



THE BIG DEAL

- Modular design for flexible switch configurations
- High reliability mechanical switches
- Ethernet & USB controlled
- 5W power rating (cold switching)

APPLICATIONS

- SP40T (1 x 40) switch
- 5G FR1, WiFi 6E, UWB, Bluetooth
- Automated test equipment
- Fail-safe / redundancy switching

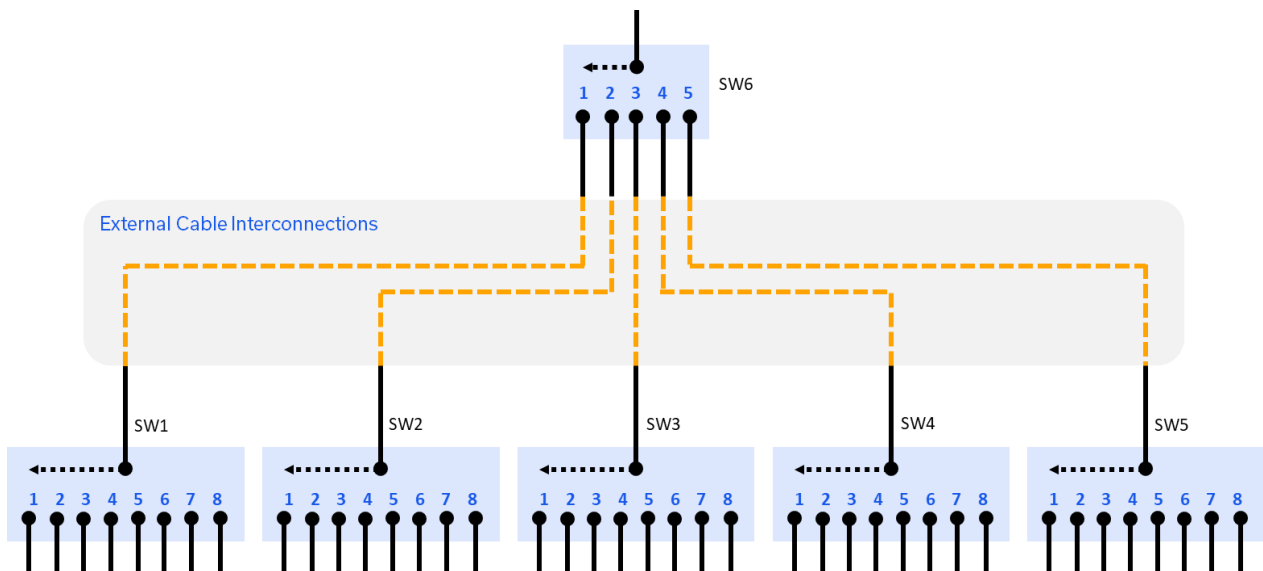
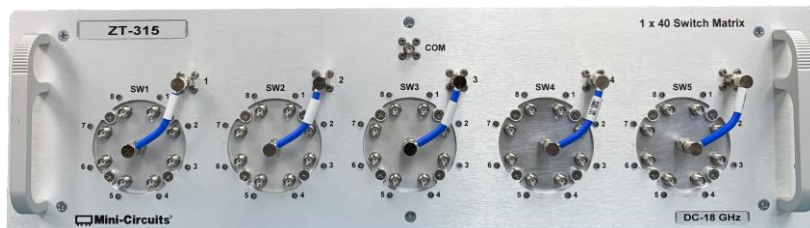
PRODUCT OVERVIEW

ZT-315 is a flexible switch rack, configured with 5 independent, mechanical SP8T switches and a single mechanical SP5T switch on the front panel. Each switch is of a high reliability, fail-safe design, operating from DC to 18 GHz with low loss and high isolation. The model is housed in a compact 3U height, 19-inch rack chassis with all SMA female RF connectors on the front panel.

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).

SP40T (1 X 40) SWITCH APPLICATION

With the use of Mini-Circuits' low-cost Hand-Flex™ interconnect cables, multiple matrix configurations can be created by the user. The front panel switch arrangement supports configuration as an SP40T (single pole, forty throw) switch using 5 external cable connections.





MECHANICAL SPECIFICATIONS

Dimensions	19" (W) x 3U (H) x 13" (D) 0.5" additional for removable feet			
Case Drawing	99-01-3113			
Weight	12.0 lbs (5.5 kg)			
Case Material	Aluminum (with protective coating to prevent corrosion)			
RF Connectors	Panel	Connector	Quantity	Port Labels
	Front	SMA female	6	COM & 1-5 (SW6)
			45	In & 1-8 (per SW1-5)
	Front Panel			Rear Panel
Panel Marking	<ul style="list-style-type: none"> ZT-315 1 x 40 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"> LED switch path indicators (SP8Ts) Carry handles 			<ul style="list-style-type: none"> Power on / off switch with LED AC mains power input (IEC C14 inlet) USB type B socket RJ45 (LAN) socket Cooling fan vent
Power Supply	AC mains power input (90-260 V, 47-63 Hz)			
Fuse	2A, 250V rating			
Power Consumption	150W max			
Temperature	Operating: 0 to +50 °C			

ELECTRICAL SPECIFICATIONS @ 25°C

Applies to full 1 x 40 switch configuration, including 141-2SMR+ external cable interconnections

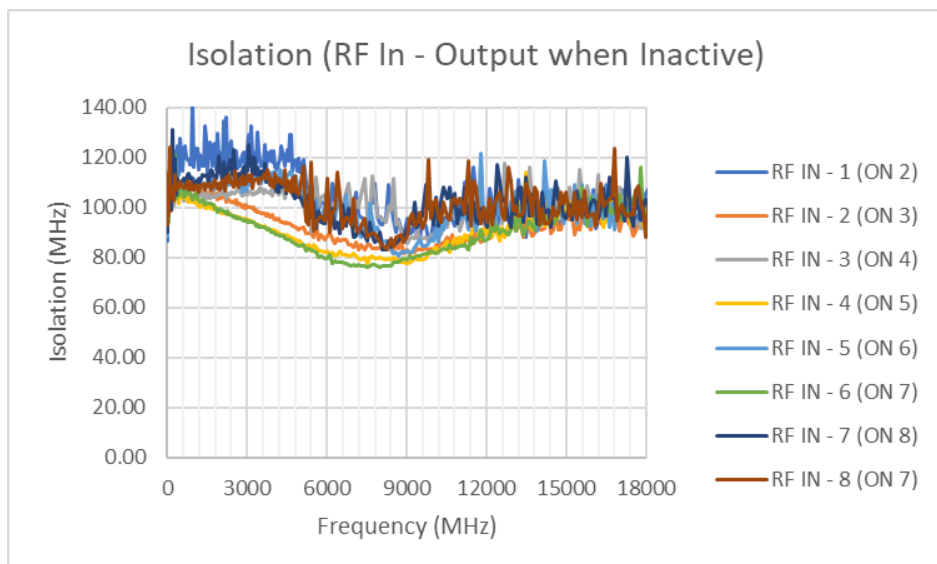
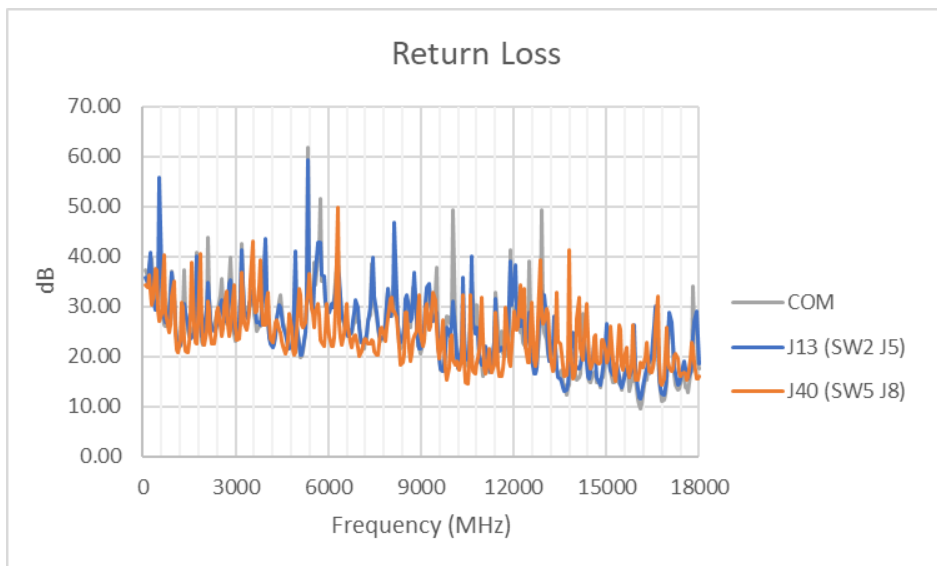
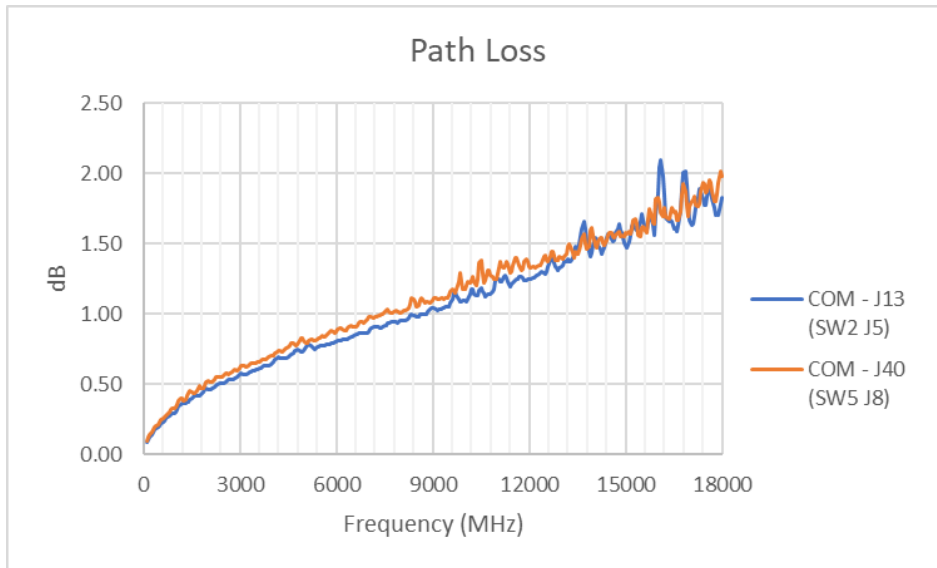
Parameter	Conditions	Min	Typ	Max	Units
Frequency		DC		18	GHz
Insertion Loss	DC-8 GHz		0.9	1.4	dB
	8-12 GHz		1.3	1.8	
	12-18 GHz		1.8	2.3	
Isolation (In <> Out when inactive)	DC-8 GHz	70	80		dB
	8-18 GHz	60	75		
Return Loss	DC-12 GHz		20		dB
	12-18 GHz		13		
Switching Time			25		ms
RF Input Power (Cold Switching)¹	DC-8 GHz			20	W
	8-12 GHz			10	
	12-18 GHz			5	
Switch Lifetime	100 mW hot switching ²	2			million cycles
	1 W hot switching		1		

¹ Maximum power for any connected through path as stated; maximum power into any internal termination is 1W per port, 3W total per switch

² Hot switching power above this level will degrade the switch lifetime

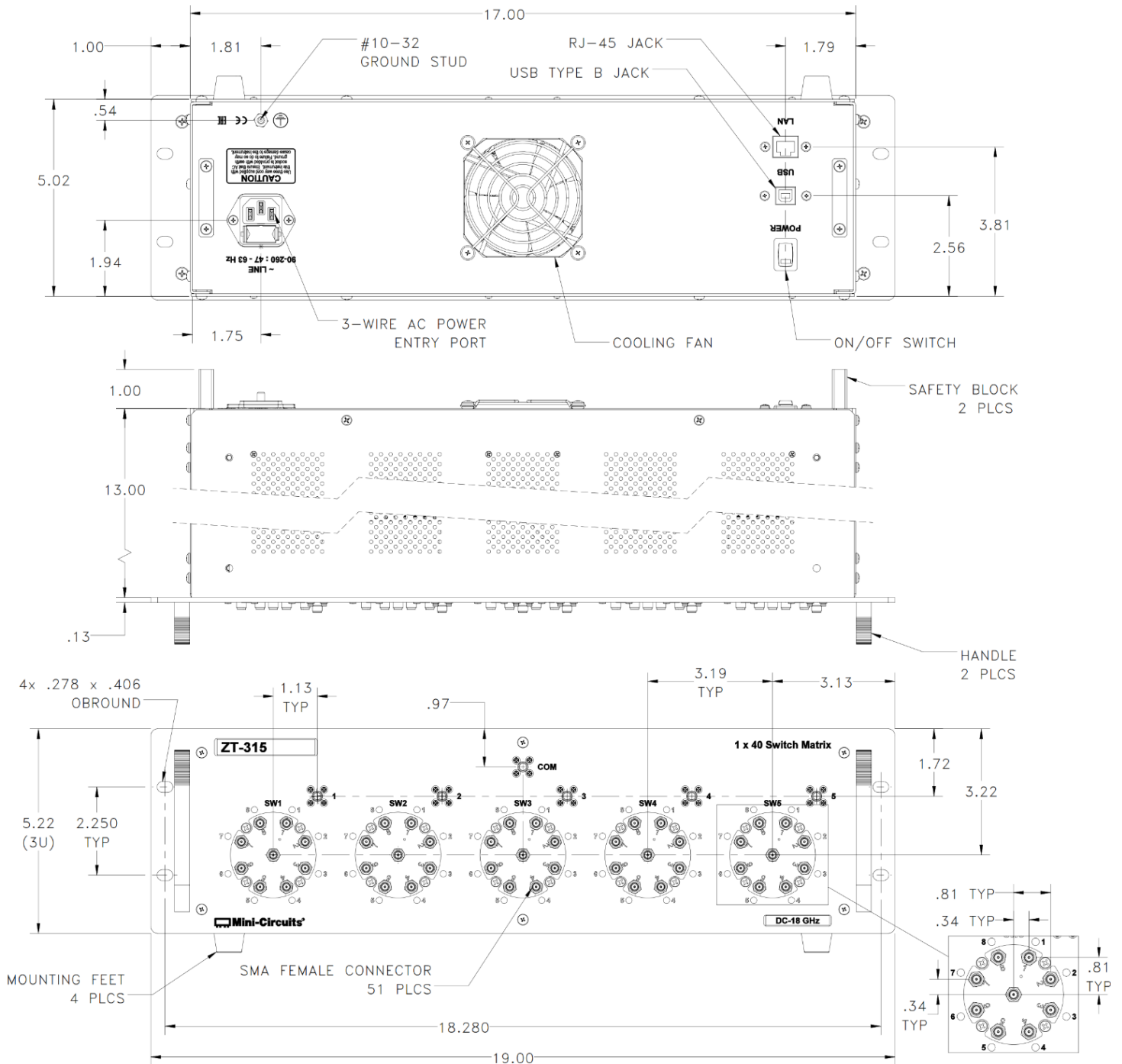


TYPICAL PERFORMANCE DATA





OUTLINE DRAWING





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 	
Downloads	Software & Documentation	https://www.minicircuits.com/softwaredownload/ztm2.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
:sw_type:sw_number:STATE:port	Set a single switch state: <ul style="list-style-type: none"> • sw_type = MTS or SPDT or SP4T or SP6T or SP8T • sw_number = 1 to n (refer to block diagram) • port = the switch state to set • Example: :SPDT:1:STATE:2 (set SPDT switch 1 to state 2)
:Csw_number=port	Short-hand to set a single switch state: <ul style="list-style-type: none"> • sw_number = 1 to n (refer to block diagram) • port = the switch state to set • Example: C1=2 (set switch 1 to state 2)
:sw_type:sw_number:STATE?	Get the state of a single switch: <ul style="list-style-type: none"> • sw_type = MTS or SPDT or SP4T or SP6T or SP8T • sw_number = 1 to n (refer to block diagram) • Example: :SPDT:1:STATE? (get the state of SPDT switch 1)



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 states
- Configure Ethernet settings
- Upgrade firmware
- Send SCPI commands
- View temperature & fan status

#	SW Name	Type	State	Port Name	Count
01	Switch 1	SP8T	4	Port 4	2
02	Switch 2	SP8T	7	Port 7	2
03	Switch 3	SP8T	2	Port 2	2
04	Switch 4	SP8T	5	Port 5	2
05	Switch 5	SP8T	2	Port 2	2
06	Switch 6	SP6T	5	Port 5	1

Temperature / Fans Status	
Temperature	Normal
Fan1 operation	OK
Fan2 operation	Failed/Not available
Fans state	ON



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
3	Updated format and electrical specs	15-Sep-22	LW	WT

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