Functional Schematic

ZTDAT-Series   1 to 6000 MHz

Multi-Channel Attenuation Systems

Functional Description

Miini-Circuits' ZTDAT series are multi-channel programmable attenuator systems suitable for a wide range of signal level control applications from 1 MHz to 6 GHz. Each independently controlled channel provides 0 to 95 dB attenuation in 0.25 dB* steps with more than 100 dB isolation between channels. Its unique design maintains linear attenuation change per dB, even at the highest attenuation settings.
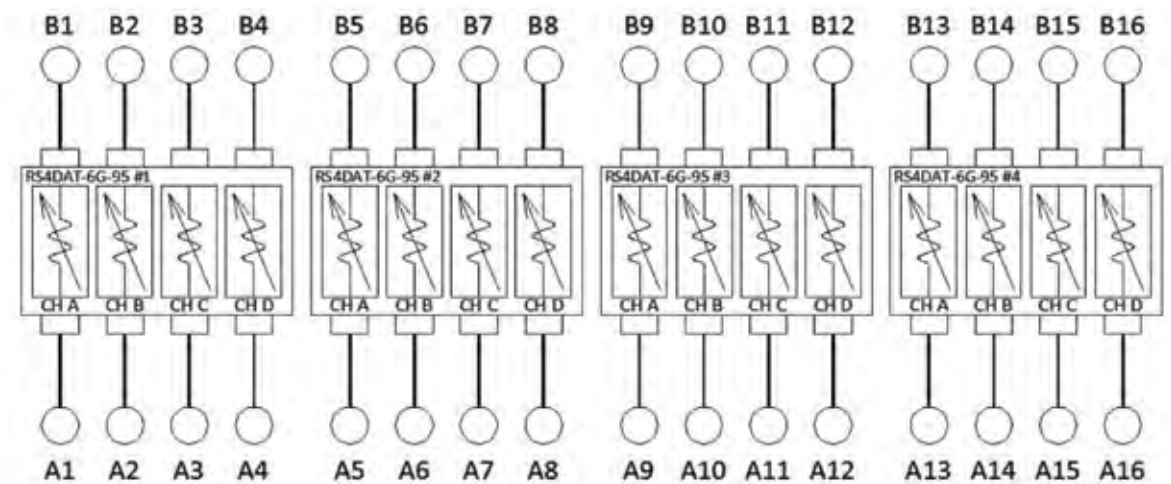
Each model is housed in a compact 19-inch rack chassis with SMA or N-type RF connectors on the front and rear panels. A series of standard model options are provided, from 8 to 24 attenuator channels, with custom configurations available on request

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).
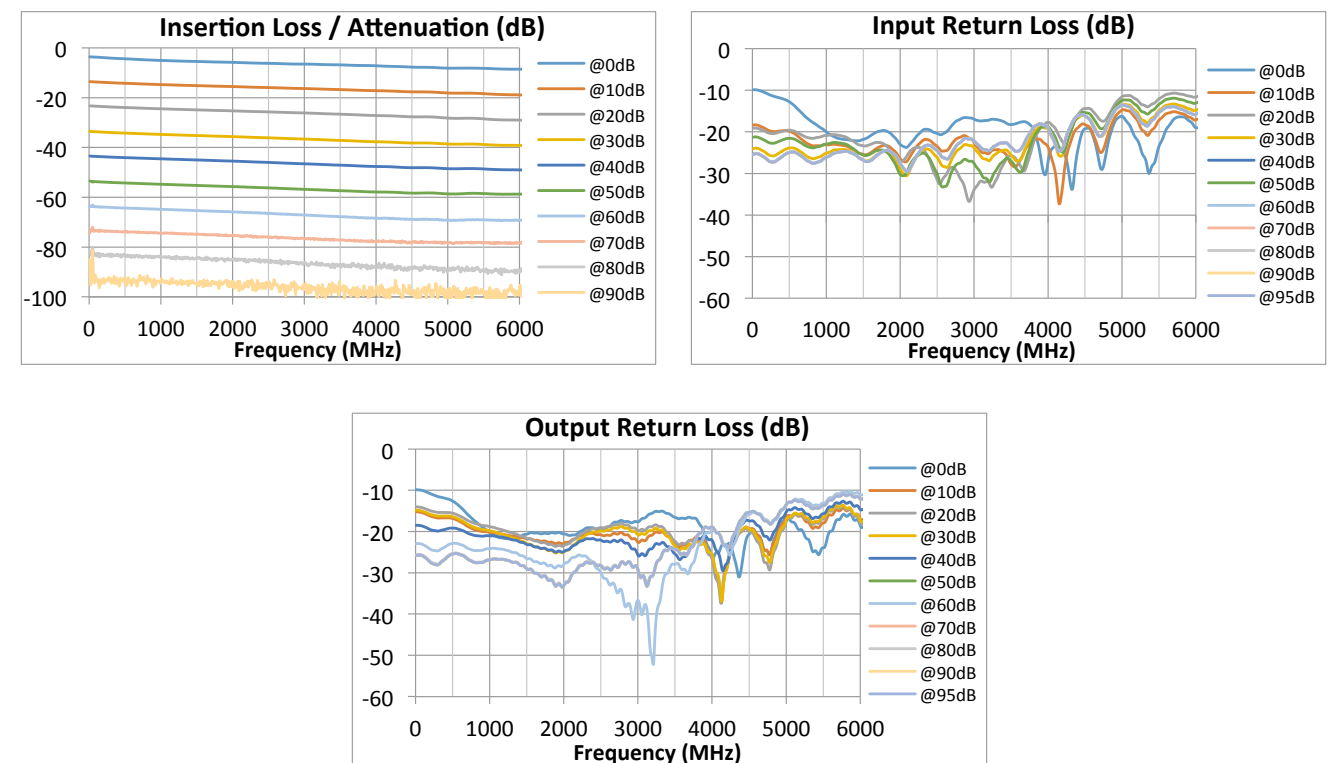
The series also includes Mini-Circuits' novel SPI daisy-chaining interface which allows multiple ZTDAT attenuator systems to be cascaded together into a Master/Slave chain. The full chain effectively becomes one system with every attenuator channel (from 8 to several hundred) controlled through the single USB or Ethernet connection and software interface of the Master unit.

0.25 dB steps from 0 to 90 dB; 0.5 dB steps above 90 dB

ZTDAT-Series Curves

Cascading ZTDAT Attenuator Racks

Multiple ZTDAT attenuator racks can be combined to form much larger programmable attenuator systems by "cascading" the SPI interfaces. This allows large numbers of attenuator channels to be controlled through a single USB or Ethernet connection and software interface. All software commands are issued to the Master unit (the first unit in the chain) which will in turn control all Slave units as required. Cascading ZTDAT units is easy:

1. Connect the SPI Out port of the first ZTDAT unit to the SPI In port of the next ZTDAT unit

2. Continue connecting additional ZTDAT units in the same manner, as required

3. Connect the AC power inputs for all ZTDAT units in the chain

4. Connect the control connection (USB or Ethernet) to the first ZTDAT in the chain; this becomes the Master unit

5. Each individual attenuator channel within the cascaded chain can now be addressed as if they are part of the Master
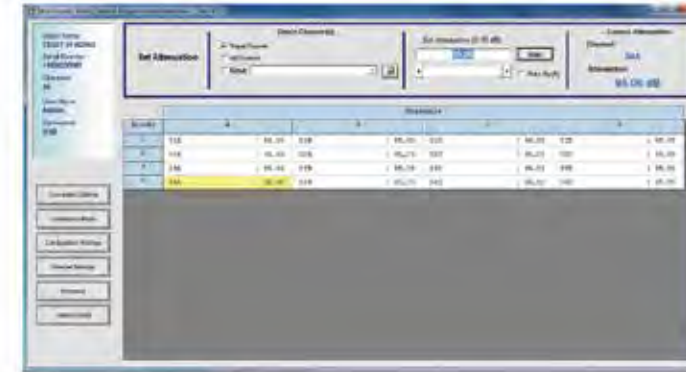

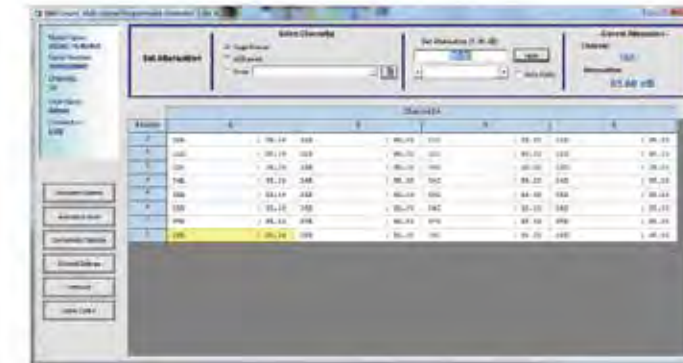
3 ZTDAT racks "daisy chained" via SPI ports

Cascading ZTDAT Attenuator Racks

Mini-Circuits' user-friendly control software for multi-channel attenuator systems automatically detects "slave" units cascaded to the "master" unit and displays settings for all channels in connected in the chain.
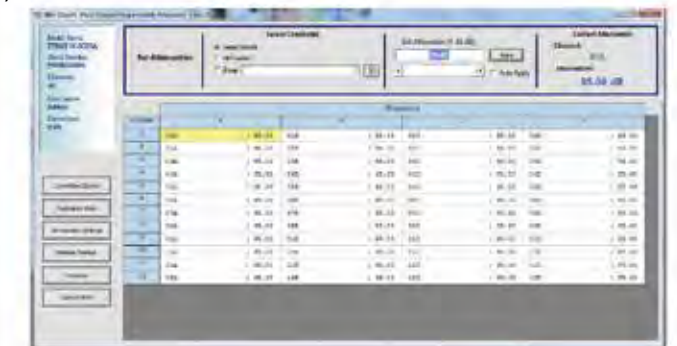
This allows you to scale your setup by adding more channels at will while managing settings from a single control interface.

Control interface for one ZTDAT unit (16 channels)

Control interface for two ZTDAT units, one master and one slave (32 channels)

Control interface for three ZTDAT units, one master and two slaves (48 channels)