

## Sunrise™ Absorbance Reader

The tailor-made microplate reader suitable for diagnostic, pharmaceutical as well as research laboratories

## Looking for results that are fast and of high quality

*Look no further – the Sunrise Absorbance Reader has it all*



*Convenient onboard operation.*



*USB stick for data storage.*



*4 filter, 6 filter or free wavelength selection filter.*

The versatile Sunrise microplate absorbance reader, gives you all the features you need for many different applications for diagnostic, pharmaceutical as well as for research laboratories. The NEW generation Sunrise Touchscreen Color adds a new dimension to user-friendliness and computer-independent data processing.

### *Full modularity*

The excellent optical performance and proven quality of the Sunrise absorbance reader ensures results that are fast and of high quality. The modular design of the reader lets you customize its configuration to meet your requirements without having to buy any extras. Select between the 4-filter, 6-filter or the free wavelength selection filter slide, which ever is most appropriate for your special applications. Additional options can be added to the basic instrument such as the Touchscreen Color, precise temperature control and a bar code scanner.

### *Comprehensive data reduction*

The powerful and versatile Magellan™ reader software, gives you complete control over the instrument and data reduction processes while making sure all relevant information is available at a glance. Magellan can be used under regulated environments, supporting the FDA regulation 21 CFR part 11 (Magellan Tracker software package), as well as the IVD Directive 98/79/EC of the European Union (Magellan Clinical software package).

### *Getting to the heart of the matter*

The heart of the Sunrise reader is a 12-channel optical module combining high-end optical per-

formance with swift measurement times.

Twelve fibers simultaneously guide the beam through the row of wells with the reference channel monitoring and regulating the light intensity for optimal results over the entire range of optical densities. With measurement cycles as fast as 5 seconds, this feature makes the Sunrise ideal for detecting rapid kinetic assays. Before any measurements are taken, a comprehensive self-check system makes sure that all components are fully functional.

### *Convenient on-board operation with the NEW Touchscreen Color*

- Take advantage of the comfortable and compact on-board PC
- benefit from the clear data overview on the large color display
- Have full data reduction for all assays on-board
- Select the language of your choice

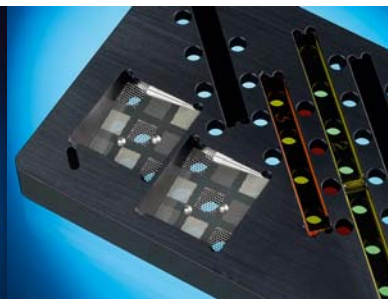
The new Touchscreen Color gives you the freedom to operate the Sunrise reader without a PC while giving you full instrument control and complete data reduction. What's more, you can choose the language in which you wish to communicate with Sunrise. The Windows CE™-based on-board software Magellan.CE supports numerous applications. A wizard guide lets you streamline the workflow step by step regardless of assays and calculation modes. The convenient USB stick within the Touchscreen lets you transfer data to your PC at any time if you decide to work on a PC after all. Full compatibility of on-board data with the Magellan PC software is assured.



*Sunrise Remote Control.*



*Temperature control option.*



*Quality control with QC Pac.*

### *Free wavelength scanning between 400 and 700 nm*

- Enjoy high flexibility
- Perform wavelength scans
- Choose from 301 wavelengths

The tunable wavelength option consists of a special gradient filter that lets you select any wavelength from 400 to 700 nm in 1-nm steps. The special gradient filter is made of high-quality optical material, ensuring excellent transmission characteristics.

This feature together with Magellan software gives you the capability of wavelength scanning with high flexibility for a wide range of applications.

### *Temperature control up to 42° C*

- Good temperature control
- Homogenous across-the-plate temperature
- Capacity to handle rapid kinetic assays

The Sunrise has an advanced temperature control unit which distributes temperature evenly and over the entire microplate. A sophisticated series of tubes regulates and distributes the airflow below the microplate according to the position of the well. The Peltier based temperature control element can even cool down the airflow to maintain room temperature in the wells. An additional heating element above the plate keeps evaporation to an absolute minimum. The components are embedded in precision molded foam polymer to protect against mechanical stress and to ensure stable temperatures. The advanced temperature

control and fast kinetic repeat-time make the Sunrise ideal for kinetic studies.

### *Ensure that all equipment is in good condition*

Instrument qualification has become a major issue with most laboratories and therefore is of growing importance. The QC-Pac will check the performance of your Sunrise reader. The qualification results can be stored in the Sunrise IQOQ documentation package to ensure traceability over the whole life cycle of the instrument. Furthermore the easy applicable process control tool "plate to plate QC" allows to track and store quality values and calibration curve data to be continuously available.

### *Sunrise for clinical laboratories*

Sunrise offers extended functionality for numerous enzyme immunoassays and is designed to meet the quality requirements of the IVD Directive 98/79/EC of the European Union for in-vitro diagnostic products.

### *The Sunrise reader has been designed for automation*

If you need to expand your laboratory facilities you can integrate Sunrise into automated robotic liquid handling systems such as the Freedom EVO™ and Freedom EVOlyzer®.

## Specifications\*

### Sunrise general specifications

Optical system	12 measurement channels, 1 reference channel	
Filters	up to 6	
Wavelength range	340 to 750 nm	
Bandwidth @ 50% transmission	10 +/- 2 nm	
Measurement range	340 to 399 nm: 0 to 3.0 OD, 400 to 750 nm: 0 to 4.0 OD	
Measurement time	Single wavelength	6 seconds
	Dual wavelength	8 seconds
	Kinetic repeat time:	5 seconds
Accuracy	0.0 to 2.0 OD/492 nm	better than +/- (1% + 0.010 OD)
	2.0 to 3.0 OD/492 nm	better than +/- (1.5% + 0.010 OD)
Linearity	340 to 399 nm	0.0 to 2.0 OD better than +/- 2%
	400 to 750 nm	0.0 to 2.0 OD better than +/- 1%
Precision	0.0 to 2.0 OD/492 nm	2.0 to 3.0 OD better than +/- 1.5%
	2.0 to 3.0 OD/492 nm	better than +/- (0.5% + 0.005 OD)
Resolution	0.001 OD	
Interface	RS 232 C (remote control) / parallel, USB (printer interface only with optional Touchscreen)	
Shaking	Linear shaking in 4 different modes	
Physical data	Width	28.5 cm
	Depth	34.0 cm
	Height	14.5 cm (21.0 cm incl. optional Touchscreen)
	Weight	6.2 kg (6.8 kg incl. optional Touchscreen)

### Specification tunable wavelength option

Wavelength range	400 to 700 nm using gradient filter / 340 to 750 nm using standard filter	
Accuracy	0.0 to 2.0 OD /492 nm	better than +/- (1.5% + 0.010 OD)
Linearity	0.0 to 2.5 OD /492 nm	better than +/- 2%
Precision	0.0 to 2.5 OD /492 nm	better than +/- (1% + 0.005 OD)

### Specification temperature control

Temp. range	RT to 42 °C (resolution 0.1 °C)
Temp. accuracy	0.2 °C
Temp. variation across plate	less than 0.5 °C

### Specifications of Touchscreen Color on-board operation

Operating system	Windows CE™
Software	Magellan.CE
Storage capacity	>= 32 MB (USB stick)
Size	7.5" diagonal
Resolution	VGA (640 x 480 pixel)

\*Specifications documented during production quality check

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