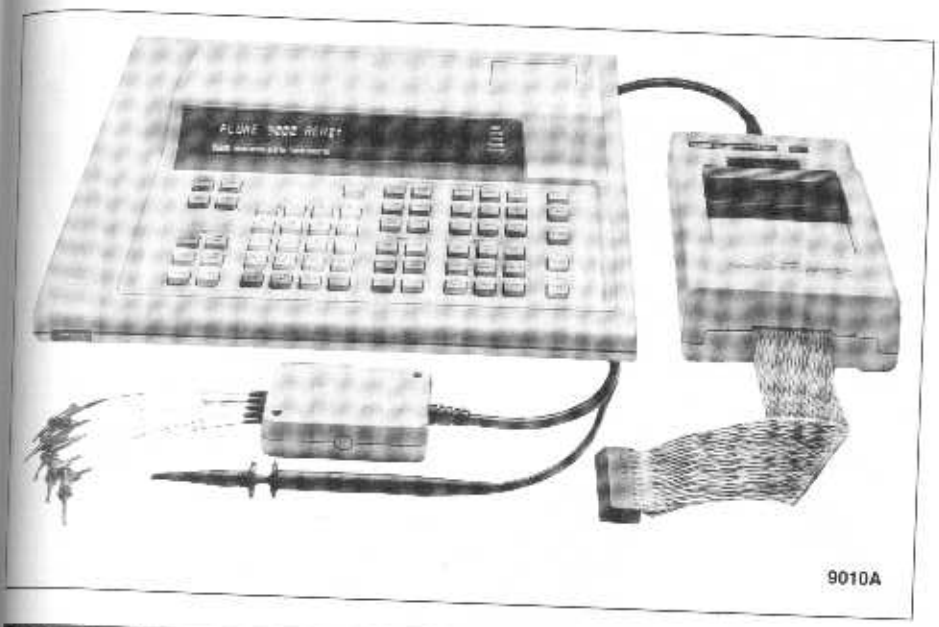
9000 Series

GPIB IEEE-488

RS-232



9010A

9000 Series Micro-System Troubleshooters

- Troubleshoot microprocessor-based boards with ease
- Microprocessor Interface Pods for over 50 microprocessors
- Perform BUS, ROM and RAM testing with a few key strokes
- Write test programs in a language independent of the µP
- FREE troubleshooting course with purchase

Troubleshoot your Microprocessor-Based Boards

Troubleshoot microprocessor-based boards or assemblies by controlling the stimulus for the test and by synchronizing the timing of the measurement to the stimulus. This control and synchronization make the Fluke 9000 Series Micro-System Troubleshooter a very powerful instrument you can use to locate defects on microprocessor-based boards.

Built-in Tests for the Kernel

The 9000 Series uses microprocessor emulation – a technique pioneered by Fluke. The tester takes control of the microprocessor bus of the unit under test (UUT) and gives you full control of the UUT. Simply plug the appropriate Microprocessor Interface Pod into the microprocessor socket on the UUT. (A complete list of interface pods is available in the *9100FT Emulation Selection Guide*.) Built-in preprogrammed test algorithms are invoked with a few key strokes. These routines allow you to verify proper operation of the microprocessor bus circuitry to catch such failures as "stuck" bus lines or lines tied together as well as defective components. The bus circuitry includes all address and data lines as well as microprocessor status and control lines. In addition, the ROM Test verifies that all ROM locations are read properly; the RAM Test verifies that read and write access of the RAM memory functions properly. These tests are executed at the normal operating speed of the processor on the UUT to ensure full fault coverage of all dynamic or timing failures.

Troubleshooting Functions

The 9000 Series supports a number of generic troubleshooting commands that are independent of the microprocessor's assembly language. The WRITE command allows you to set-up or initialize memory, control or data registers, while the READ command gives you a very simple mechanism to verify the response or the content of a memory location or I/O register. Special commands (like the RAMP, WALK, DATA LINE TOGGLE) allow you to create the desired stimulus with a couple of key strokes.

The 9000 Series supports a troubleshooting probe that you can use either to monitor the logic activity on a node or to inject stimulus pulses. The probe measurement or stimulus can be synchronized to the processor activity. The probe automatically performs three measurements at each node probed: (1) the detection of logic levels (High, Low, and Tri-state), (2) transition counts, and (3) 16-bit Cyclic Redundancy Check (CRC) signatures.

A stimulus operation can be repeated in a "Loop" which allows the technician to probe along the signal path to locate or pinpoint the problem node.

Three Models

The 9000 Series supports three models: the 9010A, the 9005A and the 9020A. The three troubleshooters differ primarily in their programming capability and system integration capability.

The **9010A** is a self-contained, stand-alone, programmable unit. It lets you troubleshoot the UUT in a key stroke or immediate mode of operation. You can invoke all of the pre-programmed tests as well as the many troubleshooting commands with one or just a few key strokes. Furthermore, the 9010A lets you create or edit test routines in a key stroke programming mode. These test routines can be saved on a mini-cassette, or if the unit is equipped with the optional RS-232C interface, these test routines may also be uploaded to a computer.

The non-programmable **9005A** offers the same immediate mode operation as the 9010A but you cannot generate new test routines from the keyboard. The 9005A can execute test routines read from a mini-cassette tape. If the unit is equipped with the optional RS-232C interface, test routines may be downloaded from a computer.

The **9020A**, designed for use in a system, executes test instructions stored in a test program in a system controller or computer. The 9020A is controlled via an IEEE-488 interface or an RS-232C interface. It does not have programming keys or a mini-cassette drive.

The 9000 Series can be used for troubleshooting up to 16-bit microprocessors. To troubleshoot up to 32-bit processors, see the 9100FT Series in this catalog section.

Specifications

General Specifications

Temperature: 0°C to +50°C operating temperature (+10°C to +40°C for mini-cassette); -40°C to +70°C non-operating temperature (+4°C to +50°C for mini-cassette)

Power: 100, 120, 220, 240V ac ±10%; 50 Hz, 60 Hz ±5%; 40W maximum

Size: 11.5 cm H x 35.5 cm W x 30.5 cm D (4.5 in H x 14 in W x 12 in D)

Weight: 6 kg (13 lb) mainframe; 0.7 kg (1.5 lb) per interface pod

Ordering Information

Models

9005A Micro-System Troubleshooter
9010A Micro-System Troubleshooter with Program Function
9020A-001* Micro-System Troubleshooter with RS-232C Interface
9020A-002* Micro-System Troubleshooter with IEEE-488 Interface

** A 9020A without interface is not available*

Options* (for 9010A and 9005A)
9010A-001 RS-232C Interface
9000A-910 Utility Program Tape
9010A-920 Language Compiler, 1722A Instrument Controller
9010A-923 Language Compiler for IBM Personal Computer
9100A-030 A program that converts 9010A programs to TL/1, which can be executed on a 9100A or 9105A

Options* (for 9010A, 9005A and 9020A)
9000A-006 Asynchronous Signature Probe

** Factory configured or Service Center installable only*

Accessories (Also see Section 19)
9000A-200 Pod Adapter Packaging Kit
9000A-900 Transit Case
Y8007 Ten-Pack of Mini-Cassettes

Manuals*
9005A Operator
9005A Service
9010A Operator
9010A Programming
9010A Reference Care
9010A Service
9020A Getting Started
9020A Operator
9020A Reference Card
9020A Service

** No charge with purchase of unit*

Customer Support Services

Also see Section 20.

Factory Warranty
One-year product warranty.