RACK MOUNTED | USB & ETHERNET CONTROL

Blocking Switch Matrix ZTVX-16-18-S

50Ω DC to 18 GHz 2 X 16

THE BIG DEAL

- 2 x 16 blocking matrix
- Bi-directional operation
- Low loss & high isolation
- GUI & API for automation

CASE STYLE: WU2505

DOWNLOAD SOFTWARE PACKAGE

RoHS Compliant

See our web site for RoHS Compliance methodologies and qualifications

APPLICATIONS

- Production test automation
- VNA extension (2 ports to 16 ports)

PRODUCT OVERVIEW

Mini-Circuits' ZTVX-16-18 is a flexible, 2 by 16 blocking switch matrix covering DC to 18 GHz with low insertion loss and high isolation. The compact 2U height, 19-inch rack-mountable chassis includes all RF connections (SMA) on the front panel. This system is ideal for expanding a standard 2 port VNA for multi-port or multi-device testing:

- Parallel testing of multiple 2 port devices such as filter or amplifier characterisation
- Production testing of splitter / combiner or switch components with high port counts
- Testing of MIMO systems with high channel counts

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).

The full ZTVX series also includes options for both 50Ω and 75Ω testing over a range of frequency bands, with switch configurations from 2 x 8 up to 2 x 32.

KEY FEATURES

Feature	Advantages
High port counts	Bi-directional operation from 2 to 16 ports facilitates a wide range of switch applications
Compact package	The 2U height, rack-mountable chassis is easily located beneath a VNA or in a rack test environment.
Ethernet Control	Remote control from any computer or device with a network connection (HTTP or Telnet protocols).
USB HID (Human Interface Device)	Local control via USB connection with no driver installation required. Compatible with Windows® or Linux® operating systems using 32 and 64 bit architectures.
Full software support	The user friendly Windows GUI (graphical user interface automation) allows manual control straight out of the box. A full API (application programming interface), programming examples and manuals are provided to allow automation in most programming environments.

REV. A
ECO-012718
ZTVX-16-18
MCL NY
220601

Blocking Switch Matrix ZTVX-16-18-S

ELECTRICAL SPECIFICATIONS AT 25°C

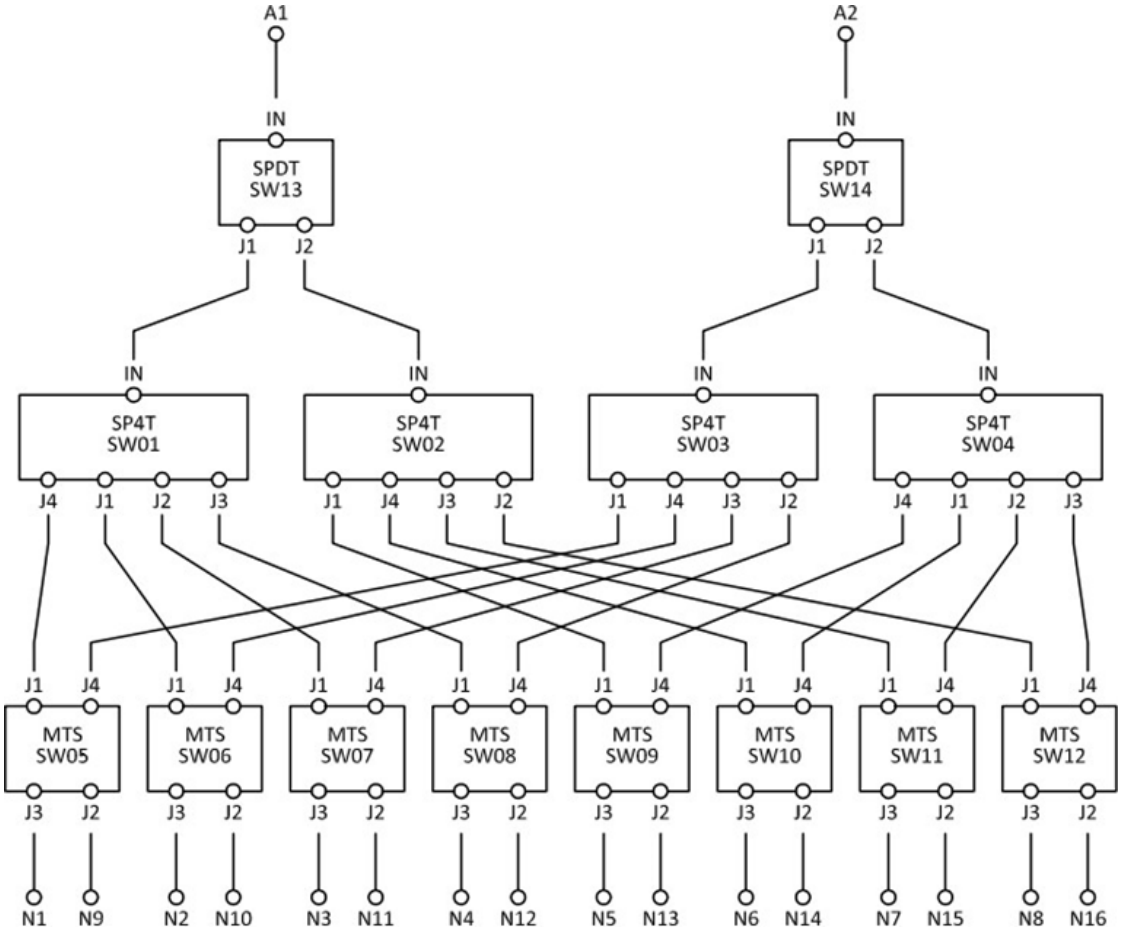
Parameter	Condition (GHz)	Min.	Typ.	Max.	Unit
Frequency Range		DC	-	18	GHz
Insertion Loss	DC - 6	-	1.0	-	dB
	6 - 12	-	1.5	-	
	12 - 18	-	2.5	-	
Return Loss	DC - 4	-	20	-	dB
	4 - 12	-	15	-	
	12 - 18	-	12	-	
Isolation	A_x to N_y when disconnected	-	90	-	dB
	A_x to A_y or N_x to N_y	-	90	-	
Input Power	Cold switching	-	-	+30	dBm

MECHANICAL SPECIFICATIONS

Dimensions	19" (W) x 2U (H) x 20" (D)			
Case Drawing	99-01-2505			
Case Material	• Aluminum (with protective coating to prevent corrosion) • Reinforced cover to support VNA mounted on top of switch matrix			
RF Connectors	**Panel**	**Connector**	**Quantity**	**Port Labels**
	Front	SMA female	2	A1 – A2
			16	N1 – N16
Panel Items	**Front Panel**	**Rear Panel**		
Panel Marking	• Model name • 2 x 16 Switch Matrix • DC - 18 GHz	• CE • UKCA • EAC • Serial number / date code / model name		
Other Connectors		• AC mains power input (IEC C14 inlet) • USB type B socket • RJ45 (LAN) socket		
Other	• Power on / off switch with LED • Carry handles	• Cooling fan		
Power Supply	AC mains power input (90-260 V, 47-63 Hz)			
Power Consumption	86W max			
Temperature	Operating: 0 to +50 °C			

Blocking Switch Matrix ZTVX-16-18-S

SIMPLIFIED FUNCTIONAL BLOCK DIAGRAM



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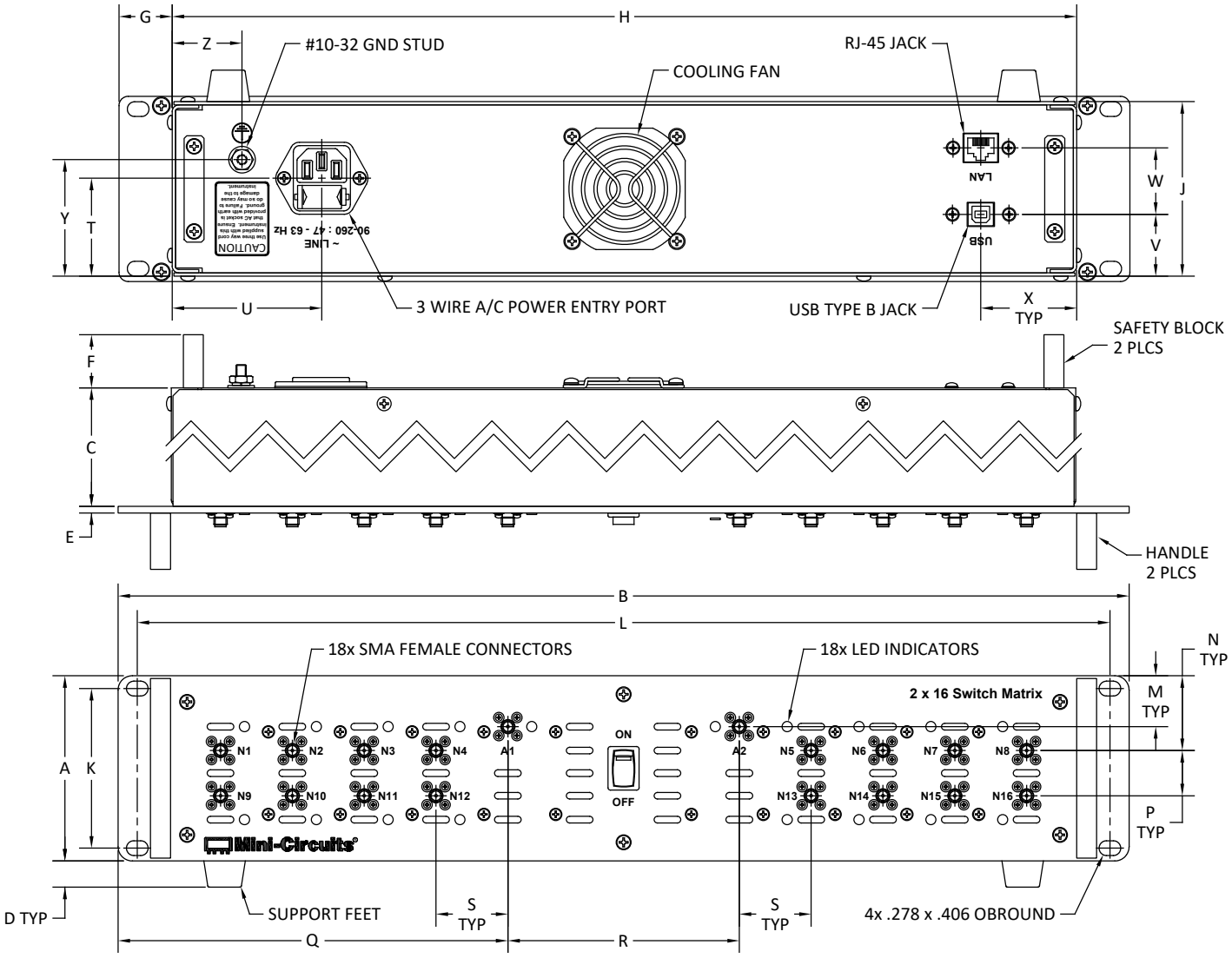
OUTLINE DRAWING



OUTLINE DIMENSIONS (Inch / mm)

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
3.48	19.00	20	.49	.13	1.00	1.00	17.00	3.28	3.00	18.280	.96	1.41	4.00	7.33	4.35	5.1	.135
88.39	482.60	508.00	12.45	3.30	25.40	25.40	431.80	83.31	76.20	464.31	24.38	35.81	101.60	186.18	110.49	129.54	3.43

S	T	U	V	W	X	Y	Z	wt
3.48	19.00	20	.49	.13	1.00	1.00	17.00	grams
88.39	482.60	508.00	12.45	3.30	25.40	25.40	431.80	7400

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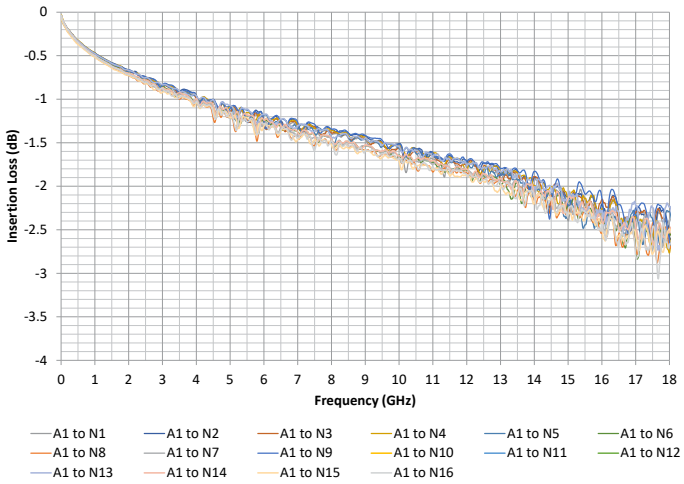
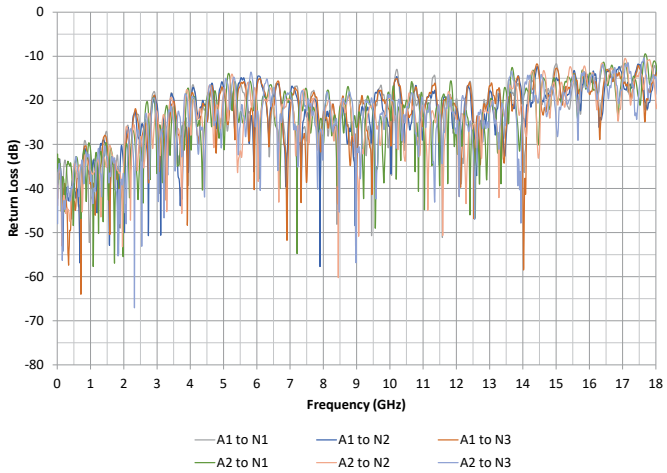
TYPICAL PERFORMANCE CURVES

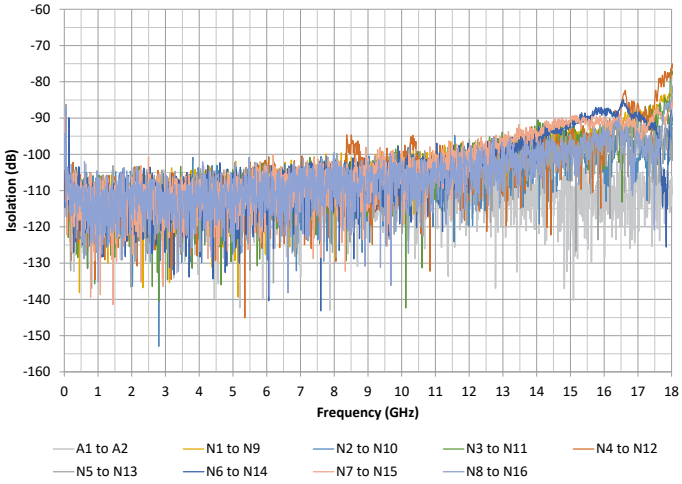
Insertion Loss (All Paths from A1)



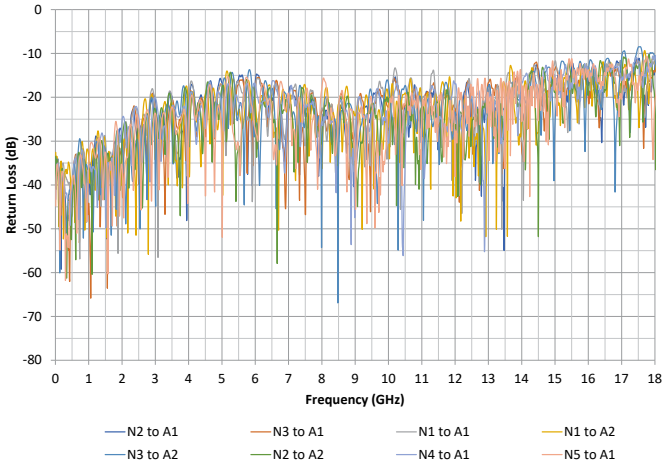
Return Loss (A Ports)



Isolation (Between Adjacent Ports)



Return Loss (N Ports)



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SOFTWARE SPECIFICATIONS

- Please contact testsolutions@minicircuits.com for support

Ethernet Control	Supported Protocols	TCP / IP, HTTP, Telnet, DHCP, UDP
	Max Data Rate	10 Mbps (10 Base-T Half Duplex)
USB Control	Supported Protocols	HID-Full Speed
	Min Communication Time	3ms typ
Software Support	• 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	hhttps://www.minicircuits.com/softwaredownload/ztvx.html

PROGRAMMING COMMANDS

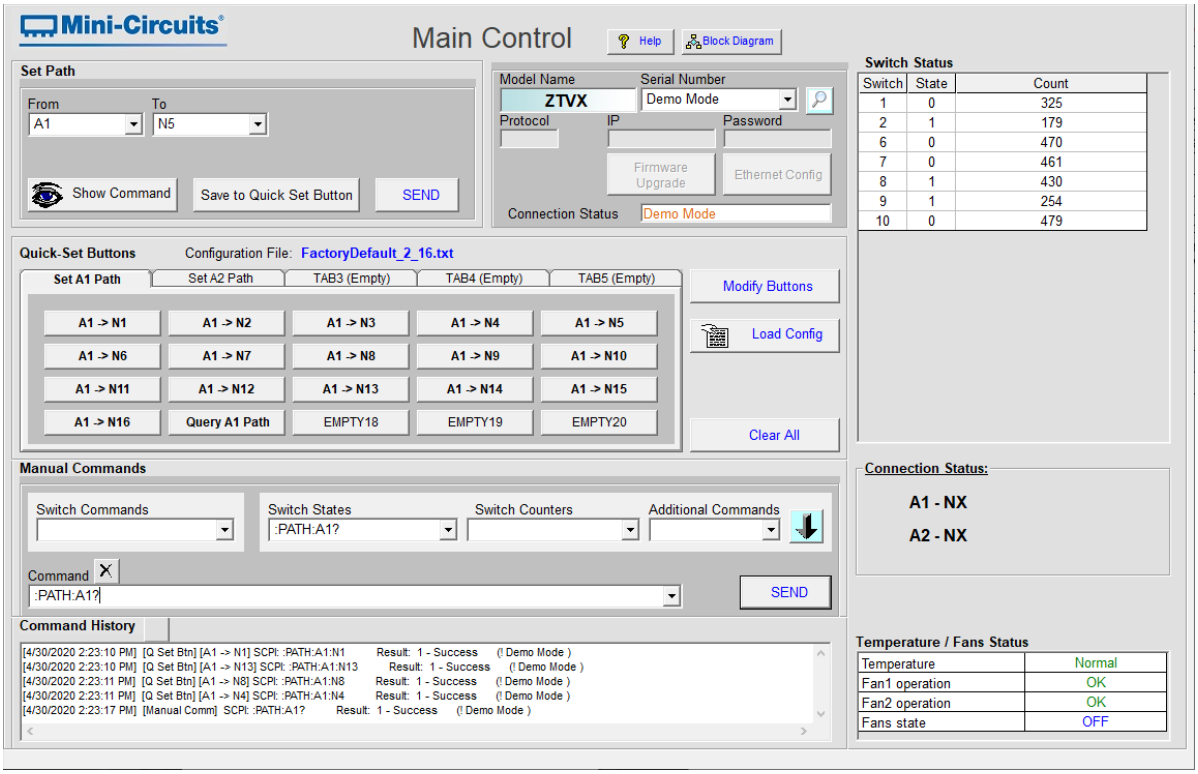
- The key ASCII / SCPI commands for control of the system are summarized below
- These can be sent via the USB or Ethernet API
- Please refer to the programming manual for full details

Command / Query	Description
:MN?	Read model name
:SN?	Read serial number
:FIRMWARE?	Read firmware version
:PATH:a_port:n_port	Set the path between 2 switch ports: • a_port= "Input" port • n_port= "Output" port • Example: :PATH:A1:N8(connect A1 to N8)
:PATH:input?	Check which "output" is connected to a specified input port

Blocking Switch Matrix ZTVX-16-18-S

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://https://www.minicircuits.com/softwaredownload/ztvx.html Please contact testsolutions@minicircuits.com for support



Blocking Switch Matrix ZTVX-16-18-S

ORDERING INFORMATION

Please contact Mini-Circuits' Test Solutions department for price and availability: testsolutions@minicircuits.com

Model	Description
ZTVX-16-18-S	2x16 Blocking Switch Matrix

Included Accessories	Part No.	Description
See Below	CBL-3W-xx*	AC power cord (IEC C13 connector to local plug)
	USB-CBL-AB-7+	6.8 ft (2.1 m) USB Cable: USB type A(Male) to USB type B(Male)
	CBL-RJ45-MM-5+	5 ft (1.5 m) Ethernet cable: RJ45(Male) to RJ45(Male) Cat 5E cable
	HT-4-SMA	SMA Cable Wrench (4 in)

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

AC Power Cords[5]	Part No.	Description
	CBL-3W-US	Power Cord for United States
	CBL-3W-EU	Power Cord for Europe
	CBL-3W-UK	Power Cord for United Kingdom
	CBL-3W-AU	Power Cord for Australia and China
	CBL-3W-IL	Power Cord for Israel

5. If you need a Power cord for a country not listed please contact testsolutions@minicircuits.com

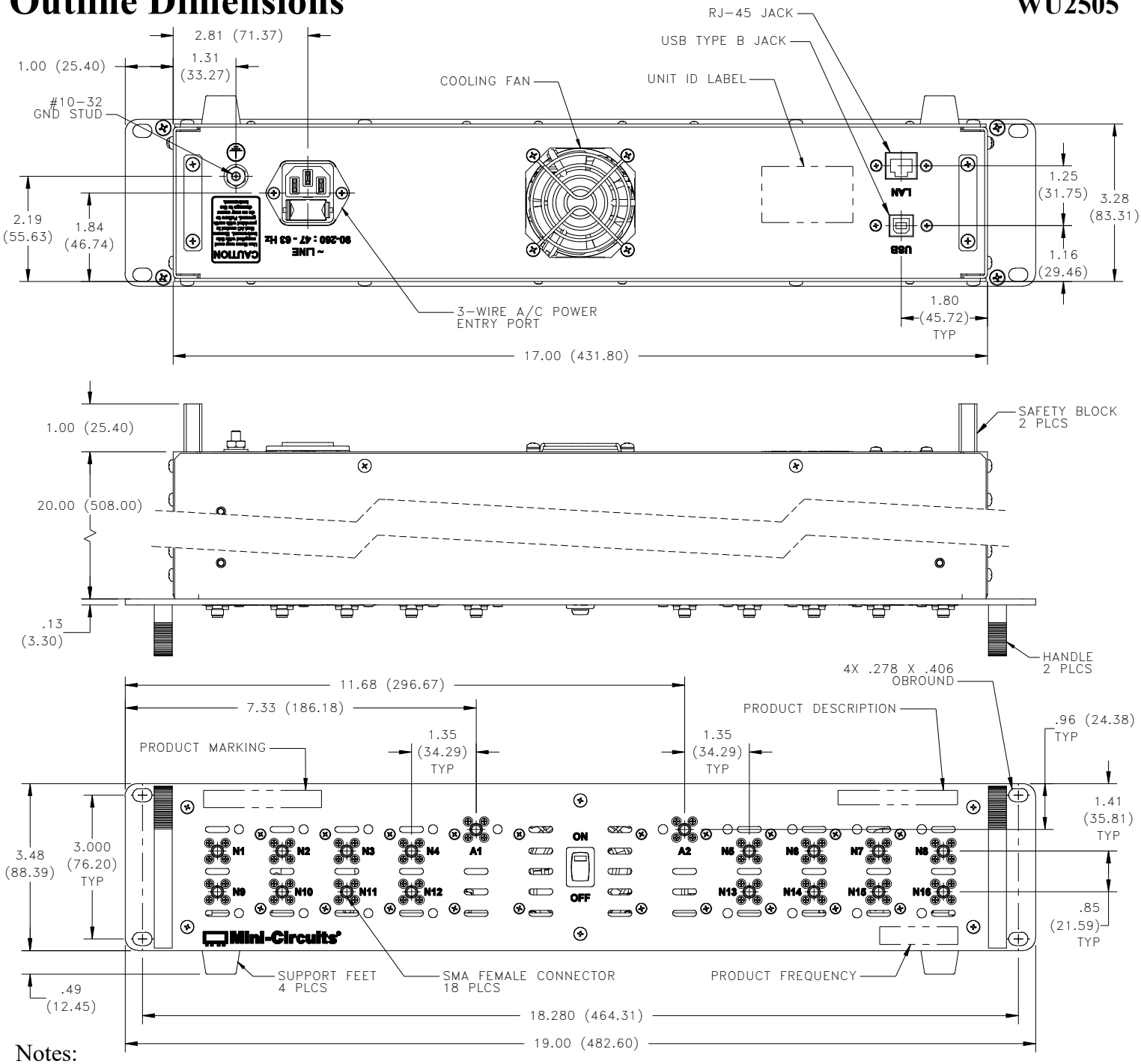
NOTES

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/terms/viewterm.html

Case Style WU

Outline Dimensions

WU2505



Notes:

1. Case material: Aluminum (with protective coating to prevent corrosion).
2. Dimensions are in inches (mm). Tolerances: 2 Pl. ±.03 inch; 3 Pl. ±.015 inch.
3. Weight: 7400 grams.
4. Marking may contain other features or characters for internal lot control.

Mini-Circuits

Environmental Specifications **ENV56**

All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-0° to 40° C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-15° to 85° C Ambient Environment	Individual Model Data Sheet
Operating and Storage Humidity	5% to 85% RH (non-condensing)	Ambient
Bench Handling Test	Bench Top Tip 45° & Drop	MIL-PRF-28800F
Transit Drop Test	Free Fall Drop, 20 cm (7.9 inches)	MIL-PRF-28800F Class 3