PathTrak™ RPM3000

Monitoring Module for PathTrak Return Monitoring System

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Global Communications Test & Measurement Company of the Year Award

Applications

- Scans 50% faster than RPM2000
- Provides DOCSIS-compliant measurements for live troubleshooting and node certification reports
- Provides Web-based access to live and historical measurements on every node
- Offers highly customizable monitoring plans on every node
- Measurements accessible through the JDSU NetComplete Service Assurance Solutions and through third-party or in-house operation support systems (OSS) with open data formats

Key Features

- **Quickly and easily integrates with current PathTrak systems, including HCU400/1500, HSM-1000 and RPM1000/2000 via field-installable firmware and PathTrak server, client and WebView server software upgrades**
- **Measures transient noise as short as 1 µs**
- **Optimized QAM and spectrum analyzer on every port**
- **500 kHz to 85 MHz frequency range—compatible with DOCSIS® V3.0**
- **50 dB dynamic range**
- **Wide variety of resolution bandwidth (RBW) and video bandwidth (VBW) filters QAM/QPSK level, MER, and constellation measurements on individual carriers**
- **Carrier-to-Composite Noise—in-service ingress under the carrier on QPSK or QAM carriers**

The RPM3000 module is an eight-port, high-speed return path quadrature amplitude modulation (QAM) and spectrum analyzer optimized for the QAM and ingress analysis and monitoring functions of the PathTrak Performance Monitoring System. Each of the eight ports is an independent and isolated test port. The RPM3000 module switches automatically between the eight ports and individually measures both QAM and spectrum performance on each. The measurement settings and functions of the RPM3000 consist of all typical spectrum analyzer settings such as resolution bandwidth, video bandwidth, dwell time, span, marker control, maximum hold, minimum hold, peak search, and zero span. The RPM3000 provides flexibility to adjust these parameters in monitoring plans, or provide interactive analysis according to individual preferences.

Fast Scanning—Catches the Most Transient Noise and Ingress

The RPM3000 consists of a single QAM/spectrum analyzer measurement receiver with eight individual input ports that are switched into the receiver. The overall measurement speed across ports is optimized through use of an integral high-speed switch, unique measurement algorithms, digital receiver technology, and dual digital signal processing (DSP) hardware architecture. In addition, the RPM3000 is designed with a detector for measuring very fast transient noise, ingress, and bursty signals. The RPM3000 can reliably detect and measure bursts of noise as short as 1 µs.

Flexible Measurement Plans to Adapt to User Preferences

Users have ultimate flexibility in programming the RPM3000 for real-time troubleshooting and monitoring. The measurement parameters of individual ports can vary, which allows the user to program each of the eight ports on a single RPM3000 with a different measurement plan. In addition, within an individual port, the measurement parameters can be varied by frequency allowing different spans of the return spectrum to be scanned with different resolutions, or certain spans of the spectrum to be skipped altogether.

Expands and Scales with No Degradation in Performance

As part of the PathTrak Performance Monitoring System, the RPM3000 monitoring modules are virtual memory extension (VME)-based cards that mount into a modular headend controller unit (HCU) control chassis (HCU400 or HCU1500). Thus, a monitoring system can be designed to serve the existing number of test points today, and then can be expanded easily by adding additional RPM3000 modules. Furthermore, because each RPM3000 module is an independent QAM and spectrum analyzer receiver, adding modules to accommodate more test points does not adversely affect the overall system speed or performance.

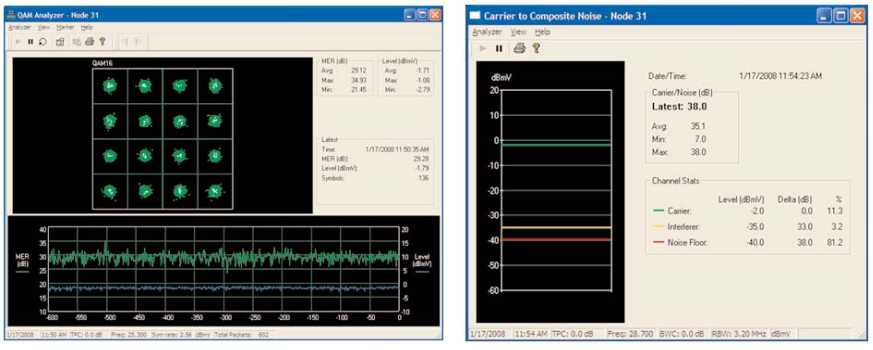
Specifications (Preliminary)

Frequency range	500 kHz to 85 MHz
Total measurement range	–50 to 60 dBmV
Operational temperature range & accuracy	±2 dB @ room temperature; ±3 dB drift, 0 to 50°C
Spur free dynamic range	50 dB typical with 0 dBmV input[1]
Resolution bandwidths	Standard: 30, 300, 1000
DOCSIS bandwidths	160, 320, 640, 1280, 2560, and 5120 kHz
Video bandwidths	Programmable to 10, 30, 100, 300, 1000 kHz
Attenuator	0 to 50 dB in 1 dB steps
Level accuracy	±2 dB on signal pulses >10µs; ±4 dB on signal pulses >1µs
Minimum noise burst measurable	<1µs
Dwell time	Programmable from 1 µs to 100 ms
Monitoring mode	250 max points frequency resolution, scan rate depends on measurement settings, typically 8 to 16 scans per second for every port
Interactive Spectrum Analyzer mode	500 points frequency resolution, up to 6 full spectrum scans per second with 20µs dwell time
Interactive Monitoring View mode	Up to 250 points frequency resolution, up to 6 full spectrum scans per second with 20µs dwell time
Interactive QAM Analyzer mode	16 QAM and quadrature phase shift keying (QPSK) demodulation, level, message error rate (MER) and constellation, live strip chart over time
Recommended input level of active signals	0 to +50 dBmV (over range indicator to prevent invalid measurement results)

Ordering Information

RPM Options	
RPM3000F	8-port monitoring module with F connectors
RPM3000BNC	8-port monitoring module with BNC connectors
Chassis Options	
HCU400—1010-00-0435	Holds up to 4 RPM cards (can have any combination of RPM1000/2000/3000 cards)
HCU1500—1010-00-0433	Holds up to 15 RPM cards (can have any combination of RPM1000/2000/3000 cards)
Headend Stealth Modem	
HSM-1000—1010-00-0427	Enables remote viewing of live spectrum with SDA and DSAM field meters (requires PathTrak Field View Option installed on SDA and/or DSAM field meters)

[1]Minimum from 5 to 85 MHz with 0 dBmV input is 46 dBc; from 500 kHz to 5 MHz is 45 dBc



16 QAM constellation and CTC. bmp

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