

VARIOSKAN FLASH SPECIFICATIONS

General

1. The Instrument is a spectral scanning multimode reader including fluorescence intensity (top/bottom reading), time-resolved fluorescence (TRF), photometric and luminometric detection technologies and supports endpoint, kinetic and spectral scanning measurements.

2. Given instrument specifications are tested and guaranteed.

Optics

2. Instrument has quadruple monochromators i.e. dual excitation monochromators and dual emission monochromators for fluorescence applications.

3. Instrument uses 2 monochromators for photometric (UV and Vis) measurement.

4. Instrument offers a reference channel detector to compensate for variability in the Xenon lamp from flash to flash.

5. It is possible to select optical response compensation on or off. When selected, the instrument measures true spectra without effects of the instrument electronics or optics.

6. Instrument automatically calibrates results with different gain settings to obtain single consistent measurement range.

Plates

7. Instrument reads plate formats of 6- to 1536-wells in fluorescence intensity, TRF and luminometry and 6- to 384-well plates in absorbance mode.

8. Instrument reads custom microplate formats.

9. Instrument reads plates with lids.

Fluorometry

10. Instrument provides excitation from 200-1000 nm and emission from 270-840 nm and supports protein UV fluorescence assays.

11. Selectable excitation bandwidths of 5 and 12 nm and emission bandwidth of 12 nm.

12. Fluorescence intensity sensitivity of <0.4 fmol fluorescein with 384 well black plate and top reading.

Photometry

13. Operational range of 200-1000 nm in photometry.
14. Linear measurement range in photometry: 0-4Abs at 450 nm, $\pm 2\%$ (96-well plate) and 0-3Abs at 450 nm, $\pm 2\%$ (384-well plate).
15. Accuracy in photometry:
 $\pm 2\%$ or 0.003 Abs, whichever is greater, at 200-399 nm (0-2Abs)
 $\pm 1\%$ or 0.003 Abs, whichever is greater, at 400-1000 nm (0-3Abs)
16. Precision in photometry: SD < 0.001 Abs or CV < 0.5%, whichever is greater, at 450 nm (0-3 Abs).
17. Instrument has on-board path length correction for direct quantisation of e.g. nucleic acids and proteins.

Luminometry

18. Luminometric detection technology offered as a field upgradeable option.
19. Instrument has three measurement modes for luminometry:
 - Normal mode for the measurement of normal luminescence with excellent sensitivity
 - Filter mode for assays requiring wavelength separation and excellent sensitivity, e.g. BRET assays
 - Monochromator mode for the spectral scanning assays
20. Instrument wavelength range for luminometric assays with Varioskan LumiSens optics is 360 -670 nm and with scanning optics 270-840 nm.
21. Luminometric sensitivity of <7 amol ATP/well with 384 well white plate using flash ATP reaction.

Incubation

22. On-board incubator must function by preventing condensation on a microplate lid to enable reading through the lid even during long kinetic assays (at least 24 hours).

Dispensers

23. Instrument offers up to three optional on-board dispensers. Simultaneous dispensing and measurement enables assays such as, Ca²⁺ flux measurements and fast kinetic assays.
24. The dispensers are each equipped with a dispensing head position sensor. The controller can detect which dispenser head is in which dispensing position and whether the tip assembly is properly inserted. Dispensing will not occur if the instrument does not recognize that the dispensing head is in the dispensing position.
25. Instrument has automatic plate check to prevent accidental dispensing of reagent

inside the instrument and to ensure that the plate is placed into the Plate Tray when used in automated systems.

26. Volume check, software controls dispensing volumes in each well, one can not dispense bigger volumes that will fit in the well.

27. Priming check, one can not use dispensers without priming.

28. Tip priming, fully automatic control of tip priming, improves dispensing accuracy and precision.

29. Dead volume < 100 μ l, Tubing total volume < 800 μ l.

Shaking

30. Orbital shaking with adjustable timing, speed and diameter. The software automatically prevents those speed/diameter combinations that would cause too strong mechanical stress to the instrument and would definitely cause spilling over of the liquid from the wells.

Measurement speed

31. Spectral scanning speed <2s/well, 400-500 nm, 1 flash, 2 nm steps.

Software

32. Two Editions of Software available: a Research Edition and a Drug Discovery Edition offering features needed for compliance with the FDA's 21 CFR Part 11.

33. Database based software.

34. It is possible to run backups of all data. It is possible to restore back up data (in case of hardware failure of original computer).

35. Software is included in price.

36. There are no limitations on the number of installation of the software.

37. No lost of already measured data even in case of power failure.