

Table A-1: Absorbance Photometric Performance

Item	Description
Wavelength range	200-1000 nm
Wavelength selection	Monochromator, tunable in 1 nm increments
Wavelength bandwidth	≤ 4.0 nm full width half maximum
Wavelength accuracy	±2.0 nm across wavelength range
Wavelength repeatability	±0.2 nm
Photometric range	0.000 to 4.000 OD
Photometric resolution	0.001 OD
Photometric accuracy linearity (plate), 0-2.0 OD	< ± 1.0% and ± 0.006 OD
Photometric precision (repeatability)	< ± 1.0% and ± 0.003 OD
Stray light	≤ 0.05% at 230 nm
Photometric stabilization	Instantaneous
Photometric drift	None (continuous referencing of monochromatic input)
Calibration	Automatic before every endpoint read and before the first kinetic read
Optical alignment	None required
Light source	Xenon flash lamp (50 Watts)
Average lamp lifetime	1 billion flashes
Illumination	Top down (plates); horizontal (cuvettes)
Photodetector	Silicon photodiode
Endpoint baseline noise (cuvette)	± 0.003 OD @190, 405, 850 nm
Endpoint kinetic noise (cuvette)	± 0.003 OD @190, 405, 850 nm ≥ 0.2 mOD/min and ≤ 0.2 mOD/min

Table A-2: Fluorescence Intensity Performance

Item	Description
Sensitivity	Top Read < 5 pM FITC, 1 fmol/200 μ L (96 well microplate) < 20 pM, 2 fmol/100 μ L (384 well microplate) Bottom Read < 20 pM FITC (96 well microplate)
Sensitivity (cuvette)	< 15 pM fluorescein
Wavelength range	250-850 nm
Wavelength selection	Monochromators, tunable in 1 nm increments
Bandwidth (excitation, emission)	9 nm, 15 nm
Number of excitation/emission pairs per plate	4
Dynamic range	10^6 in 96-well black plates: auto gain circuitry
System validation	Self-calibrating with built-in fluorescence calibrators
Light source	Xenon flash lamp (1 joule/flash)
Average lamp lifetime	1 billion flashes
Detector	Photomultiplier (R3896)

Table A-3: Fluorescence Polarization Performance

Item	Description
Wavelength range (M5 and M5e models only)	300-750 nm
Wavelength selection	Monochromators, tunable in 1 nm increments
Bandwidth (excitation, emission)	9 nm, 15 nm
Precision	< 5 mP standard deviation at 1 nM fluorescein in 96 and 384 wells

Table A-4: Time-Resolved Fluorescence Performance

Item	Description
Sensitivity (M4, M5, M5e models only)	100 fM europium in 96- or 384- well microplates (top read)
Wavelength range	250-850 nm
Wavelength selection	Monochromators, tunable in 1 nm increments
Bandwidth (excitation, emission)	9 nm, 15 nm
Precision data collection	1–100 flashes; delay of 0–600 μ s before read; integration time selectable 50–1500 μ s

Table A-5: Luminescence Photometric Performance

Item	Description
Sensitivity	< 2 fg/well for firefly luciferase in 96- and 384-well microplates (top read)
Wavelength range	250-850 nm
Crosstalk	< 0.5% in 96- and 384-well microplates

Table A-6: Photometric Analysis Modes

Item	Description
Front Panel Operation	Single wavelength Absorbance, %Transmittance, Fluorescence reading of the cuvette (or test tube)
Using SoftMax Pro Software	<ul style="list-style-type: none"> • Express data as Absorbance, %Transmittance, Fluorescence, Luminescence • Single wavelength reading of microplate and/or cuvette • Multiple wavelength (up to four) reading of microplate or cuvette • Kinetic and kinetic graphics of microplate and/or cuvette • Spectral scan (190–1000 nm) of microplate and/or cuvette • Well scan of microplate using absorbance or fluorescence intensity

Table A-7: Measurement Time (Calibration Off)

Item	Description
Microplate read time (endpoint), Standard read	<ul style="list-style-type: none"> • 96 wells in 24 seconds (single wavelength, absorbance) • 96 wells in 15 seconds (single wavelength, fluorescence intensity) • 384 wells in 1:57 minutes (single wavelength, absorbance) • 384 wells in 45 seconds (single wavelength, fluorescence intensity)
Microplate read time (endpoint), Standard read with PathCheck Pathlength Measurement Technology	<ul style="list-style-type: none"> • 96 wells in 2:07 minutes (single wavelength, absorbance) • 384 wells in 7:19 minutes (single wavelength, absorbance)
Microplate read time (endpoint), Speed read	<ul style="list-style-type: none"> • 96 wells in 18 seconds (single wavelength, absorbance) • 384 wells in 49 seconds (single wavelength, absorbance)

Table A-8: Scan Speed

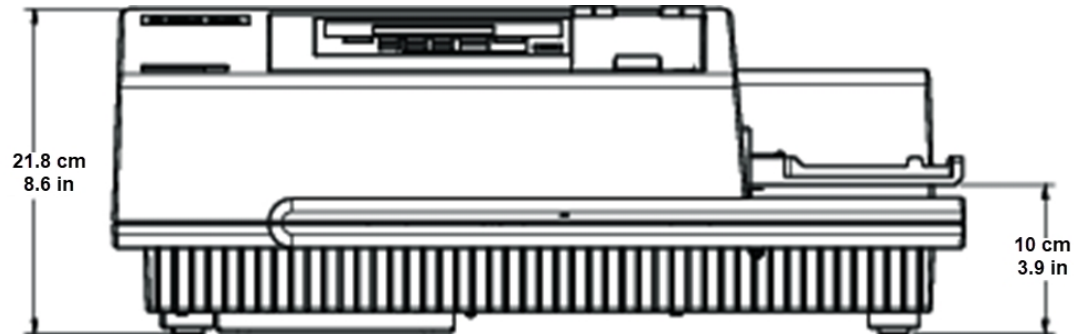
Item	Description
Cuvette	< 2 fg/well for firefly luciferase in 96- and 384-well microplates (top read)
Wavelength range	250-850 nm
Crosstalk	< 0.5% in 96- and 384-well microplates

Table A-9: Temperature Regulation

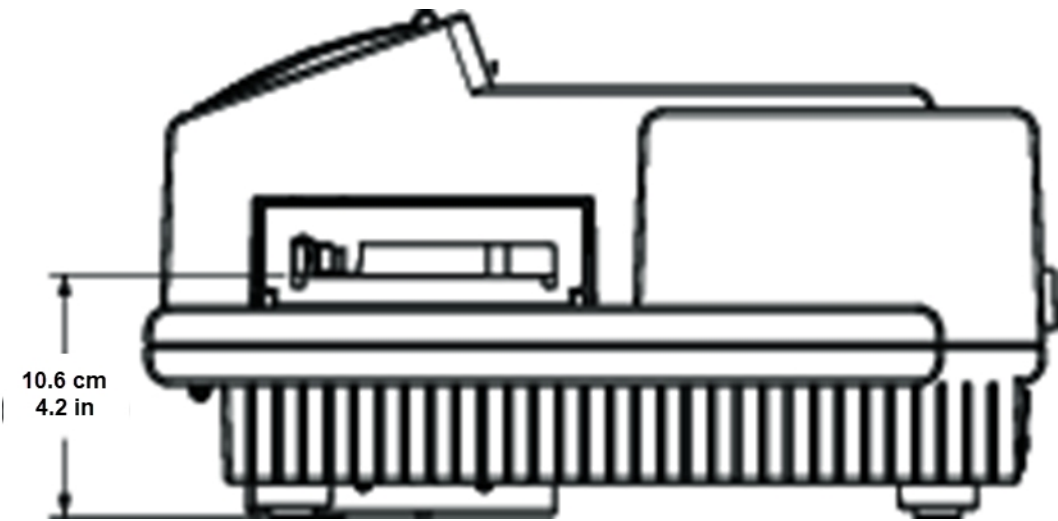
Item	Description
Reading chamber	Isothermal when temperature regulation is not enabled
Range	2°C above ambient to 60°C when temperature regulation enabled. Note: To achieve regulation at temperatures greater than 50°C, the instrument's ambient temperature may need to be increased to 25°C or higher.
Resolution	Resolution $\pm 0.1^\circ\text{C}$
Accuracy	$\pm 1.0^\circ\text{C}$ for microplate and cuvette chamber
Temperature uniformity at equilibrium	$\pm 0.5^\circ\text{C}$ at 37°C
Chamber warmup time	15–30 minutes (measured on air) after initiation of temperature regulation
Temperature regulation	4 sensors
Drift	$\pm 0.2^\circ\text{C}$ (regulated)
Temperature regulation diagnostics	Temperature regulation system is continuously monitored and updated
Evaporation	Plate lid required to minimize evaporative cooling

System Diagrams and Dimensions

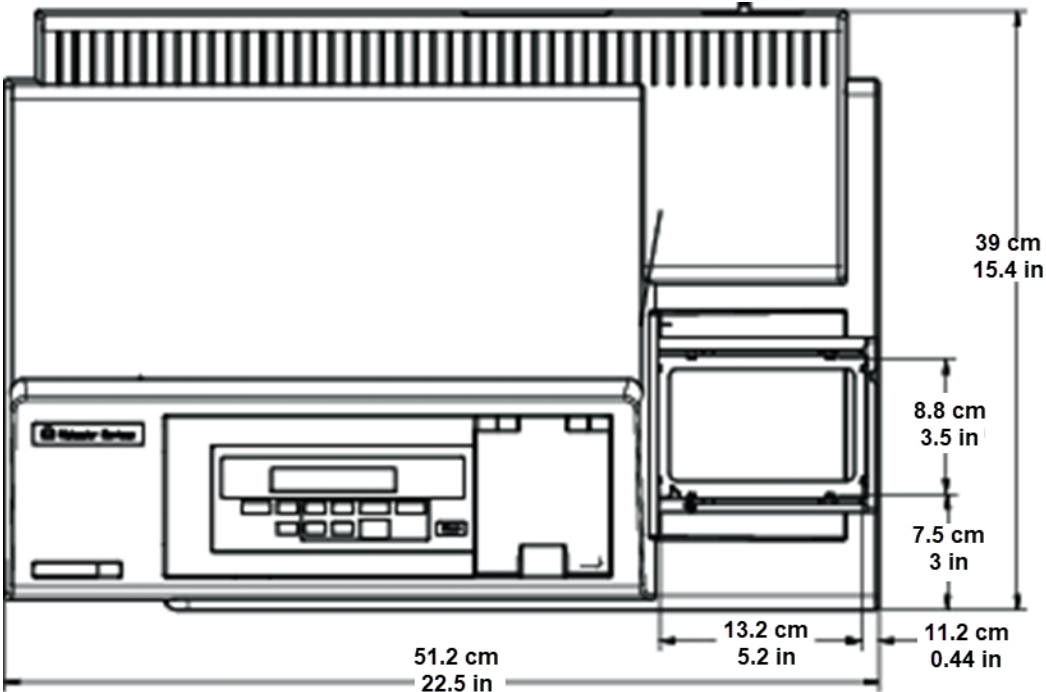
In the following drawings, the dimensions are show in centimeters and inches.



Front View with Dimensions



Side View with Dimensions



Top View with Dimensions