USB & Ethernet Controlled

2 x *n* Blocking Switch Matrices ZTVX-*n*-18 Series

50Ω 2 x 8, 2 x 10, 2 x 12, 2 x 16 DC to 18 GHz

Product Overview

Mini-Circuits' ZTVX-n-18 series comprises a range of flexible, 2 by n switch matrices covering DC to 18 GHz, available in a compact 2U height, 19-inch rack-mountable chassis with all RF connections (SMA) accessible on the front panel. This system is available in a range of blocking switch matrix configurations from 2 x 8 to 2 x 16, ideal for expanding a standard 2 port VNA for a multi-port or multi-device test scenario:

- Parallel testing of multiple 2 port devices (eg: filter and amplifier production testing)
- Production testing of splitter/combiner or switch components with high port counts
- Testing of MIMO systems with high channel counts

The system can be controlled via USB or Ethernet (supporting both HTTP and Telnet network protocols). 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).

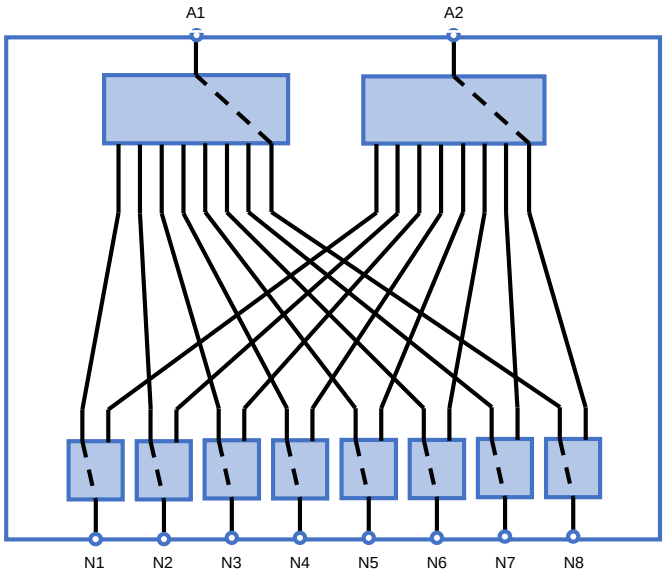
Key Features

Feature	Advantages
High port counts	Bi-directional operation from 2 to multiple ports facilitates a wide range of switch applications
Compact package	The 2U height, rack-mountable chassis is easily located beneath a VNA or in a rack test environment.
Ethernet-TCP/IP (HTTP & Telnet)	Remote control from any Windows®, Mac®, or Linux® computer, or even a mobile device with a network connection and Ethernet-TCP/IP (HTTP or Telnet protocols) support. Using a VPN would allow remote control from anywhere in the world.
USB HID (Human Interface Device)	Local control via USB connection. Plug-and-Play, no driver required. Compatible with Windows® or Linux® operating systems using 32 and 64 bit architectures.
Full software support	The user friendly Windows GUI (graphical user interface automation) allows manual control straight out of the box. A full API (application programming interface), programming examples and manuals are provided to allow automation in most programming environments.

Catalog Configurations*

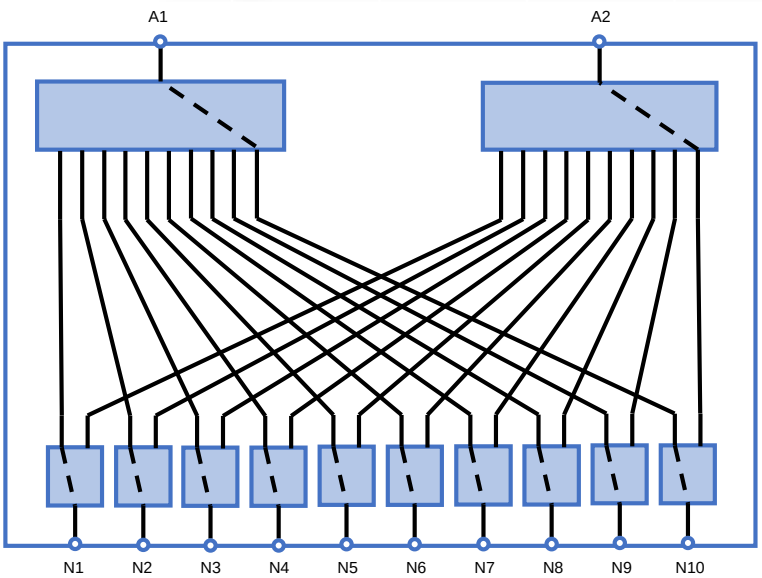
ZTVX-8-18

- 2 x 8 switch matrix
- DC to 18 GHz
- SMA
- 19” rack chassis, 2U height



ZTVX-10-18

- 2 x 10 switch matrix
- DC to 18 GHz
- SMA
- 19” rack chassis, 2U height

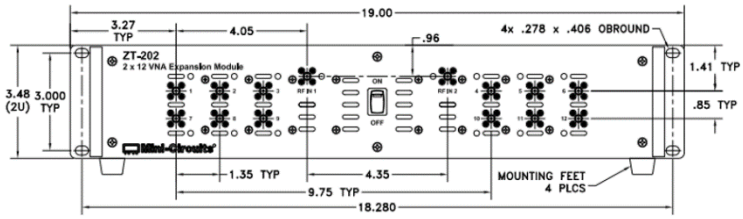


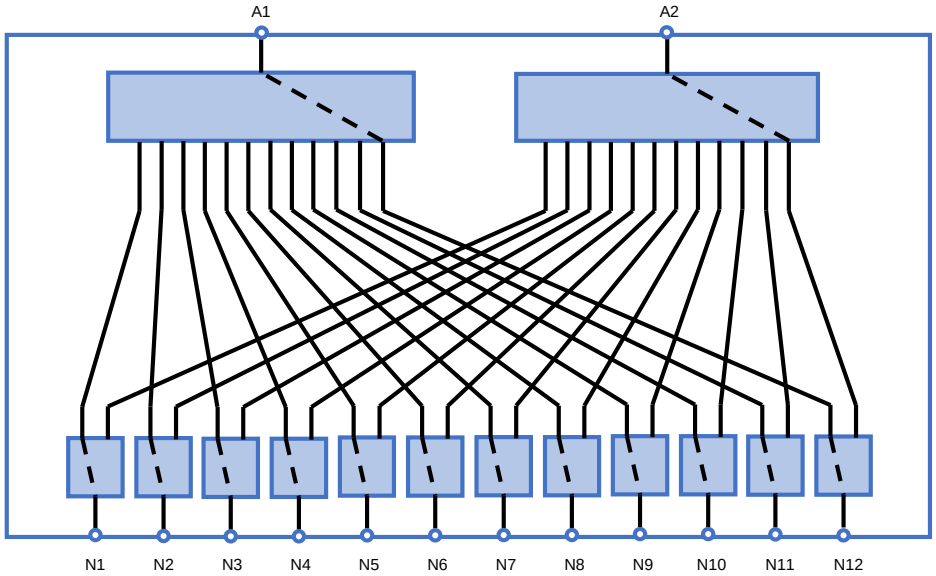
*Note: Functional schematics are indicative of the switch matrix operation but are not precise wiring diagrams; the exact topology used may differ

Catalog Configurations*

ZTVX-12-18

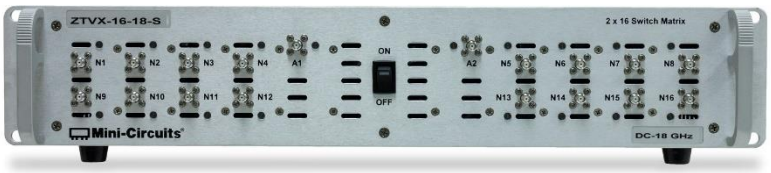
- 2 x 12 switch matrix
- DC to 18 GHz
- SMA
- 19” rack chassis, 2U height

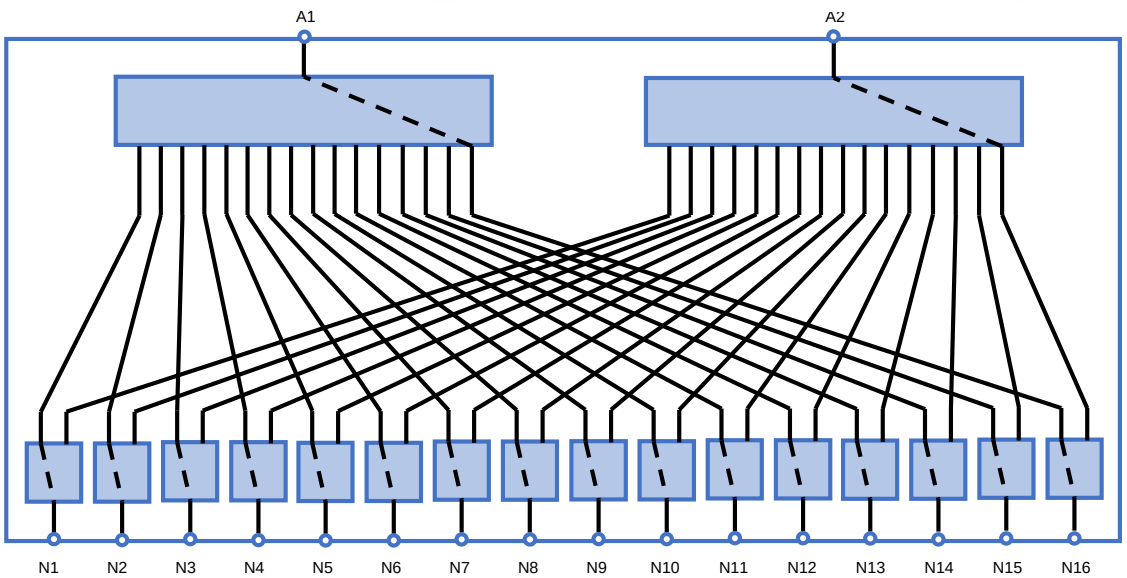




ZTVX-16-18

- 2 x 16 switch matrix
- DC to 18 GHz
- SMA
- 19” rack chassis, 2U height





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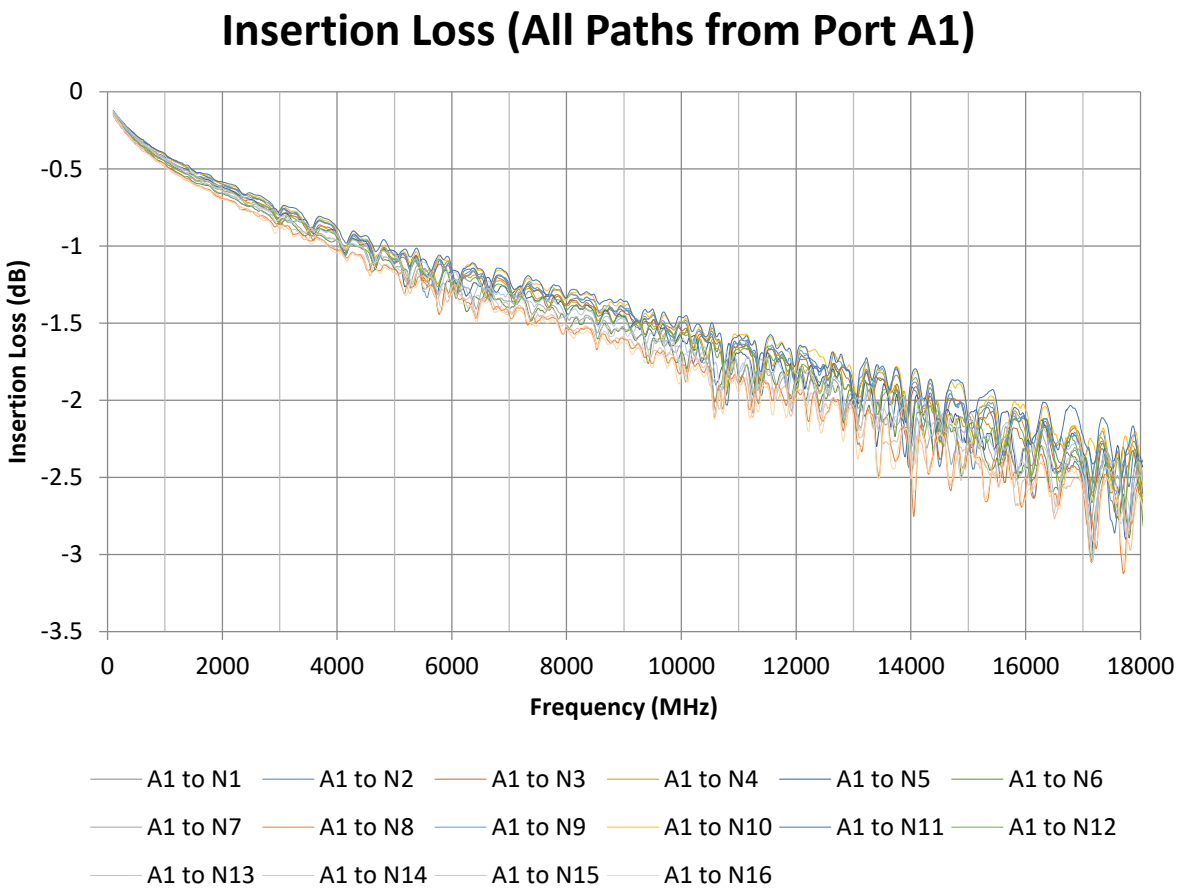
Mechanical Specifications

Dimensions	19” (W) x 2U (H) x 20” (D)
Case Material	Aluminum (with protective coatings to prevent corrosion)
Feet	Non-slip feet (removable)
RF Connectors	SMA female
Top Panel	Reinforced cover to support VNA mounted on top of switch matrix
Front panel	a) All RF ports (SMA female) b) LED switch path position indicators c) ON/OFF switch with indicator light d) Carry handles
Rear panel	a) AC mains power supply input (IEC C14 inlet) b) USB & RJ45 control connections c) Label with date code/serial number/MCL part# for traceability
Control Interface	a) USB and Ethernet TCP/IP supporting HTTP and TELNET protocols
Power supply	a) AC mains power supply (90-260 V, 47-63 Hz) b) 2A, 250V fuse rating
Operating temp	0° to +50° C

Typical Electrical Performance

Parameter	Value	Comments
Port Counts	2	A ports
	8 to 16	N ports
Operating Frequency	DC to 18 GHz	
Insertion Loss	1.0 dB typ	@ 3 GHz
	1.5 dB typ	@ 8 GHz
	2.5 dB typ	@ 18 GHz
Return Loss	20 dB typ	@ 3 GHz
	12 dB typ	@ 18 GHz
Isolation	90 dB typ	
Input Power	+30 dBm max	

Typical Performance Data



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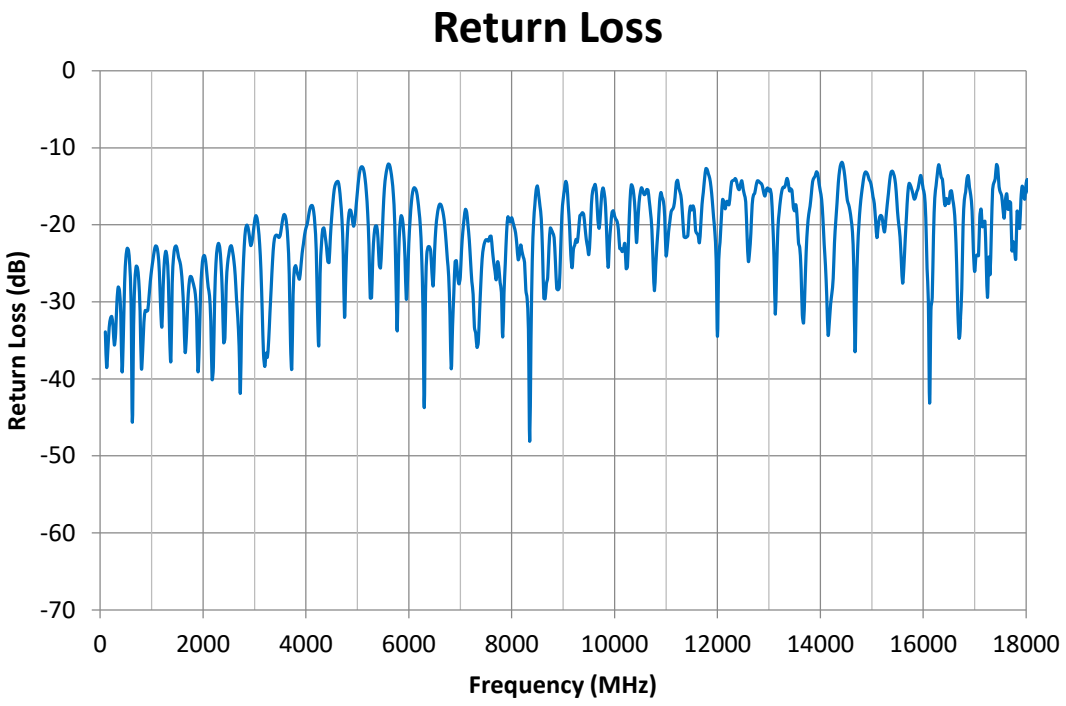

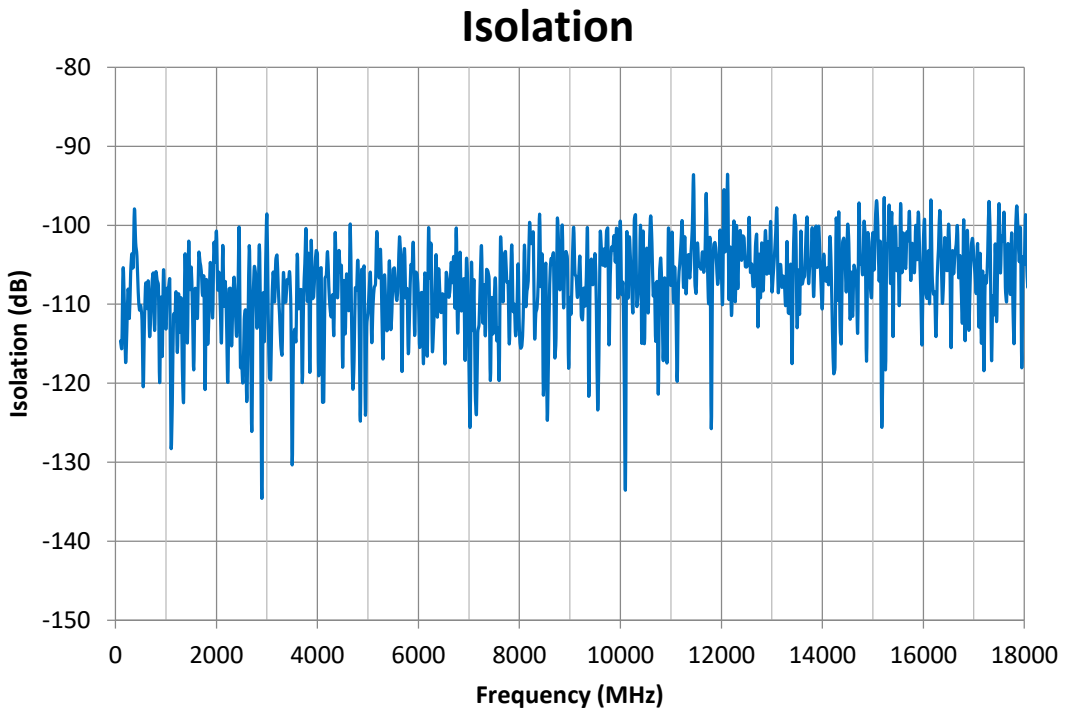

Software Specifications

Software & Documentation Download:

- Mini-Circuits' full software and support package including user guide, Windows GUI, DLL files, programming manual and examples are available for download from: https://www.minicircuits.com/softwaredownload/ztvx.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 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.

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 all switch paths
- Configure Ethernet settings
- Upgrade firmware
- Send SCPI commands
- View temperature & fan status