

USB & Ethernet Controlled
Mechanical Switch System (4 x SP8T)

ZTM-4SP8T-18

50Ω DC to 18 GHz



Configuration

| Row | Slot | Model Name | Frequency | Connectors | Description |
|-----|------|---------------------|--------------|------------|--------------------------|
| Top | 1 | MSP8TA-18 (B81-53+) | DC to 18 GHz | SMA (f) | SP8T Switch (Absorptive) |
| Top | 4 | MSP8TA-18 (B81-53+) | DC to 18 GHz | SMA (f) | SP8T Switch (Absorptive) |
| Top | 7 | MSP8TA-18 (B81-53+) | DC to 18 GHz | SMA (f) | SP8T Switch (Absorptive) |
| Top | 10 | MSP8TA-18 (B81-53+) | DC to 18 GHz | SMA (f) | SP8T Switch (Absorptive) |

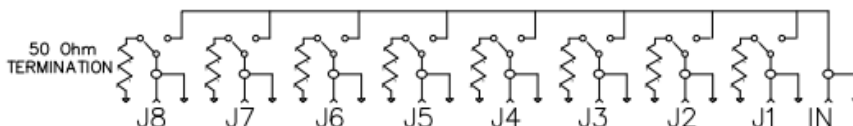
Electrical Specifications @ 25°C (per Switch)

| Parameter | Conditions | Min | Typ | Max | Units |
|--|-----------------------------------|-----|------|------|----------------|
| Frequency | | DC | | 18 | GHz |
| Insertion Loss | DC-8 GHz | | 0.20 | 0.30 | dB |
| | 8-12.4 GHz | | 0.30 | 0.40 | |
| | 12.4-18 GHz | | 0.45 | 0.60 | |
| Isolation | DC-18 GHz | 60 | 80 | | dB |
| Return Loss | DC-8 GHz | | 25 | | dB |
| | 8-12.4 GHz | | 22 | | |
| | 12.4-18 GHz | | 20 | | |
| Switching Time | | | 25 | | ms |
| RF Input Power (Cold Switching) ¹ | DC-8 GHz | | | 20 | W |
| | 8-12.4 GHz | | | 10 | |
| | 12.4-18 GHz | | | 5 | |
| Switch Lifetime | 100 mW hot switching ² | 2 | | | million cycles |
| | 1W 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

Switch Configuration:

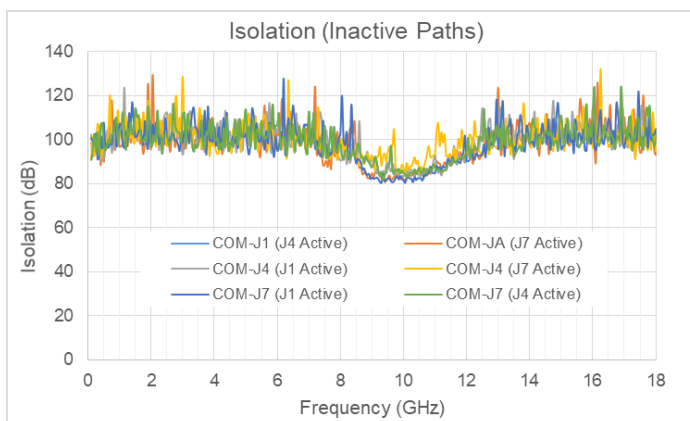
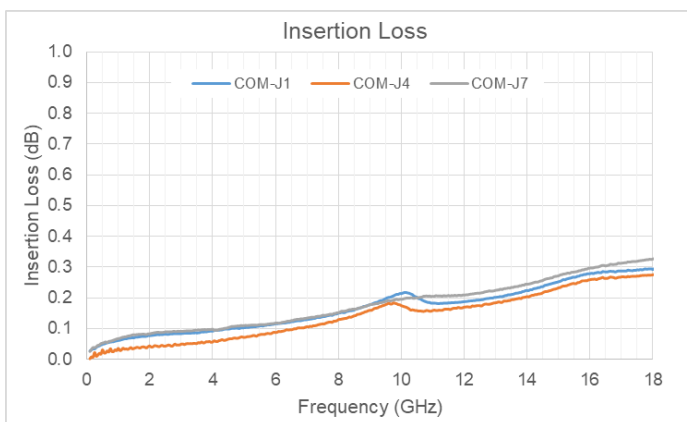
- Normally open (all ports disconnected)
- Absorptive (internal terminations on ports J1-J8)



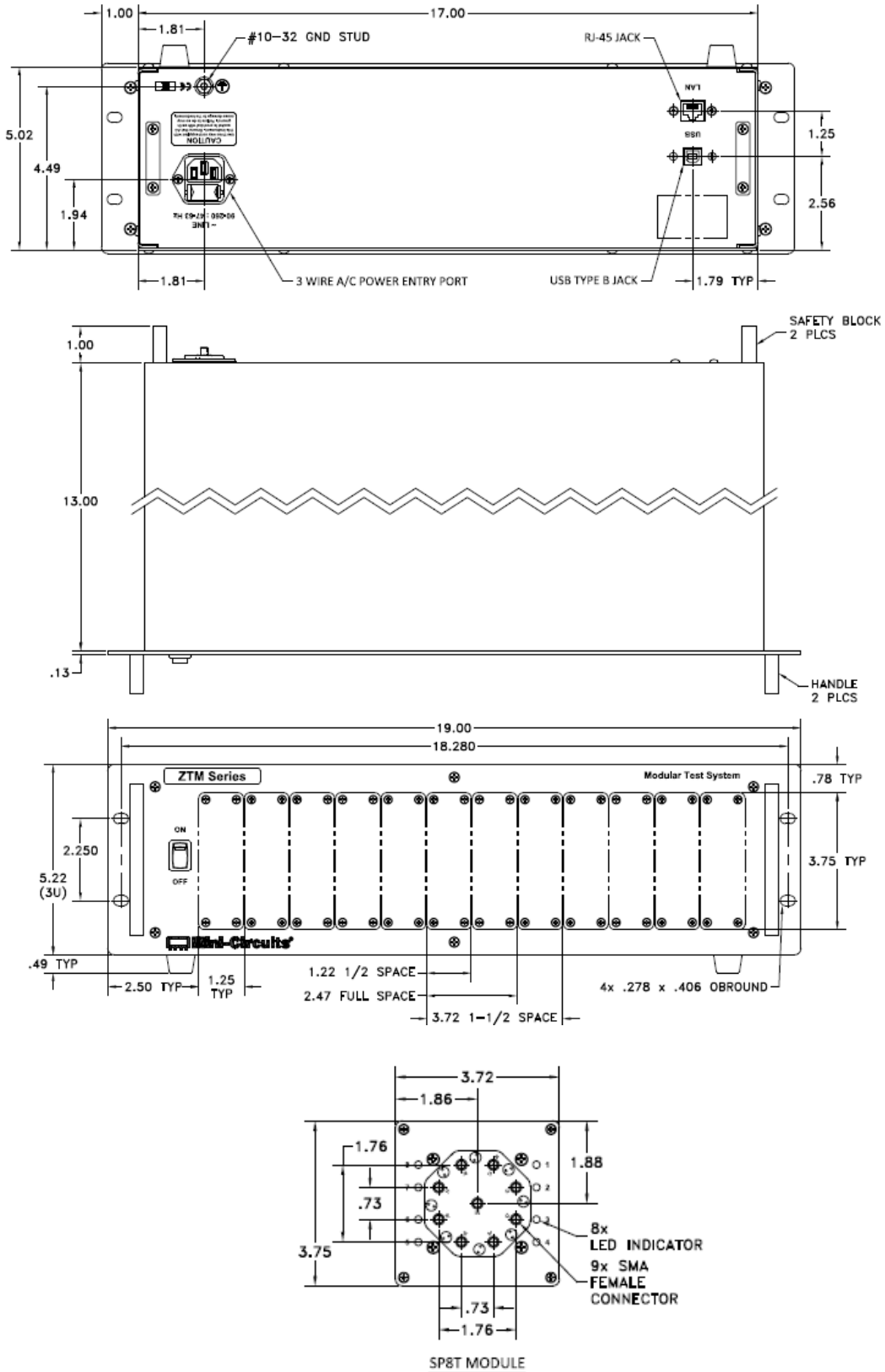
Mechanical / Environmental Specifications

| | | | | |
|-------------------------|---|------------------|--|----------------------|
| Dimensions | 19" (W) x 3U (H) x 13" (D) | | | |
| Case Drawing | 99-01-2861 | | | |
| Case Material | Aluminum (with protective coating to prevent corrosion) | | | |
| RF Connectors | Panel | Connector | Quantity | Port Labels |
| | Front | SMA female | 36 | COM & 1-8 per switch |
| Panel Items | Front Panel | | Rear Panel | |
| Panel Marking | <ul style="list-style-type: none"> ZTM-4SP8T-18 Modular Test System | | <ul style="list-style-type: none"> CE EAC Serial number / date code / model name | |
| Other Connectors | | | <ul style="list-style-type: none"> AC mains power input (IEC C14 inlet) USB type B socket RJ45 (LAN) socket | |
| Other | <ul style="list-style-type: none"> Power on / off switch with LED LED switch path indicators Carry handles | | | |
| Power Supply | AC mains power input (90-260 V, 47-63 Hz) | | | |
| Fuse | 2A, 250V rating | | | |
| Temperature | Operating: 0 to +50 °C | | | |

Typical Performance (per Switch)



Case Drawings



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/ztm_rcm.html |

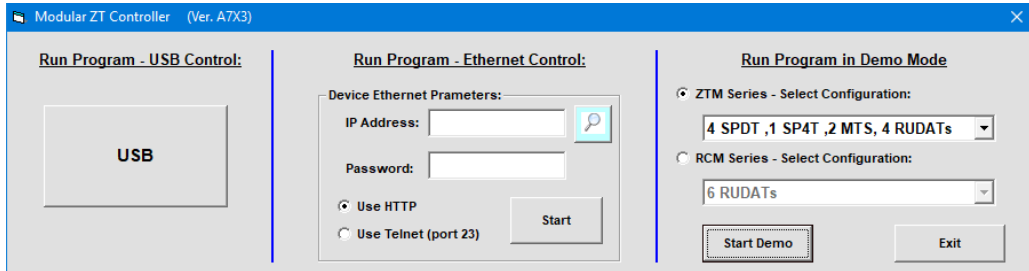
Programming Commands

- 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

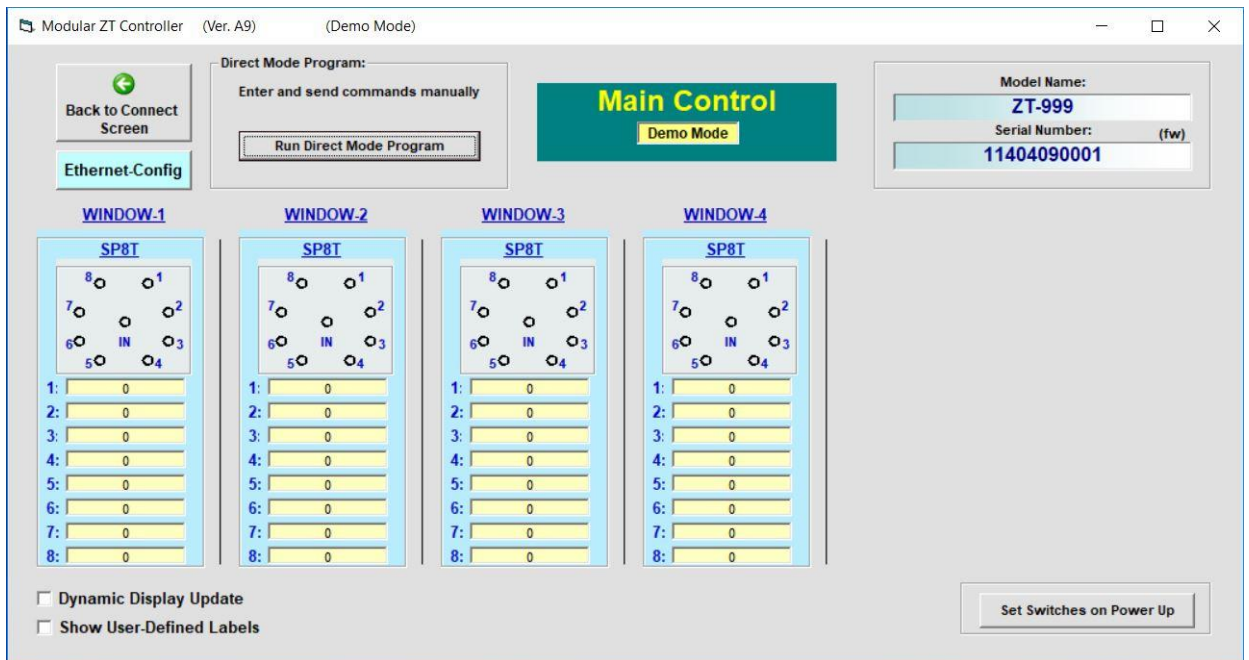
| Command / Query | Description |
|-------------------------------|--|
| :MN? | Read model name |
| :SN? | Read serial number |
| :FIRMWARE? | Read firmware version |
| :sw_type:sw_number:STATE:port | Set a single switch state: <ul style="list-style-type: none"> • sw_type = MTS or SPDT or SP4T or SP6T 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 - Key Features

- Connect via USB or Ethernet
- Run GUI in “demo mode” to evaluate software without a hardware connection



- View and set switch / attenuator states at the click of a button
- Configure and run timed sequences
- Set start-up states
- View switch position counters
- Configure Ethernet IP settings



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) |

| 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.
- 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