Symmetricom®

Multi-Channel Measurement System (MMS)

Flexibility, Reliability and Precision

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 5.0 x 10-13 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

Symmetricom'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 four signal inputs to a full 28 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 one to 20 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 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 Symmetricom 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.

MMS 4-Channel Configuration

MMS 28-Channel Configuration

OPERATION

The MMS is a multiple mixer measurement system. The 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 numerical oscillator provides the reference RF signal. Phase differences are measured directly rather than by using time differences, because 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 user-supplied scale factor.

MMS SPECIFICATIONS

PERFORMANCE SPECIFICATIONS

- Allan deviation (1 s) $<5.0 \times 10\text{-}13$ at 5 MHz
  $<2.5 \times 10\text{-}13$ at 10 MHz

ELECTRICAL SPECIFICATIONS

- Frequency range: 1 – 20 MHz
- Input signal level: 3 dBm – 17 dBm
- Input impedance: 50Ω
- 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 SPECIFICATIONS

- 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)	**Part No.**
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 4077-01

Contact factory for dual frequency configurations.