Rack-Mounted | USB & Ethernet Control

10x30 Non-Blocking Switch Matrix ZT-10X30NB

50Ω 600 to 6000 MHz

Product Overview

Mini-Circuits' ZT-10X30NB is a high performance, 10 by 30 non-blocking switch matrix, covering the key worldwide telecoms bands from 600 MHz to 6 GHz. The system comes housed in a compact, 4U height, 19-inch rack-mountable chassis with SMA connections on the front and rear panels.

This bi-directional switch matrix can be programmed to connect the 10 "A" ports to any combination of the 30 "B" ports. The non-blocking configuration makes the matrix ideally suited to a wide range of multi-user and multi-device test systems. In cellular test systems for example, the matrix would allow 30 separate test stations to access any of 10 base-station channels, without affecting any other test stations.

The system includes both USB and Ethernet control interfaces, providing a range of flexible control options. Software support is provided through our easy-to-use GUI application for remote control over a network, or local control through USB. ActiveX and .NET API objects (for Windows environments) and SSH / HTTP / Telnet support ensure compatibility with most common programming environments.

Key Features

Feature	Advantages
Non-blocking configuration	Flexible switch configurations allows the 10 "A" ports to be routed to any combination of the 30 "B" ports, including all 10 "A" ports simultaneously to the same "B" port.
Daisy-chain control stacking	Connect multiple units together to manage multiple switch matrices through a single software and control interface.
SSH, HTTP & Telnet	Remote control from any Windows®, Mac®, or Linux® computer, or even a mobile device with a network connection and SSH, HTTP or Telnet support.
USB HID (Human Interface Device)	Local control via USB connection with no driver installation. 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 24” (D)			
Case Drawing	99-01-3028			
Case Material	Aluminum (with protective coating to prevent corrosion)			
RF Connectors	**Panel**	**Connector**	**Quantity**	**Port Labels**
	Front	SMA female	10	A1 – A10
	Rear	SMA female	30	B1 – B30
Panel Items	**Front Panel**			**Rear Panel**
Other Connectors	• AC mains power input (IEC C14 inlet) • USB type B socket • RJ45 (LAN) socket • 2 x D-Sub 9-pin (Serial In & Out)			
Other	• Power on / off switch with LED • Carry handles			• Carry handles
Power Supply	AC mains power input (90-260 V, 47-63 Hz)			
Fuse	2A, 250V rating			
Temperature	Operating: 0 to +50 ºC			

Electrical Specifications at 25°C

Parameter	Conditions	Min	Typ	Max	Units
Frequency		600		6000	MHz
Path Loss	600 – 3000 MHz		23	25	dB
	3000 – 6000 MHz		26	30	
Isolation (Inactive Paths)	600 – 3000 MHz	60	80		dB
	3000 – 6000 MHz	55	70		
Return Loss			15		dB
Input Power				+17	dBm

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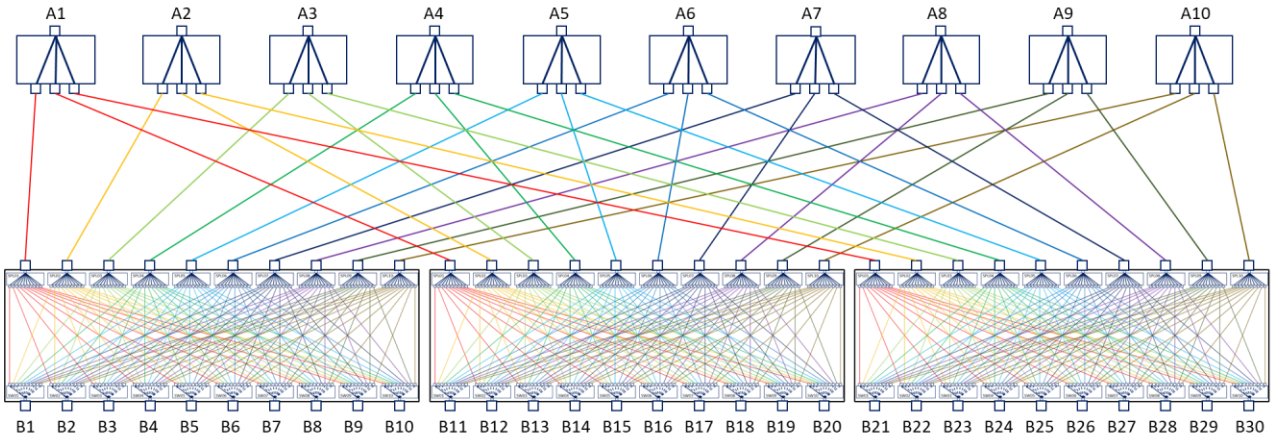
Functional Block Diagram

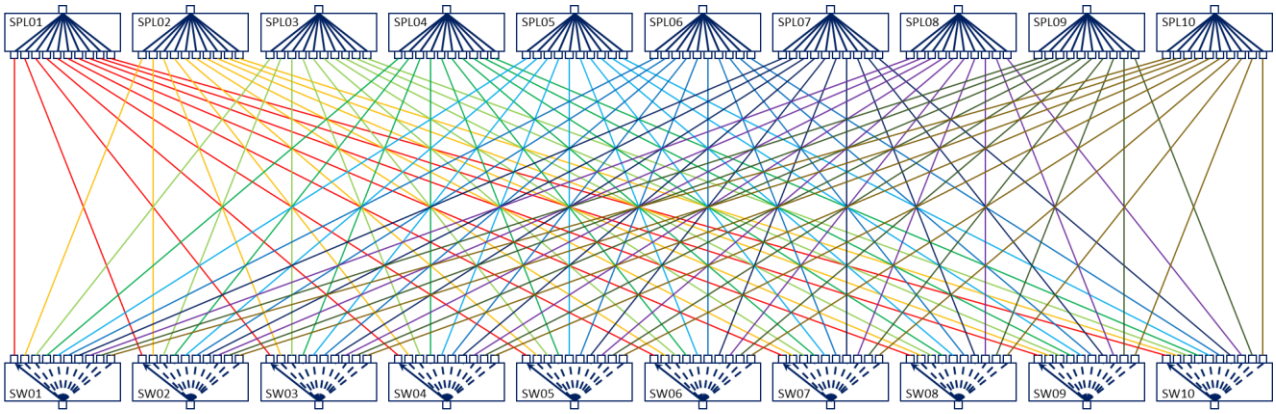
Complete System

Ten 3-way splitter / combiners distributing the A ports into three 10 x 10 non-blocking switch matrix modules

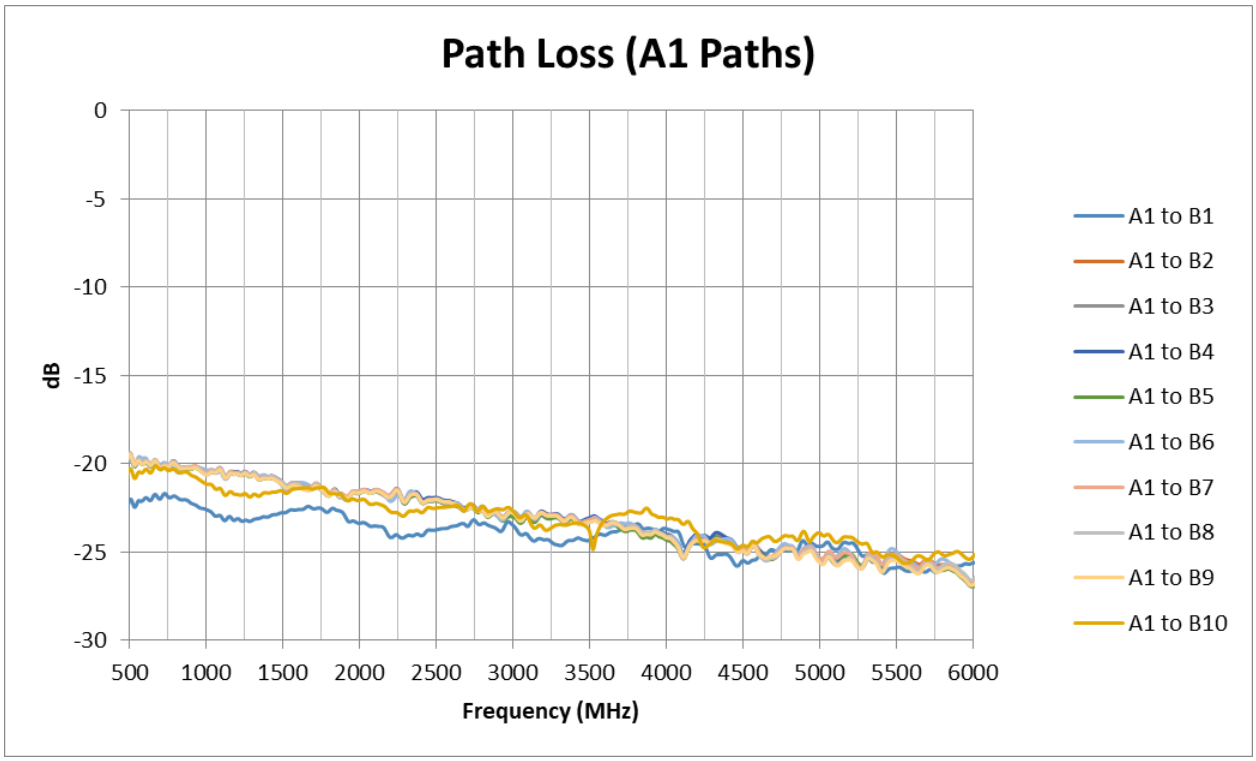


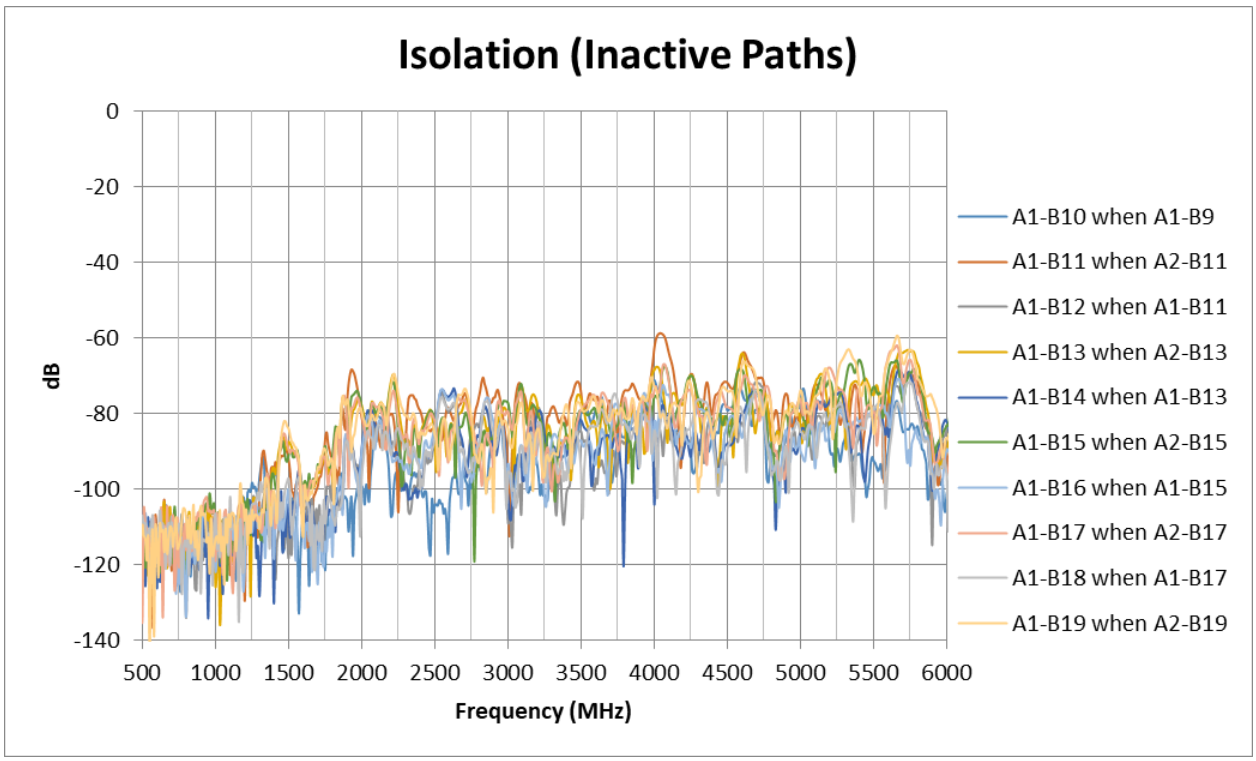
10 x 10 Non-Blocking Switch Matrix Module (x3)

10 x 10-way splitter / combiners interconnected with 10 x SP10T switches



Typical Performance Data





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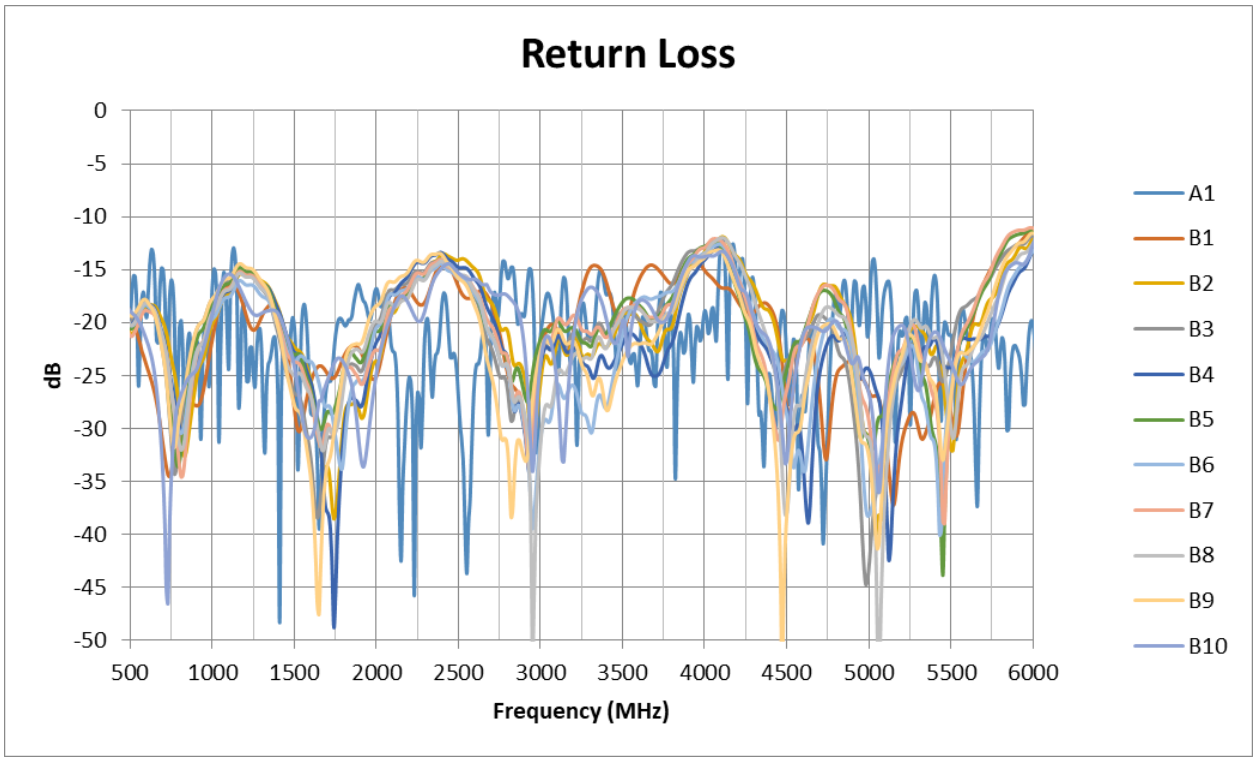

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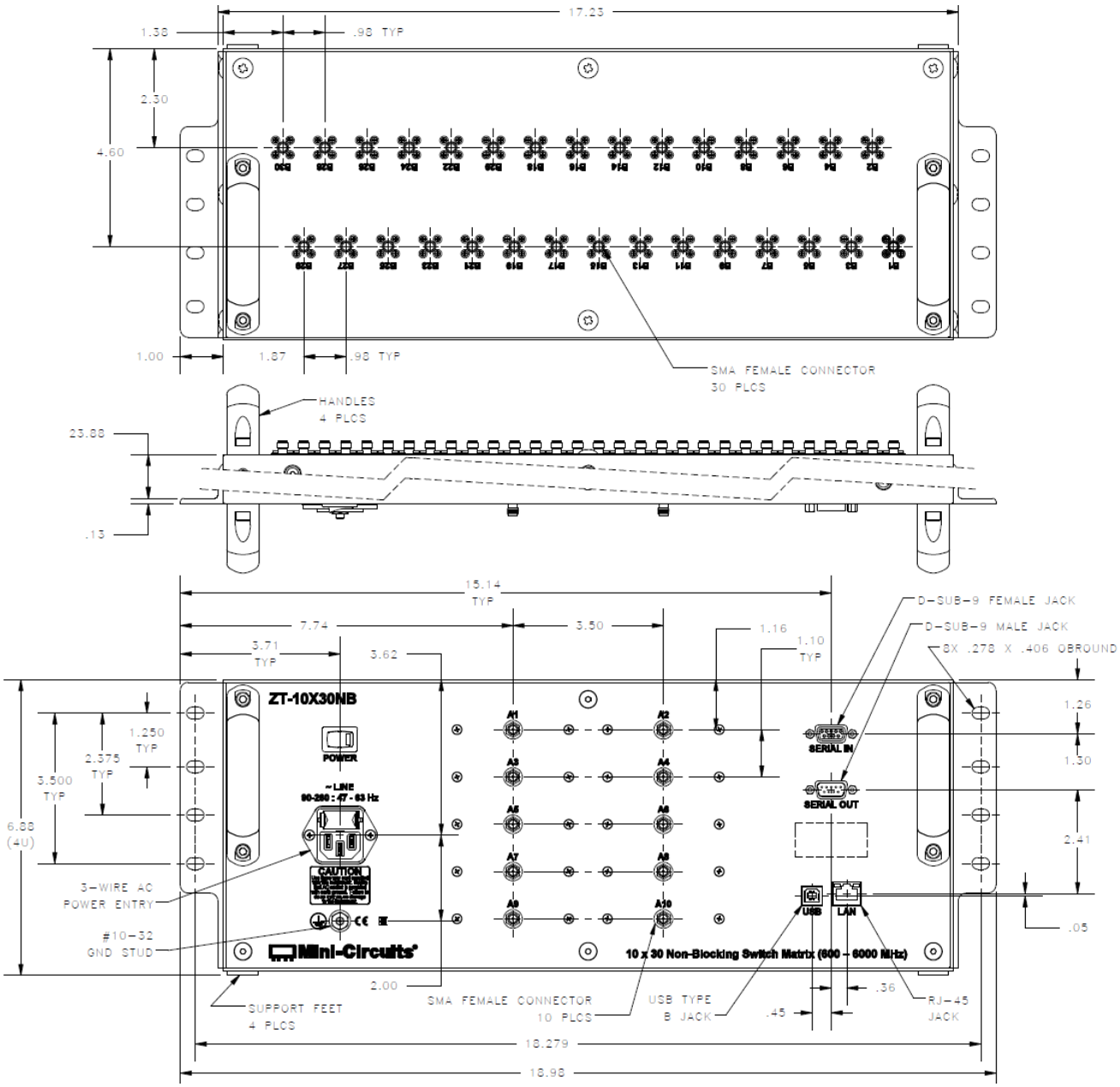
Case Drawing



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
- Please contact testsolutions@minicircuits.com for support

Minimum System Requirements:

Parameter	Requirements	
Interface	USB HID & Ethernet (SSH, 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 SSH, 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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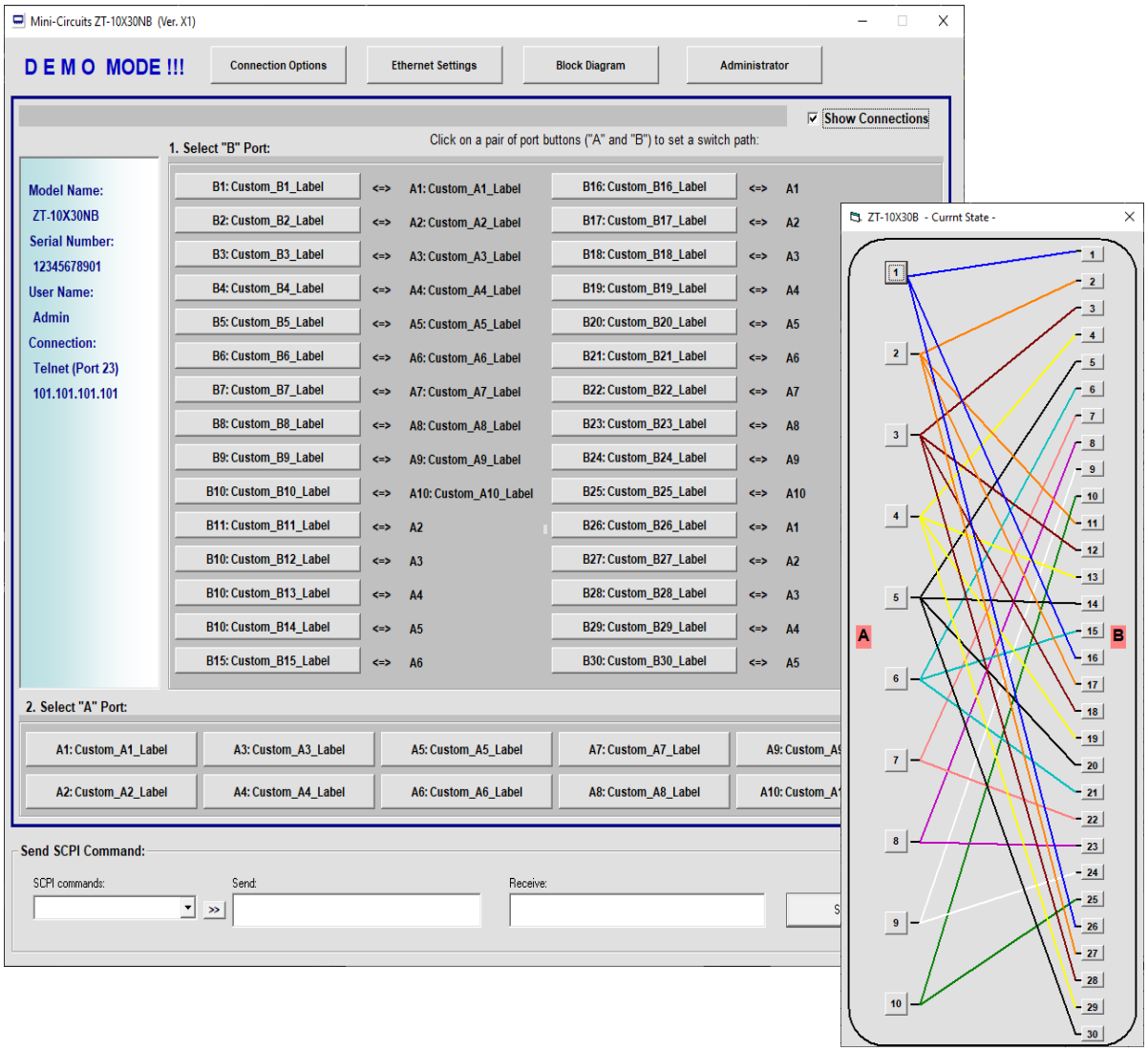
Graphical User Interface (GUI) for Windows - Key Features

- 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



Daisy-Chain Control of Multiple Switch Matrices

Multiple switch matrix racks can be combined to form much larger systems by stacking the serial control interfaces. This allows large numbers of units to be managed through a single USB or Ethernet connection and software interface. All software commands are issued to the Master unit (the first unit in the chain) which will in turn control all Slave units as required. The process is:

1) Connect the Serial Out port of the first unit to the Serial In port of the next
2) Continue connecting additional units in the same manner, as required
3) Connect the AC power inputs for all units in the daisy-chain
4) Connect the control connection (USB or Ethernet) to the first unit in the chain; this becomes the Master unit
5) Each switch matrix within the chain can be individually controlled by issuing commands through the Master, to the unique address of each unit