RPM2000

Monitoring Module for PathTrak

2007 FROST & SULLIVAN
Global Communications Test & Measurement Company of the Year Award

Key Features

- **Fully programmable measurement plans**
- **Scans all 8 ports 5 to 10 times per second**
- **Measures transient noise as short as 1 microsceond**
- **Optimized monitoring plans for specific reverse services applications**
- **Real-time fast spectrum trouble-shooting without interrupting monitoring**
- **Three unique features ensure that all relevant ingress is captured**
  - **Ultra fast parallel scan rate**
  - **1 microsecond burst detection**
  - **Selectable dwell time**
- **In-service C/N measurements on TDMA cable modem signals**

The RPM2000 module is an eight port, high-speed return path spectrum analyzer, which is optimized for the noise 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 RPM2000 module switches automatically between the eight ports and measures spectrum performance on each port individually.

The measurement settings and functions of the RPM2000 consist of all of the typical spectrum analyzer settings, such as resolution bandwidth, video bandwidth, dwell time, span, marker control, max hold, min hold, peak search, and zero span. The RPM2000 provides flexibility in order to adjust these parameters in monitoring plans or interactive analysis according to individual preferences.

Fast Scanning–Catches the Most Transient Noise and Ingress

The RPM2000 consists of a single spectrum analyzer measurement receiver with eight individual input ports that are switched into the receiver.

The overall measurement speed across the ports is optimized through the use of an integral high-speed switch, unique measurement algorithms, fast tuning DDS technology, and a new DSP hardware architecture.

In Monitoring mode, the measurement speed at a resolution of 300 kHz, monitoring all eight ports, reaches ten times per second for each port – that's an equivalent rate of 80 scans per second. The speed is even faster if some of the ports are deactivated or if less than 150 frequency points per port are measured.

In addition, the RPM2000 is designed with a fast detector for measuring very fast transient noise, ingress, and bursty signals. The RPM2000 can reliably detect and measure bursts of noise as short as one microsecond in duration.

Flexible Measurement Plans to Adapt to User Preferences

Users have ultimate flexibility in programming the RPM2000 for real-time troubleshooting and monitoring. Measurement parameters can be varied for each individual port, allowing the user to program each of the eight ports on a single RPM2000 with different measurement plans. 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 return spectrum to be skipped altogether.

Expands and Scales with No Degradation in Performance

As part of the PathTrak Performance Monitoring System, the RPM2000 monitoring modules are VME-based cards that mount into a modular HCU control chassis (HCU400 or HCU1500). Thus, a monitoring system can be designed to serve the existing number of test points today and can then be expanded easily by adding additional RPM2000 modules. Furthermore, because each RPM2000 module is an independent spectrum analyzer receiver, adding modules to accommodate more test points does not adversely affect the overall system speed or performance.

Specifications

Frequency Range	5-65 MHz
Dynamic Range	-40 dBmV to 50 dBmV
Resolution Bandwidth	Programmable to 30, 300, 1000 kHz
Spur Free Dynamic Range	40 dB (TYP)
Operational Temperature Range & Accuracy	+/- 2 dB @ room temperature; +/- 3 dB drift, -50°C
Video Bandwidth	Programmable to 10, 30, 100, 300, 1000 kHz
Level Accuracy	+/- 2 dB on signal pulses >10 microseconds; +/- 4 dB on signal pulses >1 microsecond
Minimum Noise Burst Measurable	<1 microsecond
Dwell Time	Programmable from 1 microsecond to 100 milliseconds
Monitoring Mode	Maximum 250 points frequency resolution, scan rate depends on measurement settings, typically 5 to 10 scans per second for every port
Interactive Spectrum Analyzer Mode	500 points frequency resolution, up to 6 full spectrum scans per second with a 20 µSec dwell time
Recommended Input Level of Active Signals	0 to +10 dBmV

Ordering Information

RPM Options

RPM2000F	
1019-00-1532	Monitoring module with F connectors
RPM2000BNC	
1019-00-1524	Monitoring module with BNC connectors

Chassis Options

HCU400	
1010-00-0435	Holds up to 4 RPM2000 cards
HCU1500	
1010-00-0433	Holds up to 15 RPM2000 cards

Close-up view of the rear of a HCU1500 showing RPM2000 modules.

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