

GloRunner Microplate Luminometry System



Part #	Price	Description
LUMINOMETRY SYSTEMS		
GloRunner™ Microplate Luminometry System 9000-000	8000	Includes: instrument, power cable, data cable, <i>Operating Manual</i> , 5 white 96-well microplates, and software required to operate the instrument.
ACCESSORIES		
9000-036	850	GloRunner Standardization Light Plate
998-9005	175	GloRunner Operating Manual
046-0108	150	Line Cord - 250 VAC UK w/3A Fuse
046-0125	150	Line Cord - 250 VAC 6A Australia
046-0150	150	Line Cord - 230 VAC Europe
WARRANTY		
WARR-9001	850	Extended Warranty - One Year
WARR-9002	2000	Extended Warranty - Two Years

Modulus Single Tube Multimode Reader



Part #	Price	Description
MODULUS SYSTEMS		
9200-000	5125	Modulus Laboratory Fluorometer <i>Shipped with internal data logging kit, power supply kit, 10 x 10 cuvettes (4)</i>
9200-001	5125	Modulus Laboratory Luminometer <i>Shipped with Luminescence Module, internal data logging kit, power supply kit, 10 x 10 cuvettes (4)</i>
9200-002	6250	Modulus Laboratory Luminometer/Fluorometer <i>Shipped with Luminescence Module, internal data logging kit, power supply kit, 10 x 10 cuvettes (4)</i>
9200-003	8000	Modulus Laboratory Fluorometer, Luminometer, Photometer <i>Shipped with 9200-040, 9200-041, 9200-042, 9200-043, 9200-044, 9200-050, 9200-051, 9200-052, 9200-053, Luminescence Module, internal data logging kit, power supply kit, 10 x 10 cuvettes (4)</i>
MODULES		
9200-040	450	Fluorescence Optical Kit - BLUE
9200-041	450	Fluorescence Optical Kit - UV
9200-042	500	Fluorescence Optical Kit - Green
9200-043	500	Fluorescence Optical Kit - Red
9200-044	500	Fluorescence Optical Kit - GFP/UV
9200-050	1000	Absorbance Module
9200-051	250	Absorbance Filter Paddle - 560 nm
9200-052	250	Absorbance Filter Paddle - 600 nm
9200-053	250	Absorbance Filter Paddle - 750 nm
CUVETTES & ADAPTORS		
9200-928	550	Minicell Adaptor Kit (for measuring 50-250 µL of sample). Includes 400 glass cuvettes.
7000-950	300	Minicell Borosilicate Glass Cuvettes (100 µL). Replacement cuvettes for 9200-928 (400 ea.)
7000-957	250	10 x 10 mm Square Polystyrene Cuvette (3.5 mL capacity) (100 ea.)
7000-959	200	10 x 10 mm Square Methacrylate Cuvette (3.5 mL capacity) (100 ea.)
ADDITIONAL ITEMS		
9200-941	300	Instrument Power Supply - Replacement
WARR-9201	500	Extended Warranty - One Year
WARR-9202	850	Extended Warranty - Two Years

Modulus Microplate Multimode Reader



Part #	Price	Description
MODULUS MICROPLATE INSTRUMENTS - SINGLE MODE		
9300-000	10000	Modulus Microplate Fluorometer: includes the Fluorescence Detector installed, four Fluorescence Optical Kits (UV, Blue, Green, and Red), power supply kit, and accessories.
9300-001	13100	Modulus Microplate Luminometer UHS: includes the Luminometer UHS Module installed, power supply kit, and accessories.
MODULUS MICROPLATE INSTRUMENTS - MULTIMODE		
9300-002	15000	Modulus Microplate Fluorometer and Luminometer UHS: includes the Fluorescent Module (with four optical kits: UV, Blue, Green, and Red) and the Luminescence UHS Module installed, power supply kits, and accessories.
MODULUS MICROPLATE - DETECTION MODULES		
9300-020	5500	Modulus Microplate Luminescence UHS Module: includes Luminescence Detector and Microplate Sample Tray Cover. Factory install.
9300-040	4250	Modulus Microplate Fluorescence Module: includes Fluorescence Detector and four Optical Kits: Blue (Ex 475 nm, Em 515-570 nm), UV (Ex 365 nm, Em 410-460 nm), Green (Ex 525 nm, Em 580-640 nm), and Red (Ex 625 nm, Em 660-720 nm). User install.
9300-050	2125	Modulus Microplate Absorbance Module: includes Absorbance Detector with six-position Filter Wheel, four-installed Filters (450, 560, 600, and 750 nm), and two empty Filter Paddles. User install.
MODULUS MICROPLATE - INJECTOR MODULES		
9300-061	1950	Single Injector System for Modulus Microplate: includes 1 syringe injector pump, connection cable, tubing, injector tips, waste collection tray, and accessories.
9300-062	4000	Dual Injector System for Modulus Microplate: includes 2 syringe injector pumps, connection cable, tubing, injector tips, waste collection tray, and accessories.
ACCESSORIES		
9300-970	200	Curve Fitting Data Analysis Software
9300-971	300	External PC Connect Kit: includes software on a CD, USB Cable A-B Male, and instruction manual.
9100-036	1000	Microplate Luminometer Light Standard
046-0108	150	Line Cord - 250 VAC UK w/3A Fuse
046-0125	150	Line Cord - 250 VAC 6A Australia
046-150	150	Line Cord - 230 VAC Europe

REPLACEMENT PARTS

9300-042	700	Modulus Microplate Optical Kit - Blue (Ex 475 nm, Em 515-570 nm)
9300-043	700	Modulus Microplate Optical Kit - UV (Ex 365 nm, Em 410-460 nm)
9300-044	700	Modulus Microplate Optical Kit - Green (Ex 525 nm, Em 580-640 nm)
9300-045	700	Modulus Microplate Optical Kit - Red (Ex 625 nm, Em 660-720 nm)
9300-963	200	Injector Inlet Tubing Assembly, 1 set complete with stainless steel tubing and black plastic tubing.
9300-964	300	Injector Outlet Tubing Assembly for 1-injector system, includes black plastic tubing and cover plate.
9300-965	400	Injector Outlet Tubing Assembly for 2-injector system, includes 2 black plastic tubing and cover plate.
9300-966	200	Waste Collection Tray for Modulus Microplate, holds ~ 50 ml
2030-962	150	Injector tips, replacement, 5 tips per package
105-9300	150	Modulus USB Flash Drive, 2.0, 128 MB

EXTENDED WARRANTIES

WARR-9301	2250	Extended Warranty, 1-year, without injectors
WARR-9311	2500	Extended Warranty, 1-year, with injectors
WARR-9302	3150	Extended Warranty, 2-year without injectors
WARR-9312	4000	Extended Warranty, 2-year with injectors

Picofluor Fluorometer Systems



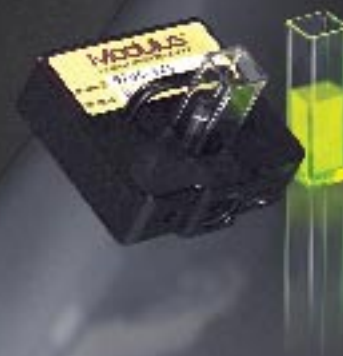
Part #	Price	Description
Picofluor FLUOROMETER SYSTEMS		
Picofluor with UV & Blue LED Optical Configuration		
8000-003	2500	Picofluor Handheld Fluorometer with UV and Blue Optical Configuration & Internal Data Logging, Shipped with <i>Operating Manual</i> & batteries
Picofluor with Green and Blue LED Optical Configuration		
8000-004	2500	Picofluor Handheld Fluorometer with Green and Blue LED Optical Configuration & Internal Data Logging, Shipped with <i>Operating Manual</i> & batteries
CUVETTES & ADAPTORS		
7000-957	200	10 x 10 mm Square Polystyrene Cuvette (3.5 mL capacity) (100 ea.)
7000-959	200	10 x 10 mm Square Methacrylate Cuvette (3.5 mL capacity) (100 ea.)
8000-931	350	Minicell Adaptor Kit (70-250 μ L of sample). Includes 400 glass cuvettes.
7000-950	300	Minicell Borosilicate Glass Cuvettes (400 ea.) Replacement cuvettes for 8000-931
ACCESSORIES		
142-8000	200	Storage Pouch

TBS-380 Mini-Fluorometer



Part #	Price	Description
FLUOROMETER SYSTEMS		
3800-003	3000	TBS-380 Mini-Fluorometer with UV/BLE channel Shipped with <i>Operating Manual</i> , internal data logging kit, and power supply kit
PRINTER & PRINTER ACCESSORIES		
7000-918	600	Thermal Printer Paper, 1 roll
7000-919		Thermal, Serial Printer and Cable, Universal Power Cable
CUVETTES & ADAPTORS		
3800-928	600	Minicell Adaptor Kit (for measuring 50-250 μ L of sample). Includes 400 glass cuvettes.
7000-950	200	Minicell Borosilicate Glass Cuvettes (100 μ L). Replacement cuvettes for 3800-928 (package of 400)
7000-957	200	10 x 10 mm Square Polystyrene Cuvette (3.5 mL capacity) (package of 100)
7000-959	200	10 x 10 mm Square Methacrylate Cuvette (3.5 mL capacity) (package of 100)
ADDITIONAL ITEMS		
3800-980	250	Solid Standard
3800-988	200	Instrument Power Supply - Replacement
WARR-380	350	Extended Warranty - One Year
WARR-382	500	Extended Warranty - Two Years

Modulus™



A multifunctional single tube instrument for fluorescence, luminescence, and absorbance.

The Concept

The Modulus™ is a multifunctional single tube instrument designed to give you the utmost **flexibility** for measuring fluorescence, luminescence, and absorbance. The Modulus operates as a dedicated fluorometer, a dedicated luminometer, or a combination fluorometer/luminometer. With the optional Absorbance Module, absorbance measurements are available in the visible wavelength spectrum. Modulus allows you to buy what you need now, and to add what you want later.

Fluorescence

Fluorescent measurements with the Modulus are simple. Several Optical Kits are available for the most common fluorescent applications. The optics are factory installed into an Optical Kit that snaps into the Modulus. Each kit contains a light source, an excitation filter, and an emission filter to yield the highest performance.



Fluorescence Optical Kit

Optical Kit	Commonly Used Fluorophores
Blue	GFP, PicoGreen®, RiboGreen®, Fluorescein, Quant-iT™ Protein
UV	Hoechst dye, 4-MU
Green	Rhodamine, Cy3, RFP
Red	Cy5, Quant-iT™ RNA

Custom Optical Kits are available upon request.

Luminescence

The Luminescence Module accommodates luminescent assays such as ATP measurements, gene expression using luciferase or other bio- and chemiluminescent measurements. Change the module to switch between fluorescence and luminescence.



Luminescence Module

Absorbance

A snap-in Absorbance Module facilitates absorbance measurements. For example, measure protein concentration using standard assays such as Bradford, BCA, or Lowry. Filter paddles allow you to select the right wavelength for your assay.



Absorbance Module

Features

Flexible Sample Compartment

accommodates 1.5 mL microfuge tubes (luminescence only), 10 x 10 mm cuvettes (fluorescence and absorbance) and minicell vials (fluorescence only).

Troubleshooting

Easy access to Help with the touch of a button.

Lid Start Adjust settings to start measurement immediately after the lid is closed.

Modules are easily interchangeable. Just snap them into the sample compartment.

Touchscreen simplifies use. It allows simple navigation between screen for calibrations. Stores up to 18 calibrations and data from the last 20 measurements.

Multiple Modes

Fluorescence - Fluorescent measurements can be made in direct concentration or raw fluorescence mode. Several different units of measure are available with the option of a 1 to 5 point calibration. Raw fluorescence provides fluorescent measurements where relative fluorescence is important.

Other Modes - Continuous (or kinetic) measurements are available for both fluorescence and luminescence.

Primary Applications

Fluorescent Applications

- DNA/RNA quantitation
- Gene expression assays
- Enzyme assays
- Protein quantitation

Luminescent Applications

- Luciferase assays
- ATP assays
- Chemiluminescent immunoassays

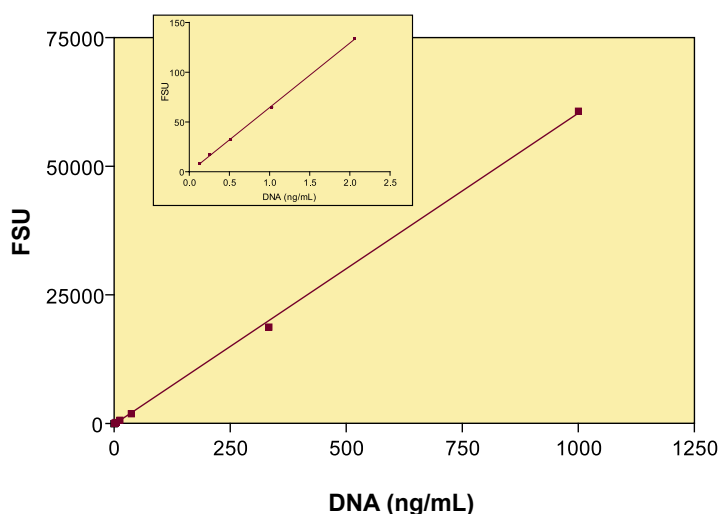
Absorbance Applications

- Protein quantitation
- Cell turbidity, OD 600

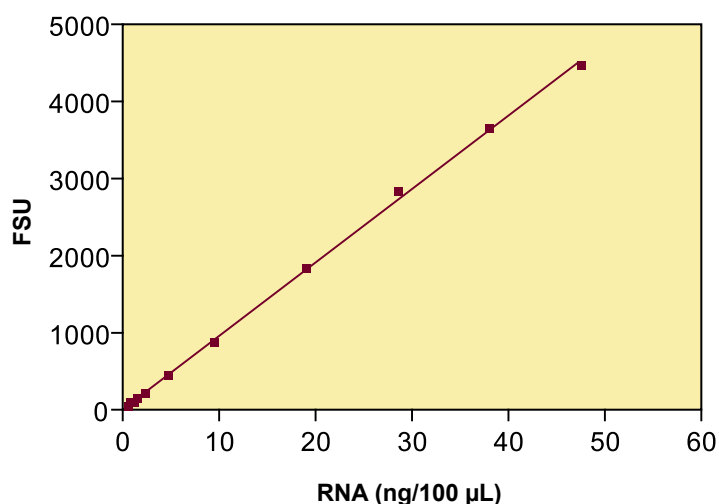
Modulus : Nucleic Acid Quantitation

The Modulus provides high **sensitivity** for fluorescent measurements of DNA and RNA. There are two options for measuring nucleic acids on the Modulus. Quantitate DNA via PicoGreen or Hoechst or quantitate RNA via RiboGreen or Quant-iT RNA. You can detect as little as 4.5 pg of dsDNA in 100 μ L using PicoGreen and the Minicell Adaptor. Use the Minicell Adaptor to minimize reagent volume and cost.

PicoGreen Assay



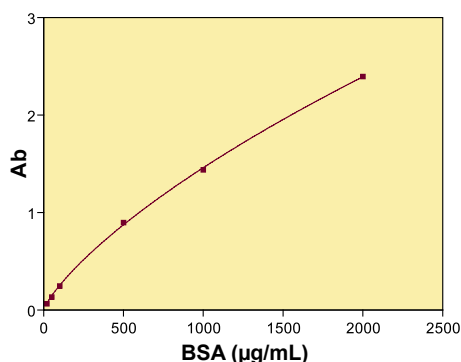
Quant-iT RNA Assay



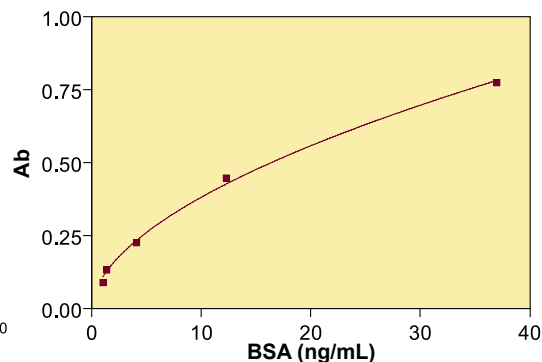
Modulus : Protein Quantitation

The Modulus provides **flexibility** for protein measurement. The two methods for measuring proteins on the Modulus are fluorescence or absorbance. Quantitate protein via Quant-iT Protein Assay using a Fluorescence Optical Kit. Alternatively, the Bradford, Lowry, and BCA assays are possible with the Absorbance Module.

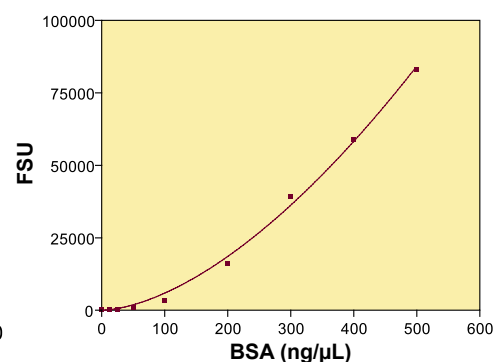
Absorbance BCA



Absorbance Bradford



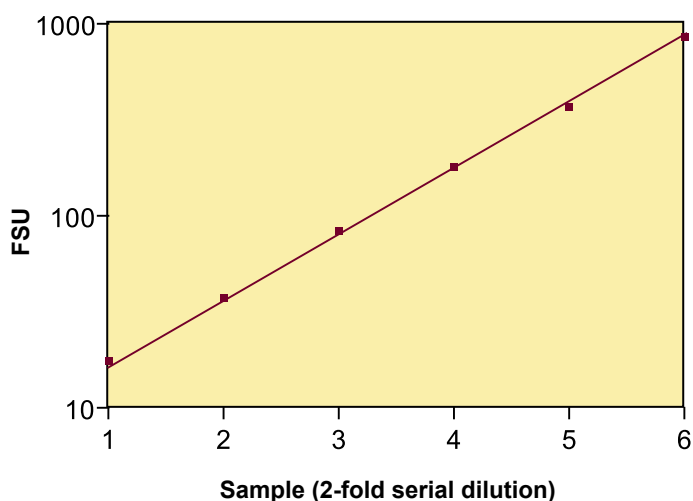
Fluorescence Quant-iT Protein Assay



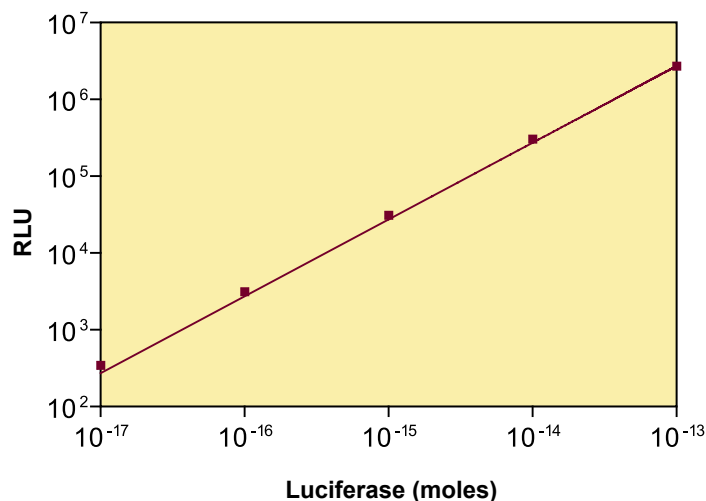
Modulus : Gene Expression

The Modulus provides **flexibility** for gene expression measurements. The two methods for measuring gene expression on the Modulus are fluorescence or luminescence. As a fluorometer, the Modulus is capable of measuring several different GFP variants. As a luminometer, the Modulus analyzes luciferase expression coupled to gene expression.

GFP Dilution Series



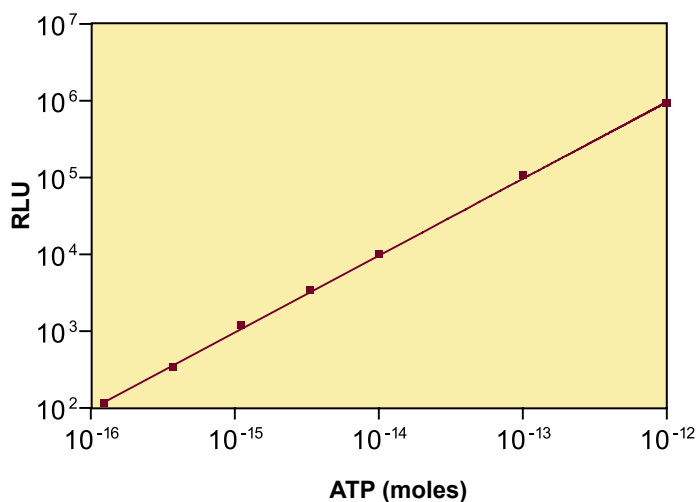
Luciferase Assay



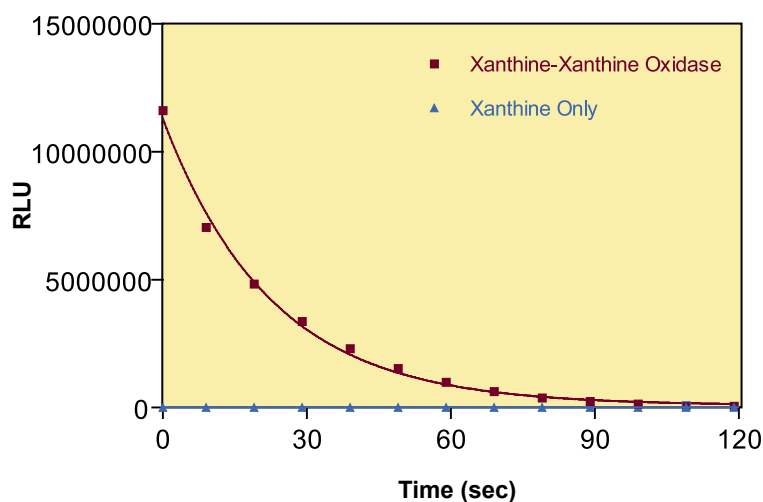
Modulus : ATP Measurements and Reactive Oxygen Species (ROS)

The Modulus as a luminometer measures cell viability through the use of ATP determination. Cell viability can also be measured using the ATP-dependent oxidation of luciferase. ROS assays that utilize chemiluminescent substrates such as luminol can also be measured on the Modulus.

ENLITEN ATP Assay



Superoxide Assay



Part Numbers

9200-000	Modulus - Fluorometer
9200-001	Modulus - Luminometer
9200-002	Modulus - Fluorometer/Luminometer Combination
9200-003	Modulus - Fluorometer/Luminometer/Photometer Combination

Fluorescence Optical Kits

9200-040	Fluorescence Optical Kit - BLUE
9200-041	Fluorescence Optical Kit - UV
9200-042	Fluorescence Optical Kit - GREEN
9200-043	Fluorescence Optical Kit - RED
9200-044	Fluorescence Optical Kit - GFP-UV
9200-928	Minicell Adaptor Kit

Absorbance Module

9200-050	Absorbance Kit
9200-051	Absorbance Filter Paddle - 560 nm
9200-052	Absorbance Filter Paddle - 600 nm
9200-053	Absorbance Filter Paddle - 750 nm

Specifications

Fluorescence Module Performance

Sensitivity: 6 ppt fluorescein, 4.5 pg DNA with PicoGreen Dye

Dynamic Range: 6

Detector: Photodiode

Light Source: UV LED 365–395 nm, Blue LED 465–485 nm, Green LED 495–525 nm, Red LED 620–645 nm

Sample Adaptor: Holds 10 x 10 mm cuvette or minicell vial (using the Minicell Kit)

Read Out: Direct concentration or Raw fluorescence

Calibration: 1 to 5 point calibration

Discrete Sample Average: Sample readings are averaged to improve accuracy

Luminescence Module Performance

Sensitivity: 100 attomole ATP

Dynamic Range: 5 decades

Detector: Photomultiplier Tube (PMT)

Sample Adaptor: Holds 1.5 mL microfuge tube

Spectral Response: 350–650 nm

Peak Wavelength: 420 nm

Absorbance Module Performance

Spectral Range: 360–1100 nm

Wavelengths: 560, 600, or 750 nm (others available upon request)

Photometric Measuring Range: 0.0 to 4.0 A

Photometric Accuracy: $\pm 0.7\%$

Photometric Precision: $\leq 0.5\%$ at 1 A

General Specifications

Data Output: 100% ASCII format through a 9-pin RS-232 serial cable at 9600 baud

User Interface: Requires Windows® 98 or later

Power: 12V 0.84A Max

Dimensions: 12.92" D x 10.44" W x 8.42" H
(32.82 cm D x 26.52 cm W x 21.39 cm H)

Weight: 8.1 lbs (3.65 kg)

Operating Temperature: 60–105 °F (15–40 °C)

Warranty: One year

Approvals: CE

Modulus is a trademark of Turner BioSystems, Inc.
PicoGreen and RiboGreen are registered trademarks of Molecular Probes, Inc.
NanoOrange and Quant-iT are trademarks of Molecular Probes, Inc.

Picofluor™ Handheld Fluorometer

The
Turner
BioSystems
Picofluor™
Fluorometer



An Overview

The *Picofluor*™ Fluorometer is a lightweight, handheld instrument, configured for many of the fluorescent probes commonly used for nucleic acid and protein quantitation. While small in size, its performance has not been compromised. It has two dedicated channels that offer the ability to quickly analyze a sample for two different fluorescent signals. The *Picofluor*™ brings a new level of simplicity and economy to fluorescence measurements.

Features and Benefits of the *Picofluor*™

- **Inexpensive:** You can afford to buy several for multiple users in the lab.
- **Two dedicated optical channels:** Allows you to measure two different fluorophores in the same assay.
- **Easy to use:** No special training needed - focus on your data, not on the software.
- **Four decades dynamic range.**
- **Rugged and reliable:** Built and backed by Turner Designs, the leading manufacturer of fluorometers worldwide.
- **Internal datalogging package available with interfacing software to Microsoft® Excel.** Can log up to 1,000 data points.
- **Serial interface.**
- **Compact:** The small light weight *Picofluor*™ Fluorometer can easily be stored in a drawer or on a shelf.

Accessories

Our **Minicell Adaptor Kit** and the *PicoFluor*™ combine to form a convenient and reproducible measurement systems using assay volume of 75 - 250 µL.

Specifications

Dynamic Range: 4 orders of magnitude

Detector: Photodiode

Calibration Type: Single-point and Blank

Warm-up time: 5 seconds

Power: 4 x AAA batteries

Measurements per AAA Battery Set: >1,000

Alarms: Low battery, circuit failure, and high blank

Auto Shutoff: Device powers down after 90 seconds of inactive use.

Cuvette: 10 mm x 10 mm plastic cuvette; small volume mini cell

Size: 7.25" L x 3.5" W x 1.75" H (18.4cm x 8.9 cm x 4.45 cm)

Weight: 14 oz. (0.4kg)

Operating Temperature: 41-104 °F; 5-40 °C

Case: Meets IP67 Standard, dustproof and waterproof

Maintenance: Replace batteries and keep sample well clean

Warranty: 1 year

Discrete Sample Readings: Averaged over 5 seconds

Regulatory: CE

Model Specifications

Part Number 8000-003

- Channel A (UV)
 - Excitation: 365 - 395 nm
 - Emission: ≥ 430 nm

- Channel B (Blue)
 - Excitation: 475 ± 15 nm
 - Emission: 515 ± 10 nm

Part Number 8000-004

- Channel A (Green)
 - Excitation: 540 ± 20 nm
 - Emission: ≥ 570 nm

- Channel B (Blue)
 - Excitation: 475 ± 15 nm
 - Emission: 515 ± 10 nm

Available Application Notes*

● UV Channel

Hoechst 33258 for DNA Quantitation (*P/N: S-0046)
4-methylumbelliferone

The *Picofluor™* Handheld

● Blue Channel

Picogreen for DNA Quantitation (*P/N: S-0041)
Ribogreen for RNA Quantitation (*P/N: S-0043)
NanoOrange for Protein Quantitation (*P/N: S-0045)
eGFP
Fluorescein

TBS-380

Mini-Fluorometer



Small
Simple
Sensitive
Sensibly Priced

TBS-380

Mini-Fluorometer

The TBS-380 Mini-Fluorometer is an affordable, sensitive fluorometer designed for quick, easy, and accurate fluorescence measurements. The new Minicell Adaptor enables you to measure samples at low concentrations with an assay volume as low as 50 μ L.

PRIMARY APPLICATIONS

Nucleic acid quantitation: *PicoGreen[®], RiboGreen[®], and Hoechst dye.

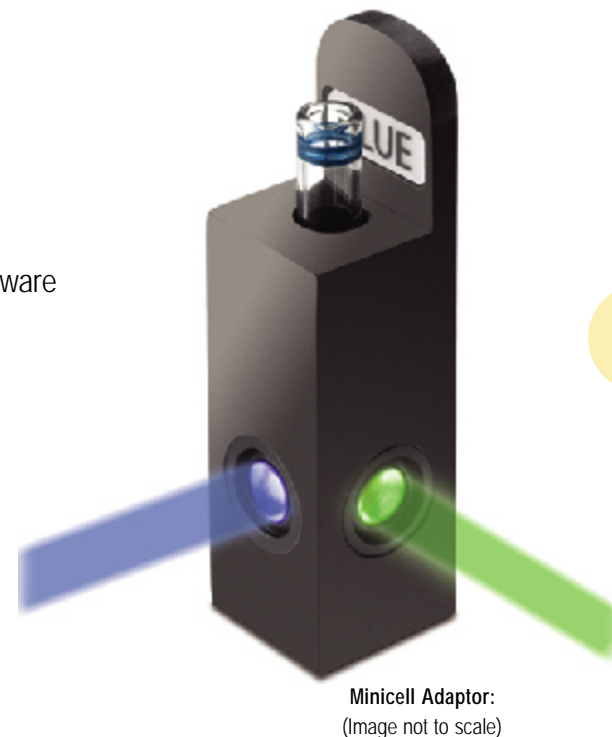
Protein quantitation: *NanoOrange[®]

FEATURES

- Dual-channel (UV & BLUE)
- Two reading modes (Discrete & Continuous)
- Solid Standard
- Minicell Adaptor (optional)
- RS-232 interface
- Spreadsheet interface software
- Internal Data Logging
- Single-point calibration

SENSITIVE

The TBS-380 Mini-Fluorometer provides high sensitivity for fluorescence measurements. The new Minicell Adaptor with two focusing lenses allows you to measure samples in low assay volumes without losing sensitivity. When used with the Minicell Adaptor, the TBS-380 can detect 50 pg of dsDNA in 50 μ L assay volume using PicoGreen[®] reagent.

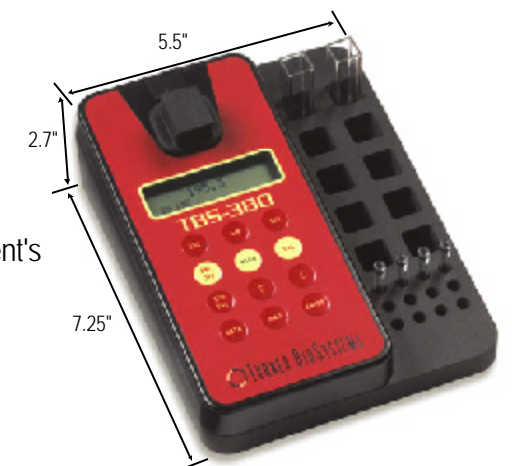


SIMPLE

The TBS-380 Mini-Fluorometer is designed for fast accurate fluorescence measurements. It is so easy to use that you can have results within minutes without training or previous experience. The single-point calibration saves your time. The dual-channel design allows you to switch between two assays by pressing one button.

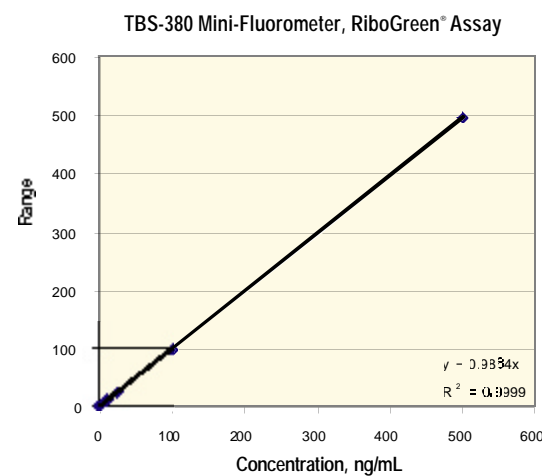
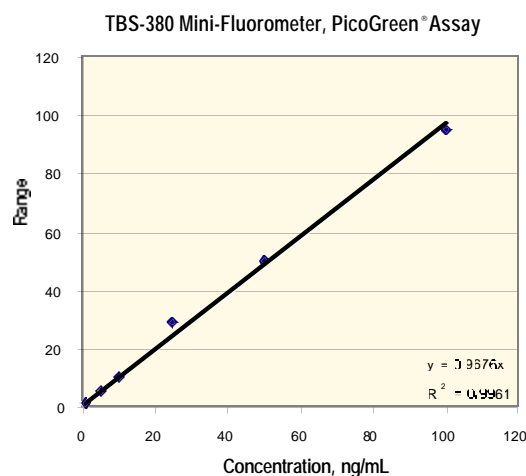
SMALL

Smaller than a standard sized book, the TBS-380 Mini-Fluorometer saves valuable bench space. The instrument's small footprint is a major advantage in today's dynamic laboratory environment.



SENSIBLY PRICED

Small in size but big in utility, the TBS-380 Mini-Fluorometer gives you the performance you expect from larger and more expensive instruments. It is sensibly priced to meet your need for accurate fluorescence measurements within a limited budget. Although it is quite reasonably priced, the TBS-380 Mini-Fluorometer provides superior sensitivity and reliability.



TBS-380

Mini-Fluorometer

Introduction to Turner BioSystems

The team at Turner BioSystems has been manufacturing fluorometers and providing responsive service to scientists for over thirty years. We are an employee owned company whose people pride themselves on providing quality instruments and superior technical support.

Part Numbers

3800-003 TBS-380 Mini-Fluorometer
3800-928 Minicell Adaptor Kit

Fax: 408.749.0998

Specifications

Sensitivity: 1 ng/mL DNA using PicoGreen®, 1 ng/mL RNA using RiboGreen®, and 10 ng/mL DNA using Hoechst 33258 in a standard 10 x 10 mm cuvette and 50–200 µL Minicell. 100 ng/mL Protein using NanoOrange™ in a standard 10 x 10 mm cuvette.

Detector: Silicon photodiode.

Light Source: UV LED 365–395 nm, Blue LED 465–485 nm.

Sample Compartment: Accepts 10 x 10 x 45 mm square plastic cuvettes, optional 50–200 µL Minicell Adaptor.

Readout: Direct concentration.

Calibration: Single-point calibration.

Discrete Sample Averaging: Sample readings are averaged to improve accuracy.

Data Output: ASCII format through a 9-pin RS-232 serial cable at 9600 baud.

Operating Temperature: 59–98°F; 15–35°C.

Weight: 0.7 kg (1.8 lb).

Dimensions: 14 cm W x 18.42 cm D x 6.9 cm H
(5.5" W x 7.25" D x 2.7" H).

Power: 9 Volt external power supply, 100–240 V AC, 50/60 Hz, max. 5 Watts.

Warranty: One-year warranty.

Approvals: CE. UL approved power supply.

Printer: Serial printer (optional).

GloRunner™

MICROPLATE LUMINOMETER

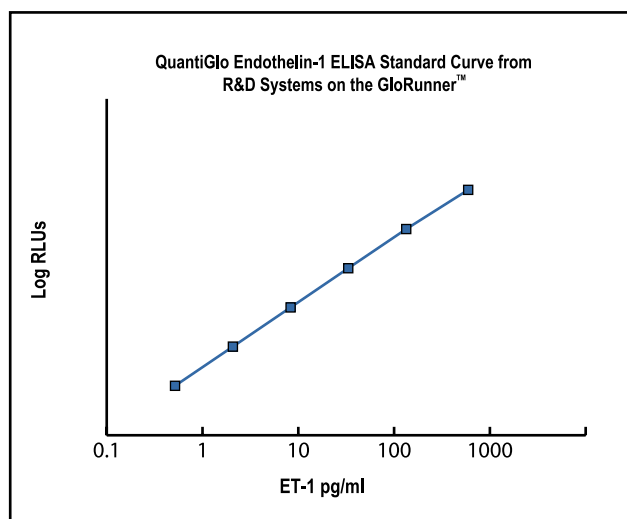
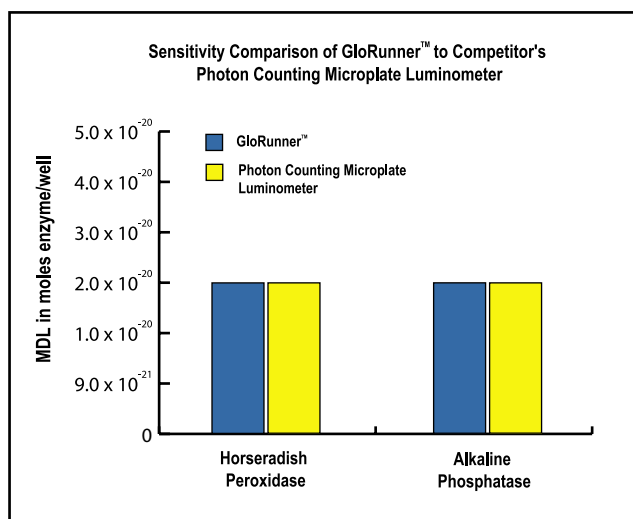


The GloRunner™ Microplate Luminometer is the ideal luminometer for luminescent assays requiring a broad dynamic range and a quick read time. Using a proprietary eight-channel solid state array, the GloRunner™ reads all eight wells of the plate column simultaneously and the entire plate in under 30 seconds. The GloRunner™ is the ideal luminometer for most glow type luminescent assays because it is:

- **Sensitive:** Detects attomolar levels of enzyme
- **Linear:** 8 log dynamic range
- **Fast:** Reads an entire 96 well plate in under thirty seconds
- **Small:** Maximizes available bench space
- **Intuitive:** Results in under two minutes from power on
- **Confident:** Generates reliable data
- **Supported:** Obtain help from us when you need it
- **Affordable:** Priced to fit within most laboratory budgets

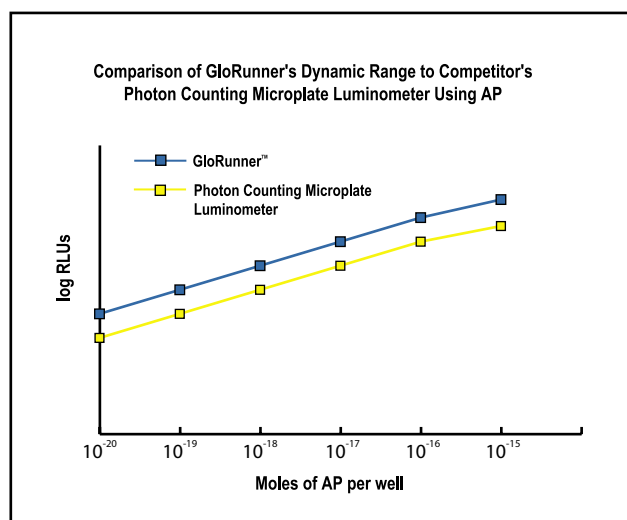
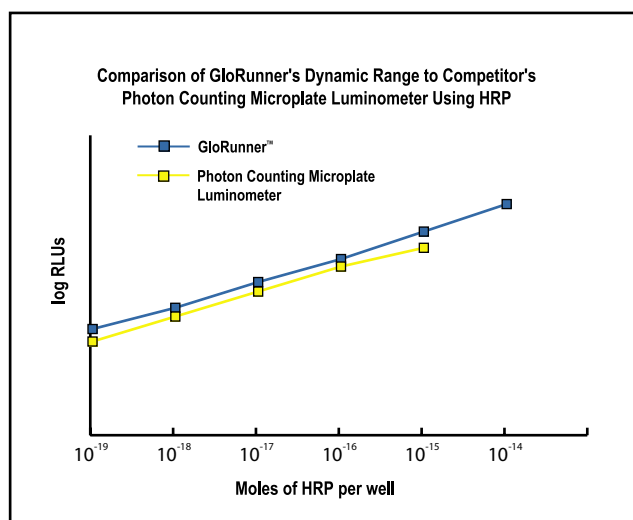
SENSITIVE

The GloRunner™ Microplate Luminometer provides high sensitivity and precision for luminescent immunoassays. Its minimum detection limits for commonly used chemiluminescent enzyme and substrate combinations are comparable to photon counting microplate systems that are 2-3 times the price! Now you can have the added sensitivity benefits of chemiluminescence at an affordable price.



LINEAR RANGE

The GloRunner's solid state array detection technology has a very broad linear dynamic range. This means less assay optimization is required when changing from colorimetric to luminescent assay formats. The broad dynamic range also means exceptional linearity for standard curves. The GloRunner™ gives you accurate quantitative results in less time, allowing you to focus more on what counts--your research.



INTUITIVE

The GloRunner™ Microplate Luminometer is so easy to use that you are an instant expert with this powerful research tool. Results are available within 2 minutes of turning on the system for the first time--even if you have not previously used a microplate luminometer! The software is designed to be straightforward so you can focus your expertise on research--not the instrument.



1 Select assay parameters and wells to be read.



2 Press start.



3 Your data will be exported into MS Excel with one click of a button.

CONFIDENCE



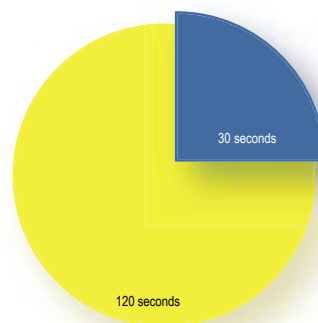
**GloRunner
Standardization
Light Plate**

With the GloRunner Standardization Light Plate, you can be sure your system is performing consistently over time. This plate has eight calibrated light sources that ensure consistent results from the detector array. This plate has been tested extensively over time and varying temperatures. The CV is less than 1% within channel and between all eight channels.

SUPPORTED

At Turner BioSystems our goal is to provide reliable tools that support your life science research objectives. We strive to offer the best combination of service, quality, and value in the industry. You can depend on technical competence, a sense of urgency and a service oriented attitude when you call on us for support.

FAST

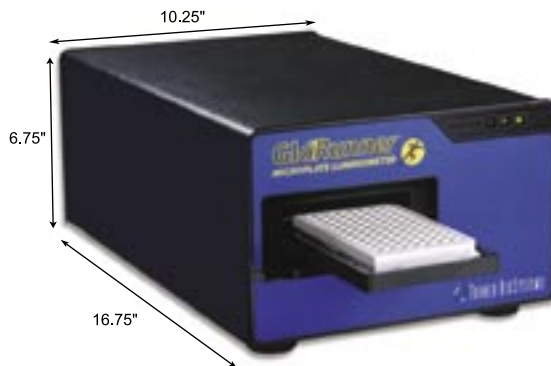


GloRunner™
30 second read time

Competitor
120 second read time

With its proprietary eight-channel detector design, the GloRunner™ Microplate Luminometer reads an entire 96 well plate in under 30 seconds with a 1 second per well integration time. This speed minimizes the impact of half-life, temperature, or other chemistry variables and increases confidence in your results.

SMALL



The GloRunner™ is high value in a small package. With a footprint the size of a shoe box, the system maximizes use of your valuable bench space.

Part Numbers

9000-000 GloRunner™ Microplate Luminometer
9000-036 GloRunner™ Standardization Light Plate

SPECIFICATIONS

GloRunner™ Microplate Luminometer

Detection Limit: 2×10^{-20} moles horseradish peroxidase
 2×10^{-20} moles alkaline phosphatase
 5×10^{-18} moles luciferase

Linear Dynamic Range: 10^{-8}

Crosstalk: Better than 5×10^{-4} at 1.5×10^6 Relative Light Units using a white Costar plate

Detector: Proprietary eight-channel solid state array (patent pending)

Spectral Response: Range 300–610 nm

Peak Wavelength: 550 nm

Detection Mode: Glow luminescence

Plate Format: 96 well

Reading Speed: 1 second per well, less than 30 seconds per plate

Computer Interface: RS-232

User Interface: User-friendly Windows® software controls machine functions.
Requires Windows® 95 or later

Power: 0.5A @ 100-240V, 50-60Hz (universal)

Physical Dimensions: 16.75" D x 10.25" W x 6.75" H
(42.6cm D x 26.0cm W x 17.2cm H) (tray closed)

Weight: 20.0 lbs (9.1 kg)

Operating Temperature: 60–105°F (15–40°C)

Warranty: One year warranty

Approvals: CE, UL (pending), CUL (pending)

Modulus™ Microplate Multimode Reader



Performance

Ease of Use

Value

Flexibility

 TURNER BIOSYSTEMS



Turner BioSystems has reinvented the multimode reader. The Modulus™ Microplate Multimode Reader is skillfully designed for today's life science laboratory, incorporating state-of-the-art optics, instrumentation, data handling, and performance with flexible purchasing options.

- **Multimode Measurement**

Modules detecting luminescence and fluorescence are currently available. Absorbance and additional detection modules are under development, allowing for future enhanced lab usage.

- **Superior Performance**

A wide dynamic range of sensitivity enables this instrument to read both the highest and lowest sample signal intensities in one run, without dilution.

- **Ease of Use**

A built-in computer makes set up simple. Intuitive touch-screen controls, color graphics, Windows-based software, and protocol wizards are easy to use. Control of the instrument via an external PC is possible, but not required.

- **Easy Data Transfer**

Using the included USB port and flash drive, transfer data directly from the instrument to an alternate computer (PC or Mac) for maximum convenience when analyzing results. Data transfers free up the instrument for the next user and improve lab productivity by reducing wait time.

- **Flexible Customization Options**

Purchase the detection modules fitting the current needs of your lab and acquire additional modules as required in the future. The luminescence module is installed at one of Turner BioSystems' global service centers. Other modules and injectors are installed in your lab.

- **Value**

Combining modular flexibility with a simplified optical design improves instrument performance, as well as reducing the cost of maintenance and unnecessary system acquisitions.





Superior Performance

The Modulus™ Microplate Multimode Reader uses a dedicated detector system for each measurement mode, whereas most other multimode instruments share one detector for several measurement modes. Our unique dedicated detector approach produces uncompromised sensitivity and a wider dynamic range in comparison to other multimode readers. The Modulus™ Microplate Multimode Reader yields the superior performance expected from single-mode instruments.

Ease of Use

◦ **Built-in PC**

The Modulus™ Microplate Multimode Reader includes a built-in PC, Windows CE™, and touch-screen controls. Connectivity and compatibility issues are eliminated and less bench space is needed. An external PC is not required, however, the instrument can be connected to and operated from an external PC by purchasing the optional External PC Connect Kit.

◦ **Easy Data Transfer**

Results are stored in the instrument's memory and then are easily downloaded onto the included USB flash drive. Transfer the USB flash drive to a Mac or PC for data review and analysis. If desired, use the optional External PC Connect Kit to automatically download data to an external PC for networking or other purposes.



◦ **Touch-Screen Navigation**

The large, high-resolution touch screen, combined with Windows CE™, makes the Modulus™ Microplate Multimode Reader easy to navigate. The intuitive user interface provides instrument control, protocol management, and data management. Protocol and fluidics wizards guide users through setup and operation. Context-sensitive Help screens provide detailed explanations of key functions.

◦ **Immediate Results**

The dynamic features of the Modulus™ Microplate Multimode Reader make it easy to immediately start reading assays and compiling results. Spend less time on set up and more time on science.

Value

The unique features of the Modulus™ Microplate Multimode Reader reduce costs in several ways. First, purchase only what is needed now and add to the system in the future. Most instrument detection modules and accessories can be purchased and installed after the initial instrument purchase. Second, reduce system downtime as repairs may be performed on individual modules instead of the whole system. Finally, boost lab productivity by saving time spent on training lab staff because the system is so easy to use.



Flexibility

◦ Scalable Detection Modules

The Modulus™ Microplate Multimode Reader is a scalable system designed for measuring fluorescence, luminescence, and absorbance. Using a dedicated detector approach, each module has an independent optical system. The instrument can be purchased as a single-mode dedicated fluorometer, luminometer, or photometer or as a multimode reader with up to three detection modules installed. Fluorescence and absorbance modules can be installed by the user after initial purchase. This revolutionary modular approach allows adaptable system expansion as needs change in the lab.

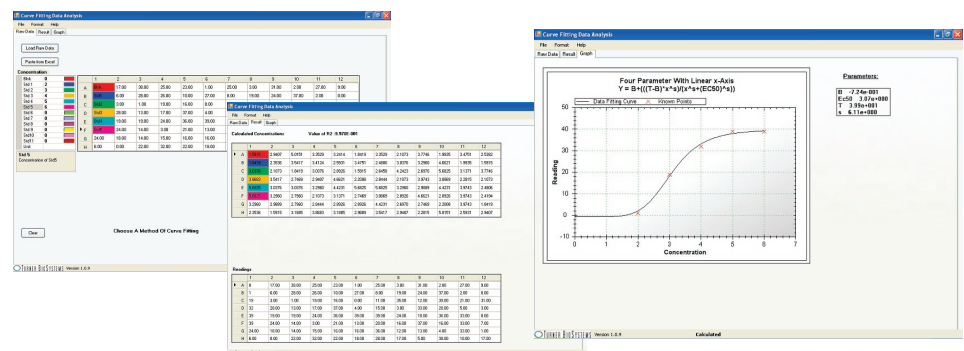


◦ Injector Systems

Optional systems for single or dual injectors are available and can be added at any time. Each injector has a volume range of 25 – 200 µl in 5-µl increments. Installed injector systems are automatically recognized by the instrument and controlled using the touch screen and fluidics wizard. *Prime* and *Flush* commands provide easy maintenance and a *Reverse Purge* command saves reagents. These injector systems are designed for easy and economical performance of dual reporter and other flash assay protocols.

◦ Curve-Fitting Software

Optional Curve-Fitting Data Analysis Software easily enables concentration calculation, graphing, and printing. Eight different curve-fitting methods are available: linear fit, quadratic fit, cubic fit, two-parameter fit, four-parameter with linear x-axis fit, four-parameter with log two-axis fit, linear spline, and cubic spline. This software is compatible with the Windows XP operating system for PC computers.



Specifications

For specification updates, please visit www.turnerbiosystems.com online.

Instrument Specifications

Detection Modes: luminescence, fluorescence, and absorbance

Sample Format: 96-well microtiter plate

Read Format: 1 - 96 samples in 96-well microplate

Integrated PC Operating System: Windows CE

User Interface: 6.6" VGA color LCD display with touch screen, TFT

Data Output: USB flash drive, PC or Mac compatible csv file format

External PC Requirements (optional): Windows XP or higher operating system

Dimensions: 53 cm D x 44 cm W x 31 cm H (21" D x 17.3" W x 12.2" H)

Weight: ~16 kg (~35 lbs)

Power Source: 100 - 240 VAC, 50/60 Hz

Operating Temperature: 15 - 30°C (60 - 85°F)

Operating Humidity: 5 - 75% noncondensing

Warranty: 1 year parts & labor

Regulatory: CE, for research use only

Optional Injector System Specifications

Number of Injectors: single or dual injectors

Dispense Volume Range: 25 - 200 µl in 5 µl increments

Waste Tray Volume: ~50 ml

Luminescence Specifications

Detector: head-on photomultiplier tube (PMT) for photon counting

Wavelengths: 350 - 650 nm

Detection Limit: 3×10^{-21} moles of luciferase

Linear Dynamic Range: >8 decades

Cross-Talk: 5×10^{-6} using Costar #3789 plates

Fluorescence Specifications

Light Source: wavelength-matched LED

Detector: PIN-photodiode

Read Position: top reading

Wavelength Selection: snap-in Fluorescence Optical Kits

Wavelengths: UV (Ex: 365 nm, Em: 410 - 460 nm), Blue (Ex: 460 nm, Em: 515 - 580 nm), Green (Ex: 525 nm, Em: 580 - 640 nm), Red (Ex: 625 nm, Em: 660 - 720 nm)

Detection Limit: 0.5 fmol/200 µl or 1 ppt of fluorescein in 96-well plate

Linear Dynamic Range: 6 decades, assay dependent

Absorbance Specifications

Light Source: LED

Detector: large-area photodiode

Spectral Range: 360 - 800 nm

Filter Wheel Capacity: holds up to six filters. Includes four installed filters and two empty filter holders for user configuration.

Wavelengths for Installed Filters: 450, 550, 600, 750 nm

Photometric Measuring Range: 0 - 4.0 OD

Linear Dynamic Range: 0 - 2.5 OD

Video Demonstration

Visit www.turnerbiosystems.com for a video demonstration of the Modulus™ Microplate Multimode Reader and other instruments.



TM

Luminescence UHS Module

The Modulus™ Microplate Multimode Reader with the Luminescence UHS Module installed stands alone as a high-performance luminometer. The system can be alternatively configured as a multimode reader for measuring luminescence, fluorescence, and absorbance by purchasing and installing the fluorescence and absorbance modules.

Superior performance is achieved by using a dedicated luminescence detector instead of sharing the detector with other measurement modules. Optimum sensitivity is achieved with low-noise circuitry, unique optical design, and a premium photon-counting photomultiplier tube (PMT). Minimal crosstalk is realized with our proprietary dual-masking systems where one mask covers the well while another covers the detector.

Protocols for popular assays like Promega's Dual-Luciferase™ are preprogrammed into the instrument for convenience. These protocol wizards in combination with high performance and ease of use form an exceptional luminometer.

Injector Systems

Optional systems for single or dual injector are available and can be added at any time. Each injector has a volume range of 25 – 200 μ l in 5- μ l increments. Installed injector systems are automatically recognized by the instrument and controlled using the touch screen and fluidics wizard. *Prime* and *Flush* commands provide easy maintenance and a *Reverse Purge* command saves reagents. These injector systems are designed for easy and economical performance of dual reporter and other flash assay protocols.

Luminescence Light Plate

The optional Luminescence Light Plate provides an external control to ensure the luminometer is functioning properly. Some labs require this additional verification procedure. Reading the light plate before taking measurements is a quick and easy way to ensure quality control over linearity and consistency of readings.

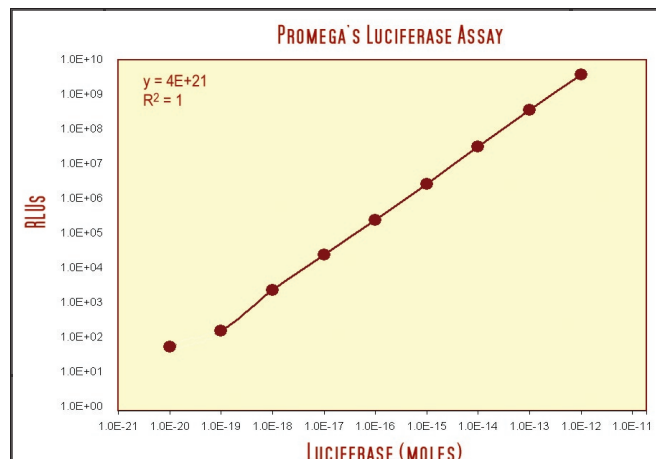


Figure 1

With a detection limit of 3×10^{-21} moles of luciferase and >8 logs of linear dynamic range, the Modulus™ Microplate Luminometer provides superior performance.

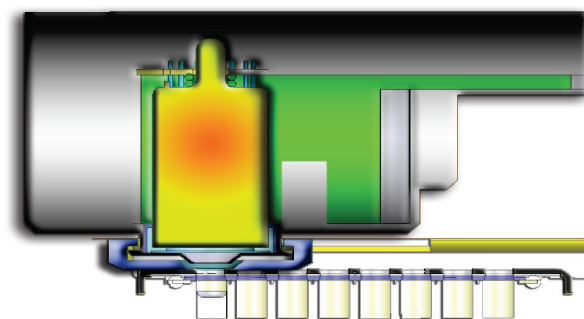


Figure 2

The dedicated Luminescence Detection Module has an independent optical path and PMT detector for superior sensitivity and linear dynamic range.

Fluorescence Module

The Modulus™ Microplate Multimode Reader with the Fluorescence Module installed stands alone as a high-performance fluorometer. The system can be alternatively configured as a multimode reader for measuring fluorescence, luminescence, and absorbance by purchasing and installing the luminescence and absorbance modules.

Superior performance is achieved by using a dedicated fluorescence detector instead of sharing the detector with other measurement modules. Optimum sensitivity is enabled with modern solid-state optics rather than traditional lamps and detectors. Each Fluorescence Optical Kit employs a powerful LED to excite samples with energy at the optimum wavelength for the selected application. This results in superior sensitivity, specificity, and flexibility.

The Modulus™ Microplate Multimode Reader Fluorescence Module features a dedicated optical design to read epifluorescence samples from above. A detection head and four Fluorescence Optical Kits are included to measure the most popular fluorophors. Optical kits can be easily exchanged in seconds. Instrument software ensures that the installed optical kit matches the selected application protocol.

Protocols for nucleic acids and proteins such as PicoGreen®, RiboGreen®, and Quant-iT™ assays are preprogrammed into the instrument for convenience. Cell-based fluorescence assays and gene expression assays using various fluorescent proteins can also be measured.

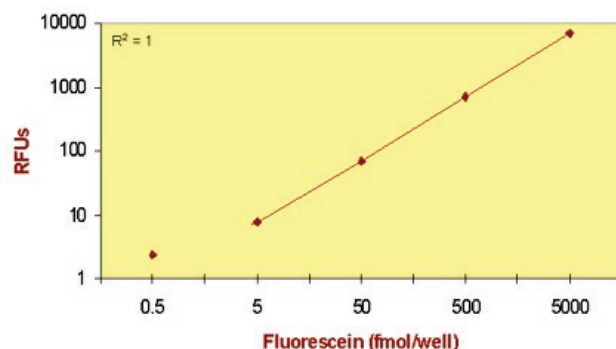


Figure 1

The Modulus™ Microplate Fluorometer has a detection limit of 0.5 fmol/200 µl of fluorescein.

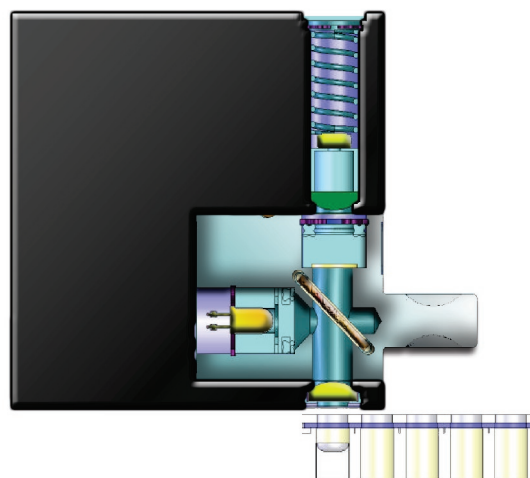


Figure 2

The dedicated Fluorescence Detection Module has an independent optical path, wavelength-matched LED light source, and detector for superior performance.

Fluorescence Optical Kit	Excitation Wavelength	Emission Wavelength	Typical Fluorophors
UV	365 nm	410 - 460 nm	Hoechst dye, 4-MU
Blue	460 nm	515 - 580 nm	PicoGreen®, RiboGreen®, Fluorescein, Quant-iT™ Protein, Quant-iT™ dsDNA, EGFP, or rAcGFP
Green	525 nm	580 - 640 nm	Rhodamine, Cy@3
Red	625 nm	660 - 720 nm	Cy@5, Quant-iT™ RNA

Table 1

Fluorescence Optical Kits for detecting the most popular fluorophors are included with the Fluorescence Module.



Absorbance Module

The Absorbance Module is a user-installable enhancement for the Modulus™ Microplate Reader. As the system is modular, users have the flexibility to customize the Modulus™ Microplate Reader to fit the current or future needs of their laboratory. Add an Absorbance Module at the time of purchase or later at your convenience. Installation is easy, taking less than five minutes with the provided tool.

In addition to offering a flexible option for lab adaptability, the Modulus™ Microplate Reader with Absorbance Module provides measurements that are highly sensitive and cover a wide dynamic range. Superior performance is achieved by use of a large-area photodiode exclusively dedicated to absorbance measurement; optical paths are not shared as they are on many other multi-mode instruments. The Absorbance Module can detect linear dynamic ranges from 0 – 4 OD, allowing undiluted samples of both low and high OD to be read simultaneously in the same microplate.

The Absorbance Module has a six-position filter wheel. This filter wheel holds four factory-installed filters plus two additional filter positions are open for custom filters. The four installed filters have wavelengths of 450, 560, 600, and 750 nm with 10 nm bandwidth. The two open positions on the filter wheel can accommodate any 0.5-cm filter in the spectral range of 400 – 800 nm. Selecting the optimal filter for your application is simple by using the color touch-screen of the Modulus™ Microplate Reader graphical user interface.

For ratiometric assays, two wavelengths can be selected for each absorbance reading. OD values for each wavelength or a ratio of the two appear on the easy-to-read display screen. Easily measure microplates of ELISA assays at 450 and 550 nm as ratiometric assays where the readings include adjustment to account for optical imperfections.

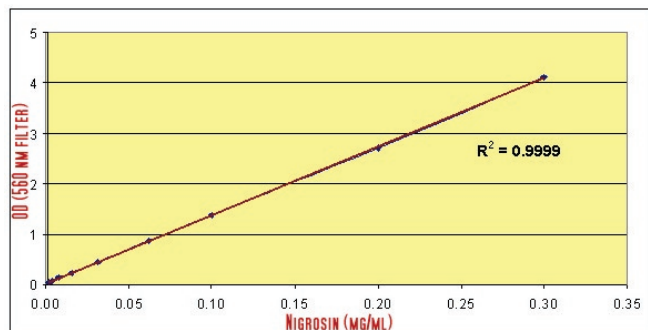


Figure 1
OD range using Nigrosin dilutions. When using the Modulus™ Microplate Absorbance Module OD values as low as 0.06 can be measured.

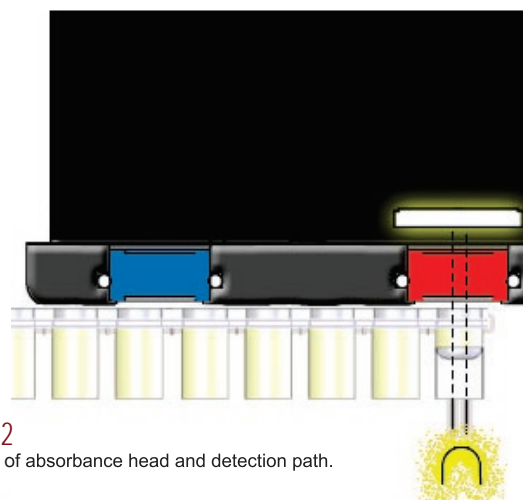


Figure 2
Drawing of absorbance head and detection path.

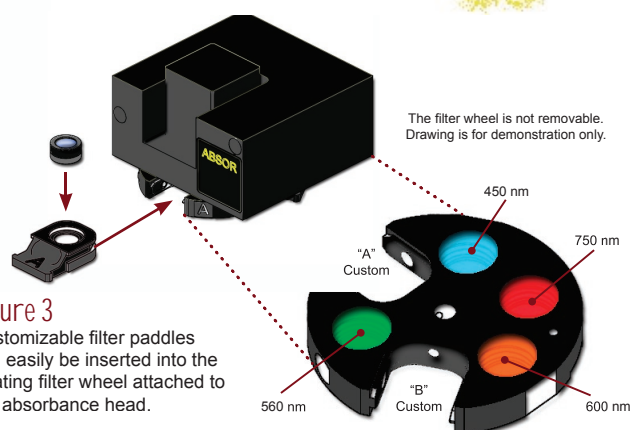


Figure 3
Customizable filter paddles can easily be inserted into the rotating filter wheel attached to the absorbance head.

Assays	Wavelength
ELISA, QuantiCleave™ Protease Assay	450
BCA™ Protein Assays	560
Bradford Protein Assays, Coomassie Blue Protein Assays, PeroXOquant™ Quantitative Peroxide Assay	600
Lowry Protein Assay	750

Table 1
Filter wavelengths for various assays.

Customization Options

The Modulus™ Microplate can be configured as a multimode reader or as a dedicated luminometer, fluorometer, or absorbance photometer.

	APPLICATION		
	Fluorescence	Luminescence	Absorbance
Single-Mode Instruments (optional additional modules available)			
9300-000 Modulus™ Microplate Fluorometer: Instrument and Fluorescence Module (with UV, Blue, Green, and Red Fluorescence Optical Kits), power supply kit, and accessories.	○		
9300-001 Modulus™ Microplate Luminometer UHS: Instrument and Luminometer UHS Module, power supply kit, and accessories.		○	
9300-007 Modulus™ Microplate Photometer: Instrument and Absorbance Module (with filter wheel including four filters and two empty filter holders), power supply kit, and accessories.			○
Multimode Instruments			
9300-002 Modulus™ Microplate Fluorometer and Luminometer UHS: Instrument and Fluorescence Module (with UV, Blue, Green, and Red Fluorescence Optical Kits), Luminometer UHS Module, power supply kit, and accessories.	○	○	
9300-008 Modulus™ Microplate Fluorometer and Photometer: Instrument and Fluorescence Module (with UV, Blue, Green, and Red Fluorescence Optical Kits), Absorbance Module (with filter wheel including four filters and two empty filter holders), power supply kit, and accessories.	○		○
9300-009 Modulus™ Microplate Luminometer UHS and Photometer: Instrument and Luminometer UHS Module, Absorbance Module (with filter wheel including four filters and two empty filter holders), power supply kit, and accessories.		○	○
9300-003 Modulus™ Microplate Luminometer UHS, Fluorometer, and Photometer: Instrument and Luminometer UHS Module, Fluorescence Module (with UV, Blue, Green, and Red Fluorescence Optical Kits), Absorbance Module (with filter wheel including four filters and two empty filter holders), power supply kit, and accessories.	○	○	○
Optional Additional Application Modules			
9300-040 Fluorescence Module: User-installable Fluorescence Detector and four Fluorescence Optical Kits (UV, Blue, Green, and Red). Wavelengths are: UV (Ex: 365 nm, Em: 410 - 460 nm), Blue (Ex: 475 nm, Em: 515 - 570 nm), Green (Ex: 525 nm, Em: 580 - 640 nm), and Red (Ex: 625 nm, Em: 660 - 720 nm).	○		
9300-020 Luminescence Module: Factory-installed Luminescence Detector and Microplate Sample Tray Cover.		○	
9300-050 Absorbance Module: User-installable Absorbance Detector with filter wheel including four filters (450, 550, 600, and 750 nm) and two empty filter holders.			○
Optional Accessories			
9300-061 Single-Injector System: User-installable one injector pump, connection cable, tubing, injector tips, waste collection tray, and accessories.		○	
9300-062 Dual-Injector System: User-installable two injector pumps, connection cable, tubing, injector tips, waste collection tray, and accessories.		○	
9100-036 Microplate Luminescence Light Plate		○	
9300-970 Curve-Fitting Software: For Windows XP or higher PC operating systems.	○	○	○
9300-971 External PC Connect Kit: Software and USB cable.	○	○	○