

USB & Ethernet Controlled Modular Test Systems

ZTM Series

50Ω DC to 50 GHz



The Big Deal

- Switch options up to 50 GHz
- Programmable attenuator options up to 120 dB
- Full software support via USB & Ethernet
- Custom configurations with fast turnaround



Software Package

RoHS Compliant

See our website for RoHS compliance methodologies and qualifications

Typical Applications

- 5G node / device testing
- Automated test equipment
- Fail-safe / redundancy switching
- Modular switch matrices

Product Overview

Mini-Circuits' ZTM series modular switch & attenuator systems offer flexibility and fast turnaround for automated test setups. The design consists of a 19" rack chassis (3U height) comprising up to 12 open hardware slots on the front panel, customizable from a wide range of switch or attenuator options:

- Mechanical SPDT, SP4T, SP6T, SP8T or transfer switches, with options up to 50 GHz
- Programmable attenuators with up to 120 dB range (4 GHz), 110 dB range (6 GHz), or 90 dB (13 GHz)
- Rear panel configurations are also available

With the use of Mini-Circuits' low cost Hand-Flex™ interconnect cables, multiple matrix configurations can be easily created by the user. The switches are controlled via USB or Ethernet, allowing control directly from a PC, or remotely over a network. Full software support is provided, including our user-friendly GUI application for Windows and a full API with programming instructions for Windows and Linux environments (both 32-bit and 64-bit systems).

Key Features

Feature	Advantages
Flexible mechanical switch options	Mechanical absorptive switches provide high reliability, repeatable high performance and internal terminations of input signals on the disconnected paths
Rack-mount chassis	Compact, 3U height 19" rack-chassis suits integration in automated production test environments
USB & Ethernet control	USB HID and Ethernet (HTTP / Telnet) interfaces provide easy compatibility with a wide range of software setups and programming environments



Mechanical / Environmental Specifications

Dimensions	19" (w) x 3U (h) x 13" (d); mounting feet add 0.5" height
Case Material	Aluminum (with protective coatings to prevent corrosion)
Case Drawing	99-01-2861 / 99-01-1968
RF Connectors	a) SMA female (components up to 26.5 GHz) b) 2.92 mm female (components up to 40 GHz) c) 2.4 mm female (components up to 50 GHz)
Front Panel	a) Power ON/OFF switch with indicator light b) All RF ports c) LED switch position indicators
Rear Panel	a) AC mains power supply input b) USB & RJ45 control connections
Control Interface	USB and Ethernet TCP/IP supporting HTTP and TELNET protocols
Power Supply	AC mains power input (90-260 V, 47-63 Hz) with 2A, 250V fuse rating
Operating Temperature	0° to +50° C
Certification	CE / UKCA

Website Configuration Tool

Step 1: Choose your configuration at <https://www.minicircuits.com/WebStore/ztm.html>

Step 2: Enter your contact details

Step 3: We will be in touch within 24 hours!

Configure and Quote

Populate each window of your test system by selecting from the 12 drop-down menus



Your chosen test system configuration:

Slot	Windows Content	Model Number	Frequency
1	SP6T Switch(Absorptive)	MSP6TA-12+	DC to 12 GHz
3	One SPDT Switch (Absorptive)	MSP2TA-18XL+	DC to 18 GHz
4	One Transfer Switch	MTS-18XL+	DC to 18 GHz
5	SP8T Switch	MSP8TA-12+	DC to 12 GHz
8	One SP4T Switch (Absorptive)	MSP4TA-40+	DC-40 GHz
10	Blank Window	None	None

Included accessories:

- AC power cord (please select region): [US\(CBL-3W-US\)](#)
- USB control cable - 6.8 ft (USB-CBL-AB-7+)
- Ethernet control cable - 5 ft (CBL-RJ45-MM-5+)
- Full software & documentation (including GUI, DLL API files, user & programming manual)



Clear

Request a Quote



Mechanical Switch Options

Switch Type	Model Name	Frequency Range
SPDT (Absorptive)	MSP2TA-18XL+	DC-18 GHz
SPDT (Absorptive)	MSP2TA-26+*	DC-26.5 GHz
SPDT (Absorptive)	MSP2TA-40+*	DC-40 GHz
SPDT (Reflective)	MSP2T-40+*	DC-40 GHz
SPDT (Reflective)	MSP2T-50+*	DC-50 GHz
SP4T (Absorptive)	MSP4TA-18+	DC-18 GHz
SP4T (Absorptive)	MSP4TA-26+*	DC-26.5 GHz
SP4T (Absorptive)	MSP4TA-40+*	DC-40 GHz
SP4T (Absorptive)	MSP4TA-50+*	DC-50 GHz
SP6T (Absorptive)	MSP6TA-12+	DC-12 GHz
SP6T (Absorptive)	MSP6TA-18+*	DC-18 GHz
SP6T (Absorptive)	MSP6TA-26+*	DC-26.5 GHz
SP6T (Absorptive)	MSP6TA-40+*	DC-40 GHz
SP6T (Reflective)	MSP6T-40+*	DC-40 GHz
SP6T (Absorptive)	MSP6TA-50+*	DC-50 GHz
SP8T (Absorptive)	MSP8TA-12D+	DC-12 GHz
SP8T (Absorptive)	MSP8TA-18+*	DC-18 GHz
SP8T (Absorptive)	MSP8TA-26+*	DC-26.5 GHz
Transfer Switch	MTS-18XL+	DC-18 GHz
Transfer Switch	MTS-26+*	DC-26.5 GHz
Transfer Switch	MTS-40+*	DC-40 GHz

* Please contact testsolutions@minicircuits.com for detailed model specifications

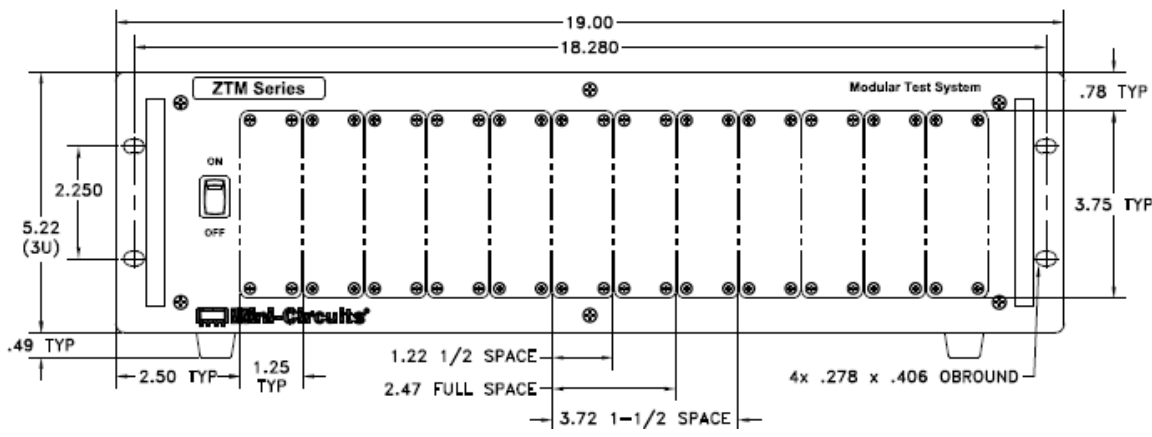
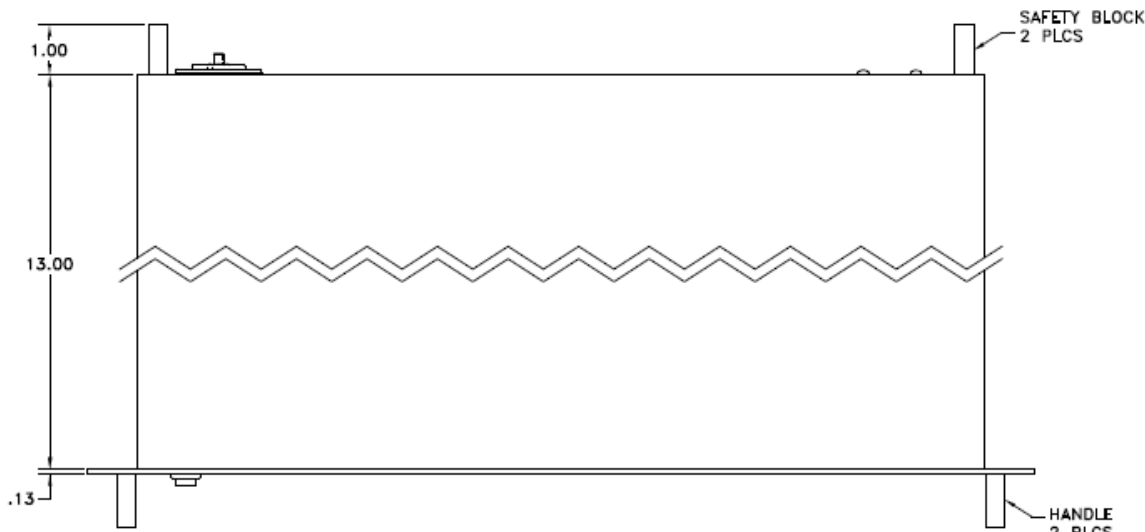
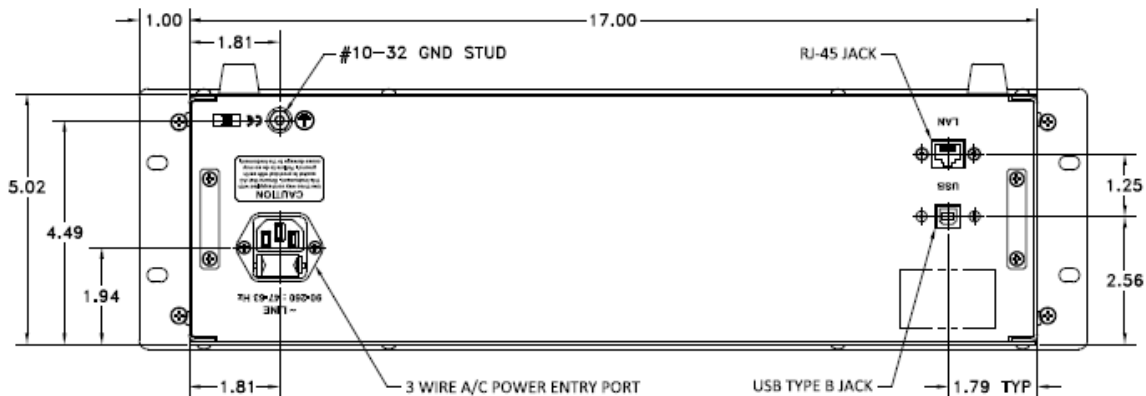
Programmable Attenuator Options

Attenuator Model	Summary Specifications		
	Frequency	Attenuation Range	Step Size
RUDAT-13G-60*	10 MHz to 13 GHz	0 - 60 dB	0.5 dB
RUDAT-13G-90*	10 MHz to 13 GHz	0 - 90 dB	0.5 dB
RUDAT-8000-30	1 MHz to 8 GHz	0 - 30 dB	0.25 dB
RUDAT-8000-60	1 MHz to 8 GHz	0 - 60 dB	0.25 dB
RUDAT-6000-30	1 MHz to 6 GHz	0 - 30 dB	0.25 dB
RUDAT-6000-60	1 MHz to 6 GHz	0 - 60 dB	0.25 dB
RUDAT-6000-90	1 MHz to 6 GHz	0 - 95 dB	0.25 dB
RUDAT-6000-110	1 MHz to 6 GHz	0 - 110 dB	0.25 dB
RUDAT-4000-120	1 MHz to 4 GHz	0 - 120 dB	0.25 dB
RUDAT-3000-63W2	1 MHz to 3 GHz (2W)	0 - 63 dB	1 dB

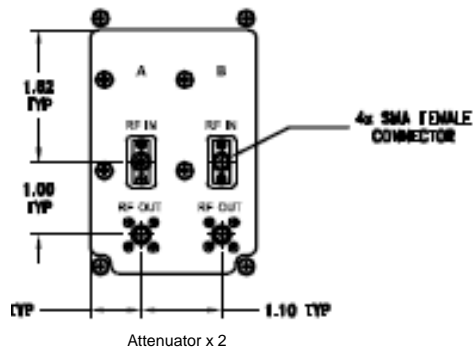
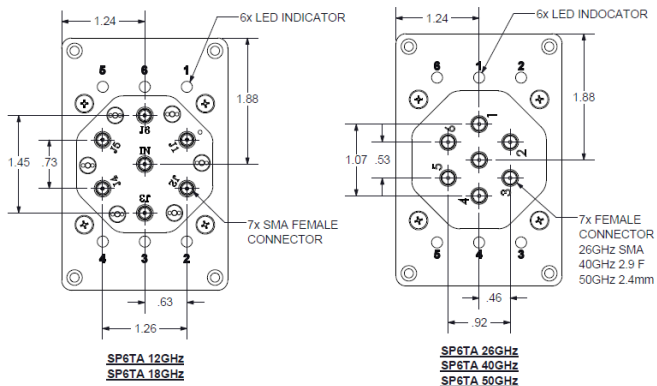
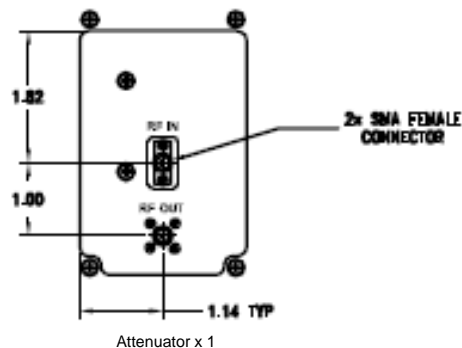
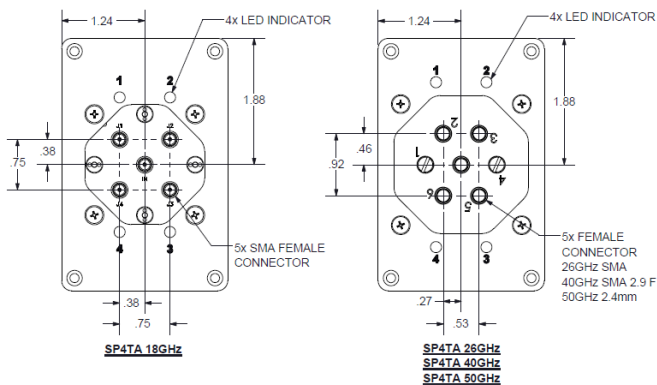
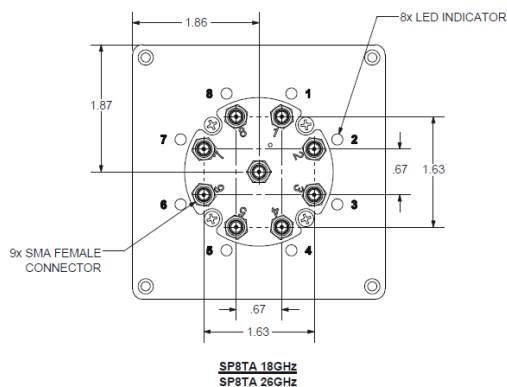
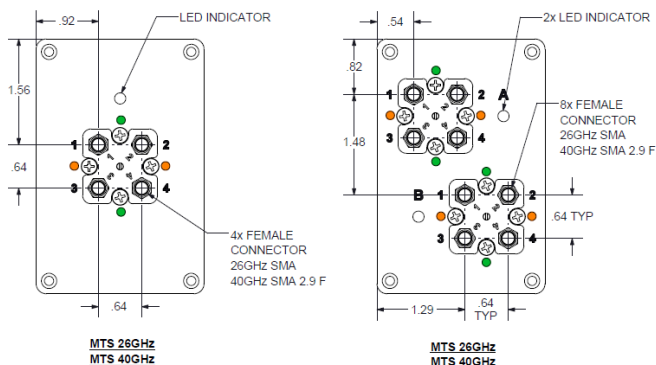
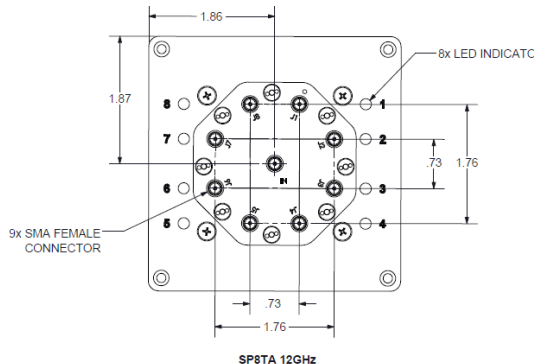
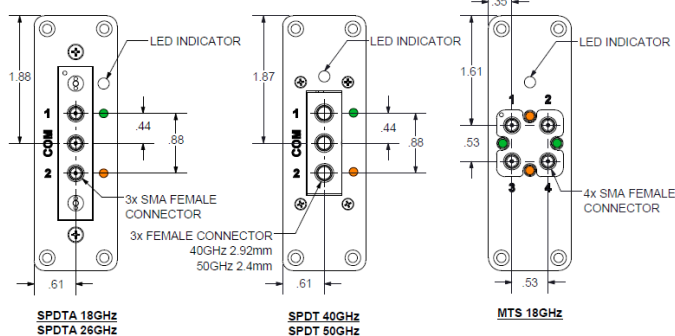
* Non-standard dimensions, please contact testsolutions@minicircuits.com to discuss

Case Drawings (Switch Systems)

Bottom, Side & Top Panels



Case Drawings



Software Specifications

Software & Documentation Download:

- Mini-Circuits' full software and support package including user guide, Windows GUI, DLL files, programming manual and examples can be downloaded free of charge from https://www.minicircuits.com/softwaredownload/ztm_rcm.html
- Please contact testsolutions@minicircuits.com for support

Minimum System Requirements:

Parameter	Requirements	
Interface	USB HID & Ethernet (HTTP & Telnet)	
System Requirements	GUI	Windows 98 or later
	USB API DLL	Windows 98 or later and programming environment with ActiveX or .NET support
	USB Direct Programming	Linux; Windows 98 or later
	Ethernet	Windows, Linux or Mac computer with a network port and Ethernet TCP / IP support
Hardware	Pentium II or later with 256 MB RAM	

Application Programming Interface (API)

Ethernet Support:

- Simple ASCII / SCPI command set for switch & attenuator control
- Communication via HTTP or Telnet
- Supported by most common programming environments

USB Support (Windows):

- ActiveX COM DLL file for creation of 32-bit programs
- .NET library DLL file for creation of 32 / 64-bit programs
- Supported by most common programming environments (refer to application note [AN-49-001](#) for summary of supported environments)

USB Support (Linux):

- Direct USB programming using a series of USB interrupt codes

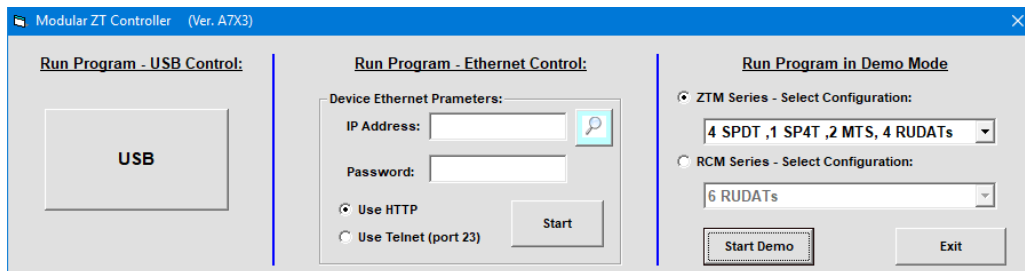
Full programming instructions and examples available for a wide range of programming environments / languages.

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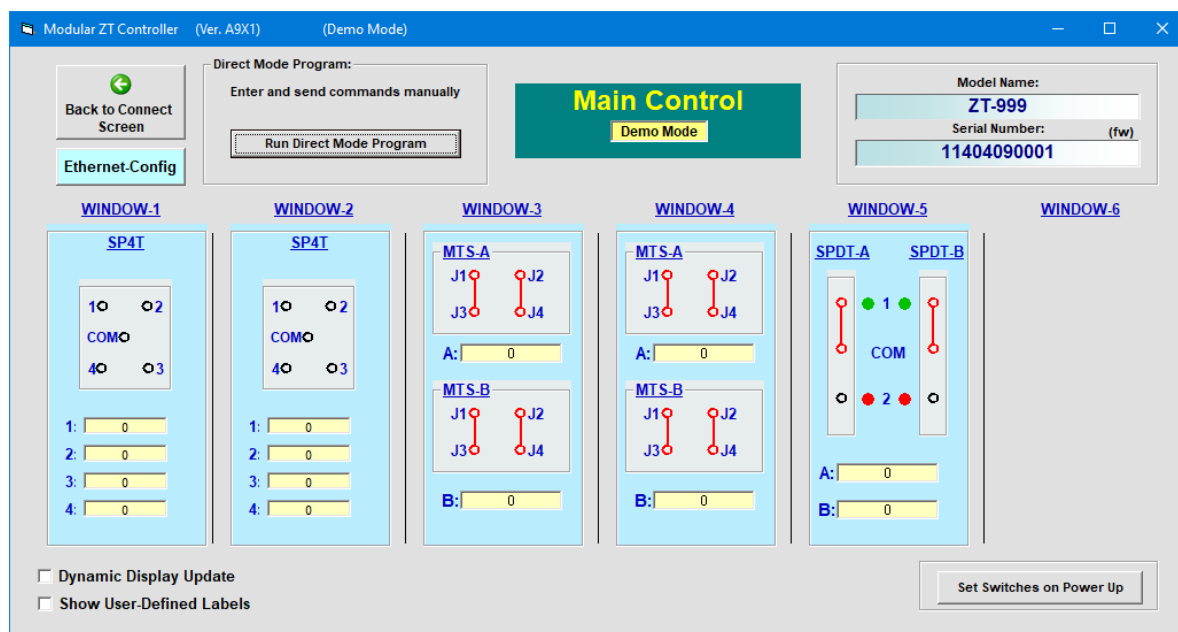
ZTM Series

Graphical User Interface (GUI) for Windows - Key Features

- Connect via USB or Ethernet
- Run GUI in “demo mode” to evaluate software without a hardware connection



- View and set switch / attenuator states at the click of a button
- Configure and run timed sequences
- Set start-up states
- View switch position counters
- Configure Ethernet IP settings



Ordering Information

Please contact Mini-Circuits' Test Solutions department for price and availability:

testsolutions@minicircuits.com

Included Accessories

Model Name	Quantity	Description
CBL-3W-xx*	1	AC power cord
USB-CBL-AB-7+	1	USB cable (6.8 ft)
CBL-RJ45-MM-5+	1	Ethernet cable (5 ft)
HT-4-SMA	1	SMA Cable Wrench (4 in)
B13-67-11+	2	Rear safety block
B18-DD-125+	4	Pan-head screw

Cable Model	Region
CBL-3W-US	USA
CBL-3W-EU	Europe
CBL-3W-IL	Israel
CBL-3W-UK	UK
CBL-3W-AU	Australia / China

*Please specify one option on the purchase order, at no charge

Additional Notes

- Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp