

Multi-Channel Measurement System (MMS)

Flexibility, Reliability, and Precision



MMS 4-Channel Configuration



MMS 28-Channel Configuration

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 1E-12 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

Overview

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 user-supplied scale factor.

Multi-Channel Measurement System (MMS)

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 \pm 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

Contact factory for dual frequency configurations.

Microsemi makes no warranty, representation, or guarantee regarding the information contained herein or the suitability of its products and services for any particular purpose, nor does Microsemi assume any liability whatsoever arising out of the application or use of any product or circuit. The products sold hereunder and any other products sold by Microsemi have been subject to limited testing and should not be used in conjunction with mission-critical equipment or applications. Any performance specifications are believed to be reliable but are not verified, and Buyer must conduct and complete all performance and other testing of the products, alone and together with, or installed in, any end-products. Buyer shall not rely on any data and performance specifications or parameters provided by Microsemi. It is the Buyer's responsibility to independently determine suitability of any products and to test and verify the same. The information provided by Microsemi hereunder is provided "as is, where is" and with all faults, and the entire risk associated with such information is entirely with the Buyer. Microsemi does not grant, explicitly or implicitly, to any party any patent rights, licenses, or any other IP rights, whether with regard to such information itself or anything described by such information. Information provided in this document is proprietary to Microsemi, and Microsemi reserves the right to make any changes to the information in this document or to any products and services at any time without notice.



Microsemi Corporate Headquarters
One Enterprise, Aliso Viejo, CA 92656 USA
Within the USA: +1 (800) 713-4113
Outside the USA: +1 (949) 380-6100
Sales: +1 (949) 380-6136
Fax: +1 (949) 215-4996
email: sales.support@microsemi.com
www.microsemi.com

Microsemi Corporation (Nasdaq:MSCC) offers a comprehensive portfolio of semiconductor and system solutions for communications, defense & security, aerospace and industrial markets. Products include high-performance and radiation-hardened analog mixed-signal integrated circuits, FPGAs, SoCs and ASICs; power management products; timing and synchronization devices and precise time solutions, setting the world's standard for time; voice processing devices; RF solutions; discrete components; security technologies and scalable anti-tamper products; Ethernet Solutions; Power-over-Ethernet ICs and midspans; as well as custom design capabilities and services. Microsemi is headquartered in Aliso Viejo, Calif., and has approximately 3,600 employees globally. Learn more at www.microsemi.com.

©2016 Microsemi Corporation. All rights reserved. Microsemi and the Microsemi logo are registered trademarks of Microsemi Corporation. All other trademarks and service marks are the property of their respective owners.