2 x 12 Blocking Switch Matrix ZTVX-12-75-N

75Ω   5 to 2500 MHz

Product Overview

Mini-Circuits' ZTVX-12-75N is a flexible, 2 by 12 blocking switch matrix for 75Ω test applications, with low insertion loss and high isolation. The compact 19-inch rack-mountable chassis includes all RF connections (N-type) on the front panel. This system is ideal for expanding a standard 2 port VNA for multi-port or multi-device testing:

- Parallel testing of multiple 2 port devices such as filter or amplifier characterisation
- 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).

The full ZTVX series also includes options for both 50Ω and 75Ω testing over a range of frequency bands, with switch configurations from 2 x 8 up to 2 x 32.

Key Features

Feature	Advantages
High port counts	Bi-directional operation from 2 to 12 ports facilitates a wide range of switch applications
Compact package	The 4U height, rack-mountable chassis is easily located beneath a VNA or in a rack test environment.
Ethernet Control	Remote control from any computer or device with a network connection (HTTP or Telnet protocols).
USB HID (Human Interface Device)	Local control via USB connection with no driver installation 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.

Please contact *testsolutions@minicircuits.com* for support

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Mechanical Specifications

Dimensions	19" (W) x 4U (H) x 20" (D)			
Case Drawing	99-01-2277			
Case Material	• Aluminum (with protective coating to prevent corrosion) • Reinforced cover to support VNA mounted on top of switch matrix			
RF Connectors	Panel	Connector	Quantity	Port Labels
	Front	N-type female	2	A1 – A2
			12	N1 – N12
Panel Items	**Front Panel**		**Rear Panel**	
Panel Marking	• Model name • 2 x 12 Port • 75Ω Switch Matrix		• CE • EAC • Serial number / date code / model name	
Other Connectors			• AC mains power input (IEC C14 inlet) • USB type B socket • RJ45 (LAN) socket	
Other	• Power on / off switch with LED • LED switch path indicators • Carry handles		• Cooling fan	
Power Supply	AC mains power input (90-260 V, 47-63 Hz)			
Fuse	2A, 250V rating			
Temperature	Operating: 0 to +50 ºC			

Block Diagram

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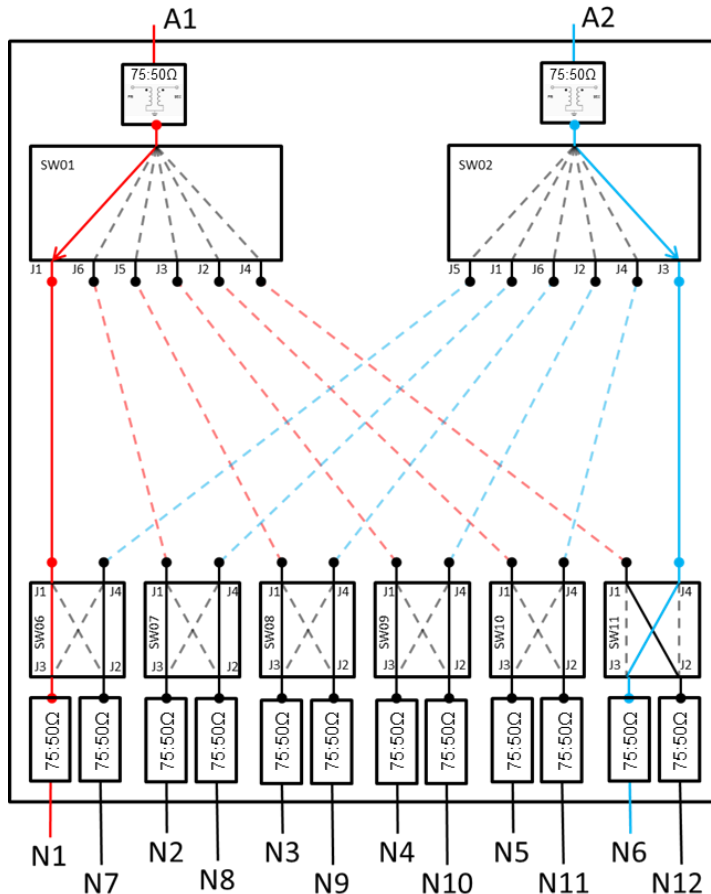
Electrical Specifications at 25°C

Parameter	Conditions	Min	Typ	Max	Units
Frequency		5		2500	MHz
Insertion Loss	5 - 1800 MHz		7.0	8.0	dB
	1800 - 2500 MHz		8.0	9.0	
Return Loss	A ports		20		dB
	N ports		25		
Isolation	A_x to N_y when disconnected	80	95		dB
	A_x to A_y or N_x to N_y	80	95		
Input Power				+25	dBm
DC	RF ports must be held at 0V DC or external DC blocks must be used				

Typical Performance Data

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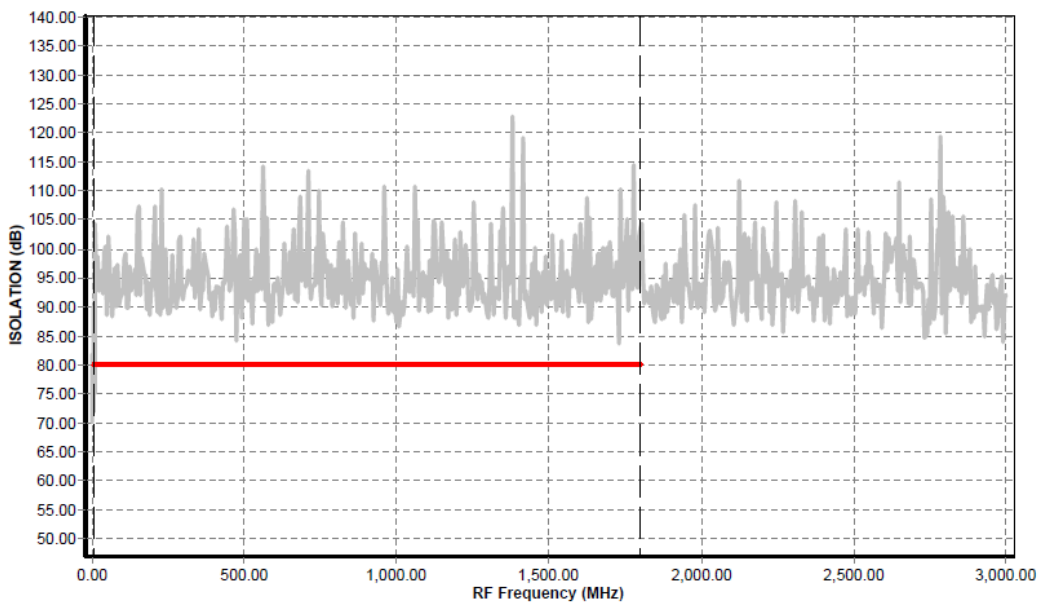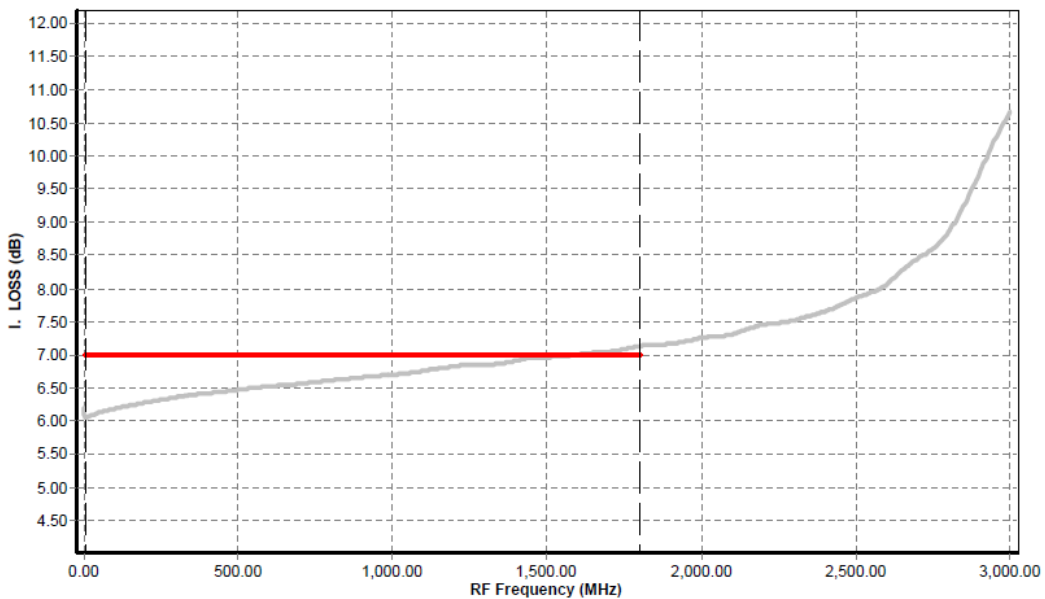
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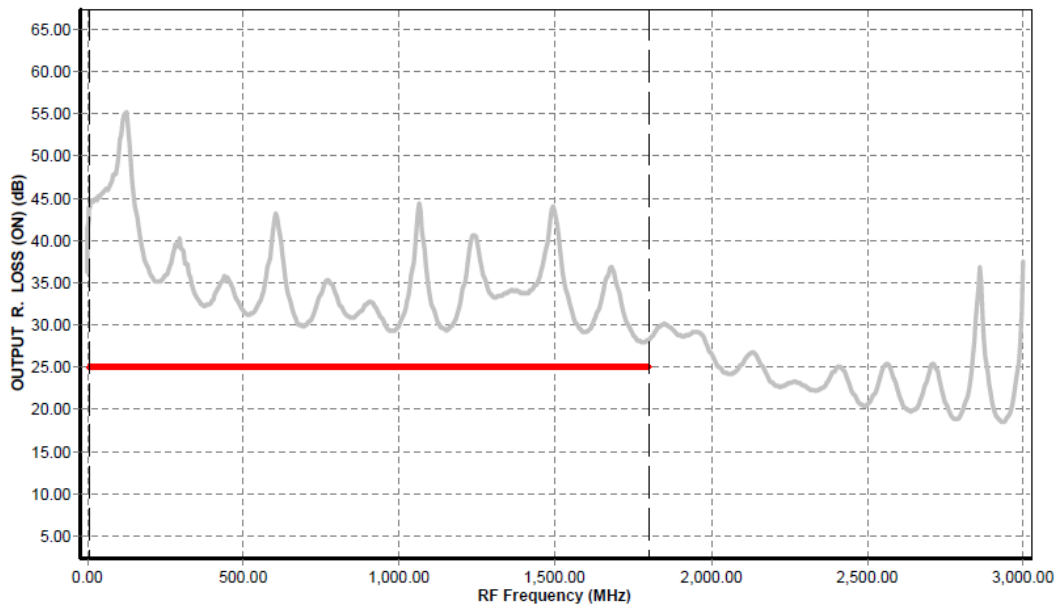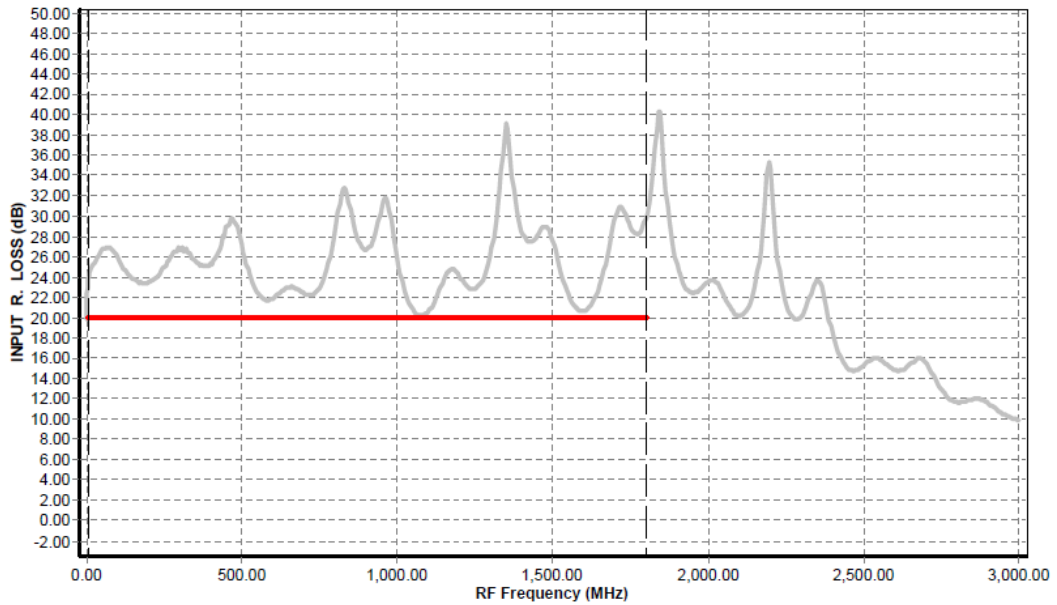
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Outline Drawing
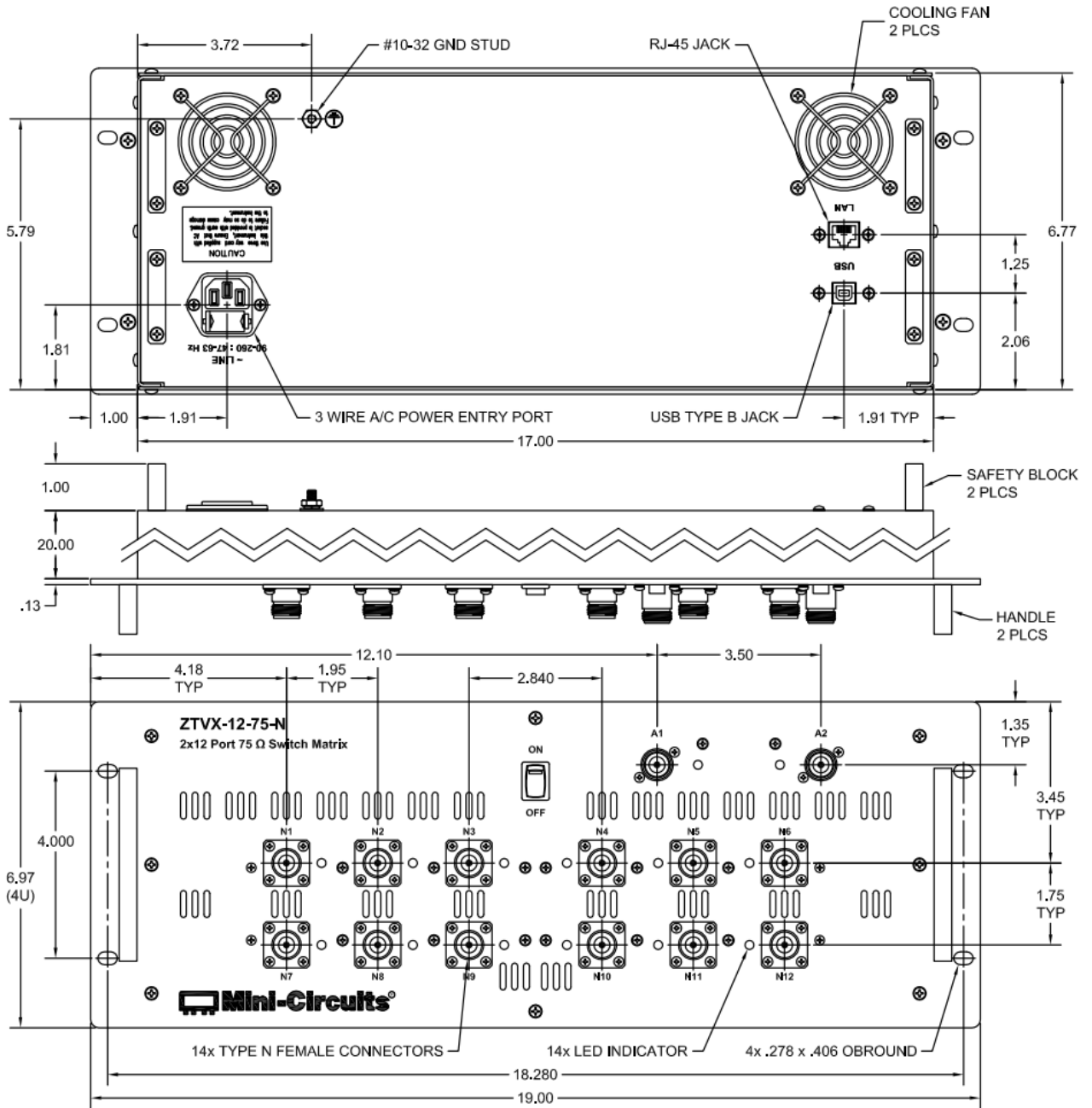
Software Specifications

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Ethernet Control	Supported Protocols	TCP / IP, HTTP, Telnet, DHCP, UDP
	Max Data Rate	10 Mbps (10Base-T Half Duplex)
USB Control	Supported Protocols	HID - Full Speed
	Min Communication Time	3 ms typ
Software Support	• Mini-Circuits' Universal GUI for USB & LAN control (Windows only) • ASCII / SCPI command syntax for LAN programming (all OS) • ActiveX / .Net DLL APIs for USB programming (Windows only) • Interrupt codes for direct USB programming (all OS) • Full programming instructions and examples for a wide range of languages	
Downloads	Software & Documentation	https://www.minicircuits.com/softwaredownload/ztvx.html

Programming Commands

• The key ASCII / SCPI commands for control of the system are summarized below
• These can be sent via the USB or Ethernet API
• Please refer to the programming manual for full details

Command / Query	Description
:MN?	Read model name
:SN?	Read serial number
:FIRMWARE?	Read firmware version
:PATH:a_port:n_port	Set the path between 2 switch ports: • a_port = "Input" port • n_port = "Output" port • Example: :PATH:A1:N8 (connect A1 to N8)
:PATH:input?	Check which "output" is connected to a specified input port

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Software Specifications

- 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

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 (IEC C13 connector to local plug)
USB-CBL-AB-7+	1	USB cable (6.8 ft)
CBL-RJ45-MM-5+	1	Ethernet cable (5 ft)

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

A. 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.

B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.

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