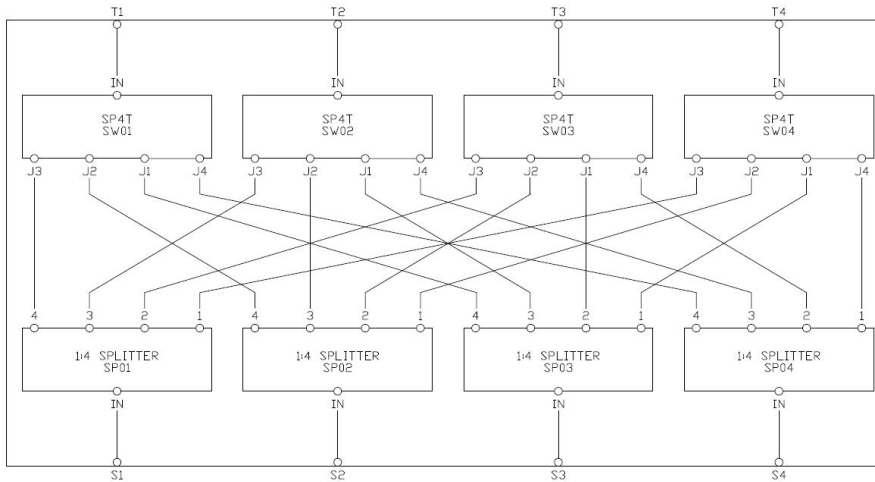


50Ω 350 to 6000 MHz



## Product Overview

Mini-Circuits’ ZT-177 is a wide-band 4x4 non-blocking switch matrix covering the key worldwide telecoms bands from 350 MHz to 6 GHz with low insertion loss and high isolation. The system is housed in a compact, 3U height, 19-inch rack chassis with SMA female connectors on the front panel and the power and control connections on the rear.

The bi-directional matrix is constructed from mechanical switches on the 4 “T” ports and power splitter / combiners on the 4 “S” ports. Signals input into any S port will fan-out to each T port, while signals input into any T port will fan-in to the S ports. Each S port can be simultaneously connected to multiple T ports, allowing a single signal source or measurement instrument to be shared amongst multiple devices or users. These characteristics are well suited to wireless transmitter and receiver test applications, including cellular base-stations, nodes and handsets.

The system can be controlled via USB or Ethernet (supporting HTTP & Telnet protocols). Full software support is provided, including our user-friendly GUI application for Windows and a flexible API with programming instructions for Windows and Linux environments.

## Key Features

Feature	Advantages
Non-blocking configuration	4 x 4 non-blocking configuration allows the 4 “outputs” to connect to any combination of “inputs”, including all to the same port
Compact package	The 3U height chassis is easily located within a rack-mounted 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.

Please contact [testsolutions@minicircuits.com](mailto:testsolutions@minicircuits.com) for support

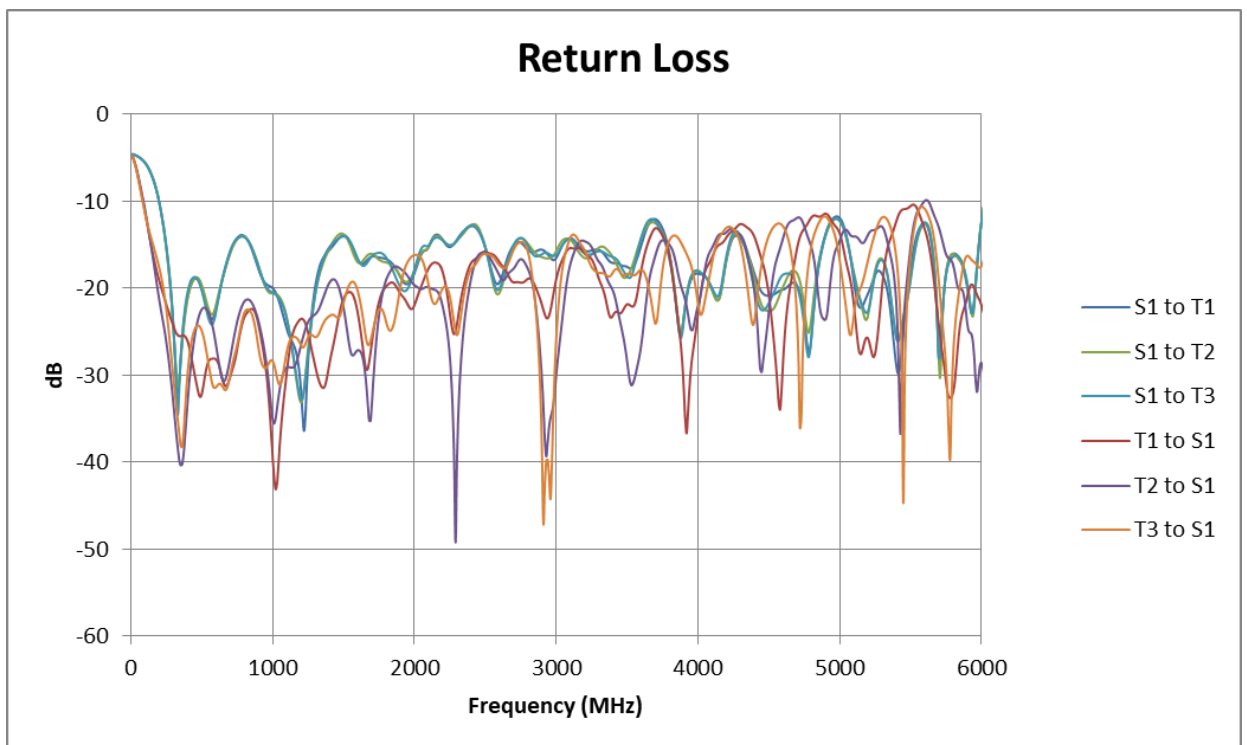
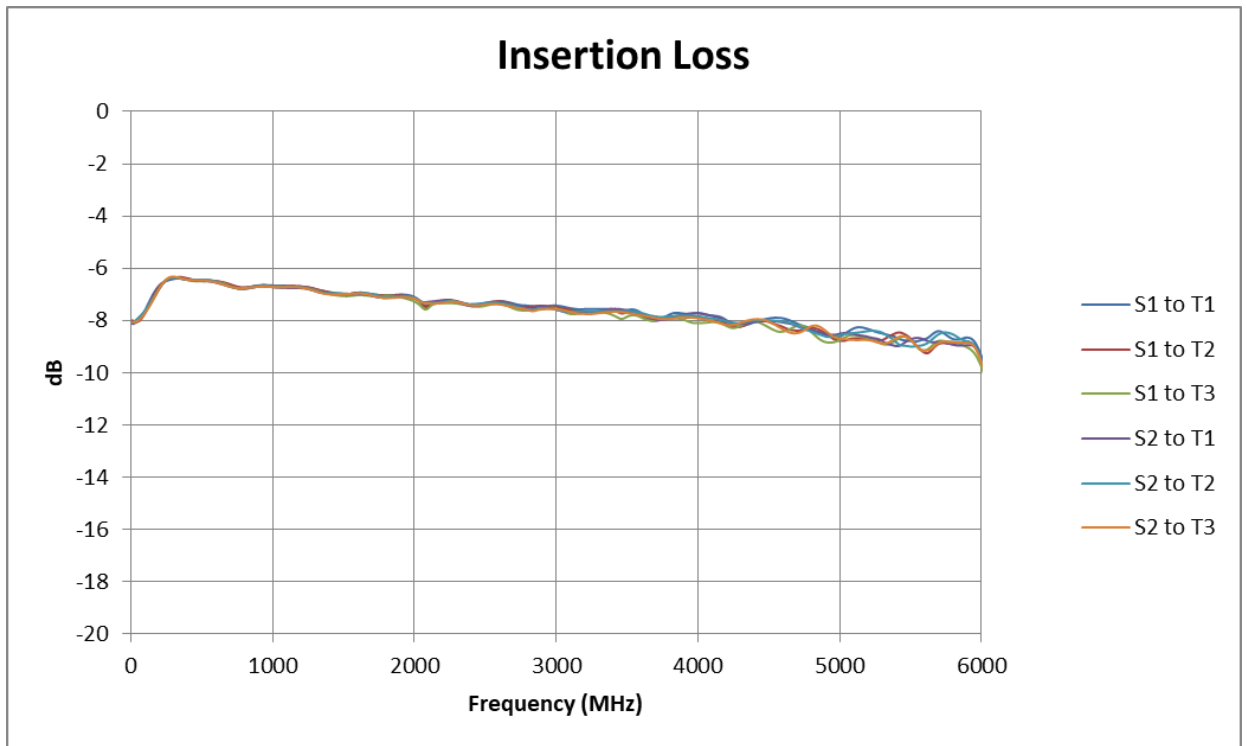
**Mechanical Specifications**

<b>Dimensions</b>	19" (W) x 3U (H) x 16 (D)
<b>Case Material</b>	Aluminum (with protective coatings to prevent corrosion)
<b>Case Drawing</b>	99-01-2073
<b>RF Connectors</b>	SMA female
<b>Front panel</b>	a) All RF ports (SMA female) b) LED switch path position indicators c) ON/OFF switch with indicator light d) Carry handles
<b>Rear panel</b>	a) AC mains power supply input b) USB & RJ45 control connections c) Label with date code/serial number/MCL part# for traceability
<b>Control Interface</b>	a) USB and Ethernet TCP/IP supporting HTTP and TELNET protocols
<b>Power supply</b>	a) AC mains power supply (90-260 V, 47-63 Hz) b) 2A, 250V fuse rating
<b>Operating Temperature</b>	0° to +50° C

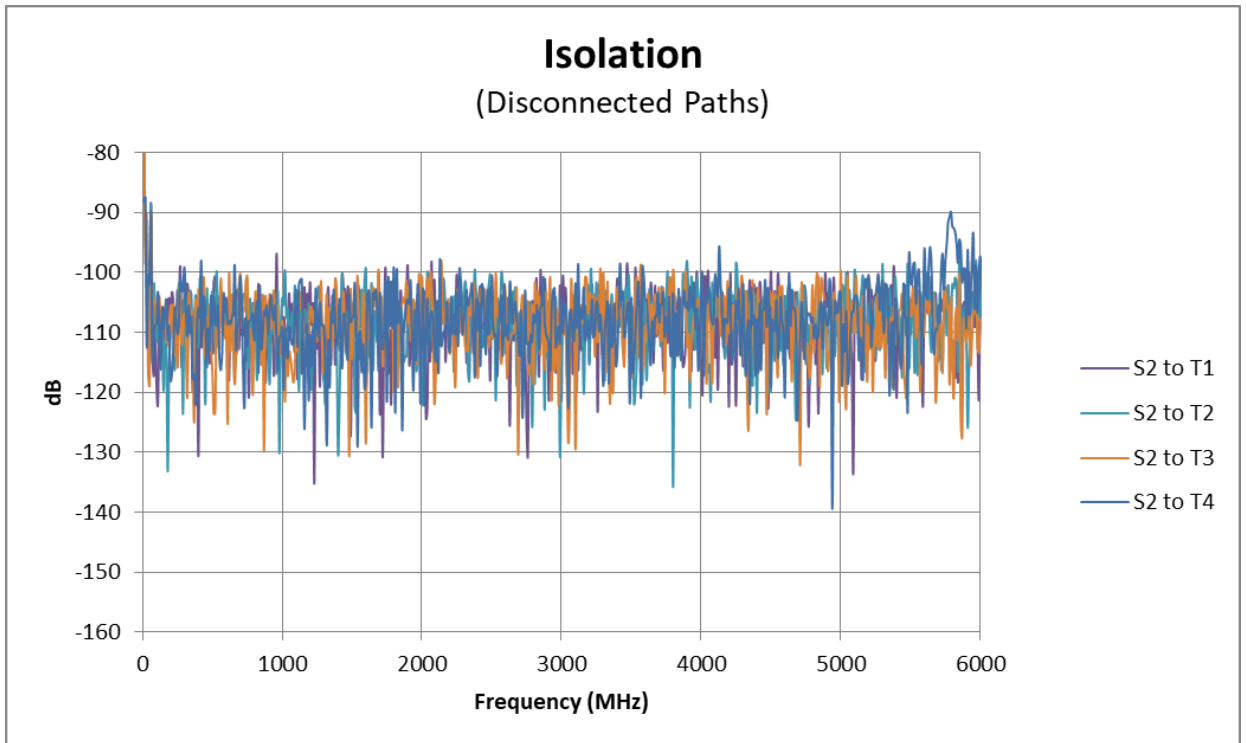
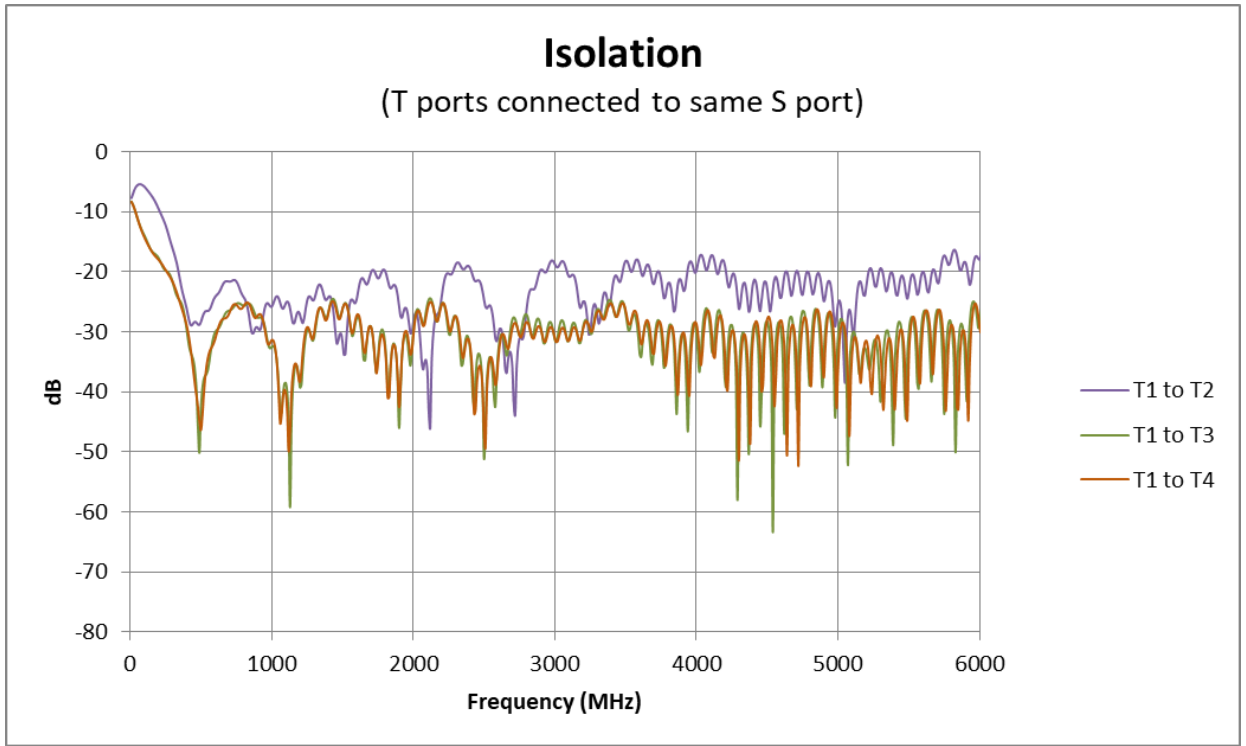
**Electrical Specifications at 25°C**

Parameter	Conditions	Min	Typ	Max	Units
<b>Frequency</b>		350		6000	MHz
<b>Insertion Loss</b>	350-2000 MHz		8.0		dB
	2000-6000 MHz		9.5		
<b>Return Loss</b>	350-2000 MHz		14		dB
	2000-6000 MHz		12		
<b>Isolation</b>	Sx <> Sy		90		dB
	Tx <> Ty (connected to the same S)		20		
	S <> T on disconnected path		90		
<b>Input Power</b>				+20	dBm

## Typical Performance Data



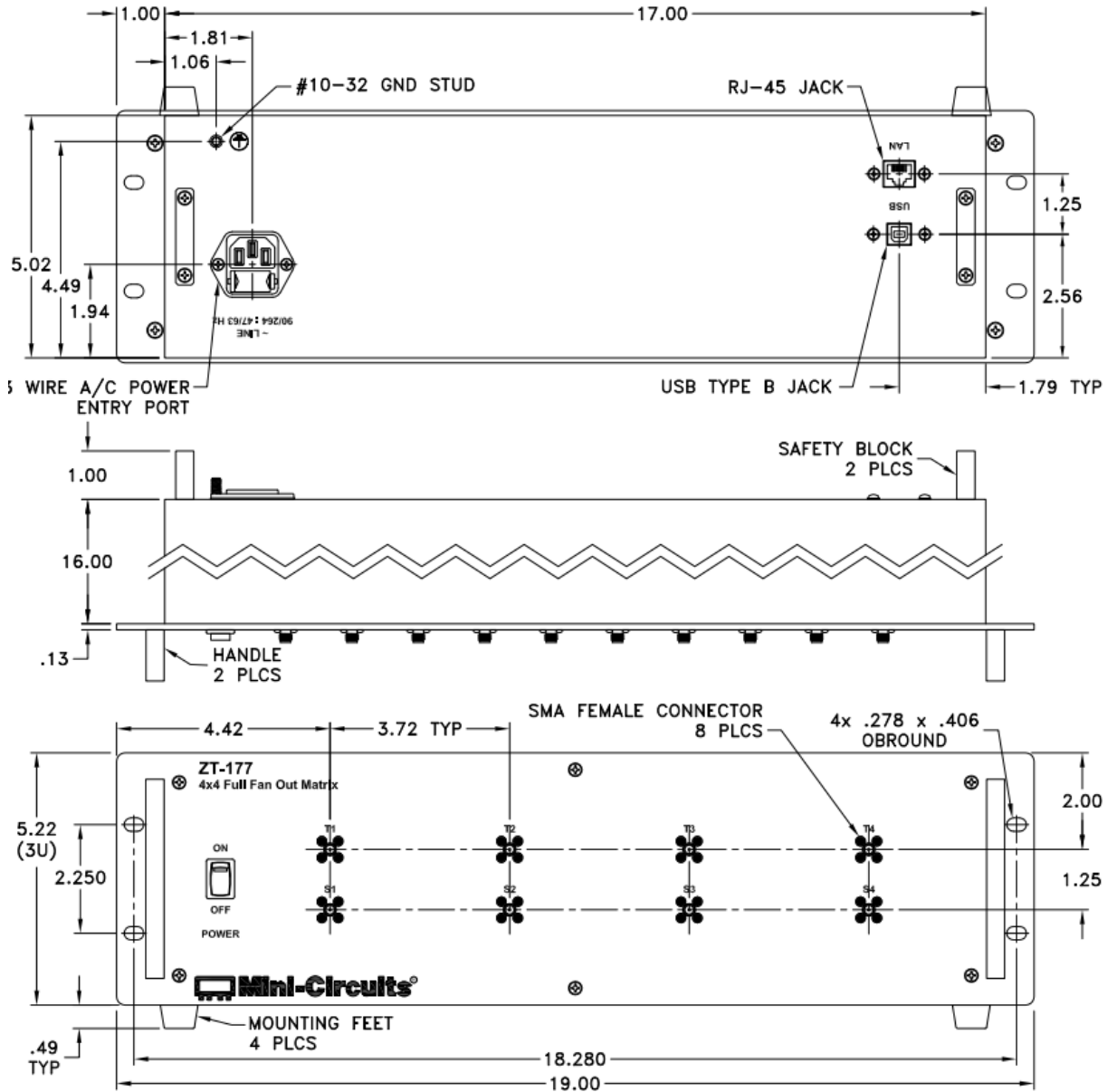
## Typical Performance Data



# 4x4 Non-Blocking Switch Matrix

ZT-177

## Outline 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
- Please contact [testsolutions@minicircuits.com](mailto: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

#### 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
- Evaluate software in demo mode
- View and set all switch paths
- Set individual switch states
- Configure Ethernet settings
- Upgrade firmware
- Send SCPI commands
- View temperature & system status

