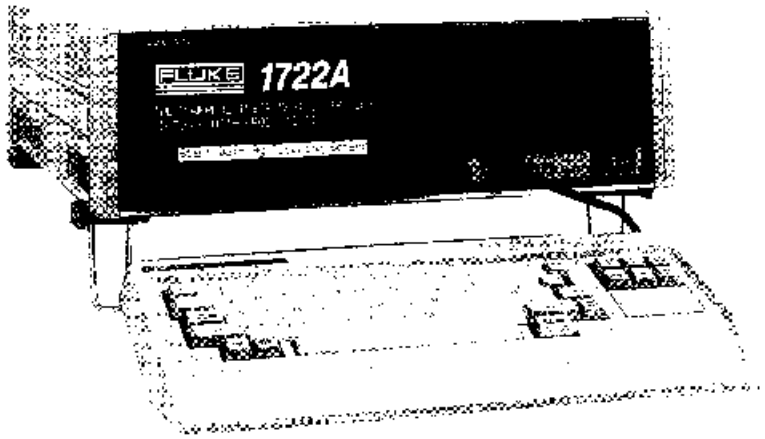
1722A

GPIB IEEE-488



(NSN 5895-01-224-8578) **1722A With Keyboard**

1722A Instrument Controller

The 1722A represents the evolution of a concept pioneered and introduced by Fluke in 1979 – the concept of using a touchscreen as the primary interface between an operator and a high-performance instrument controller. Few things could be more user-friendly. And it allowed the keyboard to be treated as a programming tool, usually unplugged and removed from an operating instrumentation system. Rack mounting was simple.

Fluke's first instrument controller was the 1720A. The 1722A has improved capabilities. But, because we are committed to maintaining the highest possible level of software compatibility consistent with evolutionary improvements, the 1722A runs programs that were developed for even the first 1720As delivered.

High Performance Microcomputer

The 1722A is a microcomputer designed for control of automated instrument systems in the laboratory, the plant, or the factory and for information management systems.

The 1722A is an entirely new design internally. The high speed 16-bit microprocessor uses a 24 MHz clock to achieve an instruction cycle rate of 6 MHz. High-speed floating point arithmetic processing is implemented through extensions to the microprocessor instruction set. A separate display processor, with high speed vector generator and graphics memory work space, functions as an independent graphics display terminal for the central processor.

When powered on, the 1722A looks to its internal floppy disk (or to optional non volatile RAM) for operating software. Updating to newer software is a simple matter of inserting a disk and restarting. You are not tied to permanently-installed ROMs. Yet the 1722A is easily set up to automatically start running your application. After loading operating software, it looks for a start-up command file. The file is treated as keyboard inputs, instructing the controller to perform any task sequence. If software is stored in optional non-volatile RAM memory, you never need to bring a disk near it.

RAM memory in the 1722A can be partially allocated as a file-structured electronic disk, for high speed task overlays and large, fast-access virtual data arrays. Software development tools make the task of writing programs more efficient through such features as wildcard file identification, utility command files, and recall of previously typed commands.

The 1722A includes five slots for additional memory and interface options. The standard 136K RAM memory is internally expandable to over 3.0 megabytes. The 1722A-440 Internal Hard Disk provides an additional 40 megabytes of on-line storage. The 1765B Series of Winchester disk drives provides 20M bytes of file storage, in two models. Non-volatile RAM options can be installed for rugged, permanent file storage, especially suited for harsh environments. Up to 5.0M bytes of non-volatile memory, may be installed.

Touchscreen Display System

With its touchscreen display, the 1722A is particularly well suited for applications where semi-skilled personnel need to operate complex systems performing sophisticated tasks. The friendly graphics display takes the place of the often-intimidating keyboard, yet offers access to the software that keeps your system running. An operator is prompted one step at a time for information or decisions through informational displays, and responds by simply touching the screen. The predictability of procedures allows true trend analysis to be performed, pinpointing common failure modes or process impediments. Systems based on this concept are easily updated for new tasks. The cost and downtime of installing new switch or key labels is eliminated.

Fluke's experience producing the touchscreens goes back to 1979. It has proven to be a rugged, reliable component.

Touchscreen interactive display

Characters Plus Graphics

The graphics display capability of the 1722A is independent of its character display, and of the 1722A central processor. With its own display processor, high speed vector generation hardware, and 64K graphics display memory, the 1722A is a sophisticated tool in the hands of the creative system designer. The 64K display workspace is over three times the size of the 640 by 224 pixel display window: 2048 pixels wide by 256 pixels high. You can use it to display data in strip chart form, and move the display across the window by touch commands. You can also use it to prepare up to three independent data screens available for instant display. Once the graphics display is generated, a hard copy of the graphics plane can be printed under program control.

The 1722A character display is an independent function that can overlay graphics data displays for labels, or be used alone for test and for programming. Because the graphics and character displays can be independently enabled, screens can be prepared "off-line" and displayed when ready. Numerous ANSI-compatible character attributes are available to add emphasis to portions of displays. Attributes such as inverse or underline can be pre-defined for display fields, or made a part of characters as they are sent to the screen.

The 1722A includes an industry standard composite video output that will display what ever is on the 1722A screen on a video monitor. This can be useful for training presentations as well as for system requirements that include a remotely mounted display.

Interfacing

The 1722A includes an GPIB/IEEE-488 bus interface port and an RS-232-C serial port. The IEEE-488 interface can control up to 14 instruments at transfer rates of up to 30K bytes per second. Powerful IEEE-488 commands are supported as a part of each 1722A programming language. The 1722A can be set up to function as a system controller or as an addressable device in a multiple-controller system. In either config- uration, the 1722A can pass control to another controller and take it back when offered. As system controller, the 1722A starts up as controller-in-charge and can use IFC (Interface Clear) to reset all bus devices.

The terms GPIB and IEEE-488 may be used interchangeably throughout this catalog.

Three of the five expansion slots are available for additional interfaces:

Option 17XXA-008 adds an additional IEEE-488 interface and an additional RS-232-C serial data port. The 1722A can accomodate up to four IEEE-488 ports.

Option 17XXA-009 is a reconfigurable, dual serial port with its own buffer memory. It is supplied configured for RS-232-C with full modem compatibility. Each port can be easily reconfigured for a 20 milliamp current loop, or for RS-422 balanced lines. Up to three -009s may be installed for a total system of seven serial ports.

Option 17XXA-002 (Parallel Interface) gives you two independent 16-bit parallel I/O ports that can function as independent lines, 8-bit bytes, or 16 or 32-bit words. Line protocol is available (but not required), and the sense of the data can be reconfigured to either High true or Low true. A maximum of three modules may be installed for a total of six 16-bit ports.

Options & Peripherals

RAM Memory Expansion Modules (-006, -007, -016, -017)

Internal program and data space may be expanded to over 3M bytes with RAM expansion options. Memory may be added in the following increments:

17XXA-006 256K bytes
17XXA-007 512K bytes
17XXA-016 1M bytes
17XXA-017 2M bytes

Application programs can assign any part of this memory to function as an "Electronic Disk." Programs and data may be loaded to this E-Disk, allowing faster transfer rates and no disk wear.

Non-volatile RAM Options (-018, -019, -020)

These options provide either 256K bytes (-018) or 512K bytes (-019) or 1M bytes (-020) of file-structured, non-volatile RAM memory. Transfer rates are comparable to RAM -- over 1M bytes per second. Up to 5M bytes non-volatile RAM may be installed in the 1722A.

Non-volatile RAM is solid-state medium which is immune to pollution and vibration, making it ideal for harsh environments where floppy disk operation is not practical. Non-volatile RAM is battery backed up for up to five years to retain its file contents through a power loss. Non-volatile RAM provides a write protection switch to protect its file contents.

Internal Hard Disk

The optional 1722A-440 Internal Hard Disk provides 40M bytes of on-line storage. This option includes a rugged drive designed to meet demanding industrial and portable applications. Reliable performance is guaranteed – even at ambient temperatures of 40°C. Self-parking heads prevent disk crashes if the unit is transported. High performance is provided through low access times (29 ms) and the high speed SCSI (Small Computer Systems Interface) bus. One option slot of the 1722A is required by this option.

The Internal Hard Disk can also be installed in existing 1722A. For more information, please contact your local Fluke representative.

External Winchester Disk Drive

The 1765B Series of Winchester disk drives provides high-capacity hard disk file storage for the 1722A Instrument Controller:

1765B/20 20M byte Winchester Disk Drive
1765B/20M Multi-User 20M byte Winchester Disk Drive

Both models provide for easy connection to the 1722A Instrument Controller through a standard IEEE-488 interface, and are rack-mountable, using the optional rack-mount kit. More information is available in the following "Disk Drive" section.

Software

For information regarding 1722A Software, see the following "Software" section.

Module-Level Diagnostics

The 1722A is a modular design with diagnostic software that allows semi-skilled operators to identify failures to the module level. Spare-module kits are available for the most time-critical applications. Fluke also maintains an inventory of 1722A modules that may be shipped within hours in most cases, and which can be exchanged for a defective module for a nominal charge. Contact your Fluke Technical Service Center for more information.

Manuals That Make the Task Easy

Experience will tell you that the major investment in an automated instrument system is not in the hardware, but in system integration and the development of application software to run it. The quality of documentation is a key consideration. You will find that 1722A manuals are among the most readable, consistent, and sensible software documentation available anywhere. Ask your Fluke Sales Engineer or Representative to let you evaluate the 1722A through its manuals. You will be pleasantly surprised.

OEM Sales 1722A in Your Products

The 1722A is used as a component part of many products manufactured by companies other than Fluke. Custom packaging and matching paint colors are routinely negotiated. Fluke offers the discounts, policies, and worldwide support to make it work, too. If you are designing a product that would be more competitive with a touchscreen and a high performance microcomputer system, call your Fluke Sales Engineer or Representative for more information.

Specifications

Temperature: 10°C to 40°C with floppy disk, operating; 0°C to 40°C without floppy disk, operating. 10°C to 52°C with floppy disk, non-operating; -20°C to 60°C without floppy disk, non-operating

Relative Humidity: 20% to 80% non-condensing, operating; 8% to 90% non-condensing, with floppy disk, non-operating or 5% to 95%, non-condensing, without floppy disk, non-operating

EMI and RFI Emissions: Tested to FCC Part 15, Subpart J, Class B; VDE 0871, Class B; CISPR 11-1975

Power: 90V to 132V ac or 180V to 264V ac, 47 Hz to 440 Hz, 175W maximum

Size: 13 cm H x 43 cm W x 55 cm L (5.25 in H x 17 in W x 21.5 in L) plus feet

Weight: 14.5 kg (34 lb). Keyboard 1.4 kg (3 lb)

Included with Instrument: Y1700 Keyboard, power cord, BASIC system disk, diagnostic disk, "Getting Started" manual and disk, System Guide manual, Operator's manual, BASIC Programming Manual, and a pad of 50 display worksheets

Ordering Information

Model

January 1990 Prices

1722A Instrument Controller $7200
1722A-1 Instrument Controller w/o Keyboard 7000

Options (for 1722A & 1722A-01)*

-002 Dual 16 Bit Parallel Interface $1010
-006 256K Byte RAM Expansion 1000
-007 512K Byte RAM Expansion 1400
-008 IEEE-488/RS-232 Interface 890
-009 Dual Serial Interface 1020
-016 1M Byte RAM Memory Expansion 1800
-017 2M Byte RAM Memory Expansion 3200
-018 256K Byte Non Volatile RAM 1700
-019 512K Byte Non-Volatile RAM 2700
-020 1M Byte Non-Volatile Ram 3700

Language Systems

-200U System S/W Update ..... $ 150
-201 Assembly Language Development System 1550
-202 FORTRAN Development System 1550
-203 Compiled BASIC Development System 490
-205 Extended BASIC Development System 490
-912 Non-ANSI C Development System 1995
-913 Non-ANSI C Compiler 1495

Software Options

-900 Software Binder ..... $ 30
-901 Gabby 195
-902 Touchscreen Toolbox 295
-903 Compiled MenuBASIC 295
-905 Extended MenuBASIC 295
-907 Transport->PC 450
S1703 Compiled MenuBASIC Development Package 1900
S1705 Extended MenuBASIC Development Package 1900

Peripherals

1020 Touch Control Screen (includes a desk-top enclosure) $1820
1021 Touch Control Screen 1695
1722A-440 Internal 40M Byte Hard Disk Drive 1995
1765B/20 20M Byte Winchester Disk Drive 3295
1765B/20M Multi-User 20M Byte Winchester Disk Drive ..... on req
1780A InfoTouch® Display 2150

Accessories (Also see Section 17)

Y1700 Programmer's Keyboard ..... $ 425
Y1702 RS-232 C Null Modem Cable, 2m 130
Y1703 RS-232-C Null Modem Cable, 4m 155
Y1704 Circuit Board Extender 210
Y1705 RS-232-C Null Modem Cable, 0.3m 80
Y1706 Double-Sided Blank Disks (package of 10) 65
Y1707 RS-232-C Interface Cable, 2m 130
Y1708 RS-232-C Interface Cable, 10m 155
Y1709 Printer Cable, 2m 130
Y1790 Rack Mount Kit w/24" Slides 200
Y1795 Carrying Handle for portability 50
Y8021 IEEE-488 Interface Cable, 1m 130
Y8022 IEEE-488 Interface Cable, 2m 145
Y8023 IEEE-488 Interface Cable, 4m 155

Customer Support Services

Warranty

One-year product warranty. See Section 16 for further information on warranty terms and conditions.

Extended Warranty

A 10% discount is available when you order the following at the time of the instrument purchase or when ordered within the factory warranty period.

SC1-1722A Repair ..... $ 221
SC3-1722A Full Service 243
SC4-1722A Performance Verification-Plus 45