

USB & Ethernet Controlled

Multi-Channel Programmable Attenuators

RCM-100 Series

50Ω 1 to 6000 MHz

The Big Deal

- Flexible multi-channel attenuator system
- Attenuation options up to 120 dB
- Full software support via USB & Ethernet
- All configurations shipped in 2-3 weeks!

Typical Applications

- MIMO test sets
- Cellular fading / handover testing
- Power level compensation
- Automated test equipment



Software Package

RoHS Compliant

See our website for RoHS compliance methodologies and qualifications

Product Overview

Mini-Circuits' RCM-100 series multi-channel programmable attenuator systems offer flexibility and fast turnaround for compact test setups. The design consists of a small, light-weight chassis comprising up to three open hardware windows, supporting a flexible choice of programmable attenuator options, with exceptionally fast turnaround time:

- 4 - 6 programmable attenuator channels
- 0 to 30, 60, 90 or 110 dB attenuation range per channel (1 - 6000 MHz)
- 0 to 120 dB attenuation range per channel (1 - 4000 MHz)
- Models up to 8 GHz also available on request

With the use of Mini-Circuits' low cost Hand-Flex™ interconnect cables, multiple matrix configurations can be easily created by the user. The switches are controlled via USB or Ethernet, allowing control directly from a PC, or remotely over a network. 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).

Key Features

| Feature | Advantages |
|-----------------------------|---|
| Flexible attenuator options | Specify the precise attenuation configurations required in your test setup |
| Fast turnaround time | 2-3 weeks from order to shipment allows test configuration to be rapidly updated without causing production delays. |
| Compact half-rack chassis | Compact, light-weight design enables easy bench-top use. Shelving in a standard 19-inch equipment rack accommodates two RCM units side by side. |
| USB & Ethernet control | USB HID and Ethernet (HTTP / Telnet) interfaces provide easy compatibility with a wide range of software setups and programming environments |

Catalog Attenuator Configurations

| Model Name | Channels | Attenuator Component* | Specification per Channel | | |
|------------|----------|-----------------------|---------------------------|-------------|-----------|
| | | | Frequency | Attenuation | Step Size |
| RCM-30 | 4 | RCDAT-6000-30 | 1 - 6000 MHz | 0 - 30 dB | 0.25 dB |
| RCM-60 | 4 | RCDAT-6000-60 | 1 - 6000 MHz | 0 - 60 dB | 0.25 dB |
| RCM-100 | 4 | RCDAT-6000-90 | 1 - 6000 MHz | 0 - 95 dB | 0.25 dB |
| RCM-110 | 4 | RCDAT-6000-110 | 1 - 6000 MHz | 0 - 110 dB | 0.25 dB |
| RCM-120 | 4 | RCDAT-4000-120 | 1 - 4000 MHz | 0 - 120 dB | 0.25 dB |
| RCM-30-6 | 6 | RCDAT-6000-30 | 1 - 6000 MHz | 0 - 30 dB | 0.25 dB |
| RCM-60-6 | 6 | RCDAT-6000-60 | 1 - 6000 MHz | 0 - 60 dB | 0.25 dB |
| RCM-100-6 | 6 | RCDAT-6000-90 | 1 - 6000 MHz | 0 - 95 dB | 0.25 dB |
| RCM-110-6 | 6 | RCDAT-6000-110 | 1 - 6000 MHz | 0 - 110 dB | 0.25 dB |
| RCM-120-6 | 6 | RCDAT-4000-120 | 1 - 4000 MHz | 0 - 120 dB | 0.25 dB |



*See individual component data sheets at www.minicircuits.com for full specifications and performance data



Mechanical Specifications

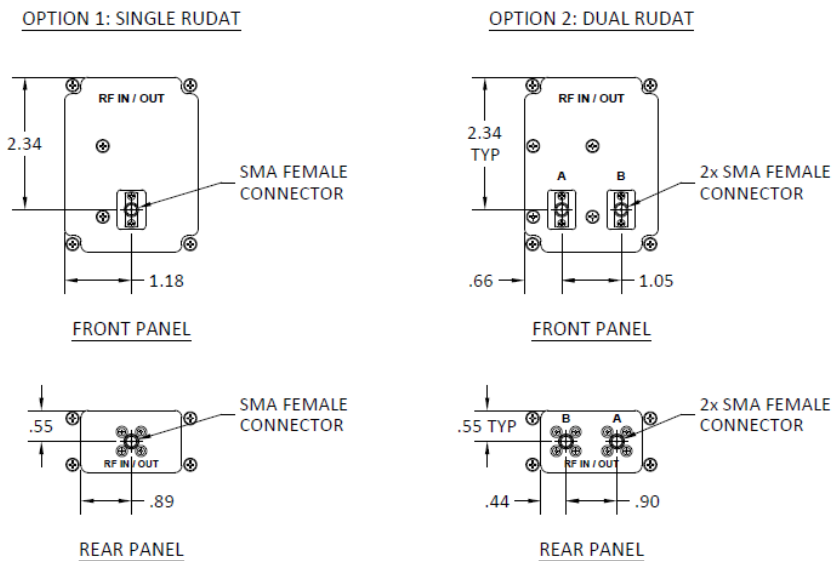
| | |
|------------------------------|---|
| Dimensions | 8.25" (w) x 4.25" (h) x 8.25" (d); mounting feet add 0.28" height |
| Case Material | Aluminum (with protective coatings to prevent corrosion) |
| Case Drawing | 99-01-2068 |
| RF Connectors | SMA female |
| Front Panel | a) RF "input" ports |
| Rear Panel | a) RF "output" ports b) Power ON/OFF switch with indicator light c) 2.1 mm center positive DC socket d) 24 V DC Input e) USB & RJ45 control connections |
| Control Interface | USB and Ethernet TCP/IP supporting HTTP and TELNET protocols |
| Power Supply | 24V DC input (using provided AC/DC adapter) |
| Operating Temperature | 0° to +50° C |

USB & Ethernet Controlled Multi-Channel Programmable Attenuators

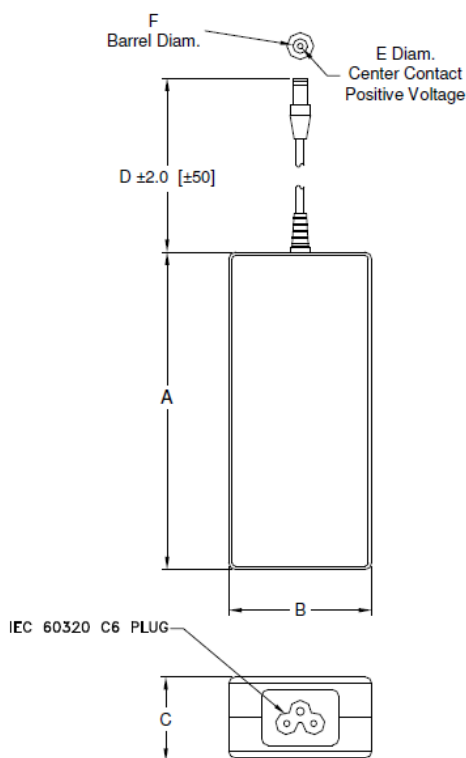
RCM-100 Series

Case Drawings

Attenuator Window Options



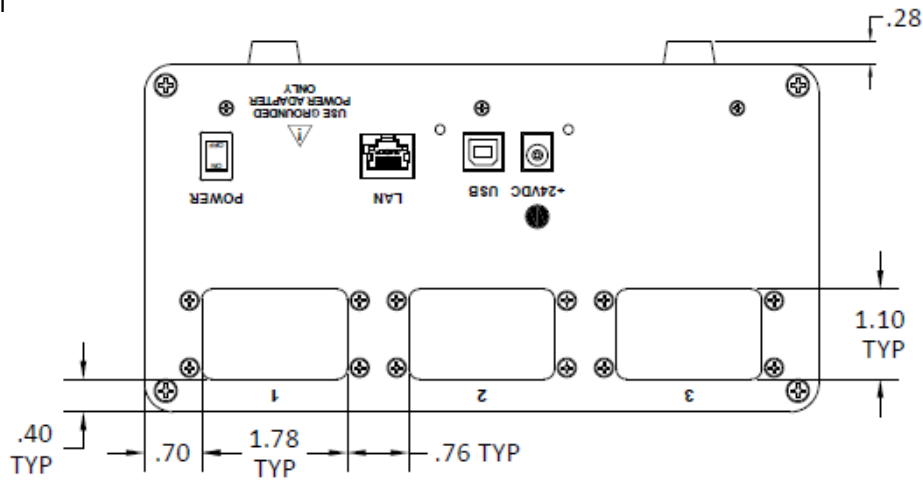
AC / DC Power Adapter



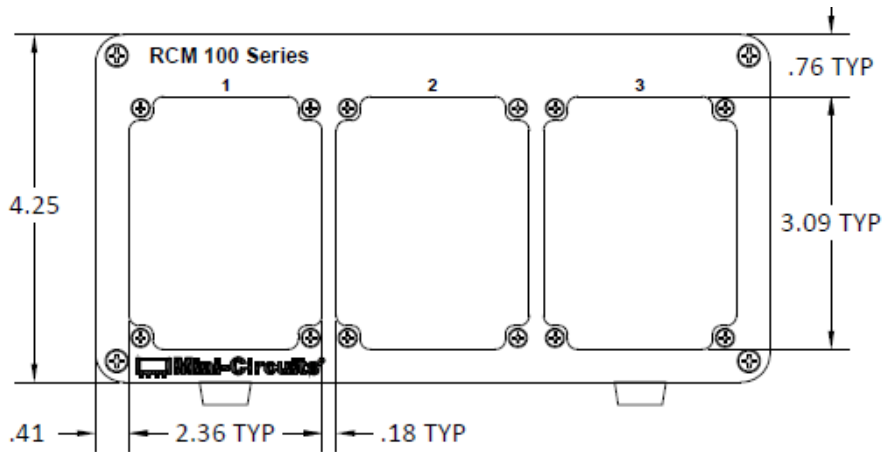
| CASE# | A | B | C | D | E | F | WT. GRAMS |
|--------|---------------|--------------|--------------|----------------|----------------|----------------|-----------|
| LR1590 | 4.72 (120) | 2.13 (54) | 1.26 (32) | 72.8 (1850) | 0.083 (2.1) | 0.217 (5.5) | 220 |

Case Drawings

Rear Panel

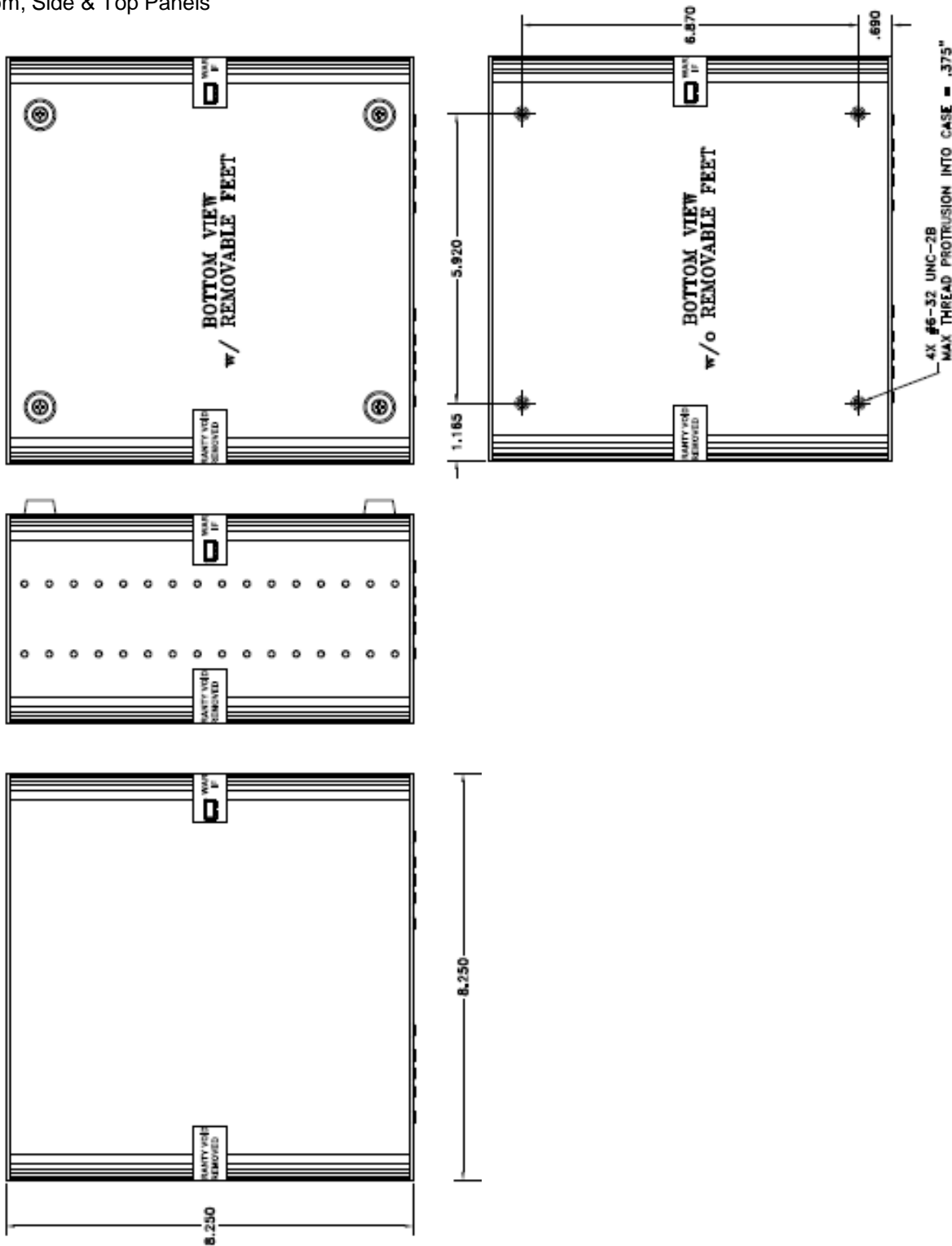


Front Panel



Case Drawings

Bottom, Side & Top Panels



Software Specifications

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://www.minicircuits.com/softwaredownload/ztm_rcm.html
- Please contact testsolutions@minicircuits.com for support

Minimum System Requirements:

| Parameter | Requirements | |
|---------------------|-------------------------------------|--|
| Interface | USB HID & Ethernet (HTTP & Telnet) | |
| System Requirements | GUI | Windows 98 or later |
| | USB API DLL | Windows 98 or later and programming environment with ActiveX or .NET support |
| | USB Direct Programming | Linux; Windows 98 or later |
| | Ethernet | Windows, Linux or Mac computer with a network port and Ethernet TCP / IP support |
| Hardware | Pentium II or later with 256 MB RAM | |

Application Programming Interface (API)

Ethernet Support:

- Simple ASCII / SCPI command set for attenuator control
- Communication via HTTP or Telnet
- Supported by most common programming environments

USB Support (Windows):

- ActiveX COM DLL file for creation of 32-bit programs
- .NET library DLL file for creation of 32 / 64-bit programs
- Supported by most common programming environments (refer to application note [AN-49-001](#) for summary of supported environments)

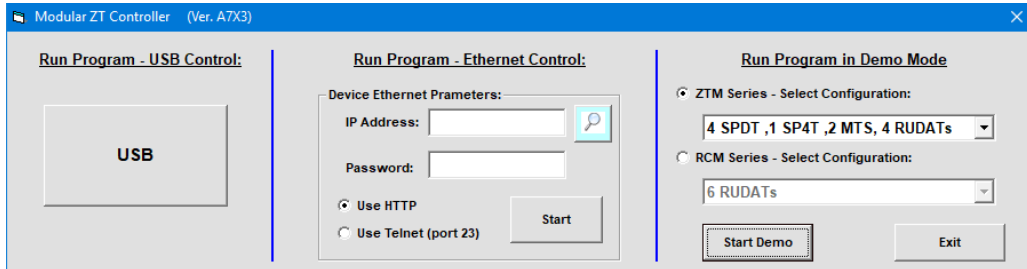
USB Support (Linux):

- Direct USB programming using a series of USB interrupt codes

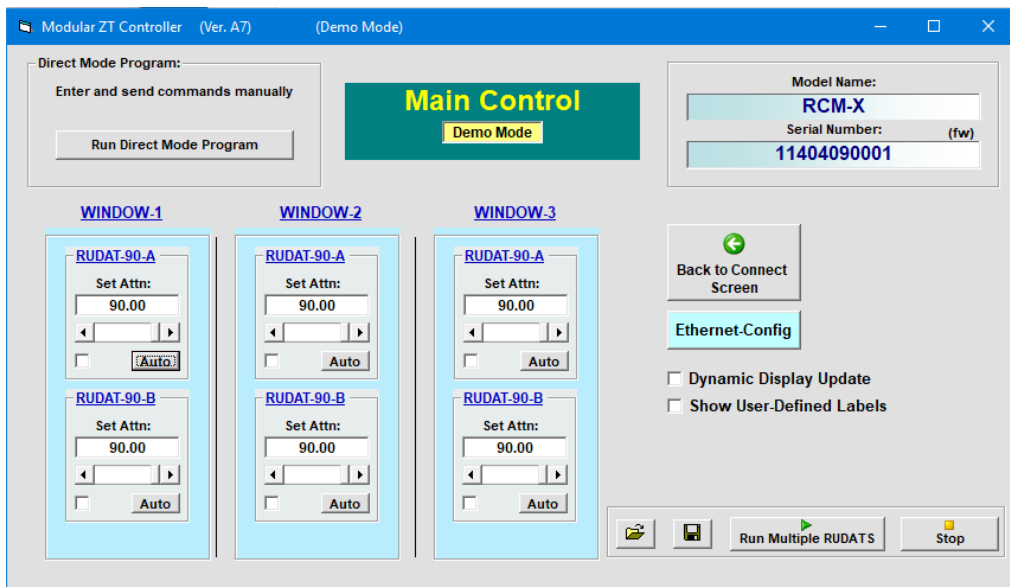
Full programming instructions and examples available for a wide range of programming environments / languages.

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 individual programmable attenuator channels
- Configure timed sweep / hop / fade sequences for any combination of channels
- Configure initial power-up attenuation values
- Configure Ethernet IP settings



USB & Ethernet Controlled

Multi-Channel Programmable Attenuators

RCM-100 Series

Ordering Information

Please contact Mini-Circuits' Test Solutions department for price and availability:

testsolutions@minicircuits.com

Included Accessories

| Model Name | Quantity | Description |
|---------------|----------|-----------------------|
| CBL-3W1-xx* | 1 | AC power cord |
| AC/DC-24-3W1 | 1 | AC / DC (24V) adapter |
| USB-CBL-AB-3+ | 1 | USB cable (3 ft) |

| Cable Model | Region |
|-------------|-------------------|
| CBL-3W1-US | USA |
| CBL-3W1-EU | Europe |
| CBL-3W1-IL | Israel |
| CBL-3W1-UK | UK |
| CBL-3W1-AU | Australia / China |

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

Additional Notes

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- 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

