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DATA ACQUISITION SYSTEMS
Instruments for Measurement and Control (cont'd)
HP 3852A

Data Acquisition and Control Unit— HP 3852A
Mainframe Supports
- 8 Function Module Slots
- Data Acquisition Operating System
- System Timer
- Measurement Pacer
- Full Alphanumeric Keyboard, Command and Result Displays

Benefits
- Make real-time decisions and reduce data without burdening your computer:
  - — Multitasking operating system prioritizes and timeslices tasks.
  - — Powerful HP 3852A command statements simplify complex measurements.
  - — Execution speed of command sequences are enhanced by executing subroutines stored in the HP 3852A memory.
  - — Built-in, easy-to-use transducer conversions are supported for thermocouples, thermistors, RTDs, and strain gages.
  - — Post-processing and data reduction before transferring results to a computer are achievable by first storing data to the HP 3852A internal memory.
  - — Limit checking of analog measurements is performed in real time or after the measurements have been stored in mainframe memory.
- Optimize measurement timing and throughput to meet your needs:
  - — Real-time interrupts allow higher priority tasks and external inputs to be serviced at any time.
  - — Asynchronous communication with a computer is achieved through input and output buffering.
  - — Control can be timed using built-in clock and alarm capabilities (can cause an interrupt).
  - — A built-in pacer simplifies measurement timing and triggering.
  - — Multiple voltmeters can be used. The high-speed voltmeter can control scanning, timing, and triggering of its own high-speed FET multiplexer subsystem via ribbon cable. Several of these subsystems can run simultaneously.

Extender Chassis — HP 3853A
Extender supports:
- 10 Function Module Slots

Expand your system with no loss of functional capability:
- — Up to seven extenders may be used with each HP 3852A mainframe.
- — Any slot can be used for any function module and multiple voltmeters can be used with parallel triggering.
- — All mainframe functions, including interrupts and triggering, are available through the extender control cable.

5½ to 3½ Digit Integrating Voltmeter
HP 44701A
Directly measures:
•dc voltage •ac voltage •Resistance

The HP 44701A lets you:
- Accurately measure small signal changes in noisy environments
- Choose the resolution, accuracy, and noise rejection needed while maximizing measurement speed
- Optimize resistance measurements to the accuracy you need

Best dc voltage accuracy: ±(0.008% + 8μV) for 3 V range

13-Bit High-Speed Voltmeter
HP 44702A/B
Directly measures:
•dc voltage •dc resistance

The HP 44702A/B will allow you to:
- Collect data quickly (100,000 readings/sec)
- Maximize your measurement throughput

Best dc voltage accuracy: ±(0.05% + 1.88 mV) for 2.56 V range

16-Bit High-Speed Voltmeter
HP 44704A
Directly measures:
•dc voltage •Resistance

The HP 44704A will let you:
- Enjoy high accuracy at high speed
- Maximize your measurement throughput

Best dc voltage accuracy: ±(0.015% + 340μV) for 2.56 V range

Relay Multiplexers
HP 44705A/44705H/44706A/44708A/ 44708H/44717A/44718A
Directly multiplexes:
•Voltage •Resistance •Thermocouples •Strain gages

Relay Multiplexers for the HP 3852A do the following:
- Reduce the effects of real-world measurement errors in a multichannel system
- Optimize thermocouple measurement accuracy
- Measure strain accurately

Solid State Relay Multiplexers
HP 44705F/44708F
Directly multiplexes:
- Voltage
- 4-wire ohm resistance (44705F only)
- Thermocouples (44708F only)

Solid State Relay Multiplexers give you the following benefits:
- Solid state switching, free from wearout associated with electromechanical relays
- Precision measurements of real-world electrical systems
- Optimized thermocouple measurement accuracy (44708F)

FET Multiplexers
HP 44709A/44710A/44711A/44711B/44712A/ 44713A/44713B/44719A/44720A
Directly multiplexes:
•Voltage •Resistance •Thermocouples •Strain gages

HP's FET Multiplexers allow you to:
- Maximize your measurement throughput
- Increase your system reliability

Anti-Noise Filter Option
HP 44713A/B/44713A/B Opt 003
Directly provides:
- Attentuation of 60 or 50 Hz noise
- Fast scanning; no need to average to get rid of unwanted noise
- One filter for each of the 24 channels

The anti-noise filter option allows you to:
- Scan lists quickly and accurately
- Reduce noise in a single measurement

4-Channel Track/Hold with Signal Conditioning
HP 44730A

4-Channel Dynamic Strain Gage Multiplexers
HP 44732A/44733A
Directly multiplexes:
- Transient dc voltages
- Dynamic strain gages

HP's 4-Channel Track/Hold and Strain Gage Multiplexers let you:
- Enhance dynamic signal measurement accuracy
- Set gains of 1, 10, or 100 on each channel
- Use the analog peak detect/hold feature

HP 44789A Serial Interface
Directly provides:
- Serial programming port for the HP 3852A
- Control port for RS-232 or RS-422 devices

The HP 44789A Serial Interface allows you to:
- Interface your computer to the HP 3852A using RS-232 or RS-422 devices
- Locate the HP 3852A long distances from your host computer
- Control RS-232 or RS-422 devices directly from the HP 3852A
- Program the HP 3852A from a remote terminal

Specifications
Baud rates: 300, 600, 1200, 2400, 4800, 9600, and 19200
Interrupts: Special character, buffer conditions, carrier detect, ring indicator, and receiver error conditions
Handshake: None, XON/XOFF, or hardware
Buffer size: User-defined up to 8 KB on both transmitter and receiver

Arbitrary Waveform Digital-to-Analog Converter
HP 44726A

Directly Outputs:
- Arbitrary waveforms
- dc voltages (2-channel, non-isolated)

The HP 44726A Arbitrary Waveform D/A Converter:
- Provides a stimulus voltage signal with a step rate of up to 800 kHz
- Gives you random-access memory (RAM) for each channel on this accessory

Digital-to-Analog Converter
HP 44727A/44727B/44727C

Directly Outputs:
- dc voltage
- dc current

Simplify your test setup by providing test or control of devices with one data acquisition control system.

Specifications

dc voltage:
Ranges: 0 to +10.235 V or −10.235 to +10.235 V
Resolution: 2.5 mV (12 bits plus a sign for bipolar range)
dc current:
Ranges: 0 to +20.16 mA or +4 to +20.16 mA
Resolution: 2.5 μA (13 bits)

3-Channel Stepper Motor Controller
HP 44714A

Directly Provides:
- Stepper motor control signals
- Limit inputs
- Built-in quadrature counters
- Pulse output

The HP 44714A 3-Channel Stepper Motor Controller lets you:
- Completely control three stepper motors with one module
- Use the module as a pulse generator

8-Channel LVDT Signal Conditioner/Multiplexer
HP 44736A Opt H05

Directly Provides:
- Conditioning/multiplexing for up to 8 LVDTs
- Independent excitation source for each transducer
- Independent demodulation circuits for each transducer
- Fast FET multiplexer scanning of demodulator outputs
- Analog output for each demodulator at terminal block

The HP 44736A will help you:
- Simplify your data acquisition system configuration
- Reduce your cost per channel

5-Channel Counter/Totalizer
HP 44715A

Directly Provides:
- Count measurements
- Period measurements
- Frequency measurements
- Interrupts

Reduce your costs by taking advantage of this frequency counting versatility.

Digital Inputs with Totalize and Interrupt
HP 44721A/44722A

Directly Provides:
- Logic readings
- Totalize count measurements
- Interrupts

Conveniently read a variety of digital values in your system.

32-Channel High-Speed Digital Sense/Control
HP 44723A

Directly Provides:
- High-speed digital input and output
- Triggered input and output
- Interrupts
- Output handshaking

The HP 44723A allows you to:
- Input 16 channels or output 16 channels over 150,000 times per second
- Capture and load 16-bit patterns with external triggers
- Interrupt on any input channel on any transition or on a user-specified 16-bit pattern

16-Channel Digital Output
HP 44724A

Directly Provides Open Drain Digital Outputs

The HP 44724A gives you convenient control of dc devices or logic levels.

Open drain outputs are used to control dc devices of up to 55 V, or drive TTL logic levels. An external power supply and external pull-up resistors are required.

Switching
HP 44725A/44728A/44729A

Directly Switches:
- Voltage
- Current
- Power

Reliably switch the voltage, current, or power you need.

Binary Mode Software
HP 44790A

HP 44790A Binary Mode Software is a collection of subprograms used to access high-speed opcodes within the HP 3852A. It helps system programmers increase the run-time speed of data acquisition functions up to *five times* over standard high-level commands. The software is written for the professional programmer familiar with opcode programming. HP systems engineers can provide consulting services for those unfamiliar with this type of programming.

System Requirements

Binary Mode Software requires HP 3852A firmware Rev. 3.5 or later. It is supplied on a 3½" single-sided disk. The subprograms are written in HP BASIC in modular form, so they can be ported to other languages.

HP-IB Controller
HP 44788A

Directly Controls:
- HP-IB disk drives (CS80/SS80)
- HP-IB printers
- HP-IB instruments

The HP-IB Controller lets you:
- Conduct remote operations without a computer
- Load subroutines at power-up into an HP 3852A from an HP-IB disk drive and start executing the subroutines
- Send data to an HP-IB disk drive without using a computer
- Print out data stored in the HP 3852A without using a computer
- Control other HP-IB instruments directly through the HP 3852A

DATA ACQUISITION SYSTEMS
Ordering Information

Ordering Information

To order, specify an HP 3852A system with the appropriate software, controller, mainframe, extenders, function modules, racks, and extra terminal modules. The HP 3852A itself has no cost—each component of the system is priced individually.

Data Acquisition Manager	Price
HP 44458A Data Acquisition and Control Software for Series 300/200 Computers on 3½" and 5¼" diskettes (BASIC 4.X, 5.X, and 6.X)	$2,300
HP 44458R License to Reproduce HP 44458A or 44458B. Includes one set of software manuals.	$1,390
HP 44459A Data Acquisition and Control software for HP Vectra Computers on 3½" and 5¼" diskettes (BASIC 5.3X)	$1,700
HP 44459R License to reproduce HP 44459A/44459B. Includes one set of software manuals.	$1,060
HP 44460A HP DACQ/UX Manual and Software, ¼" tape	$2,050

Mainframe

HP 3852A Data Acquisition and Control Unit	$4,350
HP 44703A Mainframe Extended Memory Card—256 KB*	$830
HP 44703B Mainframe Extended Memory Card— 1 MB*	$1,820

Extended memory cards for 2 MB and 4 MB can be ordered from Infotek Systems, 1045 S. East Street, Anaheim, CA 92805-8508, as AM220B and AM244B, respectively. These products have been *functionally tested, but they are not warranted or supported by HP* (no RFI or environmental tests were conducted). Warranty for two years and support of individual cards are provided by Infotek.

Extender Chassis

HP 3853A Extender Chassis with 10 additional slots for function modules. A 1-meter extender control cable, and two 1-meter (3 wires each) analog signal extender cables are included. A total of seven extenders may be added to a mainframe. Extender control cables are always needed. Analog signal extender cables are needed if analog voltages must be switched to the mainframe or another extender.	$2,880

Voltmeters

HP 44701A 5½ to 3½-Digit Integrating Voltmeter	$1,830
HP 44702A 13-Bit High-Speed Voltmeter (100,000 readings/sec; buffer for over 8,000 readings)	$3,110
HP 44702B 13-Bit High-Speed Voltmeter (100,000 readings/sec; buffer for over 64,000 readings)	$3,750
HP 44703C High Speed Extended Memory Card for expanding HP 44702A Buffer to over 64,000 readings	$720
HP 44704A 16-Bit High-Speed Voltmeter (100,000 readings/sec; buffer for over 64,000 readings)	$3900

Relay Multiplexers

HP 44705A 20-Channel Relay Multiplexer	$960
HP 44705H 20-Channel High-Voltage Relay Multiplexer	$1,200
HP 44706A 60-Channel Single-Ended Relay Multiplexer	$1,200
HP 44708A 20-Channel Relay Multiplexer with Thermocouple Compensation	$1,120
HP 44708H 20-Channel High-Voltage Relay Multiplexer with Thermocouple Compensation	$1,390
HP 44717A 10-Bridge 120 Ohm Static Strain Gage Relay Multiplexer	$1,280
HP 44718A 10-Bridge 350 Ohm Static Strain Gage Relay Multiplexer	$1,280

FET Multiplexers

HP 44709A 20-Channel FET Multiplexer	$1,100
HP 44710A 20-Channel FET Multiplexer with Thermocouple Compensation	$1,210
HP 44711A 24-Channel High-Speed FET Multiplexer	$1,160
HP 44711B 24-Channel High-Speed FET Multiplexer (use with HP 44704A)	$1,095

*Only one extended memory option may be added per mainframe.

HP 44712A 48-Channel High-Speed Single-Ended FET Multiplexer	$1,340
HP 44713A 24-Channel High-Speed FET Multiplexer with Thermocouple Compensation	$1,280
HP 44713B 24-Channel FET Multiplexer with Thermocouple Compensation	$1,280
HP 4471BA/B Opt 003 Anti-noise Filter Option	$360
HP 44719A 10-Bridge 120 Ohm Static Strain Gage FET Multiplexer	$1,390
HP 44720A 10-Bridge 350 Ohm Static Strain Gage FET Multiplexer	$1,390
HP 44730A 4-Channel Track/Hold Multiplexer with Signal Conditioning	$1,820
HP 44732A 4-Channel 120 Ohm Dynamic Strain Gage Multiplexer	$2,040
HP 44733A 4-Channel 350 Ohm Dynamic Strain Gage Multiplexer	$2,040
HP 44736A Opt H05 LVDT Sig Conditioner/MUX	$480

Solid State Relay Multiplexer

HP44705F 20-Channel Solid State Multiplexer	$1,530
HP44708F 20-Channel Solid State Multiplexer T/C	$1,600

Analog Outputs

HP 44726A 2-Channel Arbitrary Waveform DAC	$2,250
HP 44727A 4-Channel Voltage DAC	$1,540
HP 44727B 4-Channel Current DAC	$1,540
HP 44727C 2-Channel Voltage; 2-Channel Current DAC	$1,540

Stepper Motor Controller

HP 44714A 3-Channel Stepper Motor Controller/Pulse Output	$2,250

Counter

HP 44715A 5-Channel Counter/Totalizer (200 kHz)	$1,220

Digital Inputs/Outputs—Switching

HP 44721A 16-Channel Digital Input with Totalize and Interrupt	$870
HP 44722A 8-Channel AC Digital Input with Totalize and Interrupt	$900
HP 44723A 32-Channel High-Speed Digital Sense/Control	$1,180
HP 44724A 16-Channel Digital Output	$860
HP 44725A 16-Channel General Purpose Switch	$960
HP 44728A 8-Channel Relay Actuator	$820
HP 44729A 8-Channel Power Controller	$1,360

Interfaces

HP 44788A HP-IB Controller	$750
HP 44789A Serial Interface	$1,040

Breadboard

HP 44736A Breadboard	$480

High-Speed Accessories

HP 98620B 2-Channel DMA Controller for HP Series 300/200 Computers	$530
HP 98622A GPIO Interface for HP Series 300/200 Computers	$390
HP 98625B High-Speed HP-IB Disc Interface for HP Series 300/200 controllers	$1,000
HP 44744A 2-Meter GPIO Cable with Mating for HP 44702A/B and HP 98622A	$360
HP 44744B 4-Meter GPIO Cable with Mating for HP 44702A/B and HP 98622A	$400
HP 44745A 4-Meter GPIO Cable with Mating for HP 44702A/B and HP 12006A (GPIO interface for HP 1000 Computers)	$400
HP44790A Binary Mode Software	$1,070

Service and Support Products

HP 44743F Service Kit consists of specially designed hardware and software for operationally verifying and calibrating the HP 3852A. Fixtures for testing individual plug-in modules should be ordered separately.	$1,920

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