
- **A2, RK05-to-RK05 Cable, 1 meter length** – Cable to connect two RK05 Emulators or RK05 drives or RK05 Emulator to RK05 drive on an RK05 bus. The A2 kit consists of two A4 boards plus two 1 meter 40-pin flat cables. This cable is intended to work with a DEC RK-11D/E but has not yet been tested with the RK-11D/E.



- **A3, RK05-to-RK05 Cable, Side-to-Side 30 cm length** – Similar to A2 but without cable clamps on the adapter board and short cables that route to the side.
- **A4, RK05 Adapter Board without Flat Cables** – An adapter board that plugs into the RK05 bus and has two 40-pin flat cable connectors. The flat cable pinout is compatible with the DEC RK8-E and Plessey PM-DC/8.

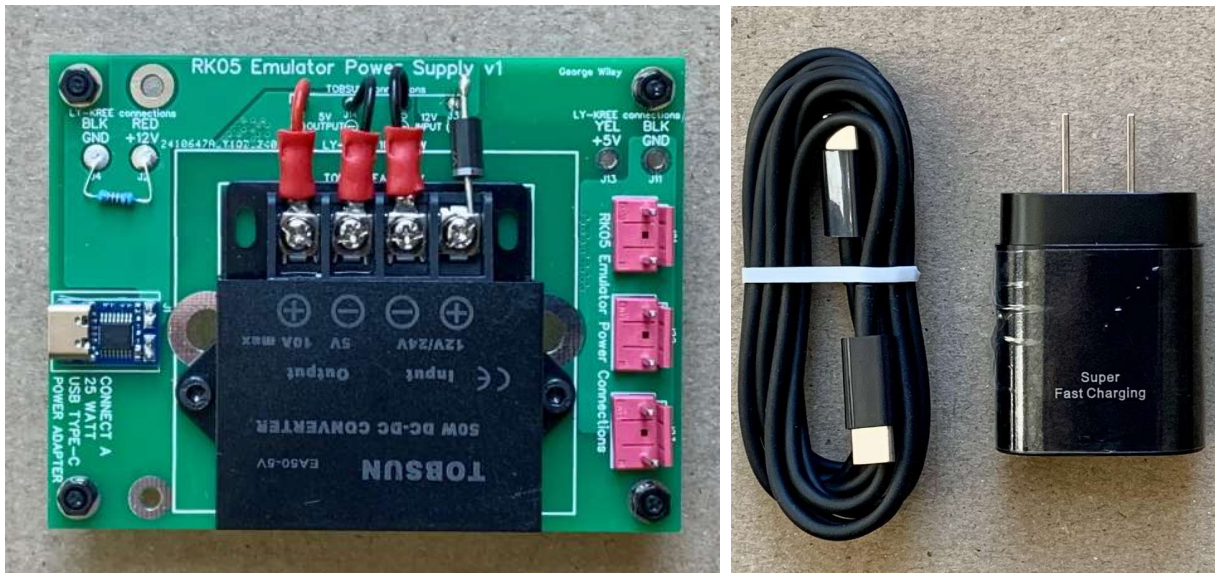


- **A5, RK05-to-Tester Cable, 1 meter length** – Cable to connect an RK05 Tester to an RK05 or RK05 Emulator. Consists of one A6, one A4, and two 1 meter 40-pin flat cables. If the main unit is configured as an RK05 drive tester, then The A6 adapter card must be plugged into the main unit that is operating as the tester. The A6 looks quite similar to the A4 but the connections on the PCB are different. The A6 board in the photo is a prototype version and the cables in the photo are shorter than 1 meter.

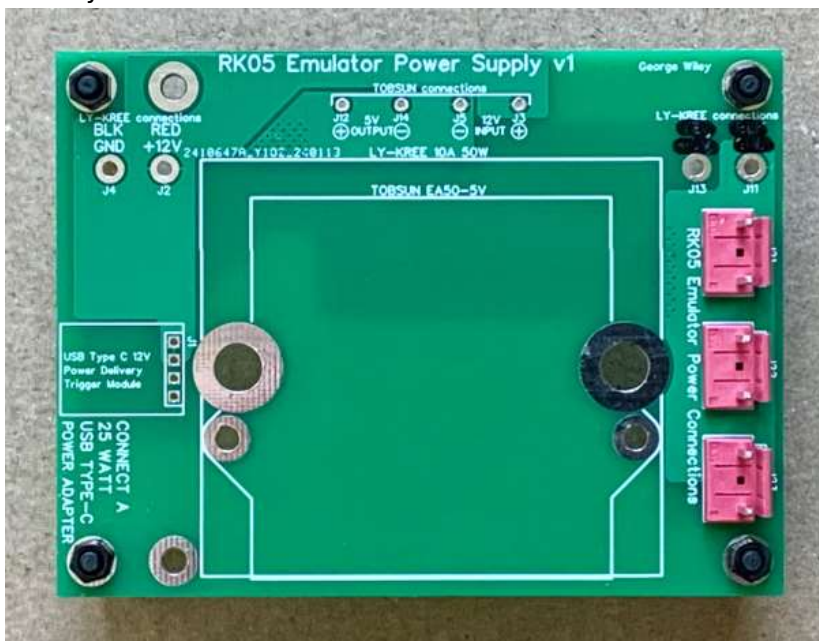


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- **A7, RK05 Emulator Power Supply (version v1)** – A Power Supply that can provide power to three RK05 Emulators from a 25-watt USB Type C input. A 25-watt USB Type C power adapter and Type C cable is included in the A7 kit. The power cable that is built in the E1 main unit kit plugs directly into this board.



- **A8, RK05 Emulator Power Supply, without the DC-to-DC Converter** – A bare-bones power distribution board that allows for the use of a user-provided 5 volt power supply. Note that use of A7 is recommended. This is only a power supply PCB, three power headers and standoffs to support the board. The power cable built in the E1 RK05 Emulator/Tester main unit kit plugs directly into this board.



- **A9, RK05 Emulator Rack Mount Tray for 3 Emulators** – A rack mount tray that holds three E1 RK05 Emulators and an A7 or A8 power supply. Hardware to mount the E1 and A7 to the tray are included with those kits. The Rack Mount Tray can be purchased directly from amazon.com, <https://www.amazon.com/gp/product/B01HTG4WHY>. A photo of three E1 RK05 emulator main units mounted to the rack mount tray is shown in the photo.



- **T1, M930GW Terminator Board** – An RK05 bus terminator that's electrically the same as the DEC M930. The exception is the number of bypass capacitors on the +5V rail and their arrangement is different from the DEC M930 so the layout could be optimized for SMT components. The terminator board comes as an assembled unit because all SMT assembly has been performed by the manufacturer (JLPCB). This board probably also functions as a Unibus terminator, like the DEC M930, but has not been tested that way.

