

CM1000™

Analog and Digital SLM and DOCSIS® Network Analyzer

Data Sheet



Full analog and digital SLM functions coupled with the ability to test cable modem services, such as VoIP, make the CM1000 the most comprehensive troubleshooting tool available. The built-in cable modem exercises both the downstream and upstream network paths for QoS connections as well as for best effort data traffic.

Easy-to-use pass/fail test screens indicate the problems quickly, so that adjustments, replacements and follow-up verification tests can be performed immediately. The CM1000's in-band capabilities and continuous measurements simplify locating tough intermittent problems.

KEY FEATURES

- VoIP DOCSIS 1.1 network testing—including: QoS, Latency, Jitter and Lost Packets (optional)
- Network testing flexibility with built-in Ping, Trace Route and Throughput tests
- Color display with Pass/Fail results and auto-diagnostics
- Web Browser—via RF or Ethernet connection
- Constellation, Equalizer and Frequency Response Display with auto-diagnosis
- Ruggedized field proven construction

BENEFITS

- Simplify return troubleshooting with Upstream Spectrum and realVIEW™ option
- Find problems quickly by using end-to-end testing provided by cable modem and PC emulation
- Demonstrate IP-based services by surfing the Web
- Troubleshoot in-home coaxial wiring
- Save and upload test results for easy documentation and data recall
- Obtain faster results with quick boot-up and continuous real-time measurements

APPLICATIONS

- Test analog and digital signal levels.
- Use 2 and 5 Channel SLM modes to get a quick overview of system downstream performance.
- Identify Digital MER, BER and reflection issues using the CM1000 QAM analysis with deep interleave capability.
- Use the one-button test capability to check analog, digital and cable modem connections all in one test.
- Plug in USG module to provide 16-QAM upstream transmit test signal for use with AT2500 toolkit to characterize your return system end to end.
- Save test results and upload them to a server.
- Dynamic QoS eliminates the need for special provisioning.
- Perform VoIP+™ in both the QoS and Best Effort modes to help identify the source of VoIP impairments.
- Obtain VoIP MOS, Latency, Jitter and Lost Packet information at any system location without setting up a customer account.
- Perform Ping, Trace Route and Throughput tests to help resolve IP network issues.
- Use the Ethernet port connection to test in-house Ethernet connections.
- Go to realView connection to see live spectrum displays of any system node (realWorx™ installation required).
- Utilize Spectrum to check for problems with ingress into the drop system.
- Plug in TDR module to check integrity of any suspect cable.
- Use built-in Web Browser to test Web connectivity.

SPECIFICATIONS

Analog Signals

Frequency Range: 50 - 870 MHz and 5 to 42 MHz Upstream Spectrum
Input Level Range: -40 to +50 dBmV
Signal Level Meter Accuracy: ± 1.5 dB @ 25°C (typical)
C/I (Upstream Spectrum Option): ± 2.0 dB
C/N (Upstream Spectrum Option): ± 2.0 dB
Scan Time: ~8 Channels per Second

Digital Video

Digital Signal Level Meter Accuracy: ± 1.5 dB @ 25°C (typical)
Modulation Type Downstream: 64/256 QAM (DOCSIS, DVS-031, ITU-T J.83 Annex B and Annex C)
Interleaving: Deep Interleave Standard up to and including (4, 128)
Downstream FEC Lock: Loss/Lock-indication
Operational Range 64 QAM: -5 to +50 dBmV (typical)
Operational Range 256 QAM: -5 to +50 dBmV (typical)
Downstream Modulation Error Ratio (MER):
Range: 21 to 35 dB
Accuracy: ± 2.0 dB
BER Range: $1.0 \times 1.0E-9$ to $1.0 \times 1.0E-3$
Scan Time: 1 channel per 2 seconds (typical)

Cable Modem

DOCSIS 1.0 or DOCSIS 1.1 with BPI+ manufacturers' certificate
Digital Signal Level Meter: Accuracy: ± 1.5 dB @ 25°C (typical)
Modulation Type Downstream: 64/256 QAM (DOCSIS 1.1)
Downstream FEC Lock: Loss/Lock-indication
Operational Range 64 QAM: -5 to +50 dBmV (typical)
Operational Range 256 QAM: -5 to +50 dBmV (typical)
Downstream Modulation Error Ratio (MER): Range: 21 to 35 dB
Accuracy: ± 2.0 dB
Downstream Throughput: 0 to 10.0 Mb/Sec
Upstream Throughput: 0 to 5.0 Mb/Sec

Power

Power: Internal NiMH battery pack
Operating Time: 2.5 hours continuous (typical)
Charge Time: 80% in 6 hours
External Power: 120/220 VAC Adapter/Charger
DC Vehicle Charger/Adapter

Interfaces

10Base-T Ethernet
75 ohm F81 (field replaceable)
RS232, PC interface port

Display

Color Matrix LCD
Viewable in full sun
Operating Temperature Range: 0° - 45°C

STANDARD ACCESSORIES

User's Manual
Quick Start Guide
AC Power Adapter
DC Vehicle Charger
Molded Rubber Holster
Soft Carrying Case
Carabiner Hook (Strand Attachment)
Care and Handling Guide
Calibration Certificate
QAM and Cable Modem Training CD

OPTIONAL FEATURES

CM-RVIEW

realVIEW™ option to provide field view of selected return paths from realWORX™ Ingress Monitoring.

CM-RPG

Return Pilot Generator Option.

CM-VoIP+

MOS Voice Quality Option. Upstream and Downstream measurements of MOS, R-Factor, Latency, Jitter and Lost Packets. (realMOS™ server required).

realMOS™

realMOS software application for use with CM1000-CM-VoIP+ Option. Installation of PC running realMOS is required at the headend near media gateway or PSTN demarcation.

realMOS™ server

PC rackmount server with realMOS Server application installed for use with CM1000-CM-VoIP+ Option.

MODULE OPTIONS

CM-USG

Upstream Signal Generator Module for use with CM1000 Upstream QAM generator.

CE4000

Cable Explorer™ - TDR (Time Domain Reflectometer) Module.

For more information or a directory of sales offices: info@sunrisetelecom.com | www.sunrisetelecom.com