

# RPM2000

## Monitoring Module for PathTrak



### Key Features

- Fully programmable measurement plans
- Scans all 8 ports 5 to 10 times per second
- Measures transient noise as short as 1 microsecond
- 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 an HCU1500 showing RPM2000 modules.

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