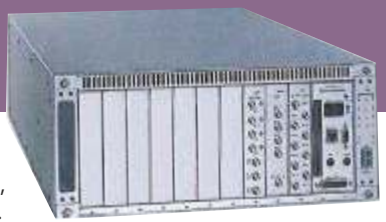
SAVITRI
TELECOM SERVICES

Multi-Channel Measurement System (MMS)

Flexibility, Reliability, and Precision



MMS 4-Channel Configuration

MMS 28-Channel Configuration

Microsemi's Multi-Channel Measurement System (MMS) is a flexible, multi-channel system that is ideal for a full production environment. This advanced instrument offers customers a cost effective way to measure the phase difference between multiple continuous wave RF signals, enabling expansion from a base configuration of 4-signal inputs to a full 28 signals in a single chassis. Chassis can be added to increase signal measurement capacity. The MMS samples all inputs once every second and computes the phase difference relative to the 32 MHz internal oscillator. The system can also be configured to measure as many as three different frequencies simultaneously, with a frequency range of 1 to 13 MHZ.

Expansion is made easy by the fact that the base system is designed for mounting in a 19-inch rack. Customers can increase the number of additional inputs simply by adding more standard modules, with four inputs available per module. The modular nature of the Multi-Channel Measurement System makes the product ideal for a broad range of customer needs, and the ability to add modules as production demands increase streamlines the resulting ramp-up.

Database Management System

The powerful relational database management system from Microsemi augments the Multi-Channel Measurement System's capabilities by enabling storage of as many as three years of one-second data, and through an ODBC/SQL interface, helps retrieve data rapidly.

Operation

MMS is a multiple mixer measurement system. This instrument measures the phase difference between an RF signal from the clock under test and a reference RF signal that is common to all measurement channels on a four-channel measurement module. An internal numerically controlled oscillator provides the reference RF signal. Phase differences are measured directly rather than by using time differences because the phase measurements do not require knowledge of absolute frequency. The measured phase differences are then converted to nominal time differences, dividing the phase difference by a usersupplied scale factor.

KEY BENEFITS

- Flexibility: Can Measure Up to 28 RF Signal Inputs in a Single Chassis
- Multiple Frequency Inputs: Handles Up to Three Different Frequencies, with Eight Inputs Each
- High Resolution: Less than 100 Femtoseconds
- Low Noise Performance: Less than 1E12 Allan Deviation at 5 MHz (1 second)
- Standard 19-inch Rack Mount Chassis
- Easily Expandable by Incorporating More Modules
- Reliable: Network-based Fault Reporting and Dual Cooling Fans
- Graphical Interface Available via Ethernet Connection to PC
- Network Based Phase Data Output
- Optional SQL Database Integrated with Stable 32

Specifications

Performance	
Allan Deviation (1s)	$< 1.0 \times 10^{-12}$ at 5 MHz $< 5.0 \times 10^{-13}$ at 10 MHz
Electrical	
Frequency Range	1-13 MHZ
Input Signal Level	3 dBm - 17 dBm
Input Impedance	50 Ω
Input Connectors	SMA
Pentium 233 Computer Card	64 MB Flash 4 MB RAM SVGA Adapter PS/2 Mouse Port PS/2 Keyboard Connector 2 Serial Ports (RS-232) 1 Ethernet Port
Power Requirements	Input Voltage: 100 to 240 VAC ± 10% Input Frequency: 50/60 Hz
Power Consumption	160 W Maximum
Connector Type	IEC Plug

Physical	
Weight	40 kg (88 lbs.)
Dimensions	43.2 cm x 17.8 cm x 60.9 cm (17 inches x 7 inches x 24 inches)
Ordering Information (Single Frequency)	
4 Channel Measurement System	TSC 12030-110
8 Channel Measurement System	TSC 12030-120
12 Channel Measurement System	TSC 12030-130
16 Channel Measurement System	TSC 12030-140
20 Channel Measurement System	TSC 12030-151
24 Channel Measurement System	TSC 12030-161
Measurement Database	TSC 4077-02

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