



THE BIG DEAL

- 8 x 8 bi-directional, blocking matrix
- High reliability mechanical switch construction
- Low loss & high isolation
- GUI & API for automation



APPLICATIONS

- Automated test equipment
- Fail-safe / redundancy switching



PRODUCT OVERVIEW

Mini-Circuits' ZT-8X8B-1835 is a high performance, blocking switch matrix, with exceptionally wide bandwidth, from DC to 18 GHz. The system is housed in a 4U height, 19-inch rack-mountable chassis with 8 RF "A" ports on the front panel and 8 RF "B" ports on the rear. The rugged 3.5 mm female connectors (directly compatible with SMA) provide reliable and repeatable connections to external equipment.

The bi-directional, blocking configuration allows the 8 "A" ports to be connected to any combination of the 8 "B" ports in a one-to-one arrangement.

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
8 x 8 matrix	8 active paths at any time between any combination of input and output ports, supports flexible automated test systems.
Rack-mount chassis	4U height, 19" rack-mountable chassis with RF connections on the front and rear panels, suits integration in automated production test environments.
3.5 mm connectors	The 3.5 mm connectors provide a rugged and reliable interface, which can be mated directly with SMA.
Ethernet & USB control	USB HID and Ethernet (HTTP & Telnet) interfaces ensure compatibility with most software environments and connection requirements.



MECHANICAL SPECIFICATIONS

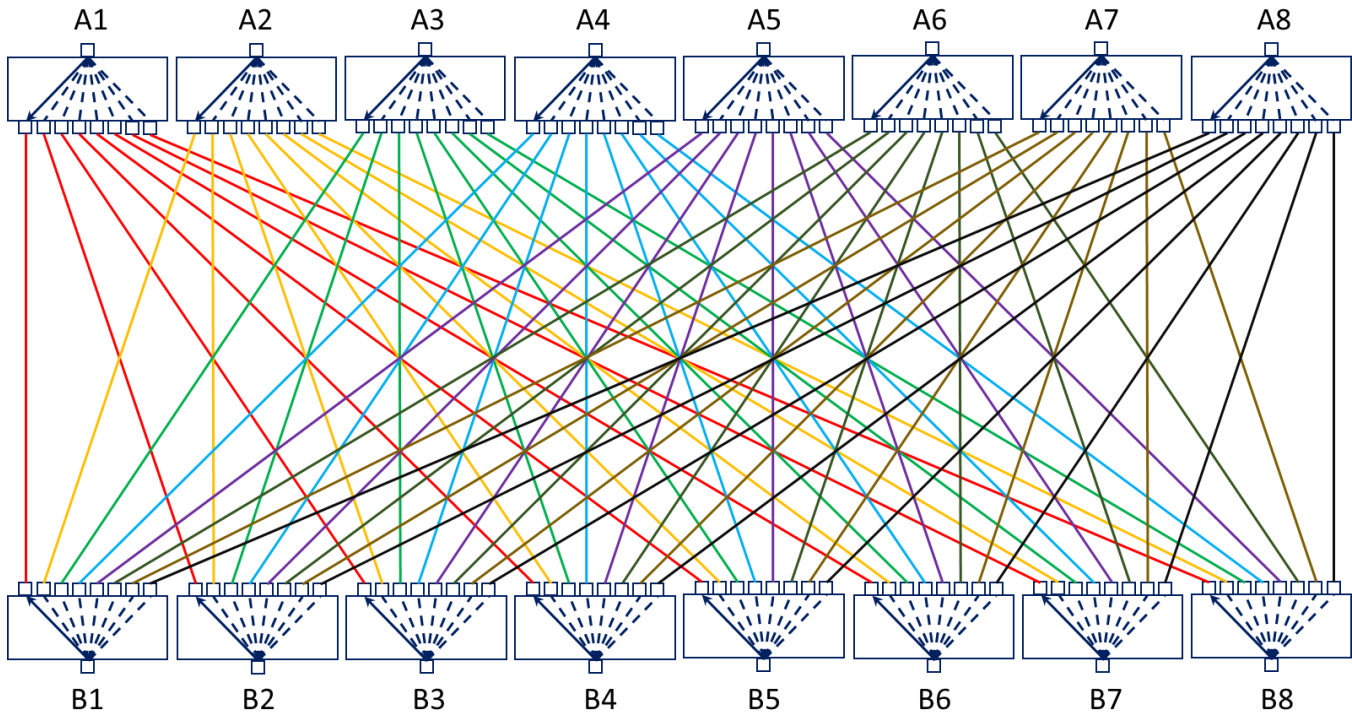
Dimensions	19" (W) x 4U (H) x 20" (D)			
Case Drawing	99-01-2926			
Weight	11.9 kg			
Case Material	Aluminum (with protective coating to prevent corrosion)			
RF Connectors	Panel	Connector	Quantity	Port Labels
	Front	3.5 mm female	8	A1-A8
	Rear	3.5 mm female	8	B1-B8
	Front Panel		Rear Panel	
Panel Marking	<ul style="list-style-type: none"> ZT-8X8B-1835 8 x 8 Switch Matrix DC-18 GHz 		<ul style="list-style-type: none"> CE / EAC / UKCA Serial number / date code / model name 	
Panel Items	<ul style="list-style-type: none"> Power on / off switch with LED Carry handles 		<ul style="list-style-type: none"> AC mains power input (IEC C14 inlet) USB type B socket RJ45 (LAN) socket Fan vents 	
Power Supply	AC mains power input (90-260 V, 47-63 Hz)			
Fuse	2A, 250V rating			
Power Consumption	105W max			
Temperature	Operating: 0 to +50 °C			

ELECTRICAL SPECIFICATIONS @ 25°C

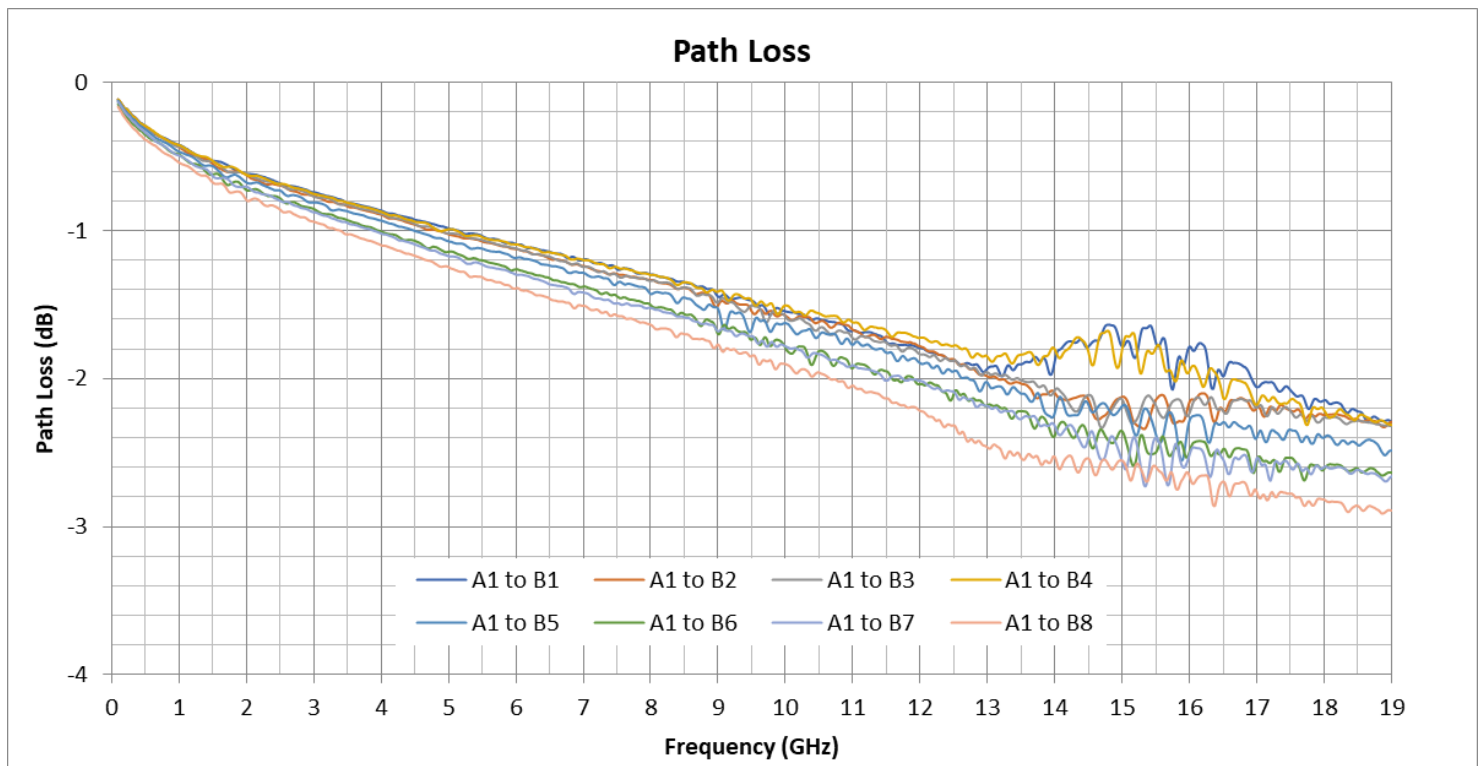
Parameter	Conditions	Min	Typ	Max	Units
Frequency		DC	-	18	GHz
Path Loss	DC - 6 GHz	-	1.3	1.8	dB
	6 - 12 GHz	-	2.0	2.5	
	12 - 18 GHz	-	2.6	3.1	
Isolation	Adjacent ports ($A_x \leftrightarrow A_y$ & $B_x \leftrightarrow B_y$)	80	100	-	dB
	Disconnected paths ($A_x \leftrightarrow B_y$ when $A_x \leftrightarrow B_z$)	80	100	-	
Return Loss	DC - 6 GHz	-	24	-	dB
	6 - 12 GHz	-	20	-	
	12 - 18 GHz	-	15	-	
Input Power	Cold Switching	-	-	10	W
	Into internal terminations	-	-	1	



FUNCTIONAL BLOCK DIAGRAM

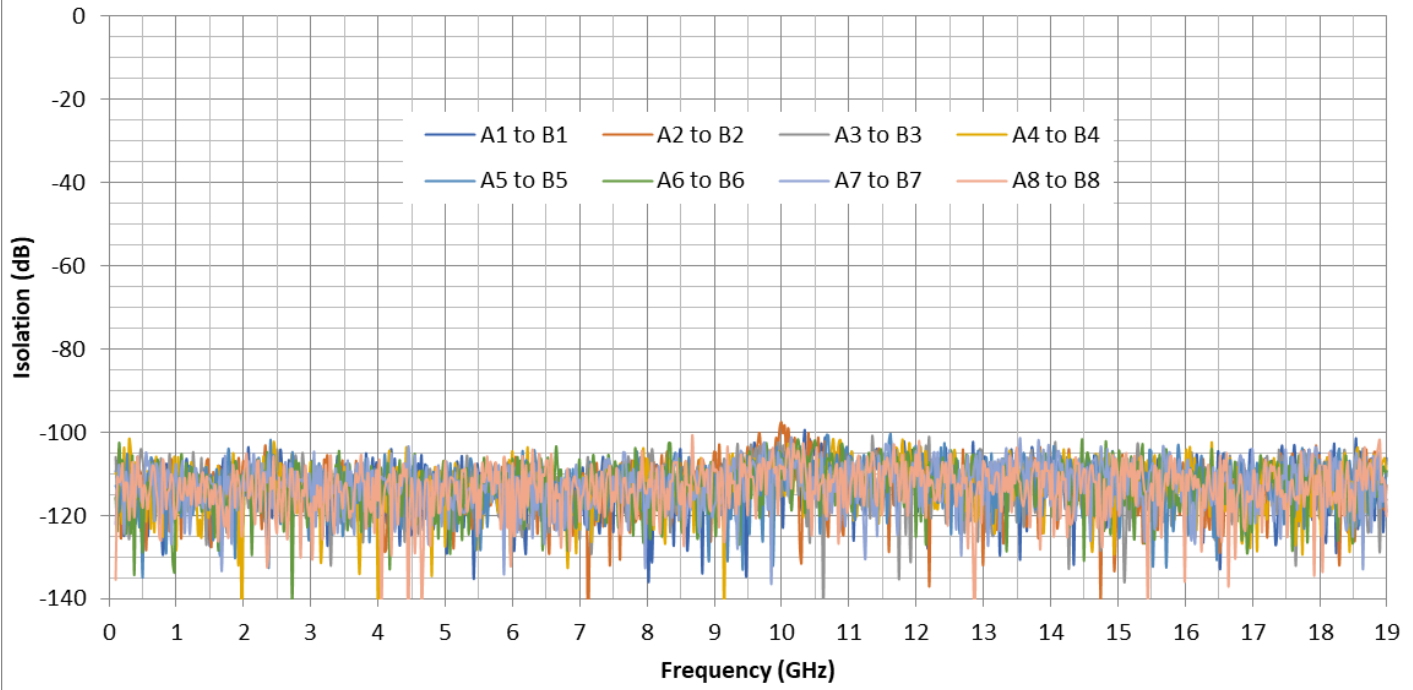


TYPICAL PERFORMANCE DATA

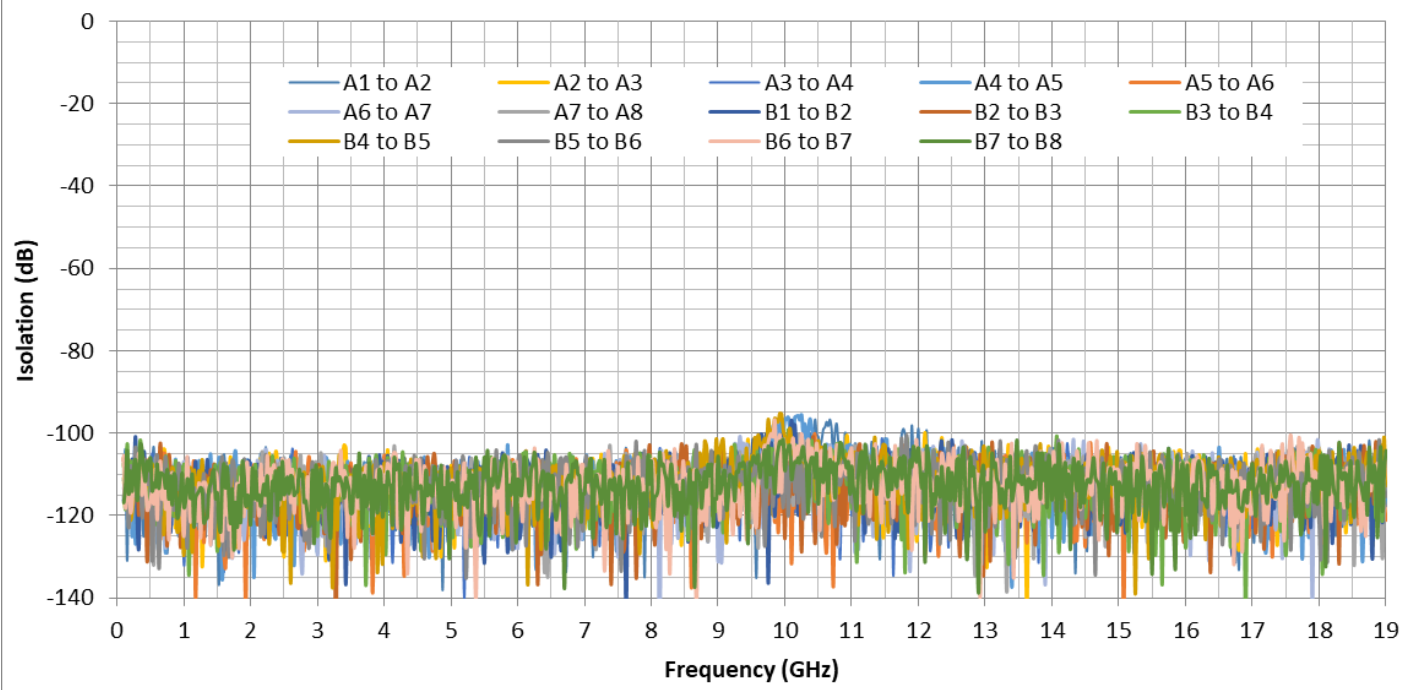


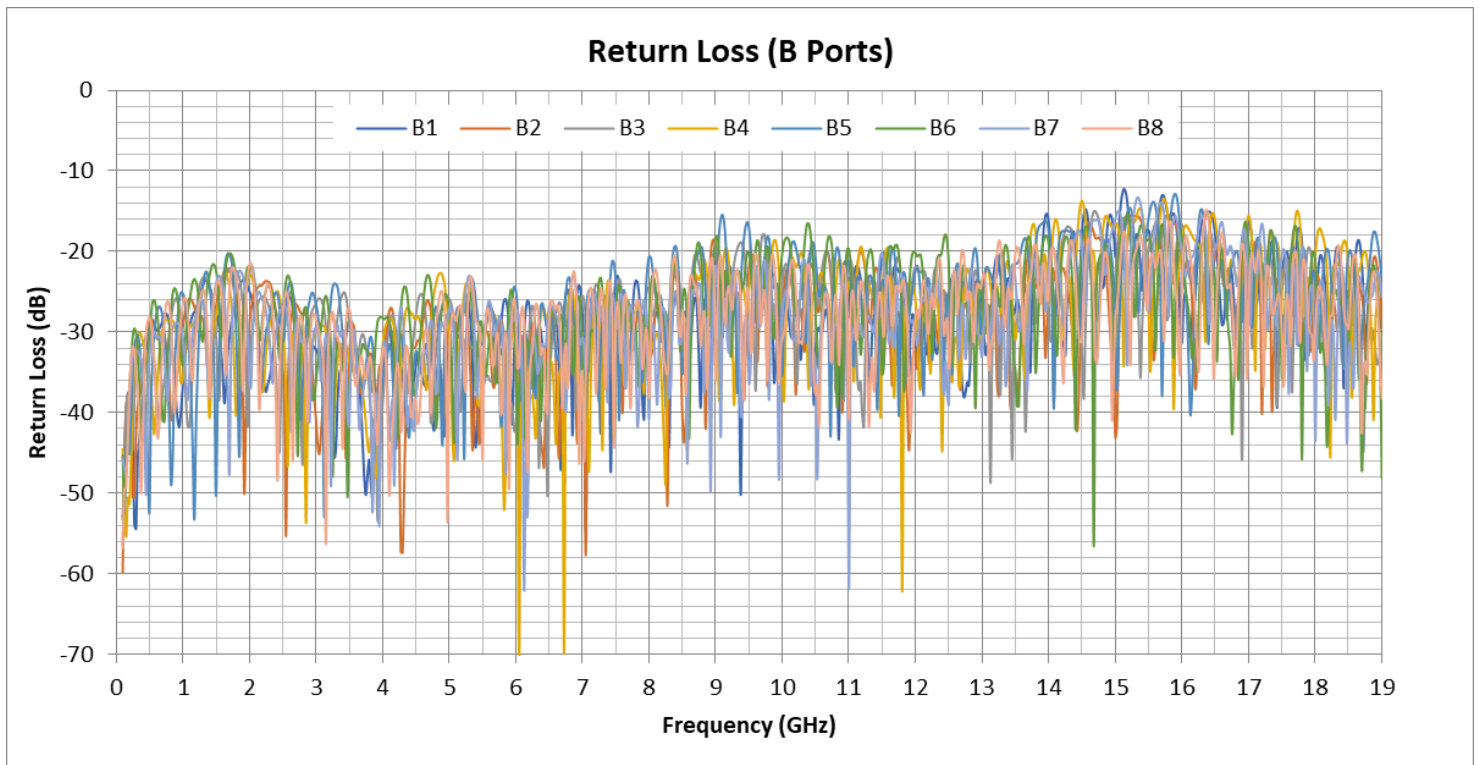
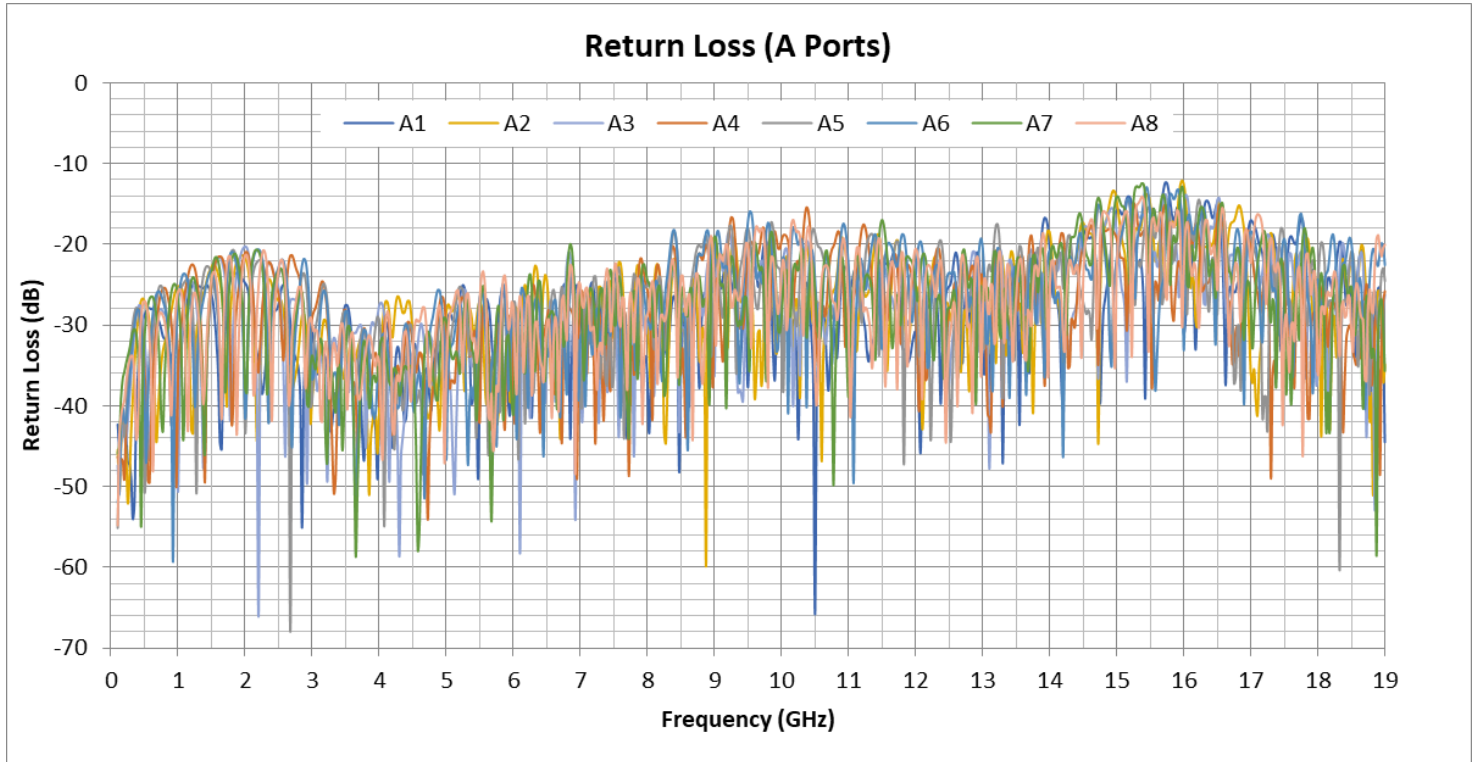


Isolation (Disconnected Paths)



Isolation (Adjacent Ports)







SOFTWARE SPECIFICATIONS

Please contact testsolutions@minicircuits.com for support

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	<ul style="list-style-type: none"> • 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 	

PROGRAMMING COMMANDS

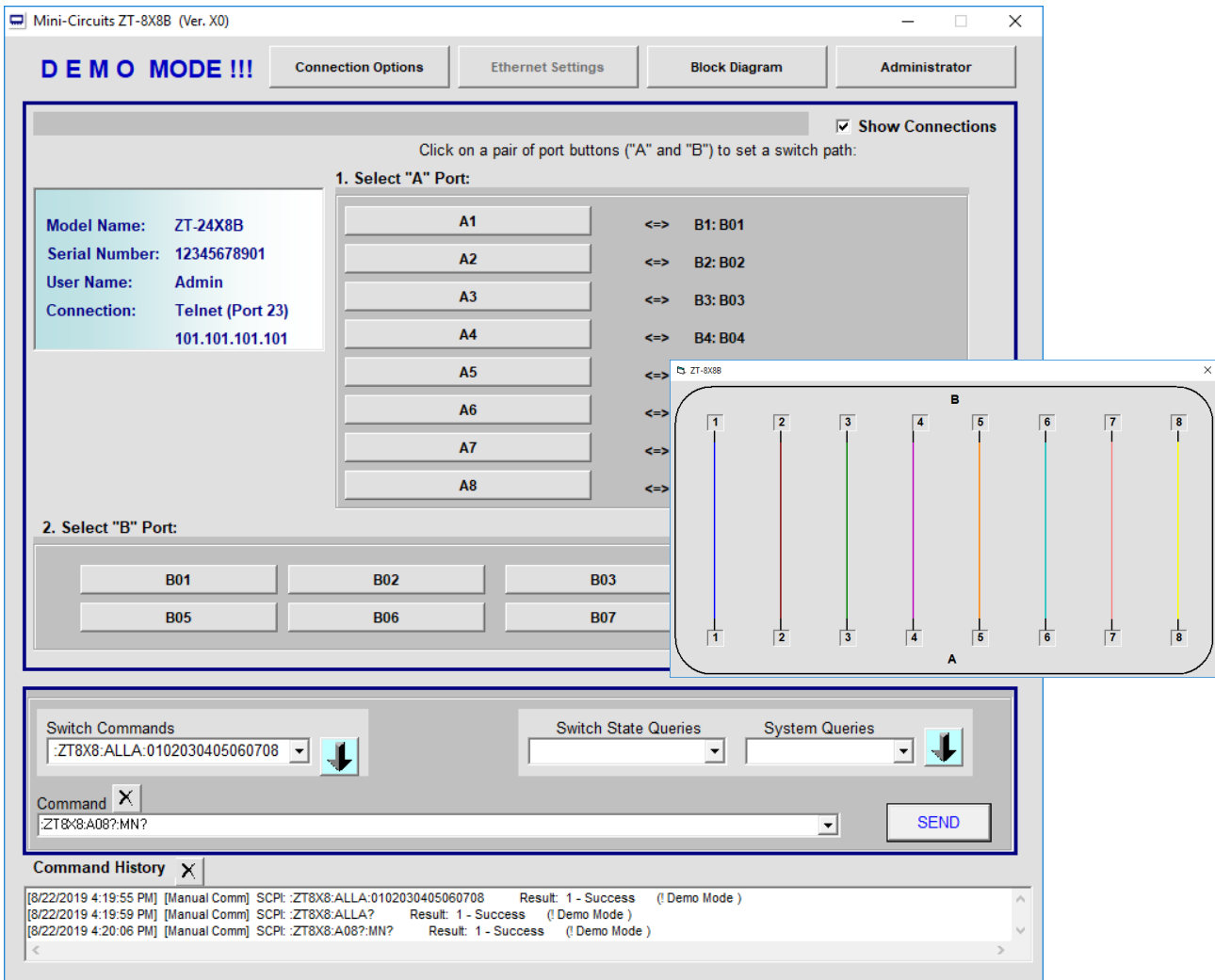
- The key ASCII / SCPI commands for control of the system are summarized below
- These can be sent via the USB or Ethernet API
- Please refer to the programming manual for full details

Command / Query	Description
:MN?	Read model name
:SN?	Read serial number
:FIRMWARE?	Read firmware version
: <i>sw_type</i> : <i>sw_number</i> :STATE: <i>port</i>	Set a single switch state: <ul style="list-style-type: none"> • <i>sw_type</i> = MTS or SPDT or SP4T or SP6T or SP8T • <i>sw_number</i> = 1 to n (refer to block diagram) • <i>port</i> = the switch state to set • Example: :SPDT:1:STATE:2 (set SPDT switch 1 to state 2)
:C <i>sw_number</i> = <i>port</i>	Short-hand to set a single switch state: <ul style="list-style-type: none"> • <i>sw_number</i> = 1 to n (refer to block diagram) • <i>port</i> = the switch state to set • Example: C1=2 (set switch 1 to state 2)
: <i>sw_type</i> : <i>sw_number</i> :STATE?	Get the state of a single switch: <ul style="list-style-type: none"> • <i>sw_type</i> = MTS or SPDT or SP4T or SP6T or SP8T • <i>sw_number</i> = 1 to n (refer to block diagram) • Example: :SPDT:1:STATE? (get the state of SPDT switch 1)
:PATH: <i>input</i> ?	Check which output is connected to the specified <i>input</i> port
:PATH:A1:B1	Set a specific switch path between 2 ports



GRAPHICAL USER INTERFACE (GUI) FOR WINDOWS

- 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





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)
HT-4-SMA	1	SMA Cable Wrench (4 in)

*Please specify one option on the purchase order, at no charge

Cable Model	Region
CBL-3W-US	USA
CBL-3W-EU	Europe
CBL-3W-IL	Israel
CBL-3W-UK	UK
CBL-3W-AU	Australia / China

Revision	Updates	Date	Creator	Reviewer
5	Updated specifications and test data based on improved design	7-Jul-22	LW	WT
6	Expanded typical data plots to 19 GHz	6-Oct-22	LW	

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.
- C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the standard. Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp