

41-181 DC to 2.3GHz Programmable Attenuator

PROGRAMMABLE ATTENUATOR
41-181

- DC to 2.3GHz Attenuator
- 1dB Attenuation Resolution Ideal for Optimizing Signal Levels in Measuring Systems
- Maximum Attenuation 63dB
- Single or Dual Version in One PXI Slot
- Use of Switched Resistive Attenuator Pads Ensures High Linearity and True DC Coupled Operation
- Input and Output Connector Savers Easily Replaced if Damaged
- VISA/IVI Drivers Supplied for Windows 98/2000/NT/XP
- 2 Year Warranty

NOTE: Provided for information only. Use 41-180 for all new requirements.

The 41-181 Programmable Attenuator Module is available with either one or two independently programmable attenuators in a single width 3U PXI module. Each attenuator uses high reliability mechanical switches to operate binary weight attenuator pads, providing attenuation values from 0 to 63dB in 1dB steps. Attenuator operating time is typically just 5ms, ensuring fast setting times.

The module is ideal for conditioning the signal levels from devices under test and ensuring that other measuring instruments are operating close to their optimum operating point for noise and linearity. The use of mechanically switched attenuators ensures broad operating bandwidth and freedom from non-linear behavior that might degrade the signals being measured.

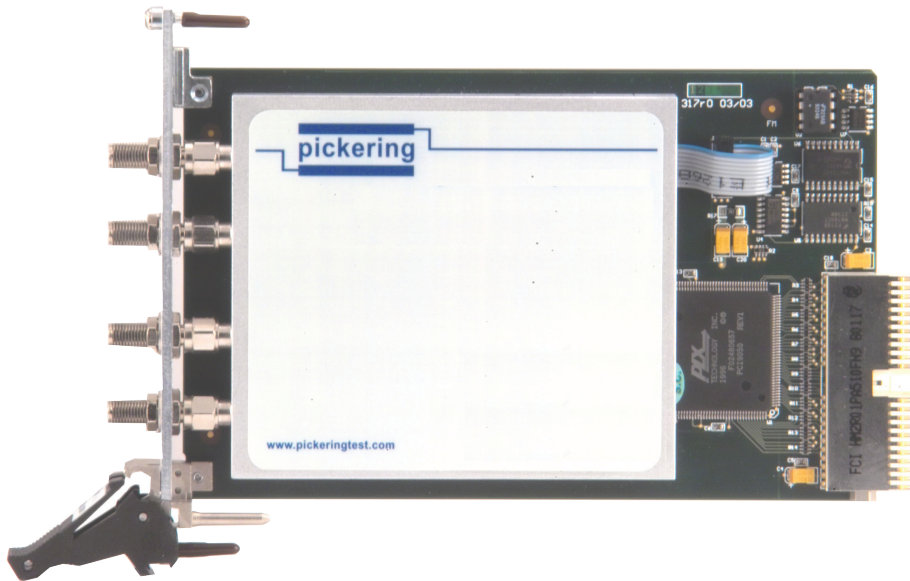
The attenuators can be used for back-to-back testing of RF products, allowing the signal levels to be adjusted to quantify the path loss that can be inserted before the communication efficiency degrades, providing a quick indication of receiver sensitivity.



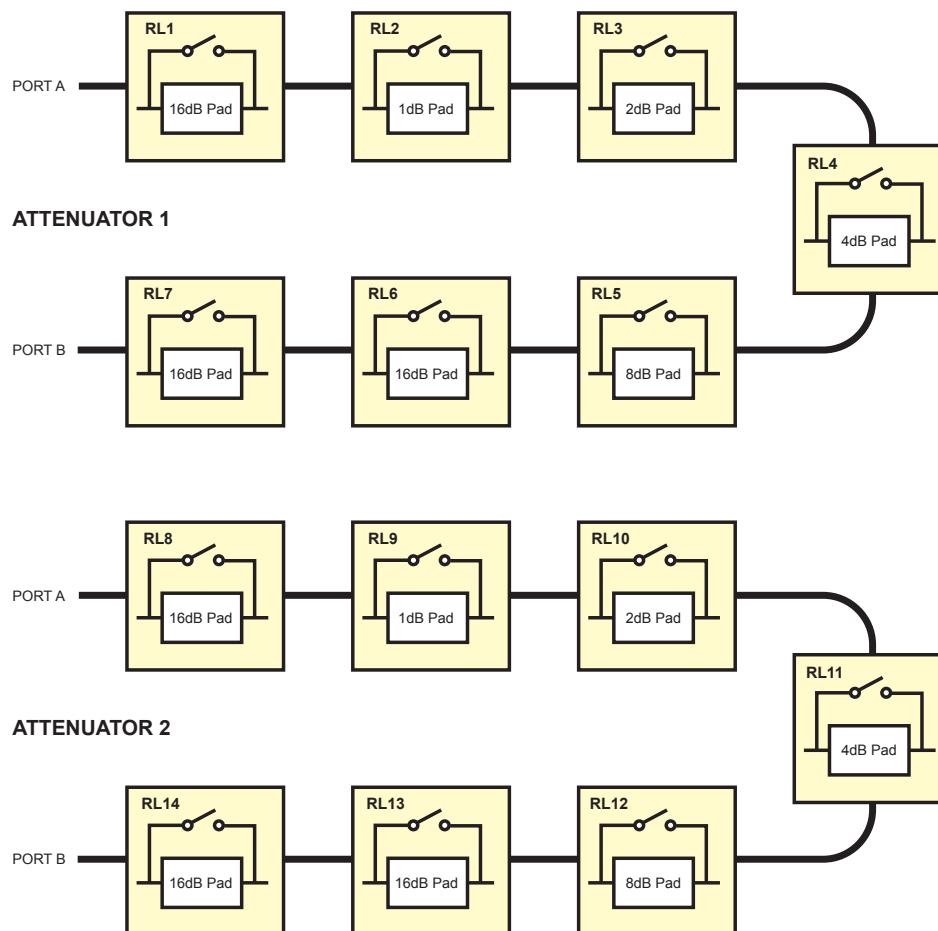
The 41-181 Programmable Attenuator Module is ideal for conditioning the output level of special to type sources, saving the systems integrator the time and effort of providing a variable output level. The use of a PXI solution for variable attenuation requirements minimizes the need for components and cables located outside the PXI chassis, saving time and development costs for systems integrators.

The input and output connectors of the attenuators can be interchanged and the design allows the user to change the front panel connectors quickly and easily in the event of damage occurring. The attenuators can be connected in series to increase the total available attenuation.

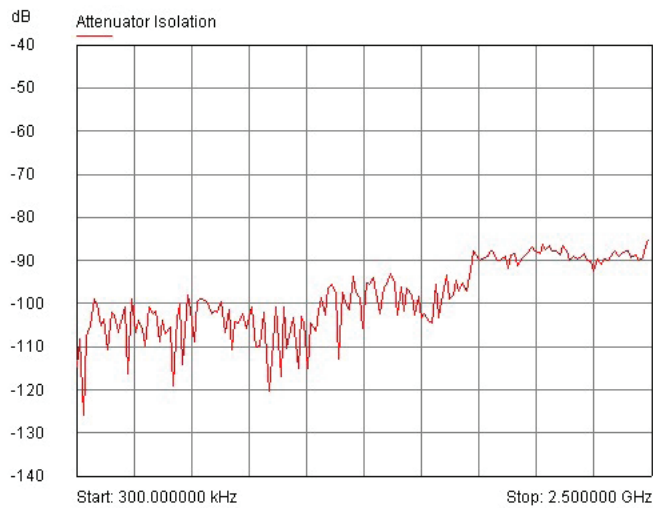
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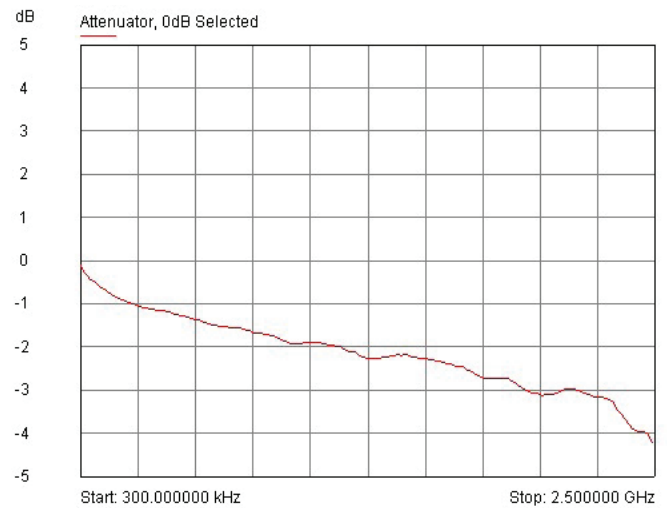
Dual DC to 2.3GHz Programmable Attenuator 41-181-022



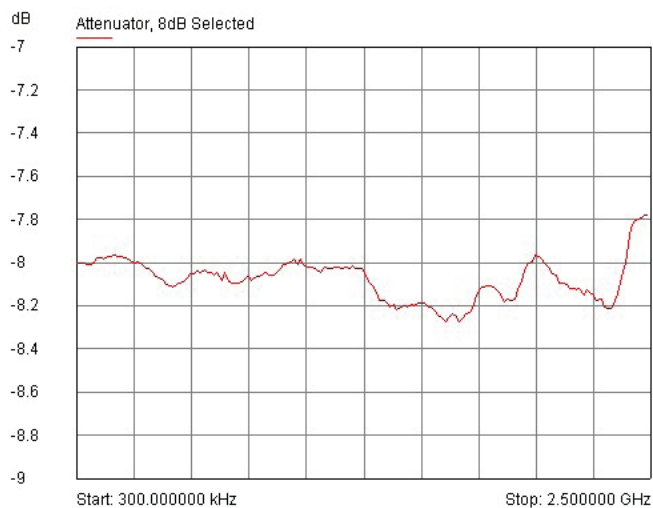
Dual DC to 2.3Ghz Attenuator Block Diagram



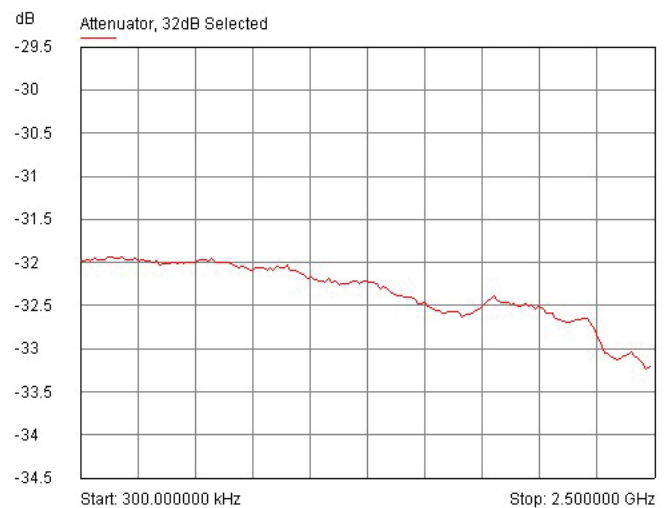
Typical Crosstalk Versus Frequency With No Attenuation Set



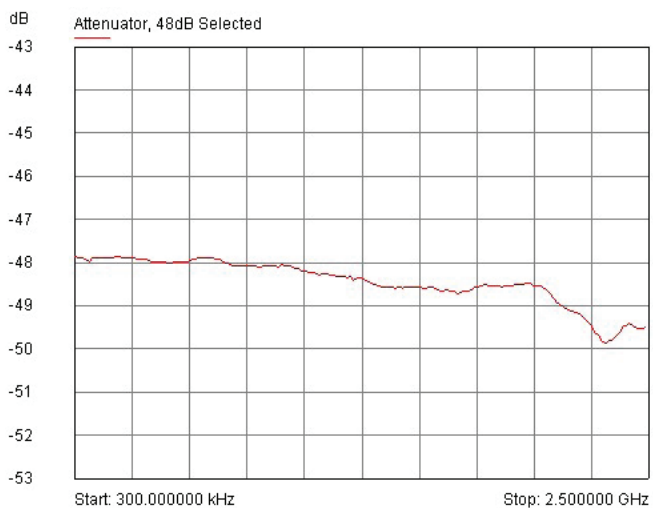
Typical Insertion Loss Versus Frequency With No Attenuation Set



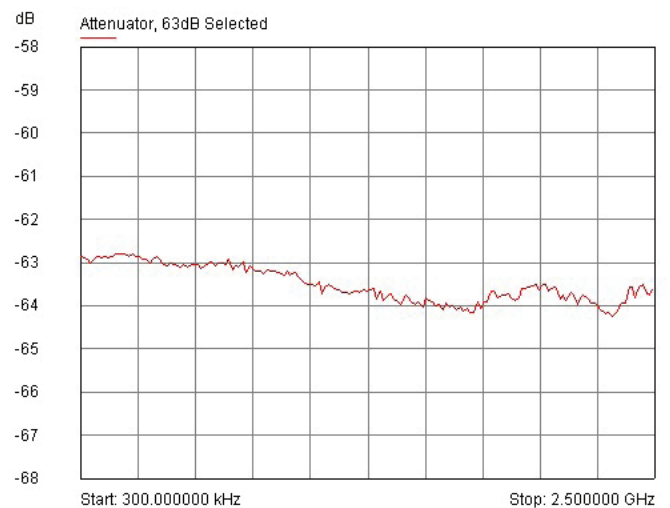
Attenuation Accuracy Versus Frequency With 8dB of Attenuation Set



Attenuation Accuracy Versus Frequency With 32dB of Attenuation Set



Attenuation Accuracy Versus Frequency With 48dB of Attenuation Set



Attenuation Accuracy Versus Frequency With 63dB of Attenuation Set

General Characteristics

Frequency range:	DC to 2.3GHz.
Maximum Input Power:	1 Watt continuous.
Input Impedance:	50Ω, DC coupled.
VSWR (SMA connector):	Less than 1.5, typically less than 1.3
RF Connectors:	SMA, input and output connections are interchangeable. Versions with SMB connectors can be made available.
Contact Life (each pad):	Typically 1×10^7 operations. At max power 1×10^6 operations.
Switching Time (each pad):	Typically 2ms. Maximum 4ms.

Attenuation

The attenuator is made up of 1, 2, 4, 8 and 16dB (3 off) switched pads, attenuation is set to 0dB with no power applied.

Insertion Loss (0dB set):	Typically 3.2dB at 2.3GHz
Attenuation Range:	0 to 63dB in 1dB steps relative to 0dB condition.

Attenuation Accuracy (individual pads measured in 50Ω system referenced to 0dB condition):

Attenuator Pad	DC to 1GHz	at 2.3GHz
1dB	±0.05dB	±0.15dB
2dB	±0.05dB	±0.1dB
4dB	±0.2dB	±0.25dB
8dB	±0.15dB	±0.3dB
16dB	±0.2dB	±0.65dB

Programming

All PXI modules are supplied with complete Windows 95/98/2000/NT/XP drivers, these perform the following functions:

- Write word/s to module.
- Write bit to module.
- Full status reporting.
- Module identification and location information.
- Set and read module calibration information.

Up to date driver software is available from our web site at www.pickeringtest.com

Operating/Storage Conditions

Operating Conditions

Operating Temperature:	0°C to 55°C
Humidity:	Up to 95% non-condensing
Altitude:	5000m

Storage and Transport Conditions

Storage Temperature:	-20°C to +75°C
Humidity:	Up to 95% non-condensing
Altitude:	15000m

Power Requirements

+3.3V	+5V	+12V	-12V
0	100mA	200mA	0

Width and Dimensions

Size:	Single width 3U PXI/CompactPCI instrument module.
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Connectors

PXI bus:	32-bit P1/J1 backplane connector.
RF Signals:	Front panel SMA connectors. Versions with SMB connectors can be made available.

PXI & CompactPCI Compliance

All Pickering Interfaces PXI modules comply with the PXI Specification 2.1. Local Bus, Interrupts, Trigger Bus and Star Trigger are not implemented.

Supplied soft front panels and driver software are fully Windows 98/2000/NT/XP compatible.

Safety & CE Compliance

All modules are fully CE compliant and meet applicable EU directives: Low-voltage safety EN61010-1:2001, EMC Immunity EN61000-6-1:2001, Emissions EN55011:1998.

Product Order Codes

Single DC to 2.3GHz Attenuator	41-181-021
Dual DC to 2.3GHz Attenuator	41-181-022

Mating Connectors & Cabling

Examples of connectors and cabling for the 41-181 are:

40-977-521-1M	Cable, 50Ω SMA, Plug to Plug, 1 Meter Length.
40-977-511-1M	Cable, 50Ω SMB, Plug to Plug, 1 Meter Length.

Please refer to the Pickering Interfaces "Interconnection Solutions" catalog for the full list of connector/cabling options, including drawings, photos and specifications. This is available in either print or as a download. Alternatively our web site has dynamically linked connector/cabling options, including pricing, for all Pickering PXI modules.



Latest Details

Please refer to our Web Site for Latest Product Details.
www.pickeringtest.com