

Key Features

- 63 dB Range, 0.25dB Steps
- Extremely Low Insertion Loss
- Front Panel OLED Display
- 100MHz to 6GHz
- Standalone Operation, no PC needed
- Programmable via USB virtual COM port
- Ultra Compact
- Affordable & Reliable
- Audio Feedback
- Optional Ethernet

DS Instruments

DAT64F

Programmable RF Attenuator - 63 dB Range, 0.25dB Steps



The DAT64F Fine-Step RF Attenuator

The DAT64F is a stand-alone wide-band precision programmable attenuator instrument with attenuation range from 0 to 63 dB and a **0.25dB** step size. Insertion loss is below 6dB at 6GHz. Control of the attenuation setting can be accomplished both by the user interface, via USB port, or optional Ethernet jack.

DAT64F Applications

- Internet-of-things development
- Automated testing environments
- General RF lab use
- Control systems
- Cellular equipment testing
- Production verification
- Educational / university lab use
- Aerospace / defense research
- Wireless infrastructure

Remote Operation

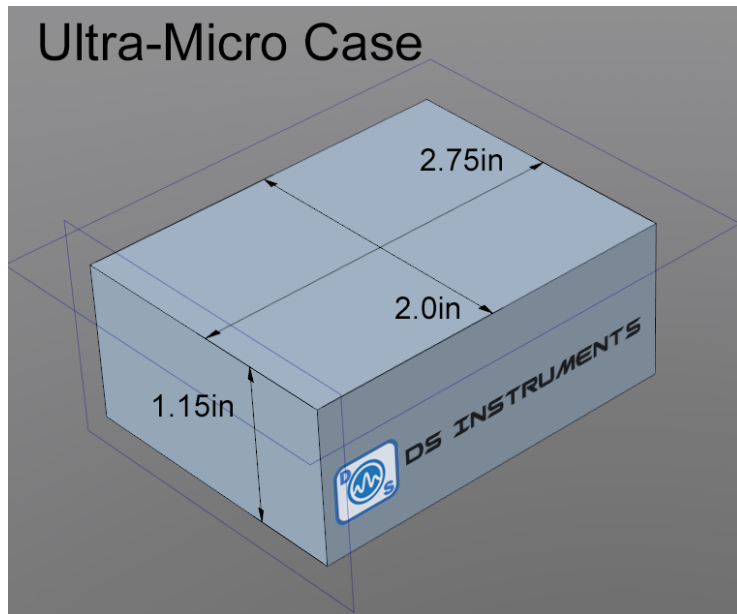
Industry standard SCPI commands allow the DAT64F to be controlled by any host system with a USB interface.

The USB port is configured as a virtual COM port allowing user software to access the DAT64F as if it were a standard serial COM device without any additional drivers.

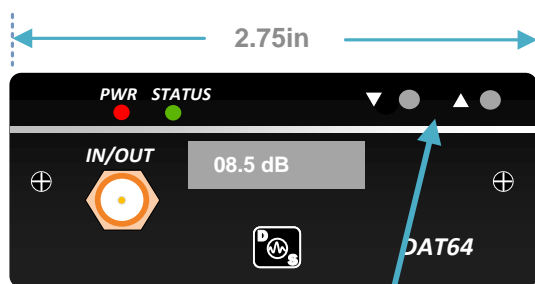


DAT64F

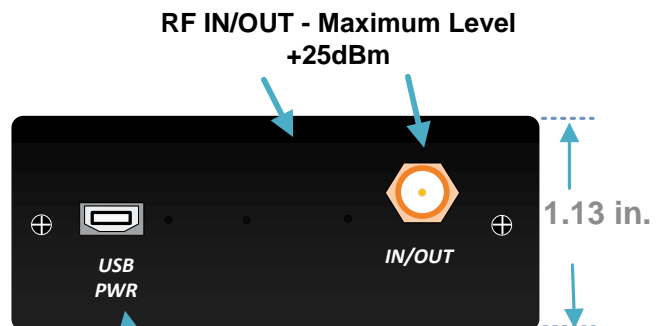
MECHANICAL



CASE DIMENSIONS:
1.13(H)x2.75(W)x2.0(L) in.



User Interface
Control Buttons



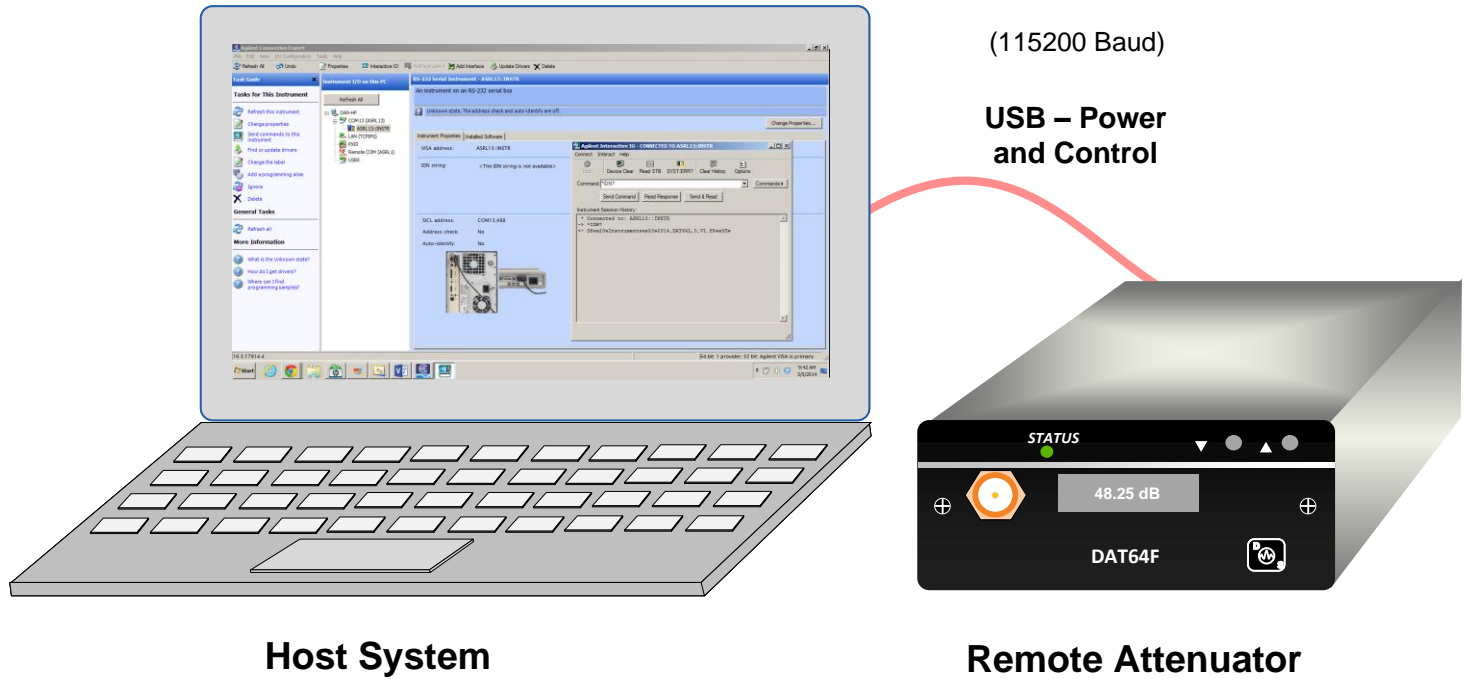
DAT64F

Technical Specifications

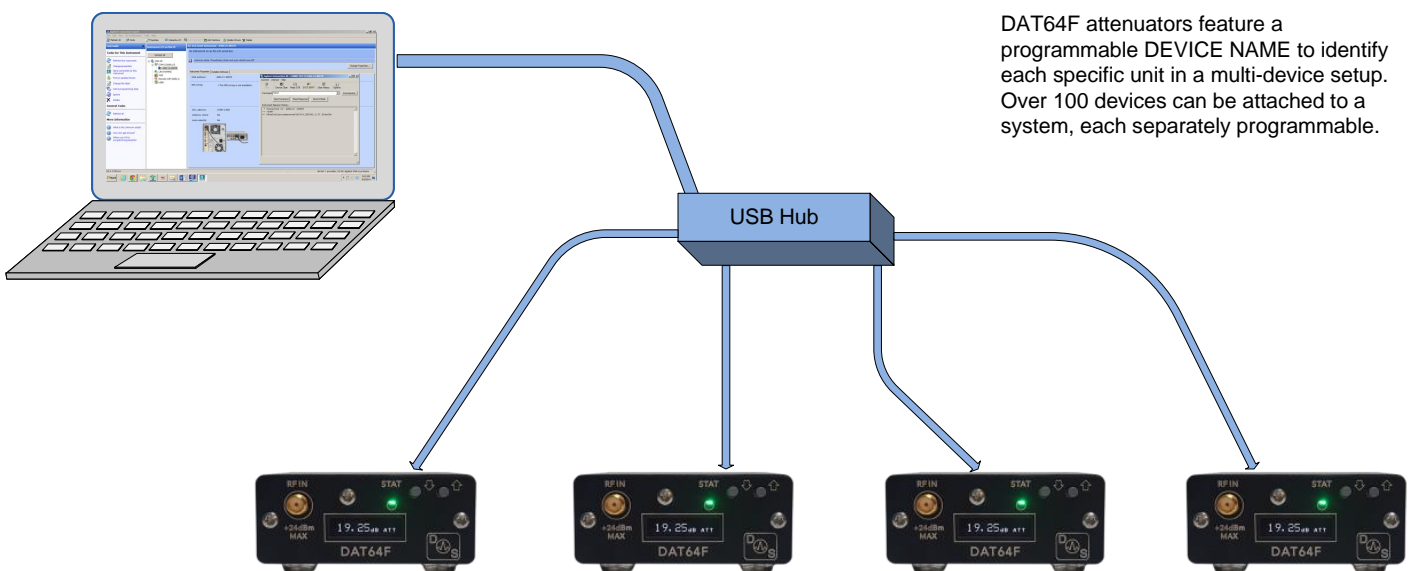
Parameter	Min	Max	Typ	Units
Frequency Range	100	6000		MHz
Insertion Loss, 1 to 3000MHz	1.5	4	3	dB
Insertion Loss, 3 to 4.5GHz	2	5	4	dB
Insertion Loss, 4.5 to 6GHz	4	6	5	dB
RF In/Out Return Loss (SMA)	10	20	14	dB
Attenuation Range	0	63.5		dB
Minimum Step Size			0.25	dB
Step Error			+/- 0.1	dB
Maximum Input Power		+25		dBm
Third Order Intercept			+50	dBm
Accuracy (relative to insertion loss)	$\pm (0.10 + 8\% \text{ of Atten. Setting})$			dB
USB Port Input Voltage	4.60	5.4	5.0	Vdc
USB command response time			< 1	ms
Impedance			50	Ohms
RF Ports			2	SMA
Operating Temperature (Ambient Environment)	-20	50	20	C
1-dB compression point (P1dB)			26	dBm
0.1-dB compression point (P0.1dB)			22	dBm
USB current requirement – no Ethernet		200	150	mA
USB current requirement – Ethernet		500	350	mA

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Typical User connections for Remote Operation from PC

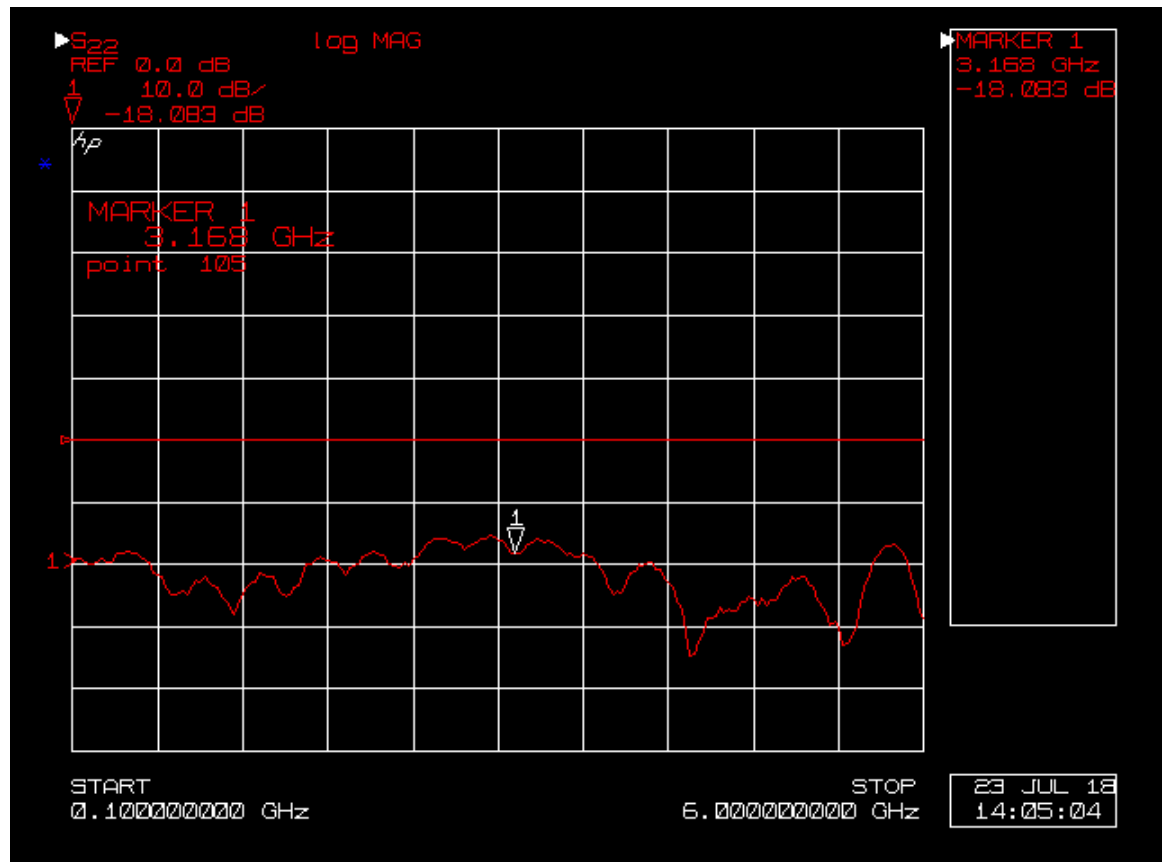
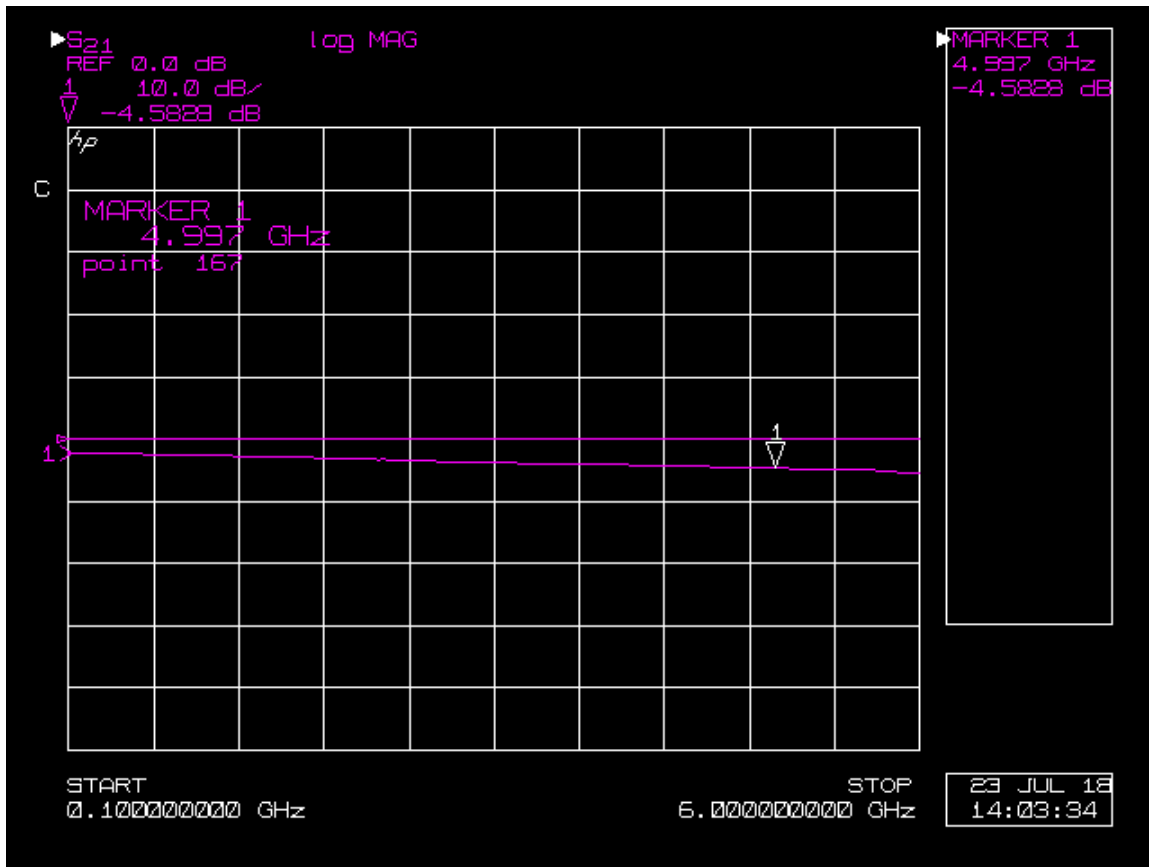


Multiple DAT64 Attenuator Setup



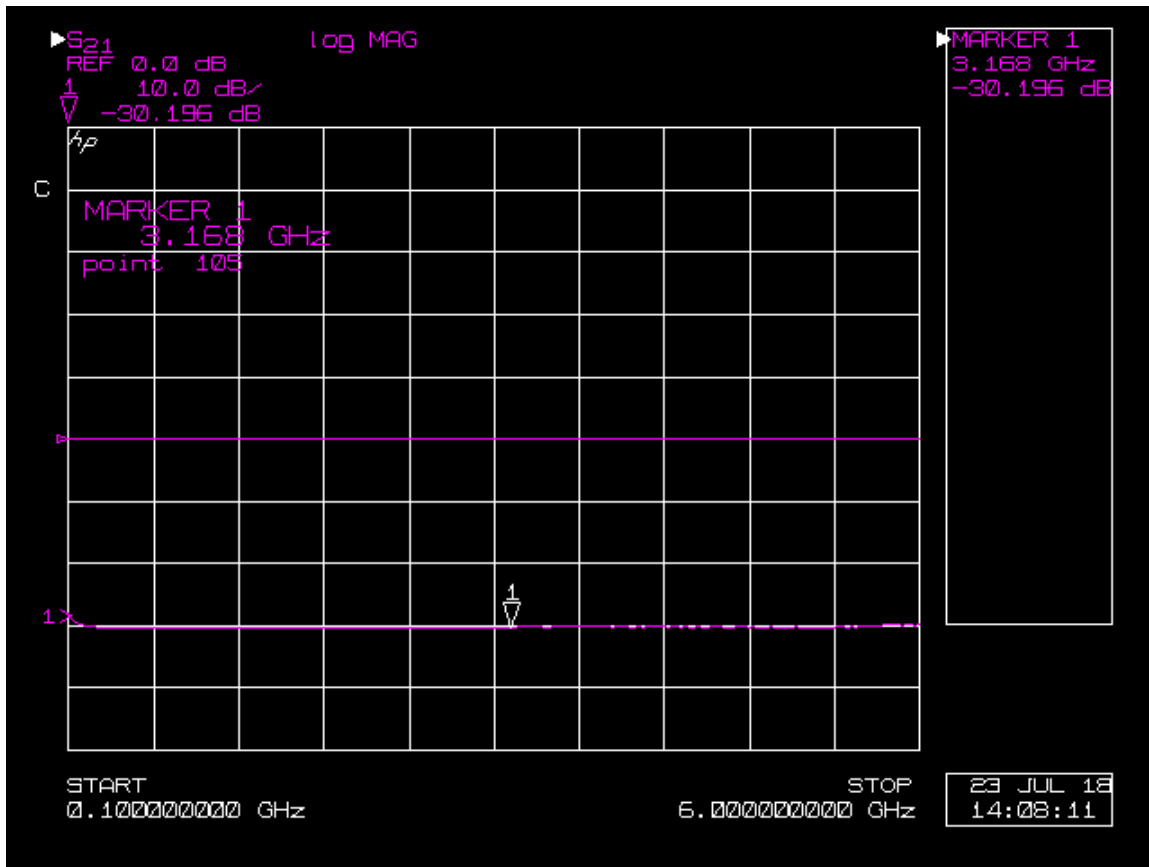
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Frequency Response Plots



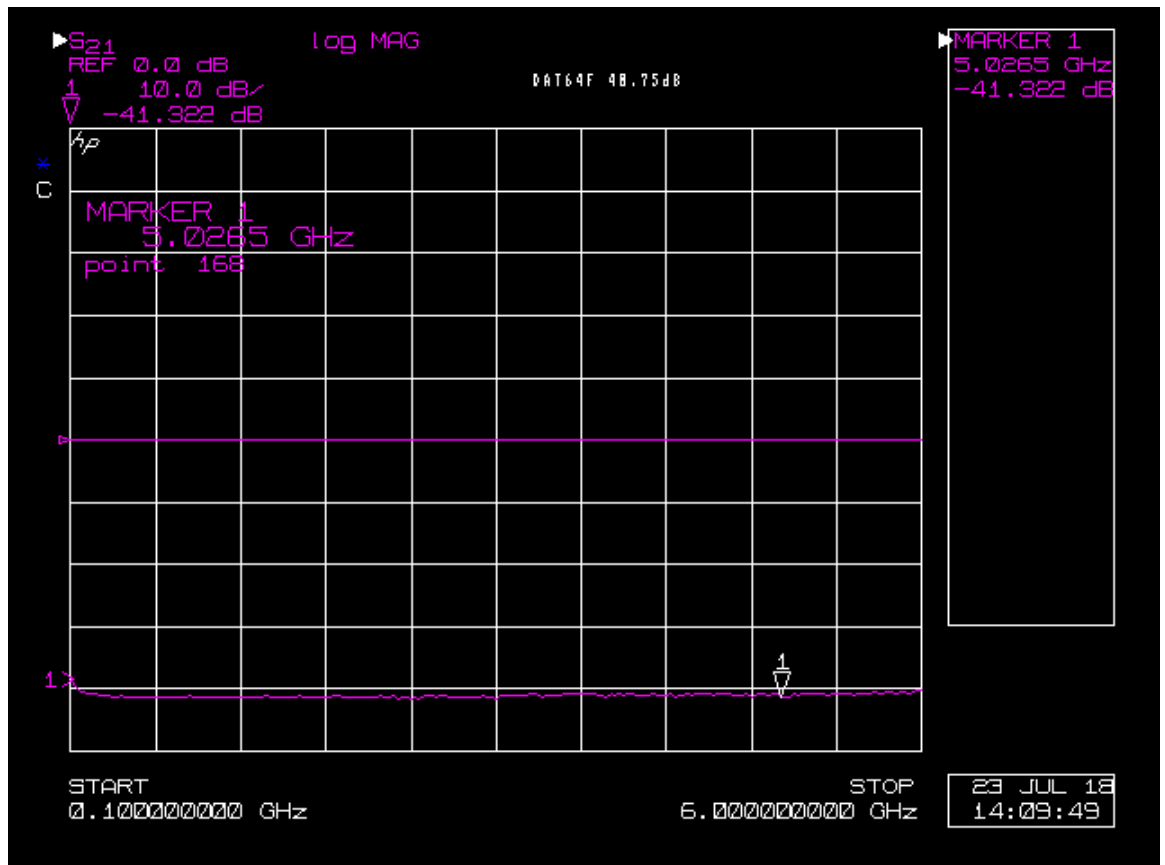
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Typical Performance Plots



30dB setting
(Insertion loss de-embedded)

40.75dB setting
(Insertion loss de-embedded)



40.75dB setting
(Insertion loss de-embedded)

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USB COM Port SCPI Commands

INPUT:ATT xyz	- Set attenuation to "xyz"
INCR	- Increase attenuation by step size
DECR	- Decrease attenuation by step size
INCR x	- Increase attenuation by "x"
DECR y	- Decrease attenuation by "y"
STEP xy	- Set the step size to "xy"
*IDN?	- Return standard identification string
*RST	- Reset device
*UNITNAME tom1	- Save a custom name string to identify this device
*UNITNAME?	- Return the saved name from flash
*SAVSTATE	- Save current settings as default
*BUZZER OFF	- Disable buzzer
*DISPLAY OFF	- Turn off OLED
*SYSVOLTS?	- Return USB voltage

(115200 Baud)

Windows GUI – USB / Ethernet

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Digital Attenuator Control

COM20 Search Connect

DAT64FE - SER:323 - FW:9.04 USBVolts: 5.40

BluePeak66 Save Name

Send Cmd

Quick dB Setting

0 10 20 30 40 50 60 70 80 90

Set Attenuation (dB)

- 50.25 +

0.25 Step

Apply

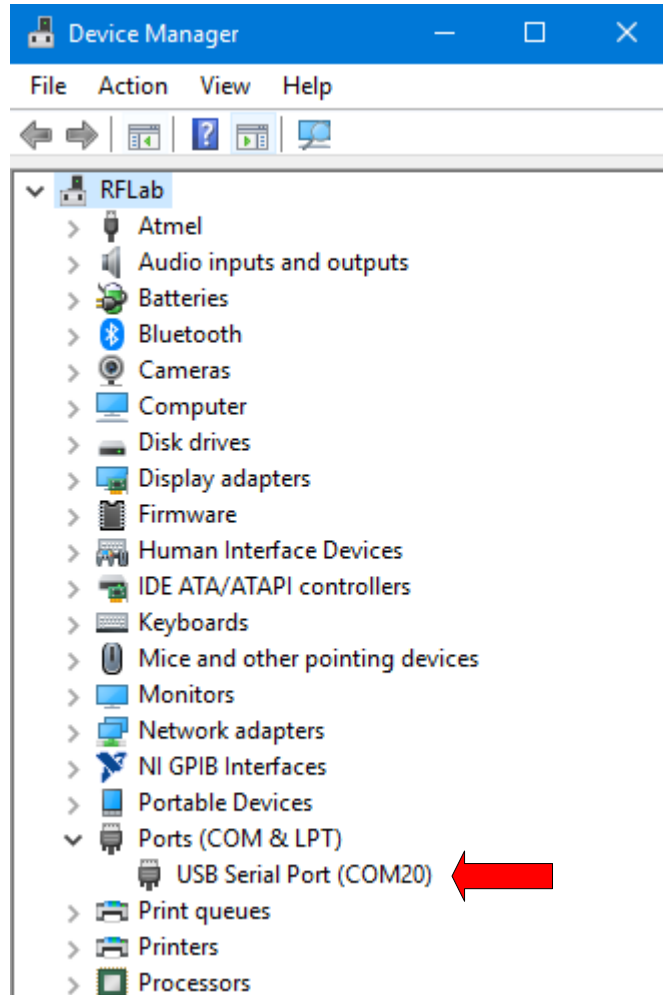
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DS Instruments, DAT64FE, 323, V9.04 BluePeak66 00.0

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Remote Programming

All of our products can be controlled from any serial-capable programming language or environment. MATLAB, .NET, Linux, python are all popular. We use Visual Studio 2015 and C# for our standard GUI. First determine the port number that your device has installed itself as:



Example Code (C# .NET Framework):

```
using System;
using System.IO.Ports;    // include serial port library

SerialPort myPort = new SerialPort("COM83", 115200, System.IO.Ports.Parity.None, 8, System.IO.Ports.StopBits.One);
myPort.Open();           // open the port we just made
myPort.WriteLine("*IDN?"); // send any command here
myPort.ReadTimeout = 250;

string myResponse = myPort.ReadLine(); // read back the response
System.Threading.Thread.Sleep(30);     // delay before sending the next command
```

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Ordering Information

DAT64F, 0- 63dB, 100 to 6000MHz Attenuator (OLED Display and Control Buttons)	\$639.00
DAT64FN, 0- 63dB, 100 to 6000MHz Attenuator (No Display / USB only)	\$599.00
DAT64FE, 0- 63dB, 100 to 6000MHz Attenuator (Ethernet + USB + Display)	\$759.00

Contact Information

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