Trek 156A/1 Serial Commands

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Pin 1   Pin 13

**SERIAL PORT
CAT I**

Pin 14   Pin 25
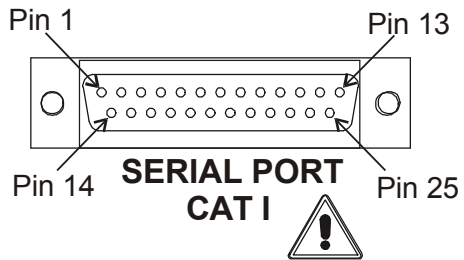
D25 Serial Pin Readouts

D-Type 25-Pin No.	Abbreviation	Full Name
Pin 2	TD	Transmit Data
Pin 3	RD	Receive Data
Pin 4	RTS	Request To Send
Pin 5	CTS	Clear To Send
Pin 6	DSR	Data Set Ready
Pin 7	SG	Signal Ground
Pin 8	CD	Carrier Detect
Pin 20	DTR	Data Terminal Ready
Pin 22	RI	Ring Indicator

The commands sent over the serial port to the Model 156A/1 are of a form of either a 3 or 6 character string. The characters are always lower case and will always garner a 2 character response from the Model 156A/1. The setup of the serial port is as follows:

        8 data bits
        1 stop bit
        No parity
        57600 baud rate

The responses from the Model 156A/1 are always marked by one of two responses. They are an "OK" or "er". The "OK" response indicates that the command was understood, data might follow, in which case certain commands will respond with data followed by an "OK" statement. What follows is a summary of the commands.

Command	Description	Model 156A/1 Response
tx1	Start to transmit data	"OK(high byte)(low byte) (high byte)(low byte)…..." Data starts to come, in a binary fashion (16 bit signed Integer), after receipt of "OK"
tx0	Stop data transmission	"OK"
rst	Resets Model 156A/1	"OK"
f12345	Fast Data Transmission	This is the command to enter the "Fast Data" collection mode. Bytes "1234" are the number of data points to gather, in binary fashion(32 bit unsigned interger). The byte "5" is the timing byte. A binary 0=10ms between data points A binary 1=3.3ms between data points A binary 2=1.66ms between data points A binary 3=3.33ms between data points A binary 4=833us between data points An "OK" will be sent after receipt of command And again after all of the data is transmitted. For example, "OK(high byte)(low byte)……. (high byte)(low byte)OK".
gtv	Get Start and Stop voltages	This command responds with an "OK" and then with 4 bytes and then with "OK". The first two bytes returned are the start voltage (high byte, low byte) then the next 2 bytes are the stop voltage (high byte, low byte).
vt1234	Set start and stop voltages	This command responds with an "OK". Btyes "1" and "2" set the start voltage with byte "1" the binary high byte and bye "2" the binary low byte. Btyes "3" and "4" set the start voltage with byte "3" the binary high byte and bye "4" the binary low byte.
md1	Set the operating mode	This command responds with an "OK". Byte "1" is a Binary number that sets the mode. A binary 0= Float Mode A binary 1= +Decay Mode A binary 2= -Decay Mode A binary 3= Manual Mode

As an example of sending binary data type command, let's set the start voltage to 950V and the stop voltage to 75V. 950 is represented in binary (hex) as 0x03B6 and 75 as 0x004B, vt (the command prefix) is 0x7674. There for, the data sent over the serial port is the following hex data sequence:

0x76	v
0x74	t
0x03	950V High byte
0xB6	950V Low byte
0x00	75V High byte
0x4B	75V Low byte

The Model 156A/1 will respond with "OK" or the following hex sequence:

0x4F	O
0x4B	K

This simple instruction set is easy to use, however, care must be taken when a start data transmission is initiated. The data is sent every 10ms, as this is the sampling rate in this mode of operation. There is a danger of overflowing the computer serial port buffer if the data is not processed fast enough. It is also important to make sure that data is kept retrieved, paired, in the correct order. For example if the data is not gathered from the serial buffer promptly and the first byte is lost, the order in the serial buffer becomes not (High byte)(Low Byte)(High Byte)(Low Byte)... but rather (Low Byte)(High Byte)(Low Byte)(High Byte)… it is clear that the data will be processed incorrectly.

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