



RACK-MOUNTED | USB & ETHERNET CONTROLLED

SP36T Mechanical Switch Rack

ZT-SP36T-12A

Mini-Circuits

50Ω

DC to 12.4 GHz

SMA

THE BIG DEAL

- High port count (1 to 36)
- LED switch position indicators
- 10W power rating (cold switching)
- Ethernet & USB control with API

APPLICATIONS

- 4G, 5G FR1 & WiFi 6E device testing
- Automated test equipment
- Fail-safe / redundancy switching



Model Name	ZT-SP36T-12A
Case Style	99-01-2369
Connector	SMA female

RoHS Compliant

See our website for RoHS Compliance methodologies and qualifications

PRODUCT OVERVIEW

Mini-Circuits' ZT-SP36T-12A is a mechanical SP36T switch system operating over a wide bandwidth from DC to 12.4 GHz. The construction uses high-reliability mechanical switches, achieving low loss and high isolation for bi-directional operation (1:36 ports). Ports 1 to 36 can each be terminated into an internal load.

The switch is housed in a compact 19-inch rack chassis with SMA 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.

KEY FEATURES

Feature	Advantages
High performance switches	Mechanical absorptive switches provide high reliability, repeatable high performance and internal terminations of input signals on the disconnected paths
Rack-mount chassis	4U height 19" rack-chassis suits integration in automated production test environments
LED indicators	LED indicators on the front panel allow the active switch position to be quickly identified in the test environment, without resorting to software.
Ethernet & USB control	USB HID and Ethernet (HTTP / Telnet) interfaces ensure compatibility with most software environments and connection requirements.





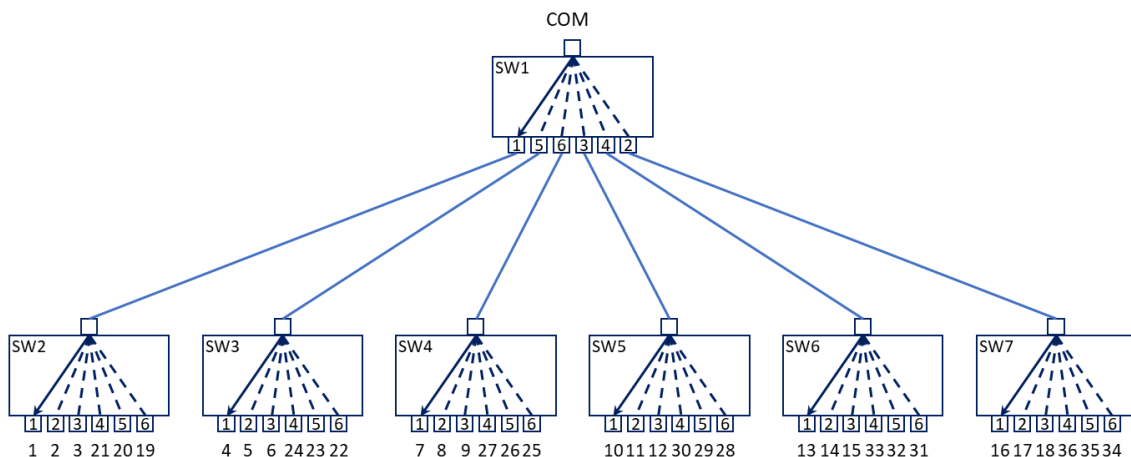
MECHANICAL SPECIFICATIONS

Dimensions	19" (W) x 4U (H) x 20" (D)			
Case Drawing	99-01-2369			
Case Material	Aluminum (with protective coating to prevent corrosion)			
RF Connectors	Panel	Connector	Quantity	Port Labels
	Front	SMA female	37	COM & 1-36
	Front Panel			Rear Panel
Panel Marking	<ul style="list-style-type: none"> Model name SP36T Switch Rack DC-12 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 LED switch position indicators Carry handles 			<ul style="list-style-type: none"> AC mains power input (IEC C14 inlet) USB type B socket RJ45 (LAN) socket Fan vent
Power Supply	AC mains power input (90-260 V, 47-63 Hz)			
Fuse	2A, 250V rating			
Power Consumption	35W typ			
Temperature	Operating: 0 to +50 °C			

ELECTRICAL SPECIFICATIONS @ 25°C

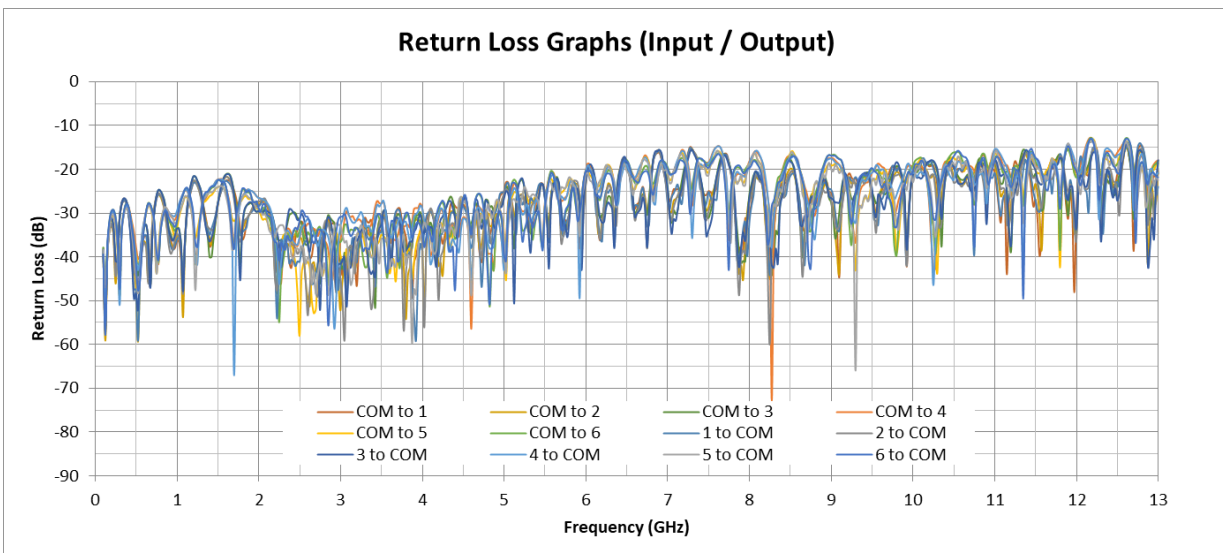
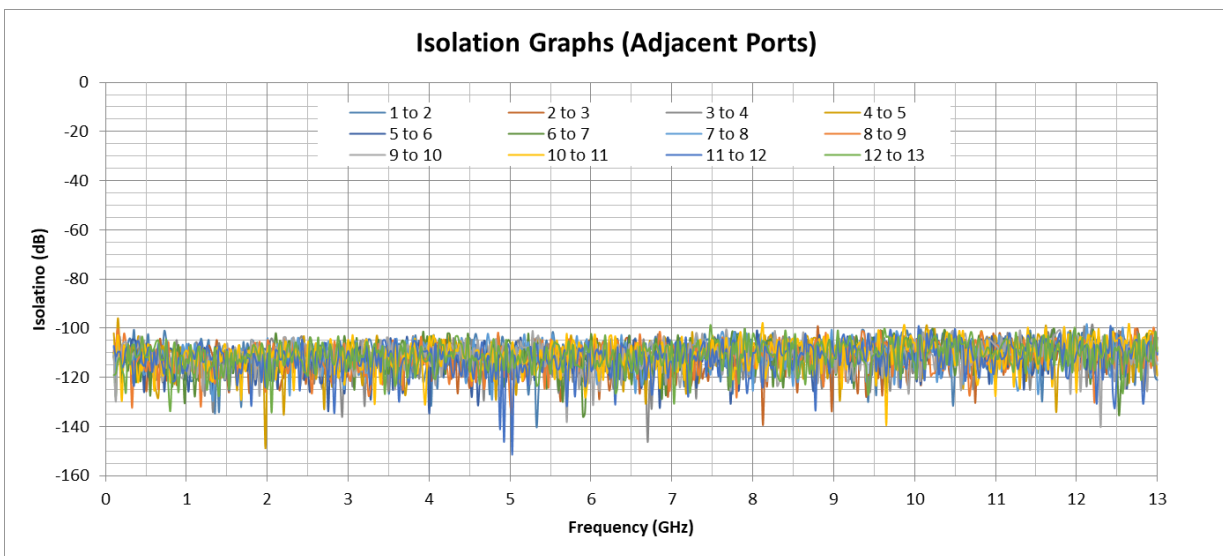
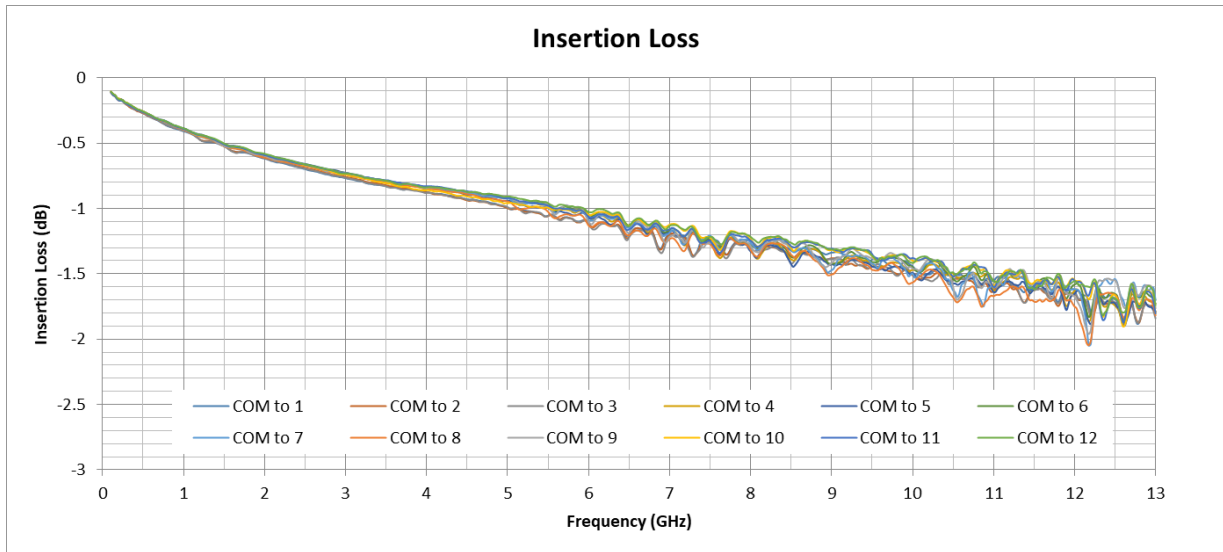
Parameter	Conditions	Min	Typ	Max	Units
Frequency		DC	-	12.4	GHz
Path Loss	DC - 6 GHz	-	1.0	1.5	dB
	6 - 12.4 GHz	-	1.8	2.5	
Isolation		80	90	-	dB
Return Loss			12		dB
Input Power	Cold switching on any through path	-	-	10	W
	Ports 1-36, into internal terminations	-	-	1	
	Hot switching	-	-	0.1	

FUNCTIONAL BLOCK DIAGRAM



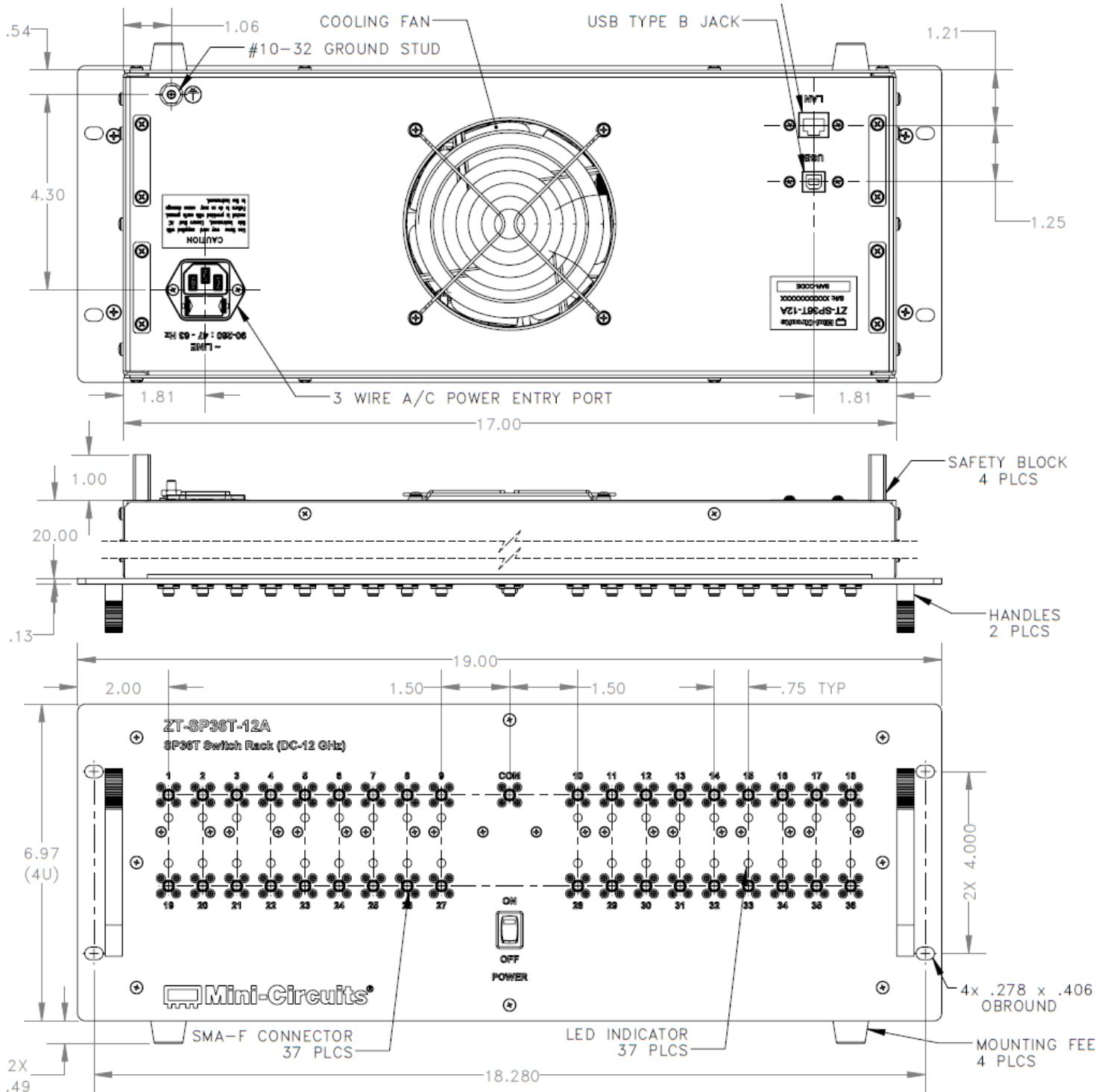


TYPICAL PERFORMANCE DATA





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 	

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
:PATH:COM?	Check which port is connected to COM
:PATH:COM:port	Set the switch path from COM to port (0-36)



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

The screenshot shows the Mini-Circuits Main Control GUI for the ZT-SP36T-12A switch rack. The interface includes several functional areas:

- Set Path:** A section for configuring communication paths with 'From' and 'To' dropdown menus, a 'Show Command' button, and a 'SEND' button.
- Model Information:** Displays 'Model Name' as ZT-SP36T-12A and 'Serial Number' as Demo Mode. It also includes fields for Protocol, IP, and Password, along with 'Firmware Upgrade' and 'Ethernet Config' buttons.
- Switch Status:** A table showing the status and count for each of the 7 switches in the rack.

Switch	State	Count
1	1	322
2	1	176
3	4	467
4	4	458
5	2	427
6	4	251
7	4	476
- Quick-Set Buttons:** A grid of 20 buttons labeled EMPTY1 through EMPTY20, organized into five tabs (TAB1 to TAB5). Includes 'Modify Buttons', 'Load Config', and 'Clear All' options.
- Manual Commands:** A section for entering SCPI commands. It shows a command history with entries like 'SCPI: Path:COM:1' and 'SCPI: Path:COM:1;Path:COM:5;Path:COM:19', all resulting in 'Success'. A 'SEND' button is present.
- Temperature / Fans Status:** A small table showing system health metrics.

Temperature / Fans Status	Status
Temperature	Normal
Fan1 operation	OK
Fan2 operation	OK
Fans state	OFF



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
x2	Updated format and extended frequency data to 13 GHz	29-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