

PHERastar® FSX - Technical specifications

Due to the modularity of BMG LABTECH's instruments, all or combinations of the features below can be installed at purchase or upgraded at any time. Please contact your local representative for more details or a quote.

Detection modes	Fluorescence Intensity - including FRET Fluorescence Polarization/Anisotropy AlphaScreen®, AlphaLISA®, AlphaPlex™ Luminescence (flash and glow) - including BRET Time-Resolved Fluorescence - including TR-FRET UV/Vis Absorbance Spectra	
Measurement modes	Top and bottom reading Endpoint and kinetic measurements Simultaneous Dual Emission measurements Sequential multi excitation measurements Sequential multi emission measurements Real-time ratiometric measurements Well scanning	
Microplate formats	Up to 3456-well plates, user-definable	
Light sources	High energy xenon flash lamp Laser for TRF and TR-FRET Laser for AlphaScreen®, AlphaLISA®, AlphaPlex™	
Detectors	Two matched pairs of photomultiplier tubes, optimized for different detection modes	
Optic Module capacity	Up to six application-specific and barcoded Optic Modules built in	
Z-adjustment	Top/bottom automatic focal height adjustment (0.1 mm resolution)	
Spectral range	230 - 750 nm or 230 - 900 nm for FI, FP 230 - 750 nm for LUM 230 - 900 nm for TRF 220 - 1000 nm for ABS	
Sensitivity	FI (top)	< 0.15 pM fluorescein (black 384sv, 20 µL) < 0.5 pM fluorescein (black 1536, 8 µL)
	FI (bottom)	< 1.0 pM fluorescein (black 384 glass bottom, 50 µL)
	FP	< 0.5 mP SD at 1 nM fluorescein (black 384sv, 20 µL) < 1.5 mP SD at 1 nM fluorescein (black 1536, 8 µL)
	TRF	< 5 fM europium (white 384, 80 µL) < 15 fM europium (white 1536, 8 µL)
	HTRF® (black and white microplates)	Reader Control Kit (Eu) after 18h (384sv, 20 µL) Delta F > 1100 % (High Calibrator) Delta F > 25 % (Low Calibrator)
	LUM	< 0.4 pM ATP (< 8 amol/well, white 384sv, 20 µL) Dynamic range: 9 decades
	AlphaScreen®	< 5 pM (< 100 amol/well P-Tyr-100, white 384sv, 20 µL)*
Read times	1 flash	14 s (384), 27 s (1536)
	10 flashes	38 s (384), 1 min 52 s (1536)
	50 flashes	1 min 29 s (384), 5 min 18 s (1536)
Reagent injection	Up to 2 onboard reagent injectors Injection at measurement position (6 to 384-well) Injection volumes for each well 3 to 500 µL (optional up to 2 mL) Variable injection speed up to 420 µL/s Up to four injection events per well Reagent back flushing	
Shaking	Linear, orbital, and double-orbital with user-definable time and speed	
Barcode reader	Up to three integrated microplate barcode readers	
Incubation	+5 °C above ambient to 45 °C	
Software	Multi-user software package including Reader Control and MARS Data Analysis Software, FDA 21 CFR Part 11 compliant	
Dimensions	Width: 45 cm, depth: 51 cm, height: 47 cm; weight: 49 kg	
Accessories		
Stacker	Magazines for up to 50 plates - continuous loading feature	
THERMOstar	Microplate Incubator and Shaker	
Optic Modules	Available for all applications	
Upgrades	Upgrades to include options such as additional detection modes, reagent injectors, etc. are available. Please contact your local representative for more information.	

* Limit of detection: < 100 amol of biotinylated and phosphorylated polypeptide (P-Tyr-100 assay kit, PerkinElmer, #6760620C), measured in white 384 small volume microplates

Limit of detection (sensitivity) was calculated according to the IUPAC standard: $3 \times (SD_{blank}) / \text{slope}$. Specifications are subject to change without notice. © 2017 All rights reserved. All logos and trademarks are the property of BMG LABTECH.