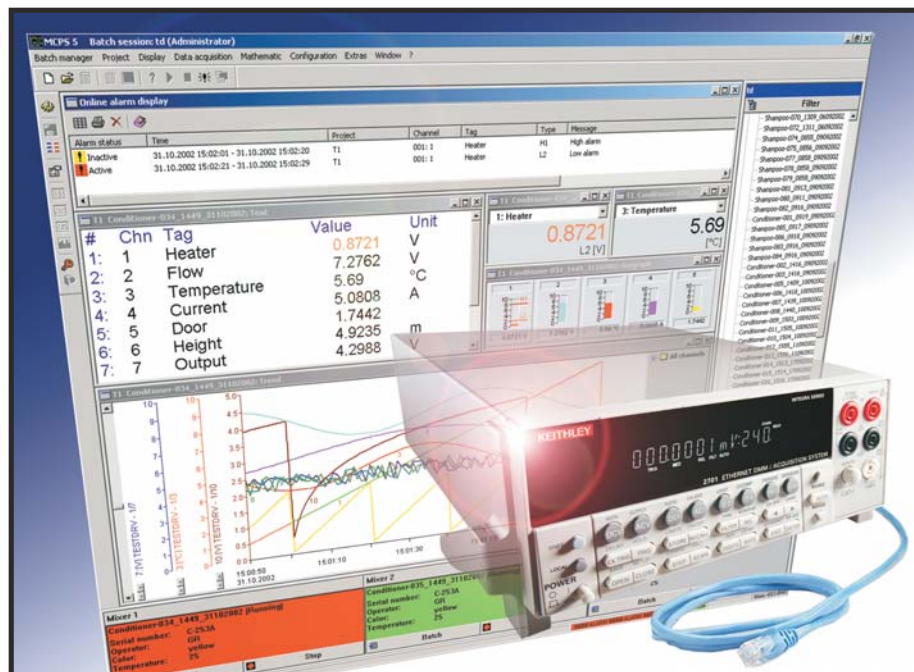# MCPS

MultiChannel Process System

- **Modular software for dedicated, user-configurable applications, with a wide range of software modules (channels, mathematical, and statistical functions)**

- **Datalogging runs in the background, allows monitoring multiple processes, immediate data analysis, modification, etc.**

- **Rugged professional software for data acquisition and process monitoring**

- **Supports an unlimited number of acquisition channels**

- **Special functions for long-term measurements**

- **Flexible trend and numeric displays**

- **Alarm monitoring and logging on all channels**

- **Client-server concept**

- **Batch applications according FDA 21CFR11**

- **Supports 32-bit Windows® 2000/XP/98NT/NT4 environments**

- **Works with IEEE-488, Ethernet, and RS-232/422 instruments, including:**

  - **Model 2700 Multimeter/Data Acquisition/Switch System with IEEE-488 and two slots for plug-in modules**

  - **Model 2750 Multimeter/Data Acquisition/Switch System with IEEE-488 and five slots for plug-in modules**

  - **Model 2701 Multimeter/Data Acquisition/Switch System with Ethernet and two slots for plug-in modules**

  - **Choice of 12 different plug-in modules**

The complete software package for datalogging/data acquisition and evaluation

MCPS is a powerful datalogger/data acquisition and evaluation software package, optimized for long-term monitoring and test applications.

This software fully supports Keithley's Integra Series 2700 family of multimeter (DMM)/data acquisition/ switch systems and its growing line of switch/control plug-in modules. With these instruments and MCPS, users can configure their applications very easily, without the need for in-depth programming knowledge or designing with complex flow charts. MCPS supports an unlimited number of measurement channels and a variety of different measurement instruments and interfaces. The software allows users to work on statistics at the same time as process data is collected, without limiting system functionality or acquisition speed. Other highlights of the software include built-in math functions, statistics, printouts, reports, and automated tests.

Typical applications for MCPS can be found in manufacturing, research and development, and quality assurance functions in automotive, aviation, energy supply, environmental monitoring, chemical processing, and general certification and test laboratories.

MCPS allows defining and implementing datalogging applications quickly and easily in conjunction with any of the Series 2700 mainframes and plug-in switch/control modules. Both the software and hardware are compatible with 32-bit Windows® 2000/XP/98NT/NT4 operating environments.

MCPS and Integra Series 2700 Multimeter/Data Acquisition/Switch Systems create a complete monitoring solution for precision voltage, current, temperature, and physical sensor measurements.

For local area datalogging applications, the Models 2700 and 2750 combine high accuracy and high functionality with the ability to handle from 40 to 200 channels in a single instrument. MCPS software offers an easy-to-configure graphical user interface through a dedicated PC.

KEITHLEY

A GREATER MEASURE OF CONFIDENCE

MultiChannel Process System

Ordering Information

MCPS-6000
Remote Datalogging Software Base Package for up to 20 Channels with LPT Key

MCPS-6000/U
Remote Datalogging Software Base Package for up to 20 Channels with USB Key

MCPS-6010
Mathematical Package for Basic Mathematical and Statistical Functions

MCPS-6011
Mathematical Package for Advanced Mathematical and Statistical Functions

MCPS-6012
Monitoring and Alarm using SMS Messaging through Email

MCPS-6014
Download to Internal RAM

MCPS-6015
Script Engine for Automation Interface

MCPS-6020
Channel Extension Package for 20 Additional Channels (supporting total of 40)

MCPS-6021
Channel Extension Package for 100 Additional Channels (supporting total of 120)

MCPS-6022
Channel Extension Package for 180 Additional Channels (supporting total of 200)

MCPS-6023
Channel Extension Package for 480 Additional Channels (supporting total of 500)

MCPS-6024
Channel Extension Package for Unlimited Number of Channels

MCPS-6025
Server for Online Clients

MCPS-6026
Remote RS-232 Modem Support
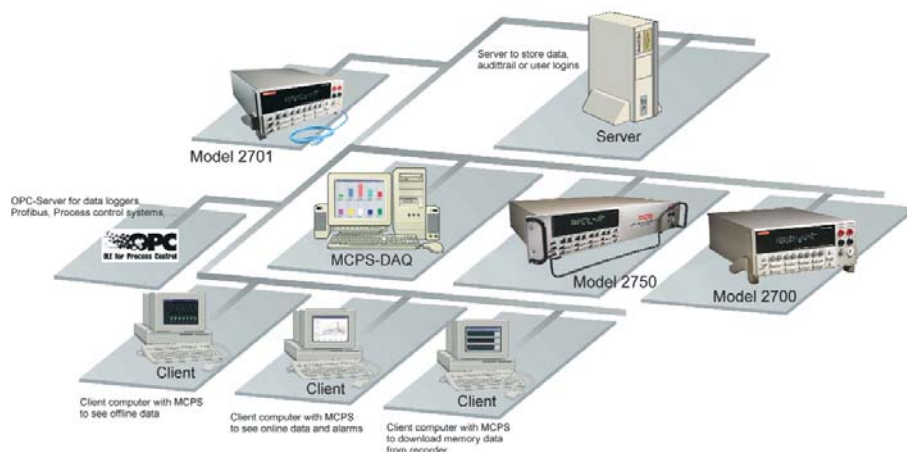
MCPS-6027
Alarm Monitoring

MCPS-6051
Universal Instrument Driver ASCII

MCPS-6054
Instrument Driver for Keithley 2700, 2701, 2750

For distributed area or non-GPIB datalogging applications, the Ethernet-enabled Model 2701 supports up to 40 channels in a single enclosure and ensures simple instrumentation networking. That means the Model 2701 can be placed near the measurement process while MCPS runs on a central PC (server), minimizing noise and signal errors.
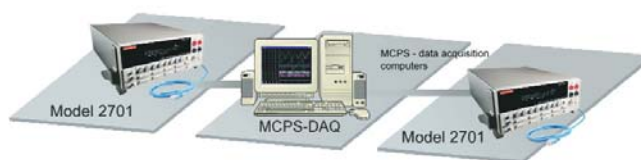
Main features of MCPS

- Fault-tolerant datalogging, which helps ensure data integrity even if the data acquisition hardware crashes.

- Multiple independent measurements can be performed simultaneously. A variety of instruments can be used within a single project. The software supports viewing and evaluating acquired data, even while measurements are being made. Data files can be created automatically, such as for daily, weekly, and dynamic data reduction.

- Mathematical functions, including statistics (min, max, mean, deviation), offline and online mathematical computation, moving averages, totals, logical operations (AND, OR, NOR, etc.), and polynomial regression for sensor linearization.

- Data can be displayed in a wide variety of ways, including trend, bar, analog, digital, and numeric displays. Multiple windows can be displayed simultaneously. The visualization tools provided make it simple to add grids, time axes (up to five years), markers, comments, defining events, etc. to simplify data interpretation.

- Process monitoring and events using status windows with LED, text, or bar graphs for quick process overview.

- MCPS makes it simple to produce graphical and numerical reports and printouts in user-defined layouts that include legends, bitmaps, and comments. Extensive reports can be created in Excel with custom scripts. MCPS also supports easy data export to other applications.

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A GREATER MEASURE OF CONFIDENCE

MCPS

# MultiChannel Process System

MCPS-6070
5-Project License

MCPS-6071
20-Project License

MCPS-6072
Unlimited Project License

MCPS-6080
2 Offline Clients

MCPS-6081
5 Offline Clients

MCPS-6082
10 Offline Clients

MCPS-6083
50 Offline Clients

2700 DMM/Data Acquisition/ Datalogging System with 2 slots and IEEE-488 interface

2701 DMM/Data Acquisition/ Datalogging System with 2 slots and Ethernet interface

2750 DMM/Data Acquisition/ Datalogging System with 5 slots and IEEE-488 interface

7700 20-Channel Differential Multiplexer Module w/Automatic CJC and Screw Terminals

7701 32-Channel Differential Multiplexer Module

7702 40-Channel Differential Multiplexer Module w/Screw Terminals

7703 32-Channel High Speed, Differential Multiplexer Module

7705 40-Channel Single-Pole Control Module

7706 All-in-One I/O Module: 20-Channel Differential Multiplexer w/Automatic CJC, 16 Digital Outputs, 2 Analog Outputs, a Counter/Totalizer and Screw Terminals

7707 10-Channel Differential Multiplexer Module w/32-Channel Digital I/O

7708 40-Channel Differential Multiplexer Module w/Automatic CJC and Screw Terminals

7709 6x9 Matrix Module

7710 20-Channel Solid State/Long-Life Differential Multiplexer w/Automatic CJC 7711 2GHz Bandwidth 50Ω, Dual 1x4 Plug-In RF Switching Module

7712 3.5GHz Bandwidth 50Ω, Dual 1x4 RF Switching Module KPCI-488 IEEE-488.2 Interface card for PCI bus

Easy configuration

All measurement and display parameters are fully described in a project. The channels are administered in a list, so users can set and change channels with just a few steps. For each channel, MCPS supports a variety of choices, including device color, comment, tag, scaling, mathematics, marker, limit, etc. Most of the settings can be changed on the fly. To provide a clearer overview of the application, MCPS also provides a group manager that simplifies organizing multiple channels into a separate subgroup.
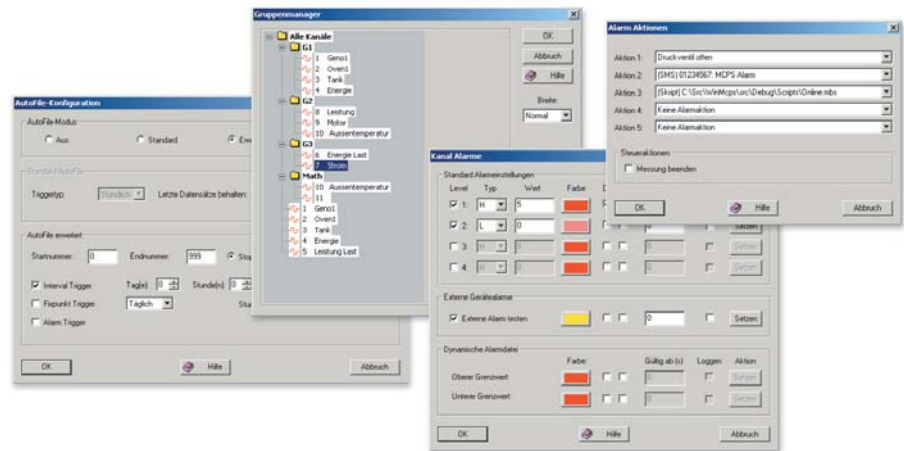
Background and parallel measurement

All measurements run in the "background," so users can evaluate data while the hardware continues to make measurements. That makes it possible to display, print, or export data, change the configuration, or run statistics while the instrument is still collecting data. MCPS also supports acquiring multiple sets of data at the same time. Several projects can run independently, collecting data at different sample rates on different channels.

Online display and visualization

It's simple to change the way information is displayed at any time by opening, closing, or resizing text, trend, or project windows. For example, users can open two online trend windows, one with high resolution for observing actual data and one with low resolution for a general overview. Data can also be displayed in numerical or graphical form, with different windows displaying the same data in different forms.

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A G R E A T E R M E A S U R E O F C O N F I D E N C E

MCPS

MultiChannel Process System

Data analysis, presentation, export, and import

Graphical offline windows support two cursors, which show the exact values for the corresponding channel. If both cursors are active, the time (x-axis) and y-axis difference between them is displayed. The cursor can be set to the same channel or to different channels. The measured data between the two cursors can be stored in a new project, deleted, exported, or evaluated. For documentation purposes, MCPS contains a layout editor to define print masks. The layout is loaded and the graphics and text is then formatted accordingly. Additionally, users can position text strings of control code that will insert text automatically, such as the project or company name.

Data acquired using MCPS can be exported to other presentation programs, such as Excel, as either complete datasets or as user-defined data subsets. The desired subset can be selected using a cursor in a graphical window. Many instruments, such as the Series 2700 systems, collect data as standalone systems and save it to an internal memory. MCPS can import these files and generate regular projects. MCPS can also handle files downloaded from media like SRAM memory cards.

Mathematical functions

MCPS supports a wide range of mathematical functions for data collection and evaluation. The mathematical functions can be employed to modify raw data through linearization, calculate new values (which are stored separately, maintaining integrity of raw data). Of course, each resulting channel computed in this way can be part of another mathematical formula. Mathematical functions can be added even while MCPS is collecting data.

- Frequently used functions can be stored in a user function and are available to all projects. Basic formulas need only be written once.
- The project contains the function call, e.g., F1 (X1, X2). Polynomials allow user linearization, which are created from x-y-pairs, for up to 20 pairs and 9th power polynomials are possible.
- Standard operators: Addition, Subtraction, Multiplication, Division.
- Standard functions: Sine, Cosine, Tangent, Square root, Logarithmic, Exponent.
- Boolean equations: OR, AND, XOR, NOR, NAND.
- Specials: Register, Last Value, Moving Average, Integration, Comparison, Minimum, Maximum, Mean Value.

Network functions

MCPS supports network-based data handling, with the measurement PC (or instruments like the Model 2701) saving data to a server. The client computers run MCPS with offline functionality to load and display the measured data. The project configuration can be localized for each user. A specific network license module allows the user to log in from any computer connected to the network.

Conforms to FDA 21 CFR Part 11

MCPS conforms to the requirements of the North American Food and Drug Administration (FDA) CFR Part 11 for electronic records (ER) and electronic signatures (ES), including protection of GxP related data and configuration files. The user log-on profile is stored for future reference and tracking and all user actions are monitored (audited). Signing of batch files with three levels of authorization and comment field is included.

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