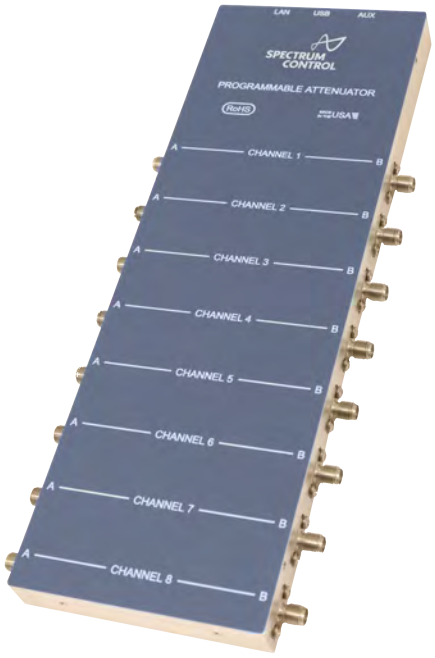
8-Channel Programmable Attenuator – 0.3 to 8000 MHz, 127 dB

USB & Ethernet Control Modes

Model 4801-8-127

RoHS



Features

- Excellent solid-state repeatability and performance
- Uninterrupted RF when changing attenuation values
- AUX connector provides a logic-level SYNC output signal
- Extremely fast attenuation switching (0.2µs) and fine attenuation step resolution (0.25dB)
- Cost-effective, proven design
- Small form-factor portable unit, powered via USB
- Eight independently programmable channels

Applications

- Ideal for Automated Test Equipment (ATE)
- 3G/4G LTE/5G / DVB Fading Test Simulation
- MU-MIMO, WiMax, Wi-Fi Testing
- Mobile Handover and Traffic Simulation Test Environments

Description

Spectrum Control Weinschel's 4801 series of 8-Channel Programmable Attenuators are 50 ohm bidirectional units that operate over the 0.3 to 8000 MHz frequency range. Model 4801-8-127 offers an attenuation range of 0 to 127 dB with 0.25 dB step size.

Control Configuration

The attenuator is controllable via either 10/100Base-T Ethernet or USB 2.0 interfaces. The attenuation channels can be operated independently or in a synchronized fashion where all channels change simultaneously.

10/100 BaseT Ethernet

The Ethernet port supports 10/100BaseT operation, with autonegotiation of the interface speed and duplex mode. LED indicators are provided to indicate network LINK status (green) and TX/RX activity (YELLOW). Supported network protocols include: IP, UDP, TCP, ICMP (ARP and PING), DHCP, AUTOIP, TELNET, and HTTP. The TCP and UDP servers allow connections to be established for general programming purposes. A TELNET server is provided for a command-line interface that implements many of the functions of the serial console CLI, and an HTTP server that allows control via a browser.

USB Control

In USB mode, the attenuator is controlled and powered via a standard USB 2.0 connection to a USB host. The 4801-8-127 operates as a USB CDC device (USB VID=25EA, PID=106D), so it may be controlled via any software that can communicate to a standard virtual COM port. Programming is done via simple ASCII text based message strings to control the device.

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Additional Features

Attenuation Range	127 dB in 0.25 dB steps
Switching Speed	0.2 µsec. (10% RF to 90% RF)
Control Logic	Ethernet or USB
Operating Voltage	Through USB +5V
Temperature Range	-20° C to +85° C
RF Connectors	SMA Female input/output
Weight	650 g (22.9 oz.)
Test Data	Test data available upon request

Control Software Included

Spectrum Control Weinschel's Control Software can also be used in the operation of this series of digital attenuators. The Control Software will allow the user to setup, control, and perform test and measurements over a standard USB 2.0 communication interface. Additional information is available in the Operating & Installation Manual, IM-717.

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Electrical and Environmental Specifications

Parameter	Frequency Range	Condition	Minimum	Typical	Maximum	Units
Operating Frequency	-	-	0.3	-	8000	MHz
Nominal Impedance	0.3 - 8000 MHz	-	-	50		Ohm
Attenuation Range	0.3 - 8000 MHz	0.25 dB Steps	0	-	127	dB
Insertion Loss	0.3 - 2400 MHz	@ 0dB	-	6.5	8	dB
	2400 - 6000 MHz		-	10.4	12	
	6000 - 8000 MHz		-	12.9	14.5	
VSWR (All Ports)	0.3 – 6000 MHz	0 – 127 dB	-	1.8 : 1	2.1 : 1	-
	6000 - 8000 MHz		-	1.9 : 1	2.1 : 1	
Attenuation Accuracy [1]	0.3 - 2400 MHz	0 – 64 dB	-	±(0.5 + 1.0%)	±(0.5 + 2.0%)	dB
		64.25 – 95 dB	-	±(1.0 + 3.0%)	±(1.0 + 4.0%)	
		95 – 127 dB	-	±(2.0 + 14.0%)	-	
	2400 - 6000 MHz	0 – 64 dB	-	±(1.0 + 4.0%)	±(1.0 + 5.0%)	
		64.25 – 95 dB	-	±(1.0 + 8.0%)	±(2.0 + 10.0%)	
		95 – 127 dB	-	±(2.0 + 14.0%)	-	
	6000 - 8000 MHz	0 – 64 dB	-	±(1.0 + 6.0%)	±(1.0 + 8.0%)	
		64 – 95 dB	-	±(2.0 + 10%)	±(2.0 + 12.0%)	
		95 – 127 dB	-	±(2.0 + 14%)	-	
Monotonicity	-	0.5 dB Minimum Step	0.3	-	8000	MHz
RF Input Power, CW	0.3 – 50 MHz	0 - 127 dB	-	-	12 - 28[3]	dBm
	50 - 8000 MHz	0 - 127 dB	-	-	28	
RF Input Power, Pulsed	0.3 – 50 MHz	0 - 127 dB	-	-	12 - 31[3]	dBm
	50 - 8000 MHz	0 - 127 dB	-	-	31	
Input IP3[2]	50 - 8000 MHz	-	-	60	-	dBm
Supply Voltage (VDC)	-	USB	4.75	5	5.25	Volt
Supply Current	-	USB - only	-	100	-	mA
	-	USB + Ethernet	-	200	-	mA
Operating Temperature	0.3 - 8000 MHz	-	-20	-	85	°C
Storage Temperature	-	-	-55	-	125	°C

The values in the table apply at room temperature unless otherwise specified

1. X% is the percentage of the nominal attenuation setting. For example, the accuracy of 30 dB at 2.4 GHz is± (0.5+0.02*30) dB. This equates to ± 1.1 dB which means when setting the attenuator at 30 dB, the actual measured normalized value would be between 28.9 dB and 31.1 dB.
2. Measured with two tones at +18 dBm, 20 MHz spacing.
3. Increases linearly with frequency.

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Mechanical Dimensions

Notes:

1. ***ALL DIMENSIONS ARE GIVEN IN MM (INCHES)***

3a *ETHERNET,*

RJ45 ***3b*** *USB - C*

3c *AUX - PHOENIX CONTACT, 2.5MM, MATES WITH PHOENIX CONTACT P/N PTSM 0.5/2-P-2, 5-1778832*