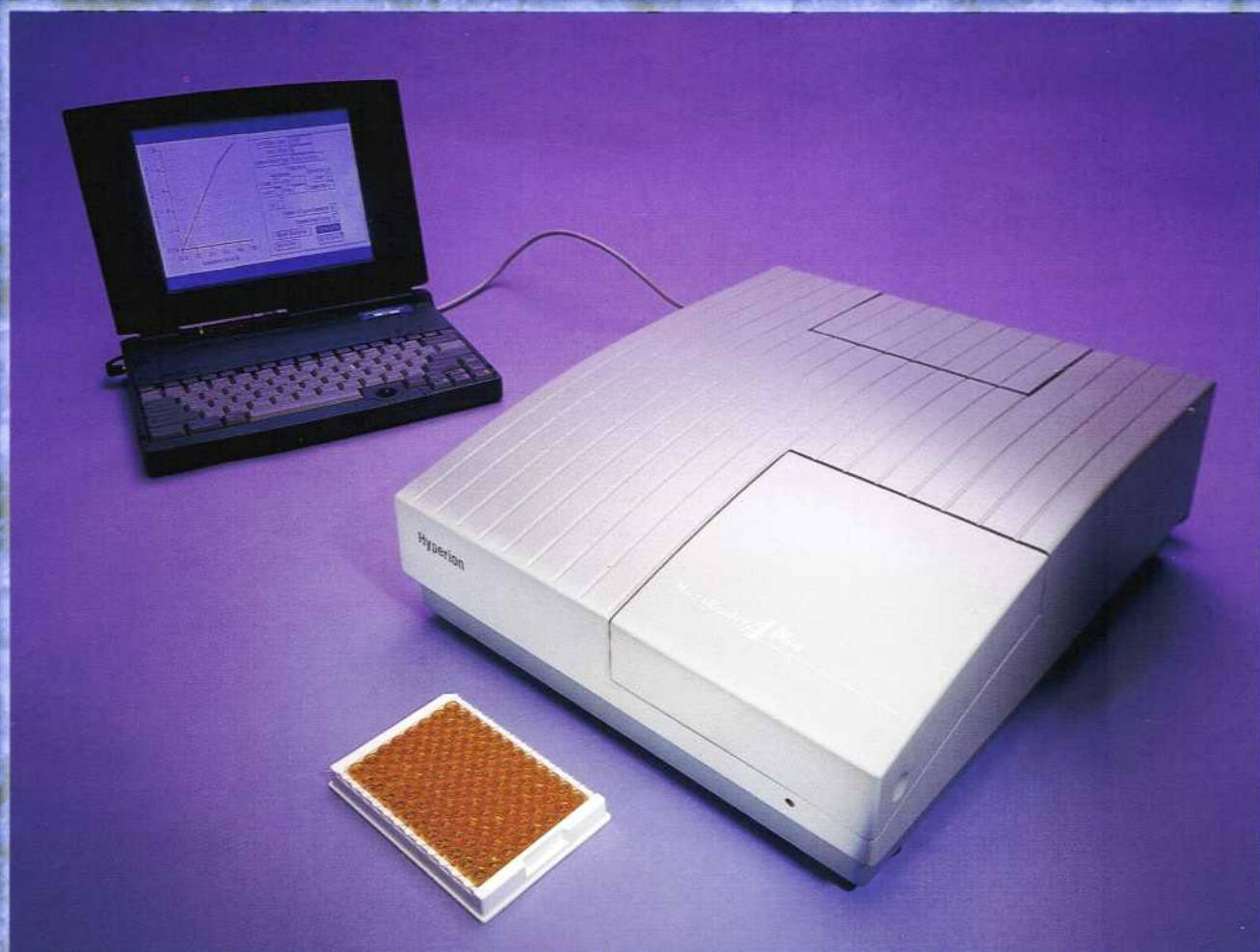


Hyperion

MicroReader™ 4 Plus



An External Computer-Enhanced Microplate Reader
With a Built-in Microplate Shaker Provides Automated,
Flexible And Rapid Photometric Analysis.

Introducing the MicroReader 4 Plus

Optimized for accurate and reliable photometric measurement of microplate-based assays (with or without shaking before reading) and operation by a peripheral computer, the MicroReader 4 Plus offers you the best value today.

The MicroReader 4 Plus offers an open system for customizing to individual protocols.

The MicroReader 4 Plus offers an intuitive user-interface, windows-like, which facilitates programming of even the most complex ELISA/EIA applications.

The MicroReader 4 Plus offers six installed filters and a built-in microplate shaker which further enhance its application flexibility as more types of assays may be used with the system.

The MicroReader 4 Plus accommodates the full range of work load demands, including batch and profile analysis, and exceptionally fast measurement of the microplate, which boost productivity.

The MicroReader 4 Plus offers self-calibrating capabilities which ensure accurate and reliable measurement each and every time it is used.

The MicroReader 4 Plus offers computer-control, using a PC computer (including Lap Tops), for optimal flexibility and versatile handling of sample results.

The MicroReader 4 Plus offers the option to create a Modular ELISA Workstation that prepares the microplate and provides read out of microplate results.

The MicroReader 4 Plus offers a modular design which greatly simplifies maintenance.

Significant capabilities which allow the MicroReader 4 Plus to improve the efficiency of any laboratory.



COMPUTER INTERFACE

Any 386, 486 or higher computer may be used to operate the MicroReader 4 Plus. A dedicated computer is not required for the MicroReader 4 Plus when using Windows 95 as the computer's operating system. This provides an economical way to form an automated, programmable microplate reader which offers the benefits of a computer-controlled system – with the option to continue using the computer for other daily tasks as it operates the MicroReader 4 Plus.

MICROPLATE SHAKER BUILT-IN

A Shake Mode may be programmed for the microplate, prior to measurement, according to individual requirements (example screen below).



EASY MAINTENANCE

A unique Filter-and-lamp-access-port provides direct access to the system's filters and lamp for easy replacement without system-disassembly.

SIX INSTALLED FILTERS-STANDARD

The MicroReader 4 Plus includes six filters unlike most microplate readers which have only four. This and its performance of either monochromatic or bichromatic reading modes allows the application of most immunoassays. Installed filters include: 405nm, 450nm, 490nm, 540nm, 630nm and 650nm.

SELF-CALIBRATING SYSTEM

The MicroReader 4 Plus automatically performs self-diagnostic tests upon power-up which verify proper optical alignment, filter calibration and system operation. Error messages inform the user of any problems detected by the system; an efficient, built-in troubleshooting tool. This ensures performance-optimization for measurements at all times.

DESIGN AVOIDS OBSOLESCENCE

An important benefit of a computer-controlled system is it may continue to grow with you, as your needs change, simply by installing software upgrades onto the computer as they become available.

LAMP-PRESERVATION FEATURE

The MicroReader 4 Plus automatically shuts-off its lamp after sitting idle for approximately 5 minutes. This extends lamp-life for less downtime, a more dependable microplate reader and cost-effective operation.

The ELISA-FLEX™ Software

The MicroReader 4 Plus provides you with a precise microplate reader and remarkably flexible, easy to use system-software, ELISA-FLEX, designed exclusively by Hyperion.

SOFTWARE INTERFACE

Novel dialog boxes and pull-down menus, windows-like in design, make programming your own protocols on the MicroReader 4 Plus as simple as entering the test's parameters into the fields provided. On-line assistance, in the form of Error Messages, alert the user of any operational or programming errors. Step-by-step prompting for the Run Mode guides the user through the entire operating process. The ELISA-FLEX software provides a self-explanatory user-interface, with appropriate guidance.

OPEN SYSTEM

The open programming format of the ELISA-FLEX Software allows you to select the brands of microplate-based tests to be used with the system (see Specifications Insert). Stored tests may also be used as templates to create new ones, using the Save As command. Stored tests and curves may be recalled and edited at any time.

RANDOM WELL-ASSIGNMENT

Blanks (with reagent or air), controls, standards and samples may be assigned to any location within the microplate. 8-well and 12-well microplate formats may be programmed.

REPLICATES

Replicates may be programmed for blanks, standards, controls and samples. The mean of the replicates is automatically calculated by the MicroReader 4 Plus.

BAR CODE COMPATIBILITY

Sample IDs (patient names/numbers) may be entered automatically when using the MicroReader 4 Plus's optional Bar Code Reader.

STORAGE OF TEST PROTOCOLS

Another benefit of a computer-controlled microplate reader, versus e-prom or microprocessor-based systems, is the exceptionally large storage capacity it provides as it is based upon the space available on the computer's hard disk. Additionally, protocols may also be stored onto floppy disks for limitless storage.

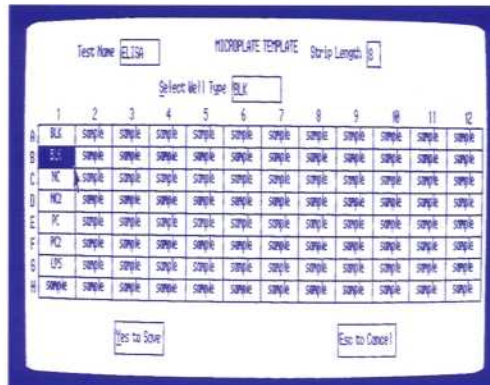


FLAGGING TEST RESULTS

Grey Zone limits and corresponding flags may be programmed to clearly identify out-of-range results. The user may freely program Flagging Symbols (i.e.: +/-, R/NR, UL/LL, </>). Flagging reduces mistakes when reviewing and interpreting Test Results.

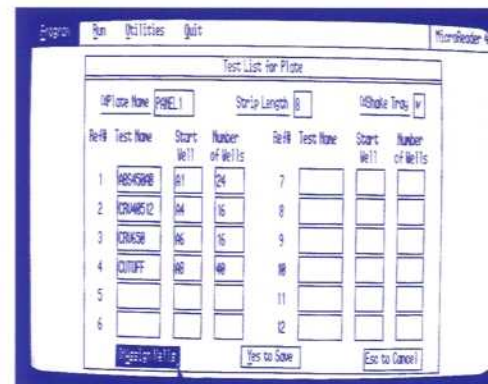
MICROPLATE MAP CREATION

A graphic Map of the microplate may be created to identify each well, including the entry of Sample IDs (patient names/numbers). Simply select the well on-screen, label it accordingly, and press enter. The Microplate Map appears on-screen as an 8 x 12 Matrix. It may also be printed out at any time (example screen below).



MULTIPLE TEST CAPABILITY

Groups of tests, up to 12, can be selected and assigned to the same microplate. For example, a panel of 12 tests consisting of: 1 Absorbance Test, 3 Cutoff Tests, 5 Concentration Curve Tests and 3 Single-point Tests may be assigned to the same microplate. Processing multiple tests on one microplate, by one MicroReader 4 Plus, improves productivity efficiently and cost-effectively (example screen on right).



Use The Computer Of Your Choice To Create An Automated Microplate Reader Which Best Suits Your Requirements.

Choosing the computer for use with the MicroReader 4 Plus allows you to decide the storage capacity of test protocols and test results, whether to take advantage of multitasking available in the ELISA-FLEX Software when complemented by Windows 95® on the computer and additional data-handling tasks for sample results.

APPLICATIONS

The MicroReader™ 4 Plus's ELISA-FLEX™ Software calculates absorbance, single-point concentration, concentration curves and qualitative (cutoff) tests.

QUALITATIVE (CUTOFF) TEST HIGHLIGHTS

The most complicated Cutoff Test may be programmed easily, including:

Cutoff Equation, Well-assignments for Controls and Samples, Mean or Median Calculation for Replicates, QC Check Equations (up to 10) and Discard Options for Controls as well as Define Positive Samples and Grey Zones.

Equations, like $CO=NC\bar{x} + (0.5*AS\bar{x})$ are programmed simply by using the software's unique select/plug-in, entry-technique for required elements. Results are expressed in absorbance and as a ratio: S/CO (Sample Absorbance/Cutoff).

Qualitative Cutoff Test

Test Name: [Dropdown]

Sample Replicates:

Sample Filter Wavelength: [Input]

Ref Filter Wavelength: [Input]

Strip Length: [Input]

Control Wells:

Define Controls:

Assign Wells:

Check Equations:

Flogging: Flogging based on:
Sample Absorbance: Grey Zone:
Sample/Cutoff ratio: Upper Flag Limit: [Input]
Lower Flag Limit: [Input]

Out off Equation: CO= [Input]

Sample Flagged Pos: [Input] Lot Numbers

Positive Flag Chars: [Input] Reagent: [Input]

Grey Zone Chars: [Input] Positive Control: [Input]

Negative Flag Chars: [Input] Negative Control: [Input]

Yes to Save Esc to Cancel

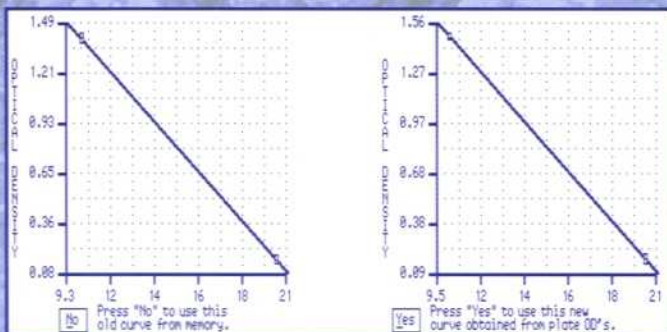
CURVE HIGHLIGHTS

Sophisticated data-reduction capabilities are available for curves with choice of four curve-interpolations and axis-transforms (using up to 10 standards and 3 replicates):

Curve-interpolations: Cubic Spline, Polynomial, Point-to-point and Regression Line.

Axis-transforms: Linear/Linear, Linear/Log, Log/Logit, Log/Log.

Curves may be updated as the plate is run, with side-by-side view of the new and original curves for easy selection.



The MicroReader 4 Plus Offers Fast Analysis & Versatile Handling Of Results

HIGH-THROUGHPUT

An entire plate of 96-wells is read in less than 20 seconds, bichromatically by the MicroReader 4 Plus. Results are presented in an 8 x 12 Matrix on the monitor.

STORAGE & EXPORT

Large volumes of test results, many more than non-computer controlled microplate readers, may be stored according to the available space on the computer's hard disk. Like Test Protocols, results may also be stored onto floppy disks for an unlimited storage capacity and archival purposes.

Results are stored in ASCII format for maximum export compatibility. This includes exporting results to commercially available spreadsheet programs, like EXCEL® or Lotus 1-2-3® for quick and easy report generation.

PRINTING RESULTS

The MicroReader 4 Plus's ELISA-FLEX Software supports most DOS-based printers, including lasers.

Distributed by:

S P E C I F I C A T I O N S

MicroReader™ 4 Plus



MicroReader 4 Plus supplied with ELISA-FLEX™ Software, PC Interface Cable and Power Cord.

Sample Size: 1 Standard 96-Well Microplate

Applications: Absorbance, Concentration Curve, Single-point Concentration and Qualitative (Cutoff) Test.

Photometric Methods: Monochromatic & Bichromatic, within the spectral range of 400nm to 700nm.

Measurement Range: 0 to 3.0 OD (Optical Density).

Indicated Range: 0 to 4.0 OD (>3.0 OD for informational purposes only.)

Accuracy: $\pm 2.0\%$ or ± 0.010 OD, whichever is greater, in the range of 0.1 to 2.5 OD at 405nm

Reproducibility: $\pm 1.25\%$ or ± 0.003 OD, whichever is greater, in the range of 0 to 2.0 OD at 405nm.

Linearity: $\pm 1.25\%$ of range, in the 0 to 2.0 OD range at 405nm.

Reading Time: Full plate in less than 20 seconds, bichromatically.

Light Source: Tungsten Halogen Lamp.

Filter Capacity: 6-position Filter Wheel with 6-interference standard filters: 405nm, 450nm, 490nm, 540nm, 630nm and 650nm. (Other wavelengths, from 400nm to 700nm, are available by special order.)

Interface Ports: 1 Serial Port (Bidirectional)

Dimensions & Weight: 5" (12.7cm) High; 13.5" (34.4 cm) Wide; 16" (40.64cm) Deep; 18 Lbs (8.2 Kg)

Power Supply: 120/220 VAC $\pm 10\%$; 80 Watts; 60/50 Hz

Computer Requirements: 386, 486 or higher IBM® compatible (including Lap Tops), with 6 MB of hard disk space available and 3.5", 1.44 MB floppy disk drive, 4MB of RAM and DOS® 6.2 or greater operating system. 486 with Windows 95® operating system and 16 MB of RAM required for multitasking.

Monitor: 14" VGA Monitor (Monochrome or Color).

Computer Ports: 1 serial (MicroReader 4 Plus interface) and 1 parallel port (printer interface); 2 serial ports required for MicroReader 4 Plus and HyPrep™ Plus Workstation.

Mouse: Bus Mouse required for MicroReader 4 Plus and HyPrep Plus Workstation only.

TYPICAL APPLICATIONS

- ELISA/EIA Assays
- Autoimmune-Disease Assays
- Allergenic Assays
- Infectious-Disease Assays
- Hormone Assays
- Drugs of Abuse Assays
- Other Immunochemistry Assays
- Food Testing Assays
- Other Agricultural Assays
- Industrial Assays
- Environmental Assays
- Veterinary Assays