

# Dynamica



## The HALO Range

DNAmaster

MICROVOLUME NUCLEIC ACID AND PROTEIN ANALYSER

REVOLUTION

# RE~~V~~OLUTION

The Dynamica DNAmaster sets another benchmark in laboratory instrumentation. Dynamica's extensive manufacturing experience, commitment to innovation and continuous refinement, has resulted in an extensive range of precision laboratory instrumentation that fulfils the challenges of the contemporary and multifaceted laboratory environment. Versatility, Flexibility, Performance, efficiency, design are hallmarks of Dynamica's dedication to excellence.



# Halo DNAmaster

## Microvolume Measurement and Analysis for Nucleic Acids, Proteins and Bacterial Cell Culture

The Halo DNAmaster complements the existing range of Halo spectrophotometers and plate readers. It is designed for the measurement and analysis of precious samples by requiring only microvolume quantities. Naturally, DNAmaster features the same ruggedness, reliability, precision and reproducibility synonymous with the Halo family.

The Halo DNAmaster is equipped with a comprehensive selection of on-board functions for versatility and suitability to many life science applications involving nucleic acid, proteins and bacterial cultures.

### Spectral Features

The Halo DNAmaster boasts a wavelength range from 200 to 900nm, an absorbance range between 0 - 4 O.D. and a wavelength accuracy of 1nm. Low noise (~0.005 O.D.) combined with a photometric accuracy of  $\pm 0.01$  O.D. and 4nm bandwidth ensure excellent sensitivity, accuracy and reproducibility.

### Minimal Volume for Precious Samples

By virtue of the innovative 'Ultramicro' cell as little as 0.5 $\mu$ l of sample is required. Simply pipette the sample on the appropriate section of the Ultramicro cell, perform the measurement and then wipe off clean or aspirate the sample for further downstream applications.

The Halo DNAmaster can also be used as a conventional spectrophotometer with standard 10mm optical path length cuvettes.

If microvolume measurements are not a must, the Halo DNAmaster is also available configured with 50 $\mu$ l cells. However, both configurations can also be used as a conventional spectrophotometer with standard 10mm optical path length cuvettes.

## User Friendly Operation and Information Rich LCD Display

The 90mm x 120 mm, colour LCD screen is touch sensitive with intuitively designed software for quick selection by sample type. Effortless step by step navigation and a virtual QWERTY keyboard provide fast and efficient input and analysis. Data is displayed numerically and also in a graphical format (where applicable) with the further option of direct printing or storage in a SD card.

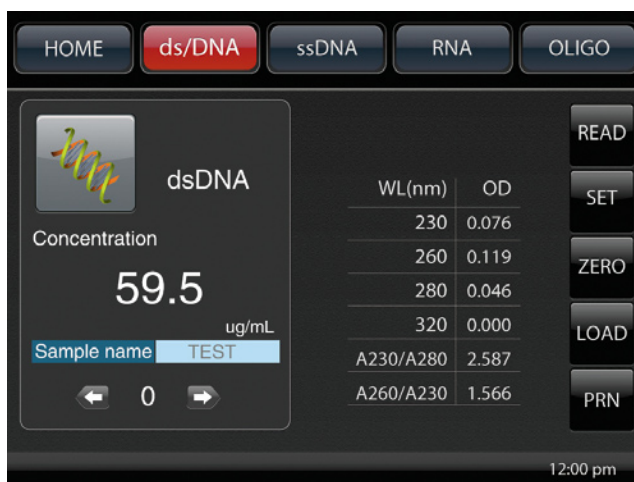


## Nucleic Acid Analysis

The Halo DNAMaster is configured with onboard functions for the quantification of nucleic acids. Select the nucleic acid of choice such as double stranded DNA, single stranded DNA, RNA or oligonucleotides and absorbance measurements at the prescribed wavelength are directly converted into concentration units. The detection limit of the Halo DNAMaster is 20ng/µl (double stranded DNA).

The purity of nucleic acids can also be determined from ratio calculations such as A260 / A280 nm for protein contamination of DNA preparations.

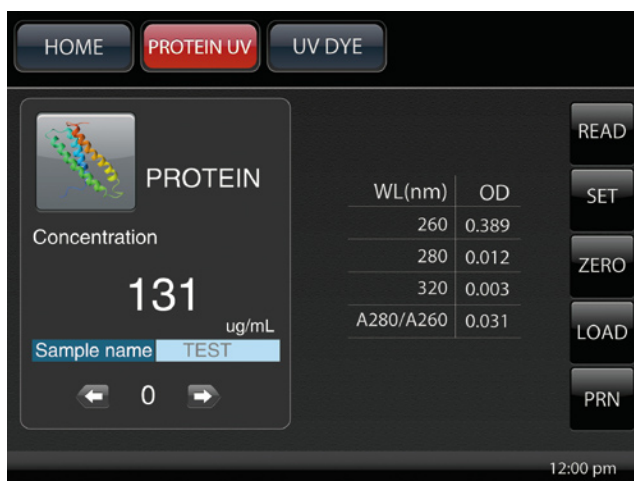
Furthermore, The Halo DNAMaster can measure concentrations DNA, RNA and oligonucleotide – dye complexes.



## Protein Analysis

The Halo DNAMaster measures protein concentrations from a range of colourimetric assays such as Bradford, Lowry, Biuret and BCA. In addition to numerical data the standard calibration curve can be displayed.

Furthermore measure protein alone at 280nm or protein-dye complexes that absorb at 246nm.



## Cell Culture Optical Density

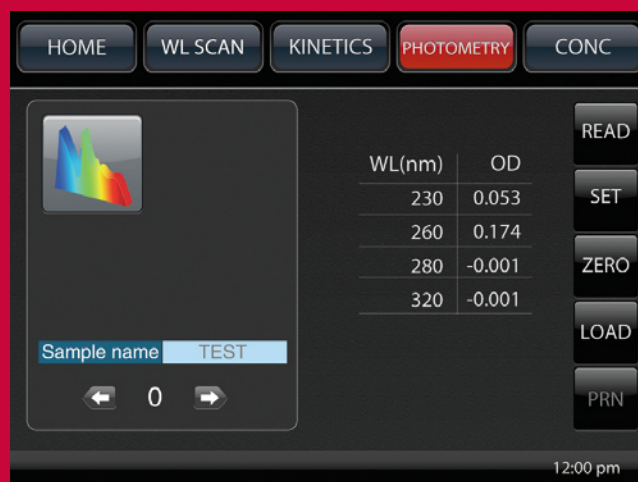
The Halo DNAmaster also measures bacterial cell density at 600nm. Absorbance readings of approximately 0.4 units define a bacterial culture in exponential growth phase and at the most appropriate for harvest or induction.



## Conventional Spectrophotometry

At the touch of the screen the Halo DNAmaster converts into a conventional spectrophotometer for use with either the Ultramicro cell or a standard 10mm optical path length quartz or glass cuvette. Perform single wavelength photometry in either absorbance or % transmittance mode including multiple wavelength photometry for up to 6 user defined wavelengths in absorbance mode.

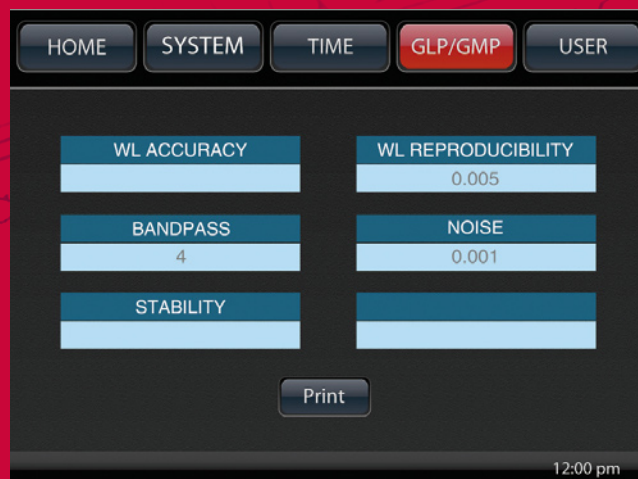
Other functions include wavelength scans, time scans for kinetic studies and concentration calculations from standard curves.



## Validation Functions

To ensure optimum instrument performance, a self-diagnostic function incorporating a number of parameters is executed each time the Halo DNAmaster is switched on including a selectable GLP/GMP function.

(Validation kit is required in some parameter.)



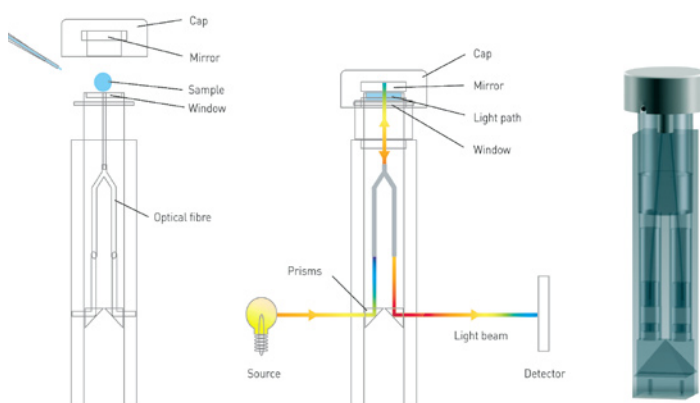
## Thoughtful Design

Dynamica considered every detail in the design of Halo DNAmaster, for example, the cuvette holder can be removed for washing and it is autoclavable for decontamination. Furthermore a cover protects the cuvette holder and detector from dust and dirt when the unit is not in use. The side mounted cuvette rack is detachable for easy cleaning and a smaller footprint if bench space is at a premium.



## Ultramicro Cell

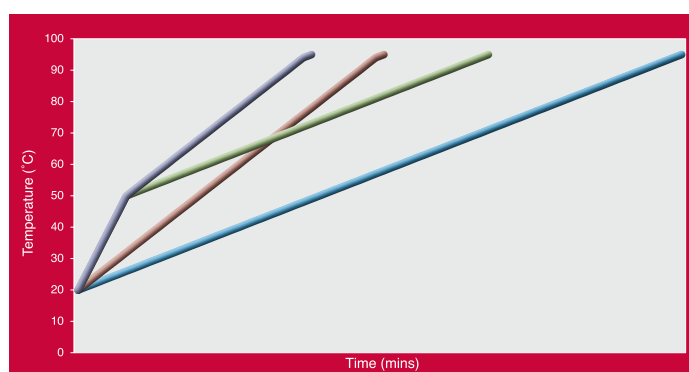
The Ultramicro cell utilises fibre-optic technology and is designed for measurement and analysis of extremely small volumes of DNA/RNA samples with high accuracy and outstanding reproducibility. In applications involving very high or very low DNA concentrations, a single light path is often insufficient, however the interchangeable cap of the Ultramicro cell imparts light paths of 1 mm and 0.2 mm respectively and effectively creates virtual dilutions to overcome such situations. A further function of the cap is to prevent the sample from drying up and to ensure that measurements remain reproducible since sample characteristics can be affected by evaporation of the solvent.



## Programmable Temperature Control Model

The DNAmaster temperature control model utilizes a peltier regulated cell holder to control the sample temperature from a range of +20°C to +95°C (with  $\pm 0.5^\circ\text{C}$  precision). Predominantly designed for the determination of nucleic acid  $T_m$  (at 260nm) up to 4 heating profiles can be selected, including 1°C/min, 2°C/min or a quick heat mode for heating up to a plateau temperature of 50°C at 5°C/min before ramping commences at 1°C/min or 2°C/min.

The heated cell holder can also be used in other applications requiring incubation and/or keeping a sample at a constant temperature for example during kinetic analyses.



DNAmaster SPECIFICATIONS	
Lamp Source	Long life Xenon Flash Lamp
Detector Device	CCD
Wavelength Range	200-900nm
Measuring Range	0-4.0 OD
Wavelength Accuracy	+/-1nm
Slit Width	4nm
Noise	~0.005 OD (RMS)
Drift	~0.005 OD
Photometric Accuracy	+/-0.01 OD
Photometric Repeatability	+/-0.005 OD
Stray Light	0.5%T
DNA Detection Limit	20ng/ul
Minimum Sample Volume with Ultramicro Cuvette	0.5ul
Start Up Melodies	Selectable from 7 types and mute
Energy Save Mode	Yes
Memory Storage	Internal or SD card
Power Requirement	110 - 200V, 50/60Hz

## Halo DNAmaster Ordering Information

PRODUCT	CATALOG NUMBER#
Halo DNAmaster 200nm-900nm with 50µl microvolume cell	DNAM
Halo DNAmaster 200nm-900nm with ultravolume cell	DNAM-UM
Halo DNAmaster 200nm-900nm temperature control model	DNAM-TC
Compact thermal printer for DNAmaster	DNAM-PRINT



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