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## Enable TDS754D Options using GPIB

The TDS754D is part of a series of Tektronix digital storage oscilloscopes made in the 80's and 90's.

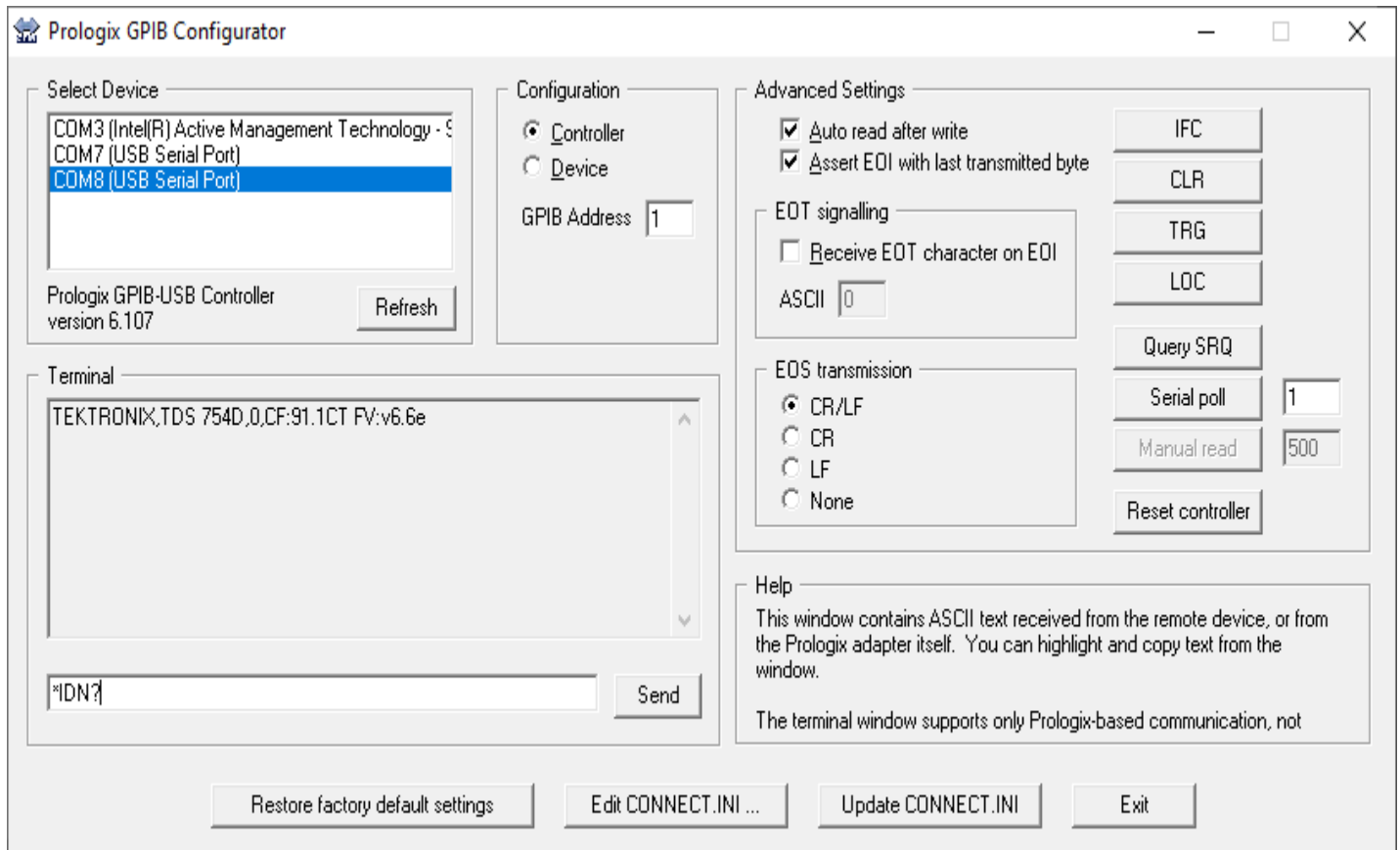
The TDS754D in particular is a 4 channel, 500MHz instrument with 50,000 samples memory per channel as standard. Option 1M was available which extended the number of samples to 500,000 on one channel (130,000 on 3 or 4 channels) and option 2M doubled these numbers.

While earlier models were fitted with the claimed amount of memory, later systems were all fitted with the maximum amount of memory and the option selected by the buyer was programmed into the instrument's software as needed, greatly simplifying inventory.

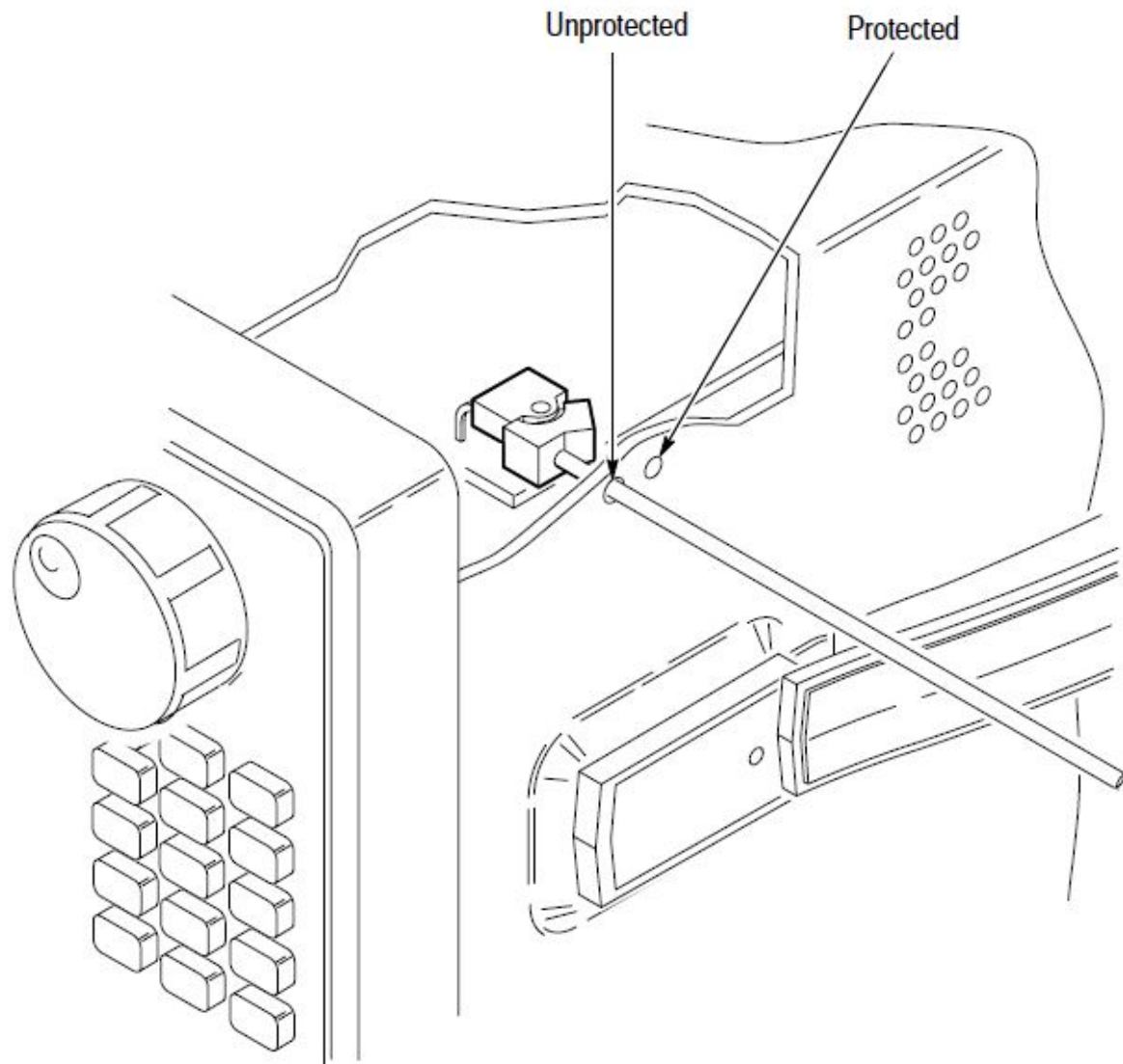
It seems the switch occurred with the instruments with serial number B04xxx and later, which corresponded to a new version of the CPU and acquisition boards. I happen to have two such instruments, one with serial number in the B03xxx series (with firmware v6.6e) and one in the B04xxx series (with firmware v7.1.1e). I was able to use the procedure below on the more recent instrument to enable option 2M. I did not try on the older one.

The procedure to enable the higher memory if you have one of those later instruments is easy:

1. Connect the instrument to a PC using a GPIB Controller (I used a Prologix USB adapter (<http://prologix.biz>) which I configured using John Mile's Configurator, part of his excellent GPIB Toolkit (<http://www.ke5fx.com/gpib/readme.htm>), see picture below)
2. Make sure the GPIB controller is configured to talk to the instrument's address (you can display the instrument's address by clicking on Shift->Utility->System->I/O->Talk/Listen address)
3. Make sure you are talking to the instrument by sending the command `*IDN?` using the GPIB Configurator's Send command. The instrument should respond with something like:  
`TEKTRONIX,TDS 754D,0,CF:91.1CT FV:v7.1.1e`  
(Note that the Prologix adapter must have "Auto read after write" enabled in order to get the response from the scope)
4. Turn off memory protection (see picture)
5. Send the password command: `PASSWORD PITBULL`
6. Send the command to enable option 2M: `WORDCONSTANT:ATPUT 327695,1"`
7. Reset the memory protection switch to the Protected position
8. Recycle power and verify that the instrument now reports option 2M at power up.



John Mile's Configurator



**Figure 5-1: Accessing the Protection Switch**

#### Memory Protection Switch

Here are the commands for the other options. However most all these other options require specific hardware, so enabling them without the relevant hardware would only cause errors and may even make your instrument unusable as the processor would try to address hardware that is not physically present.

- `WORDCONSTANT:ATPUT 327686, 1` <- Enable option 1M (500k memory/channel on 2Ch units)
- `WORDCONSTANT:ATPUT 327687, 1` <- Enable option 05 (Video trigger)
- `WORDCONSTANT:ATPUT 327688, 1` <- Enable option 13 (RS-232 and Centronics interfaces)
- `WORDCONSTANT:ATPUT 327689, 1` <- Enable option 2F (Extended waveform math: FFT, etc...)
- `WORDCONSTANT:ATPUT 327690, 1` <- Enable option 1F (Floppy disk)
- `WORDCONSTANT:ATPUT 327692, 1` <- Enable option 2C (Communication Signal Analyzer)
- `WORDCONSTANT:ATPUT 327693, 1` <- Enable option 3C (Optical, Short Wavelength)
- `WORDCONSTANT:ATPUT 327694, 1` <- Enable option 4C (Optical, Long Wavelength)
- `WORDCONSTANT:ATPUT 327695, 1` <- Enable option 2M (500k memory/channel on 4Ch units)

These instructions will most likely work with other instruments in that series, the links below will lead you to other reports.

## Credit:

This page is a compilation of information found on eevblog.com (<https://www.eevblog.com/forum/testgear/enabling-option-1m-extended-acquisition-memory-tektronix-tds754a/>), TekScopes (<https://groups.io/g/TekScopes>) (formerly on Yahoo Groups, now on Groups.io) and forum.tek.com (<https://forum.tek.com/viewtopic.php?t=138489>), three invaluable sites if you want to maintain these old instruments.

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