

Software Support Available for Mini-Circuits Portable Test Equipment
Models
(AN-49-001)

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This application note explains what software support is available for Mini-Circuits Portable Test Equipment (PTE) models including smart power sensors, signal generators, switch matrices, frequency counters, and I/O control boxes.

1. Software components included with the unit:

All Mini-Circuits PTE models are designed to operate in both 32 bit and 64 bit environments and are provided with a CD containing a Windows® Graphical User Interface (GUI) program, an ActiveX API object (.dll file) and a .Net class library (.net dll). These provide access to the full PTE capability, enabling programmers to create bespoke control software. The CD also contains instructions on how to use the PTE models with Linux operating systems. For models with Ethernet-TCP/IP control there are also instructions for implementing all the commands and queries using both Telnet and HTTP protocols. The latest software is also available for download from the Mini-Circuits website at:

http://www.minicircuits.com/support/software_download.html

2. Supported programming environments for USB interface:

Operating System Type Matrix

Mini-Circuits ActiveX and .NET DLLs are supported on both 32-bit and 64-bit operating systems as below:

	Operating System Type	
	32-bit	64-bit
ActiveX DLL	Creation of 32-bit applications only	Creation of 32-bit applications only
.NET DLL	Creation of 32-bit applications only	Creation of 32-bit and 64-bit applications

Programming Environment Matrix

Mini-Circuits DLLs are designed to be compatible with a wide range of programming environments. As a general rule, an environment with ActiveX compatibility should allow Mini-Circuits' ActiveX DLLs to be used and an environment with support for the .NET framework should allow Mini-Circuits' .NET DLLs to be used. A matrix of common programming environments and the Mini-Circuits DLLs that are supported is presented below:

	Programming Environment Type	
	32-bit Application	64-bit Application
Visual Studio (for C++, C#, VB.NET)	ActiveX and .NET DLLs supported	ActiveX and .NET DLLs supported
LabVIEW	ActiveX supported from ver. 8.0 and .NET DLLs supported from ver. 2009	ActiveX and .NET DLLs supported from ver. 2009
MATLAB	ActiveX supported from ver. 7 and .NET DLLs supported from ver. 2008	ActiveX and .NET DLLs supported from ver. 2008
Python (CPython distribution)	ActiveX DLL supported	Neither DLL supported ^{1,2}
Perl	ActiveX DLL supported	Neither DLL supported ^{1,2}

Notes:

1. Open source environments such as Perl and Python are available in multiple distributions. Some 64-bit distributions (eg: IronPython and Python.NET) do provide support for the .NET framework and may therefore be capable of working with Mini-Circuits' .NET DLLs, however this has not currently been verified by Mini-Circuits.
2. For 64-bit distributions that do not support .NET, Mini-Circuits can often supply an executable program that will interface with the Mini-Circuits DLL and PTE hardware. The executable can be called from the Python/Perl script to allow control over the Mini-Circuits PTE, without requiring the environment to support the .NET framework. Please contact Mini-Circuits' Applications department for support. Regional contact numbers and e-mails can be found at:

http://www.minicircuits.com/contact/worldwide_tech_support.html

3. Supported programming environments for network access:

Any programming environment where the HTTP Get/Post request, or Telnet connections can be implemented (LabView, Matlab, etc...) can be used to control Mini-Circuits Portable Test Equipment with Ethernet-TCP/IP control interface.

4. Current List of DLL files by model family:

Product Family	ActiveX Com Object	.Net Class Library
RF Switch Matrices	mcl_rf_switch_controller.dll	mcl_rf_switch_controller64.dll
Signal Generators	mcl_gen.dll	mcl_gen64.dll
Power Meters	mcl_pm.dll	mcl_pm64.dll
Frequency Counters	mcl_freqcounter.dll	mcl_freqcounter64.dll
Integrated Freq. Counter & Power sensor	mcl_pm.dll	mcl_pm64.dll
Programmable Attenuators (RUDAT & RCDAT)	mcl_RUDAT.dll	mcl_RUDAT64.dll
Input/Output Control Boxes	mcl_usb_to_io64.dll	mcl_usb_to_io64_64.dll

USB/RS232/SPI Converters	mcl_rs232_usb_to_spi.dll	mcl_rs232_usb_to_spi_64.dll
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All of these DLL files can be downloaded from the Mini-Circuits website at http://www.minicircuits.com/support/software_download.html

For detailed programming instructions and program samples, please see the Mini-Circuits programming handbook at http://www.minicircuits.com/support/software_download.html

5. Definitions:

- a) TCP/IP - Transmission Control Protocol/Internet Protocol. This is the set of communication protocols used to connect computers on the Internet or local networks.
- b) HTTP - Hypertext Transfer Protocol, the data transfer protocol used in nearly all web pages.
- c) Telnet - A network protocol used in TCP/IP based networks to provide bidirectional, text based communication via a virtual terminal connection.

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