USB & Ethernet Controlled
Mechanical Switch System (3 x SPDT)

ZT-317

50Ω   DC to 18 GHz

Typical Applications

- 5G node / device testing
- Automated test equipment
- Fail-safe / redundancy switching

Product Overview

ZT-317 is a flexible switch rack, configured with 3 independent mechanical SPDT switches on the rear 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 1U height, 19-inch rack chassis with N-type RF connectors on the rear panel.

The switches are controlled via USB or Ethernet, allowing control directly from a PC, or remotely over a network. 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).

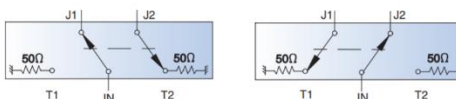## Electrical Specifications @ 25ºC (per Switch)

Parameter	Conditions	Min	Typ	Max	Units
Frequency		DC		18	GHz
Path Loss	DC – 6 GHz		0.50	0.65	dB
	6 – 12 GHz		0.75	1.00	
	12 – 18 GHz		1.10	1.40	
Isolation	DC – 6 GHz	85	100		dB
	6 – 12 GHz	80	90		
	12 – 18 GHz	65	75		
Return Loss	DC – 6 GHz		20		dB
	6 – 12 GHz		15		
	12 – 18 GHz		12		
Switching Time			25		ms
RF Input Power (Cold Switching)[1]	DC – 12 GHz			20	W
Switch Lifetime (per Switch)	100 mW hot switching [2]	10			million cycles
	1W hot switching		1		

1. Maximum power into any internal termination is 1W
2. Hot switching powers above this level will degrade the switch lifetime

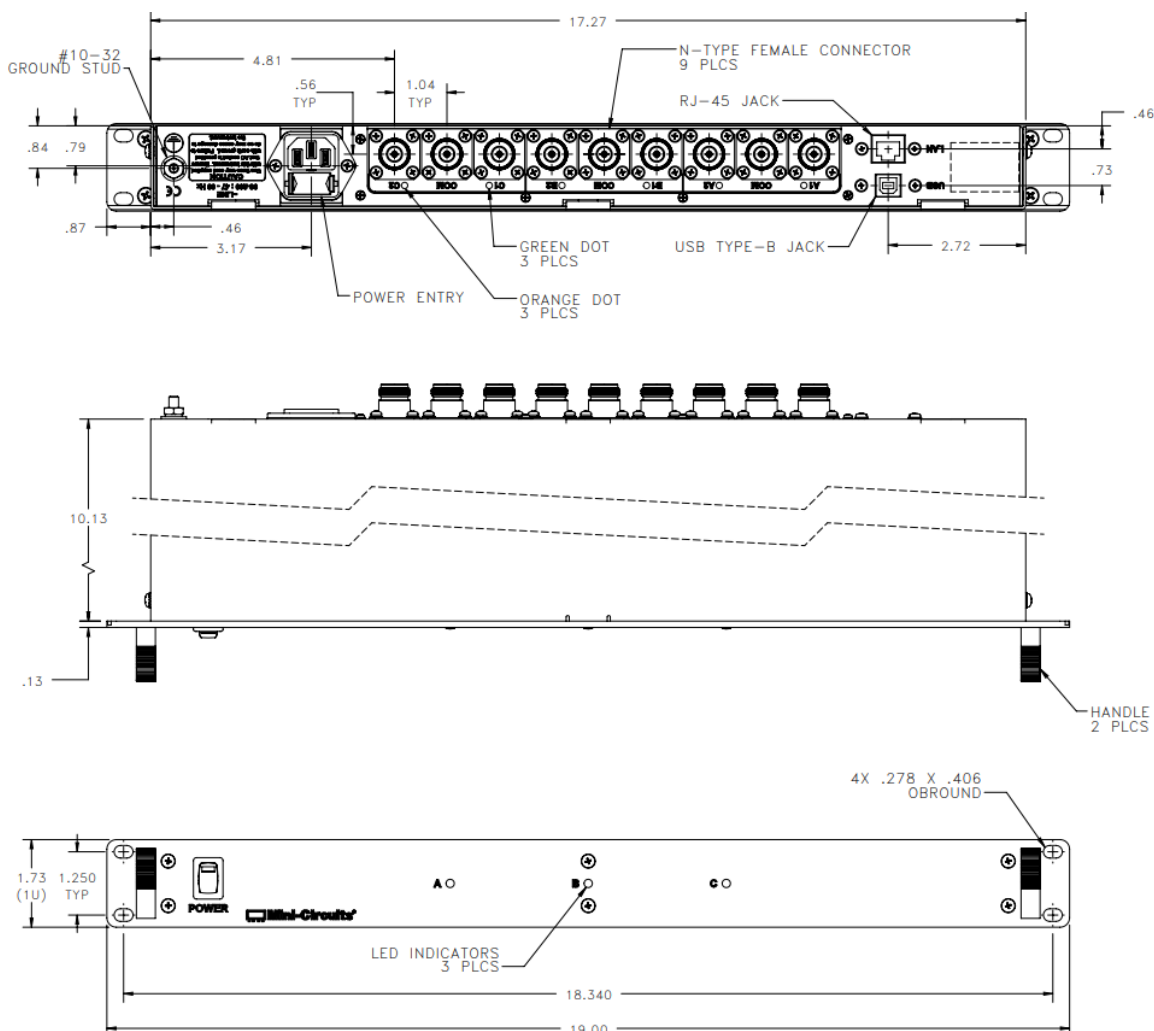**Switch Configuration:**
- Fail-safe
- Absorptive

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Mechanical / Environmental Specifications

Dimensions	19" (w) x 1U (h) x 10" (d); mounting feet add 0.5" height
Case Material	Aluminum (with protective coatings to prevent corrosion)
Case Drawing	99-01-3004
RF Connectors	N-type female
Front Panel	a) Power ON/OFF switch with indicator light b) LED switch position indicators
Rear Panel	a) All RF ports b) AC mains power input (IEC C14 inlet) c) USB & RJ45 control connections d) Cooling fan vents
Control Interface	USB and Ethernet TCP/IP supporting HTTP and TELNET protocols
Power Supply	AC mains power input (90-260 V, 47-63 Hz) with 2A, 250V fuse rating
Operating Temperature	0° to +50° C

Case Drawing

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Software Specifications

Software & Documentation Download:

- Mini-Circuits' full software and support package including user guide, Windows GUI, DLL files, programming manual and examples can be downloaded free of charge from:
  https://www.minicircuits.com/softwaredownload/rfswitchcontroller.html
- Please contact 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 switch & 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

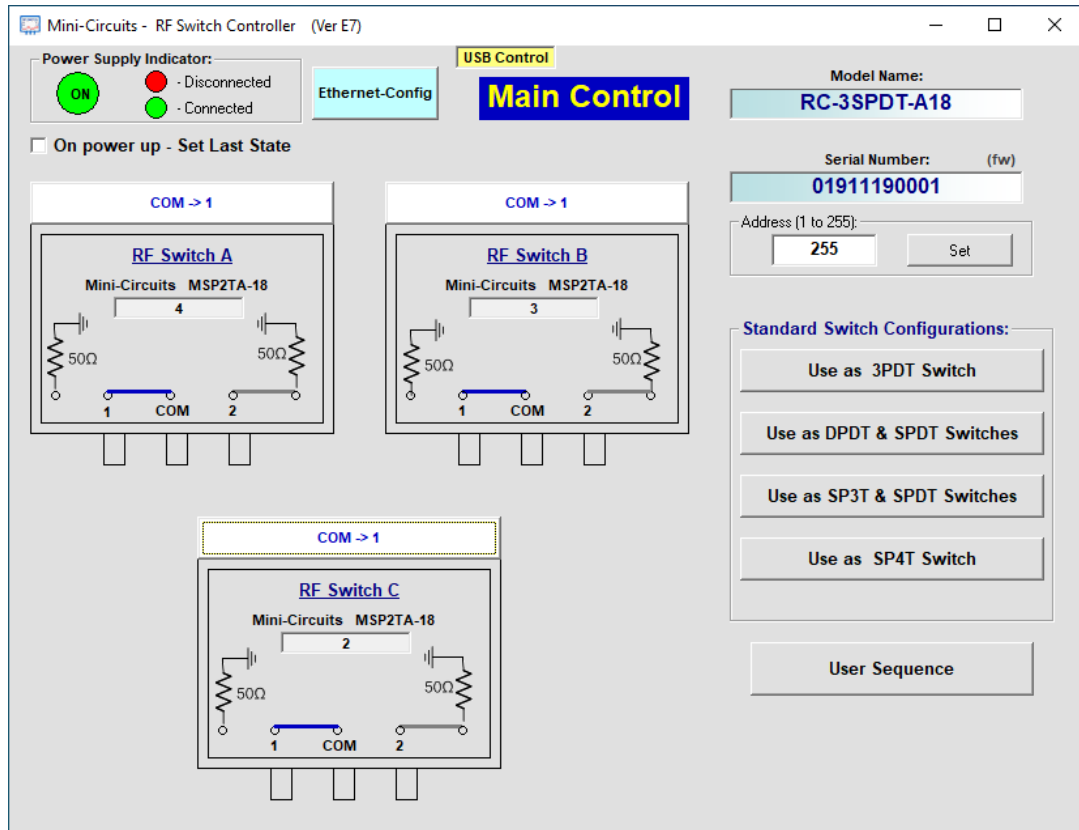Full programming instructions and examples available for a wide range of programming environments / languages.

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Graphical User Interface (GUI) for Windows - Key Features

• Connect via USB or Ethernet
• Run GUI in demo mode to preview functionality without hardware
• View and set all switch states at the click of a button
• View system status
• Configure user profiles to label switches and control access
• Send programmatic commands
• Configure Ethernet IP settings

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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)
B13-67-11+	2	Rear safety block
B18-DD-125+	4	Pan-head screw

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

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

Additional 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.

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