

ABS/LUMI/NANO Multimode Microplate reader

Phelios AL

model WSL-2300



Phelios AL



Nano Volume Plate



Absorbance/Luminescent measurement

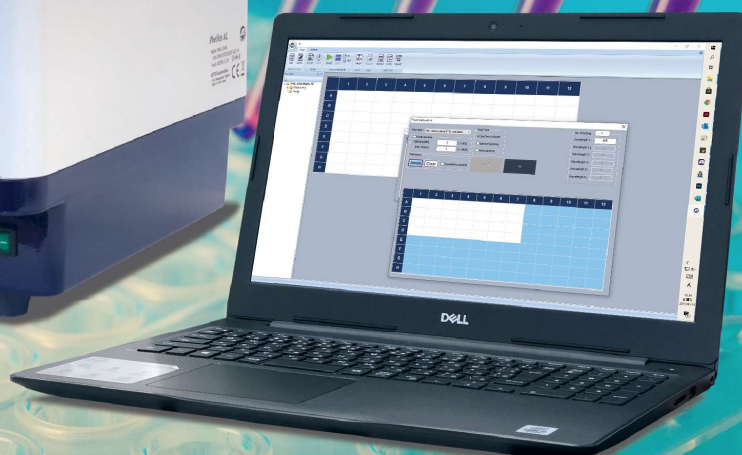
Micro-volume measurement (Option)

Phelios AL is a plate reader capable of absorbance measurement in the wavelength range of 200-999 nm and luminescent measurement in 300-700 nm.

Nano Volume Plate (optional) enables to measure the samples of only 2 μ L.



WSL-2300 Phelios AL



* Control PC is optional.

List of each measurement method and mode

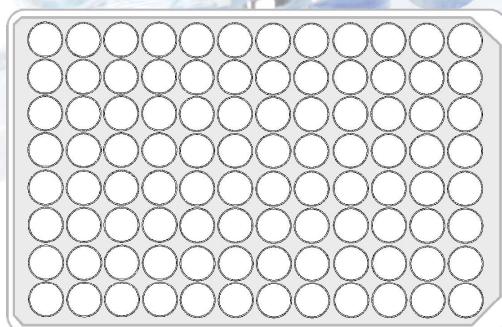
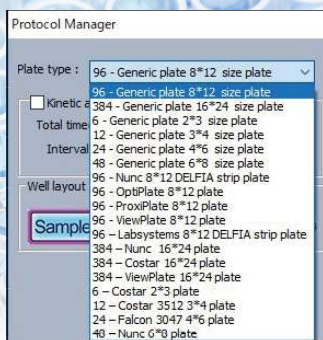
Method	Mode		Plate type
Absorbance measurement (ABS)	Endpoint	1-6 wavelengths can be set. The absorbance of a selected well is measured once at each wavelength. The measured value is displayed as Optical Density (O.D.).	384/96/48/24/12/6
	Kinetics	Measured over time, the readings for each time are displayed. The measurement is repeated at set intervals until it's reached to the set measurement time.	
	Spectrum	Measure the absorbance spectrum in a set wavelength range of 200 - 999 nm and wavelength interval (2 nm<).	
	Area scan	Set the scan pattern (3 x 3 to 13 x 13 area) in each well of the microplate and measure the absorbance for each well area.	96/48/24/12/6
Luminescent measurement (LUMI)	Endpoint	Measures a luminescence of a specified well once in a set measurement time (10-1000ms). It is displayed in relative luminescence units (RLU).	384/96/48/24/12/6
	Kinetics	Measured over time, the readings for each time are displayed. The measurement is repeated at set intervals until it's reached to the set measurement time.	
Micro-volume measurement (NANO)	End point	Use 2 - 5 μ L of nucleic acid or protein as a sample, and measure the wavelengths 260 nm and 280 nm. The 260/280nm ratio and sample concentration are converted from the measured values.	Nano Volume Plate
	Spectrum	Use 2 - 5 μ L of nucleic acid or protein as a sample, and measure the spectrum in a wavelength of 240 - 320 nm (2 nm interval).	

*To use Micro-volume measurement (NANO), 'Nano Volume Plate' is required as an option.

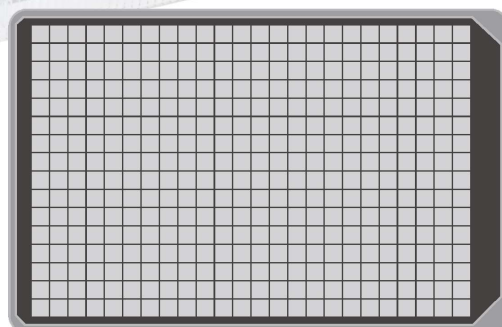
List of available plate type

Various types of microplates are compatible with Phelios AL.

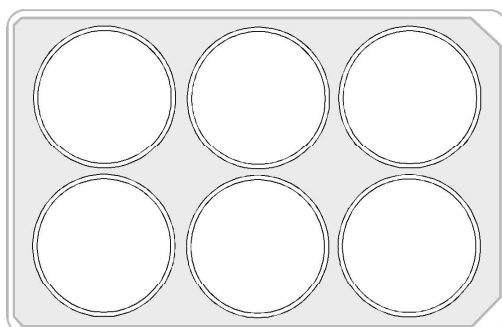
When measuring, please select from the preset plate list to start measurement.



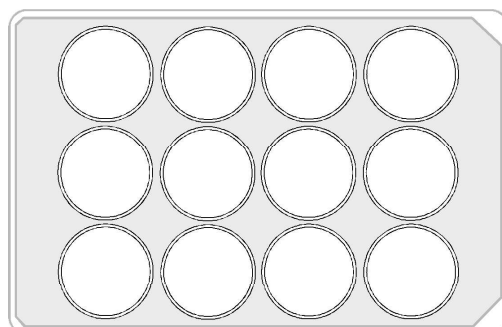
96 well plate



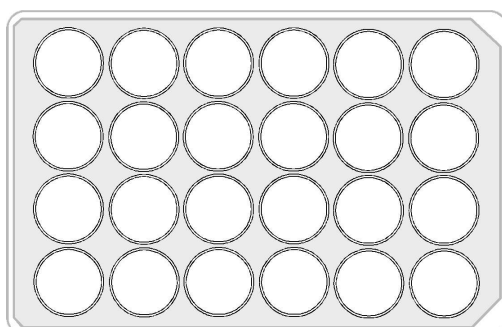
384 well plate



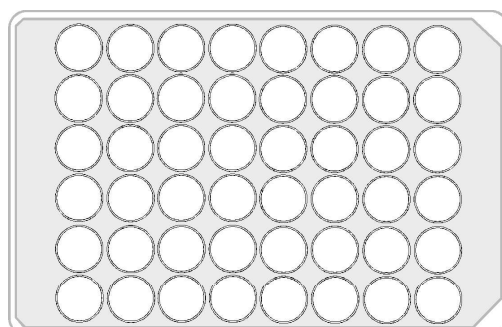
6 well plate



12 well plate



24 well plate



48 well plate

Nano Volume Plate (Option)

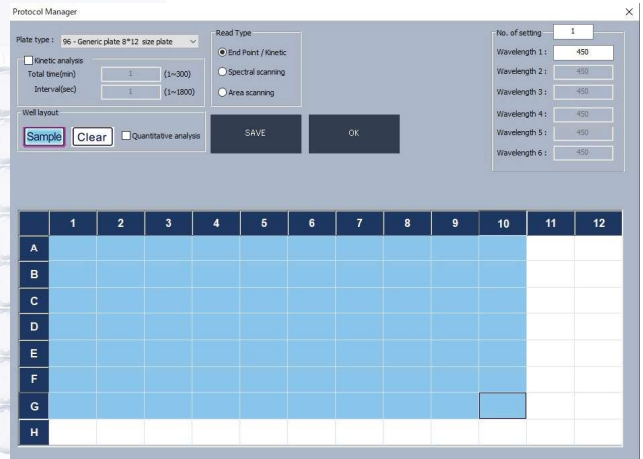
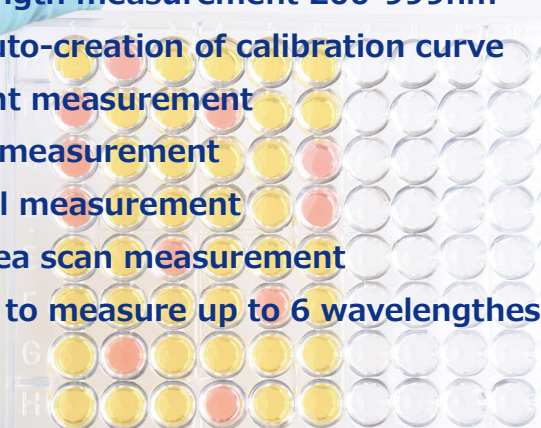
This is a dedicated plate for measuring the absorbance of micro-volume samples of 2 to 5 μ L.

It can be used for concentration determination of nucleic acids and proteins, and calculation of DNA/RNA ratios.



Absorbance -ABS-

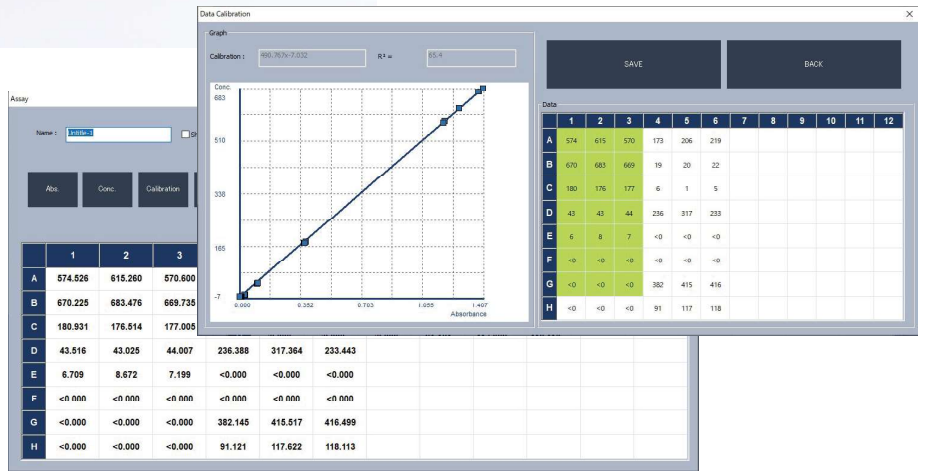
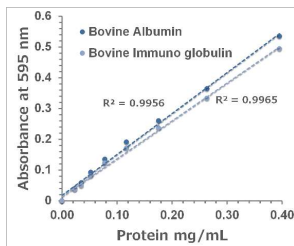
- Wavelength measurement 200-999nm
- Semi auto-creation of calibration curve
- Endpoint measurement
- Kinetic measurement
- Spectral measurement
- Well-area scan measurement
- Enables to measure up to 6 wavelngthes



Calibration curve

Phelios AL can be used to measure and automatically analyze the results to create calibration curves.

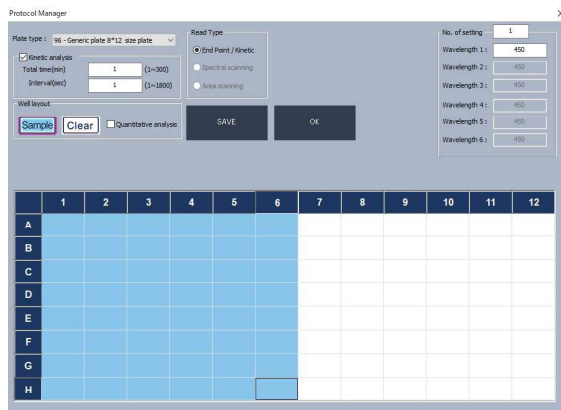
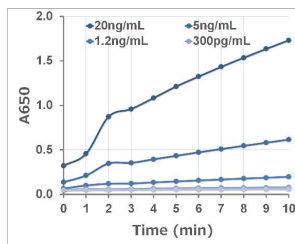
Measurement results can be exported to EXCEL.



Kinetics

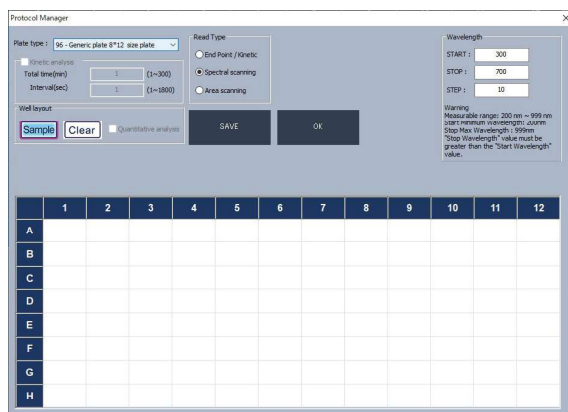
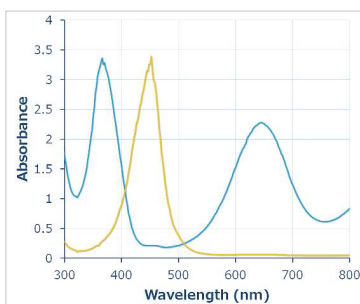
Phelios AL can be used to measure and automatically analyze the results to create calibration curves.

Measurement results can be exported to EXCEL.



Spectral scan

Spectral measurement is possible in a wavelength range of 200 to 999 nm.



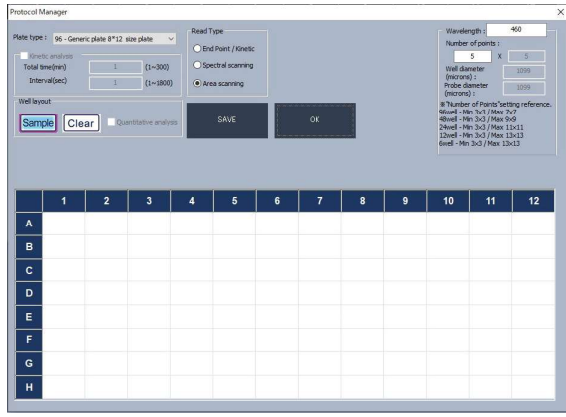
Well-area scan

It is possible to scan with the number of areas from 3x3 to 13x13 per well (one wavelength only).

The number of areas that can be set for each plate is different.

Please refer to the table below for details.

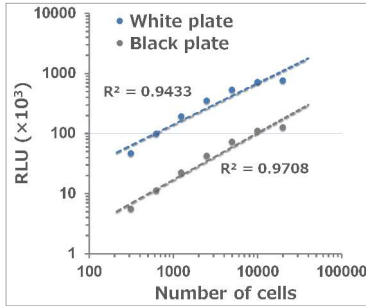
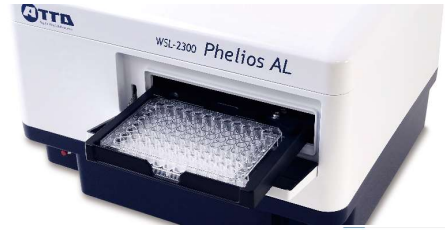
Plate	Area setting
96 well	3 × 3 / 5 × 5 / 7 × 7
48 well	3 × 3 / 5 × 5 / 7 × 7 / 9 × 9
24 well	3 × 3 / 5 × 5 / 7 × 7 / 9 × 9 / 11 × 11
12 well	3 × 3 / 5 × 5 / 7 × 7 / 9 × 9 / 11 × 11 / 13 × 13
6 well	3 × 3 / 5 × 5 / 7 × 7 / 9 × 9 / 11 × 11 / 13 × 13



Luminescence -LUMI-

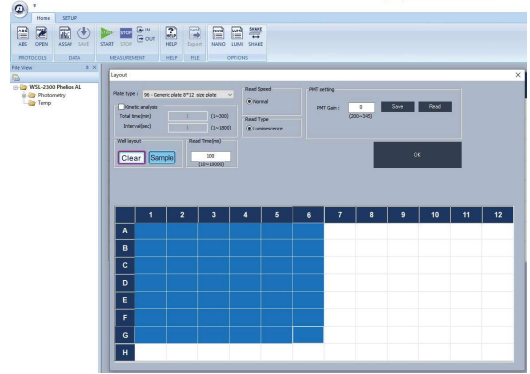
Since Phelios AL is equipped with PMT (photomultiplier tube) as standard equipment, enables luminescence measurements. It is excellent in low background with minimal crosstalk, and wide dynamic measurements. The detection limit is as high as 1×10^{-18} ATP, and a dynamic range of 8 digits can be performed.

In luminescence measurement, 'Endpoint measurement' and 'Kinetics measurement' are available.



ATP cell viability assay

The left figure shows that HeLa cells were serially diluted and cultured, and the cell number was detected by ATP cell viability assay and measured by Phelios AL. The white plate can detect with higher signal intensity than the black plate.



OPTION

Microvolume -NANO-

Minimum volume 2 μ L / 24 samples measurement/ Enables Spectrum measurement

Measurement of the concentration of sample DNA, RNA, and proteins is essential for performing highly reproducible experiments. It is important to measure samples with high accuracy even in small amounts. When you use the optional 'Nano Volume Plate' with Phelios AL, accurate concentration measurement with sample volume of 2 μ L or more is available. Up to 24 samples can be measured, and in addition to measuring the quantity, the spectrum for checking the purity of DNA/RNA can be automatically measured at the same time in preset mode. The measured values can be output to EXCEL, which is ideal for subsequent data analysis and data management.



2 μ L of DW/ Apply sample



① Blank(DW) → ② Sample measurement



Output the result to EXCEL

Well	Wavelength	A,1	A,2	A,3	B,1
17	240	0.087	0.081	0.077	0
18	242	0.082	0.076	0.074	0
19	244	0.078	0.074	0.07	0
20	246	0.073	0.07	0.065	0
21	248	0.069	0.065	0.062	0
22	250	0.066	0.062	0.061	0
23	252	0.062	0.058	0.056	0

Product information

Product name	Phelios ALmain body	Control software	Windows PC	Nano Volume Plate	Support plate for luminescent measurement
WSL-2300 Phelios AL	●	●			●
WSL-2300P-CP Phelios AL	●	●	●		●
WSL-2300PN-CP Phelios AL	●	●	●	●	●



WSL-2300 Phelios AL



Control software



Windows PC



Plate Supporter for luminescent measurement



Nano Volume Plate



Product specifications

Model/Name	WSL-2300 Phelios AL
Measurement type	Absorbance (ABS) /Luminescence
Measurement method	Absorbance measurement : Photodiode Luminescence measurement : PMT
Measurement mode	Absorbance measurement : ① Endpoint ② Kinetics ③ Spectrum ④ Well-area scan Luminescence measurement : ① Endpoint ② Kinetics Microvolume measurement : ① Endpoint ③ Spectrum
Detection sensitivity	Absorbance measurement : 0 - 4.0 O.D. Luminescence measurement : 10^{-18} mole ATP (Dynamic range > 8 桁)
Measurement plate (Micro plate)	6 / 12 / 24 / 48 / 96 / 384 well plate
Measurement plate (Nano Volume Plate)	3 × 8 (24 samples)
Detector 1 : For Absorbance/wavelength	Photodiode / 200 - 999nm
Detector 2 : For Luminescence/wavelength	PMT / 400 -700nm (Max. 420nm)
Wavelength selection	Monochrometer (1nm increments)
Light Source	Absorbance : Xenon flash / Luminescence : None
Shaking	Yes : 0 - 180 sec (2 kinds of speed)
Operation	Measurement condition setting, measurement, data storage, analysis by control software
OS	Windows 10
External connection terminal	USB × 1
Size / Weight	335mm (W) × 305mm (D) × 232mm (H) / 7.0kg (AC adapter 0.5kg)
Power / Consumption	DC24V / 40W
AC adapter	Input : AC100-240V 50/60Hz 140VA Output : DC24V 65W
Composition	WSL-2300 Phelios AL Main unit USB cable(A-B type), AC adapter +AC cable Support plate for luminescent measurement USB memory (attached software), Instruction manual

Optional product specifications

Name	Nano Volume Plate
Samples	24 samples (3 × 8) compatible to multi-channel pipette
Minimum Volume	2 μ L
Sensitivity	BSA : 0.1mg/mL dsDNA : 5ng/ μ L
Wavelength (WSL-2300)	240 - 300nm
Preset mode (WSL-2300)	dsDNA / RNA / ssDNA / BSA / IgG / Lysozyme 1 Abs at 1cm = 1mg/mL
Size/Weight	118mm (W) × 86mm (D) × 16mm (H) / 240g



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