



Product Overview

Mini-Circuits' ZTVX-8-75-N is a flexible, 75Ω, bi-directional 2 by 8 switch matrix developed in a 3U height, 19-inch rack-mountable chassis with all 10 RF connections (75Ω N-Type) mounted on the front panel. The matrix can be programmed to connect the 2 “A” ports to any 2 of the 8 “n” ports. It may be used together with a 2-port VNA in a wide range of multi-port or multi-device test scenarios, including:

- Parallel testing of up to 4 separate 2 port devices (eg: filter and amplifier production testing)
- Production testing of multi-port devices
- Testing of multi-channel MIMO systems

The system come with USB and Ethernet-TCP/IP (HTTP and Telnet protocols) control interfaces, allowing setup flexibility and easy remote test management. Software support is provided through our easy-to-install, easy-to-use GUI application and API objects for Windows environments, with complete programming instructions for both 32 and 64 bit Windows® and Linux® operating systems.

Key Features

Feature	Advantages
75Ω switch matrix	Designed for signal routing in 75Ω environments, minimising reflections in CATV / DOCSIS and sat-com test and switching applications.
Tightly controlled switch configuration	Carefully optimised switch topology and precision Engineering from design to production ensures repeatable switch performance, best correlation between insertion loss and return loss, and competitive cost.
USB & Ethernet control	USB HID and Ethernet (HTTP / Telnet) interfaces provide easy compatibility with a wide range of software setups and programming environments
Full software support	User friendly Windows GUI (graphical user interface) allows manual control straight out of the box, while the comprehensive API (application programming interface) with examples and instructions allows easy automation in most programming environments

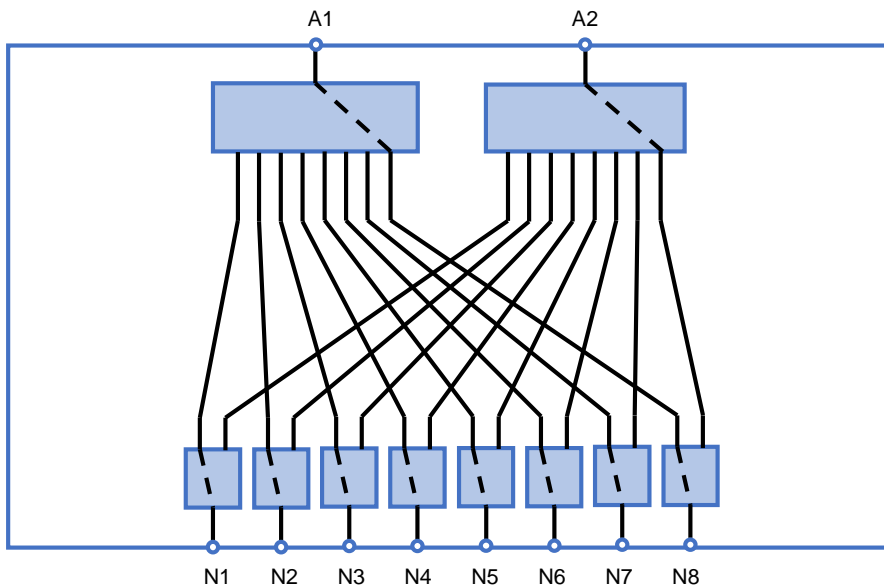
Rev	Date	Description
X0	15-Feb-18	Initial datasheet prepared

Electrical Specifications at 25°C

Parameter	Value	Comments
Frequency	5-2500 MHz	
Input Power	+25 dBm max	Per port
Insertion Loss	7.5 dB typ	@ 5-1800 MHz
	8.5 dB typ	@ 1800-2500 MHz
Impedance	75Ω	
Return Loss	20 dB typ	Ports A1 and A2
	25 dB typ	Ports N1 to N8
Isolation	80 dB typ	

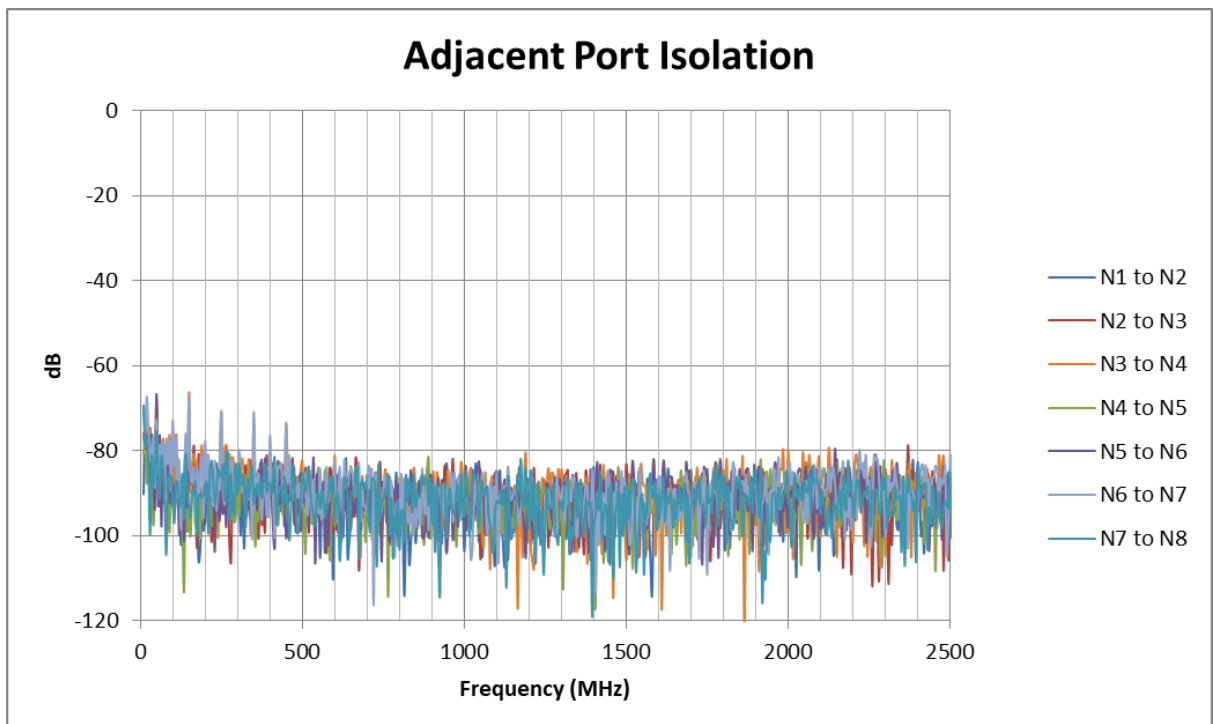
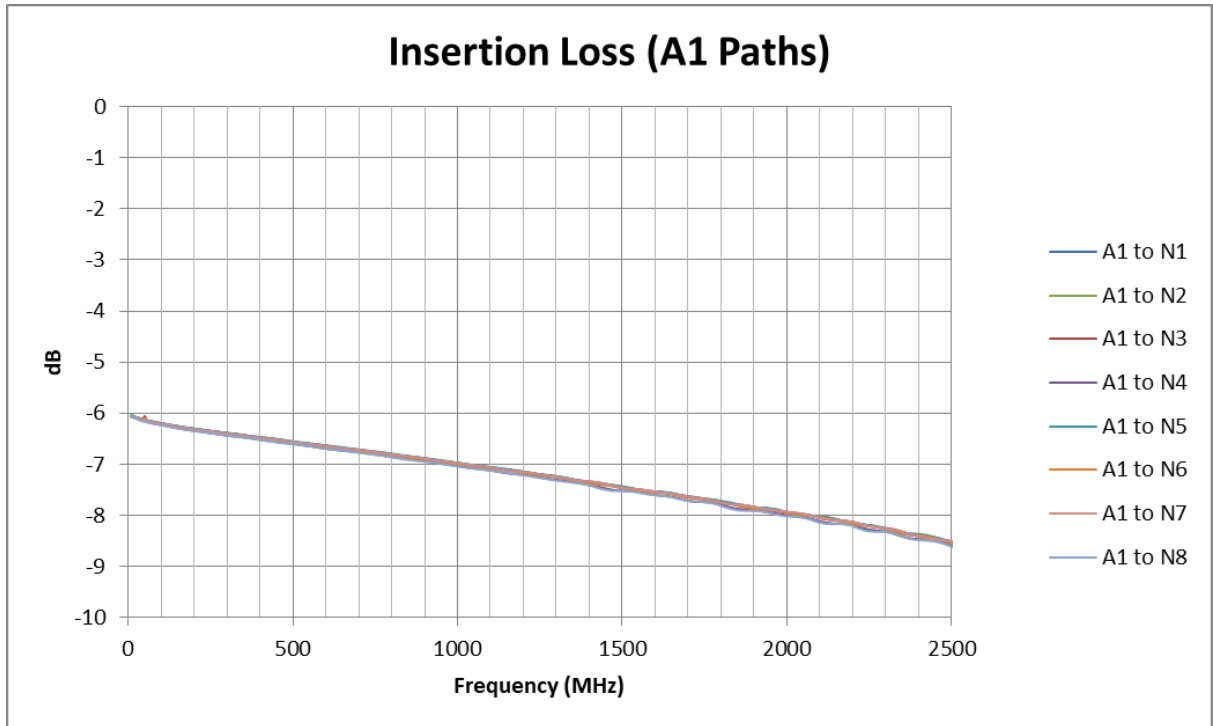
Note: RF ports must be held at 0V DC or external DC blocks must be used

Functional Block Diagram

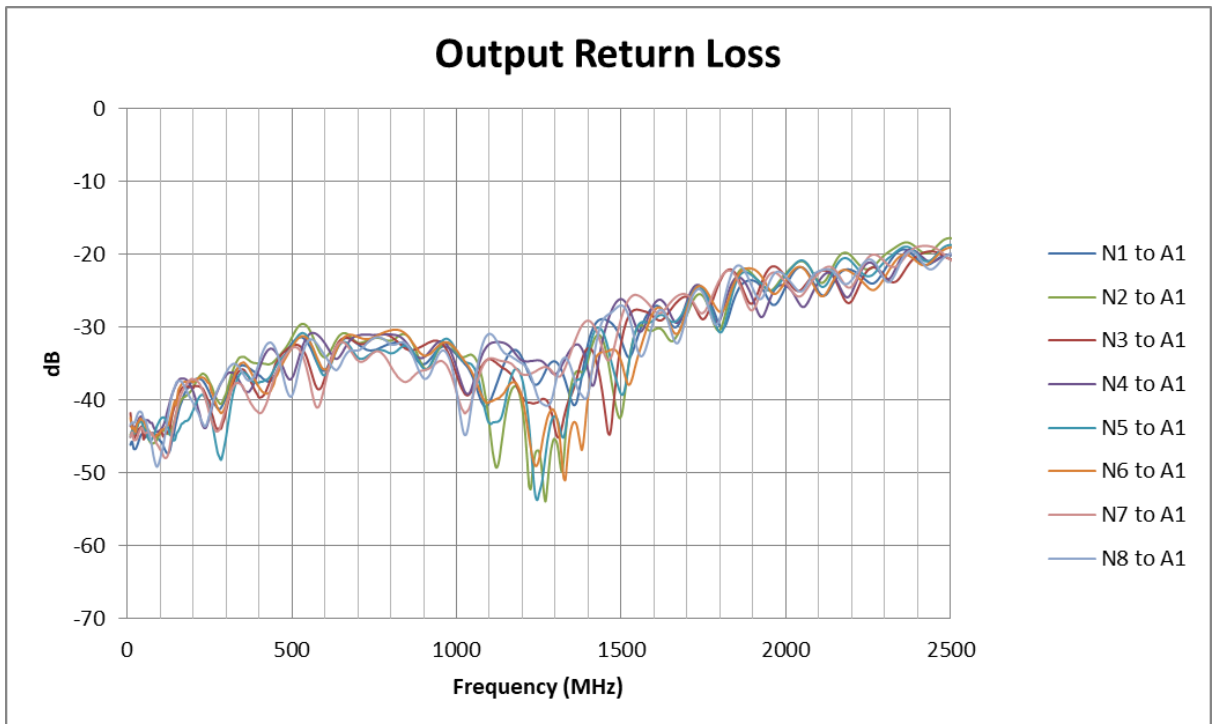


Note: the functional schematic is indicative of the switch matrix operation. Detailed wiring diagram can be found in the user manual

Typical Performance Data



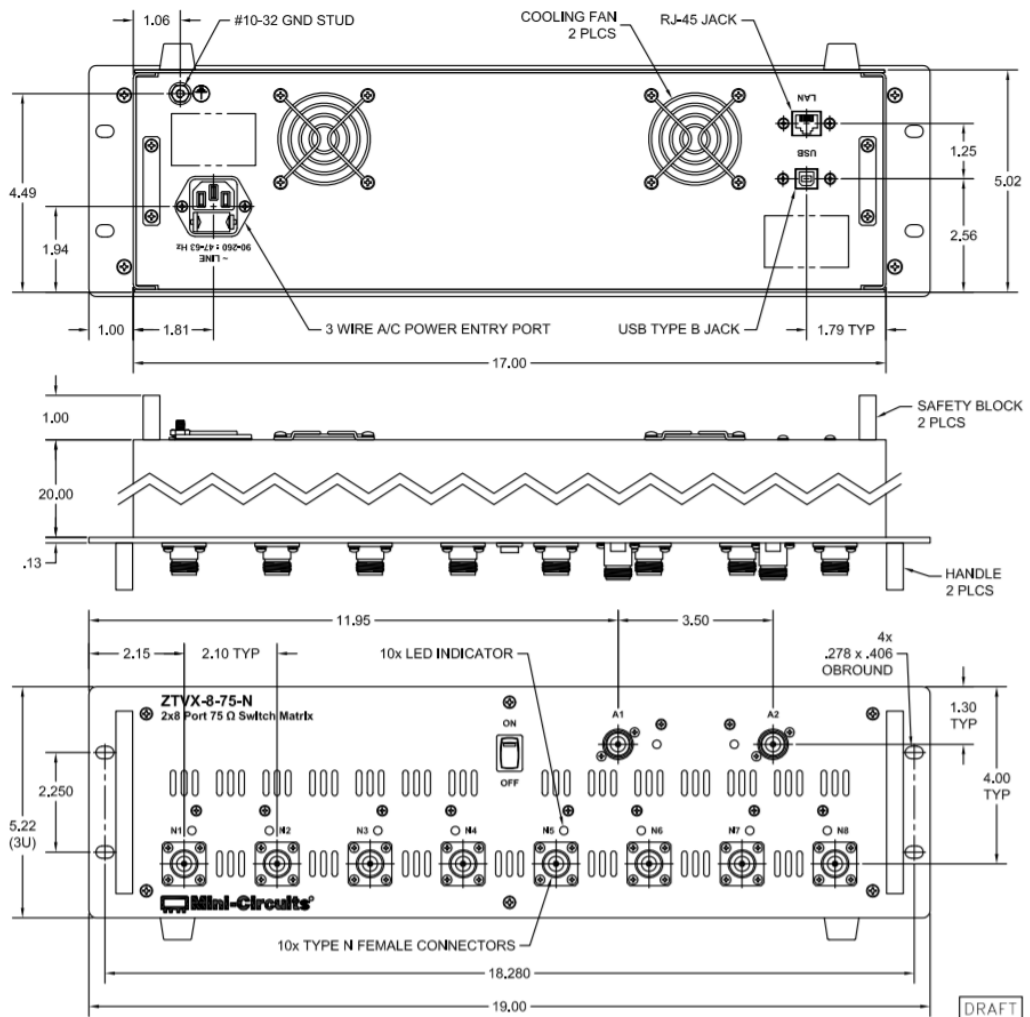
Typical Performance Data



Mechanical Specifications

Dimensions	19" (W) x 3U (H) x 20" (D)
Case Material	Aluminum (with protective coatings to prevent corrosion)
Case Drawing	99-01-2458
Feet	Removable
RF Connectors	N-type female
Front Panel Marking	Line 1: Mini-Circuits part number Line 2: 2 x 8 Port 75Ω Switch Matrix
Front panel	a) 10 x RF ports (N-type female) b) ON/OFF switch with indicator light c) Carry handles
Rear panel	a) AC mains power supply input b) USB & RJ45 control connections c) Cooling fan vents d) Label with date code/serial number/MCL part# for traceability
Control Interface	USB and Ethernet TCP/IP supporting HTTP and TELNET protocols
Power supply	AC mains power supply (90-260 V, 47-63 Hz)
Operating temp	0° to +50° C

Case Drawing



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 on request
- Available for download from <https://www.minicircuits.com/softwaredownload/ztvx.html>

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

