

Expert Plus

The new standard for stand-alone microplate reader.

Description



Figure 1. Expert Plus microplate reader

The Expert Plus microplate reader is a stand alone product that combines a large graphics display with easy to use on-board software, making it ideal for use in any laboratory performing ELISA and other microplate based colorimetric assays. It has both exciting styling and design that place it at the forefront of its class.

It can perform single and dual end point measurements at any two wavelengths between 400 and 800nm (340 and 800 nm for Expert Plus UV). Quantitative, qualitative and kinetics assays can be easily defined and stored in the non-volatile memory. The method definitions can be also performed by means of the delivered PC-based simulation program. Up to 100 sets of measured data can be stored and recalled for later evaluation. If preferred, Expert Plus can be controlled by any of our PC software packages.

Combining high performance - an 8-channel digital control system and 5 second read time - with ease of use – large display, easy accessible filter wheel and front loading - the Expert Plus is a new concept of microplate reader that will grace any laboratory.

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Feature	Benefit
8-channel optical system	<5 seconds reading time per plate
Digital light control system	Ensures optimum operating performance
Automatic self-check and calibration before reading microplate	Ensures correct measurement and minimizes drift
Front loading, self-centering plate carrier	Easy automation and robotics compatibility
Integral shaking	Speed, duration and vigor of shake can be defined
Stand alone unit with large display and ergonomic keypad	A complete measurement and data analysis system, with no need for PC control
Easy to use programming software	User assays are easily defined and can be saved for future use
PC-simulation program	Method definition, method up- and download, saving of methods and plate results on PC
Extensive range of built-in printer drivers	Compatibility with most printers
Bi-directional serial interface	Control by DigiRead, MikroWin or Kim, PC based software packages
QC-plate and QC-software	User can perform regular validation
Portrait orientation with a small footprint	Saves valuable bench space

Display and keypad



Figure 2. Expert Plus display and keypad

The 240 x 128 pixel high resolution, graphical, liquid crystal display provides the user with set up parameters and experimental results and the keypad is a hard wearing, spill-proof membrane. Navigating around the menu structure is simple:

1. Press the corresponding number on the keypad to enter the user mode choices.
2. Press the soft key on the keypad directly below the corresponding option on the display (F1, F2, F3 and F4) to select that option.
3. Use the four arrows to navigate around the options when the prompts appear.
4. Use the Enter key to move forward to the next display page and the ESC key as an escape mechanism to go back.

Text entry, when required or appropriate, is also easy.

Method definition

Once the option to define a method has been selected, graphical display boxes prompt for the entry of the test definition in a logical sequence. The location of controls, standards and samples are easily entered in the graphical plate representation. Formulae for transformation, validation and cut-off calculations are established with the help of predefined functions. Once defined the method is simply added to the list (120 methods can be stored).

Curve-fit functions

All common curve-fit methods like four-parameter, Spline, linear-, cubic-, and parabolic regression as well as point-to-point can be selected from the menu. The quick-button allow fast definition of diluted standards.

Qualitative evaluation

Cut-off results can be calculated from raw, transformed and quantitative data.

Examples of method definition screens:

Method Definition: Filter(s)

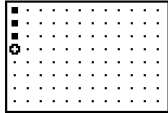
MEASUREMENT:

REFERENCE: [Ⓐ]

Shake: ☐ ON Kinetic: ☐ ON

Method Definition: Layout

Locations of HP:

D01: 

Type: Blk PC NC LP **HP** CO QC Std

Method Definition: Calculation

☒ Factors
☐ Elimination
☐ Transformation
☒ Thresholds
☐ Validation

Test specific constants.

Method Definition: Thresholds

Data source:

/*-+ **A**BCDE

Method Definition: Factors

Factor	Value
Fct1 :	1.2345
Fct2 :	3.14_
Fct3 :	
Fct4 :	

Method Definition: Standards

Concentrations	Units
1: 2.5	PG/well
2: 5	Model
3: 10	4-Parameter
4: 20	Log/Lin
5: 40	

Method Definition: Transform

Formula will be applied to each well.
X stands for original well value.

Y=

NC PC X **avg(PC)** avg(NC)

Method Definition: Thresholds

Data source:

=<>/***C**-**D**+ AB

Features & Technical Specification

Digital light control

The light intensity for all wavelengths is stored during calibration and this allows the system to optimize itself to prevent any drift away from the optimum operating range during measurement. This feature also detects the ageing of the lamp and can advise the appropriate time for change and pre-empt failure during a measurement run. Another benefit of this feature is that any wrongly inserted or defective filter will be detected.

Output to printer or serial port

Expert Plus has a wide range of printer drivers included in its software, including many variants of HP DeskJet, HPLaserJet, Epson Stylus etc. The results are output in a format that makes interpretation and analysis easy. The results can be also sent out through the serial port.

Control by PC-based software

Although Expert Plus is a stand-alone instrument for colorimetric microplate applications, it can also interface with a PC using DigiRead, MikroWin or Kim software for more demanding data reduction requirements.

Technical Specification	
Wavelength range:	400 - 800 nm (Expert Plus), 340 - 800 nm (Expert Plus UV)
Filters:	405, 450, 492 and 620 nm (Expert Plus) 340, 405, 492 and 620 nm (Expert Plus UV) supplied as standard, up to six filters possible
Photometric method:	Multi channel, optical system with self calibration and digital light control
Light source:	Tungsten Halogen, expected life time 10 million readings
Photodetector:	Multiple silicon photodiodes
Resolution:	0.001 OD
Measurement range:	0.000 – 4.000 OD
Accuracy:	+/- 1.0% (0 – 2.5 OD)
Repeatability:	+/- 0.5% (0 – 2.5 OD)
Reading speed:	Single wavelength: 5 secs
Shaking:	4 modes
Plate format:	96-wells, flat, round and V-bottom
Digital output:	RS-232 bi-directional and Centronics parallel
Display	Graphical LCD display 240 x 128 dots with backlight
Keyboard	23-key membrane keypad with tactile feedback
Method storage	120 methods
Plate data storage	100 plates
Dimensions and weight:	43 x 27 x 24 cm (W x D x H), 12 kg
Power requirements:	90 – 250 V, 47 – 63 Hz (autosensing), 80VA

Specifications are measured after the instrument has warmed up at constant ambient temperature and are typical of a production unit. As part of our policy of continuous product development we reserve the right to alter specifications without notice. The products are CE compliant.

Ordering Information

Expert Plus (400 – 800 nm)
Expert Plus UV (340 – 800 nm)

Order number: G 020 150
Order number: G 020 151

Delivery content

Instrument
Operator's manual
Power cord
4 interference filters [405, 450, 492 and 620 nm (Expert Plus); 340, 405, 492 and 620 nm (Expert Plus UV)]
PC-software (PC-simulation and DigiRead)
Serial communication cable
Dust cover