

Apollo²

XENON ARC LIGHT AND WEATHER FASTNESS TESTER 800



Of all the types of colour fastness testing, gauging a material's reaction to light is probably one of the most important. **It is also one of the most difficult tests to get right.**

Most manufacturers wanting to run light fastness tests on their materials have to send everything out to specialist laboratories or invest in highly intricate instruments that are extremely difficult to operate accurately and maintain.

It has been a **complex** and **expensive process** – something definitely best left to the experts...until now.

▶▶▶ KEY FEATURES

> **Listening to the Voice of the Customer for more accessible, user-friendly light fastness technology**

At **James H. Heal** we have designed an instrument that introduces new levels of ease of use and operation whilst performing consistent, reliable and repeatable light fastness testing...**Apollo².**

Apollo² not only simulates sunlight faithfully, it also replicates a wide range of temperatures and humidity levels in closely controlled conditions.

> Exciting New Styling

Apollo² was designed with an entirely new approach that was focused on delivering an instrument which boldly distinguishes itself through **innovative engineering** and **exceptional quality and value.**

The result is a **modern** and **eye-catching** Light & Weather Fastness Tester that will stand out proudly in your laboratory and certainly impress your customers.

> Simplified & Advanced Operating System

Apollo² can be as simple and straight forward, or as complex as you want it to be, for development work.

The instrument's control software has been designed so that tests can be run to completion in a trouble-free and reliable manner.

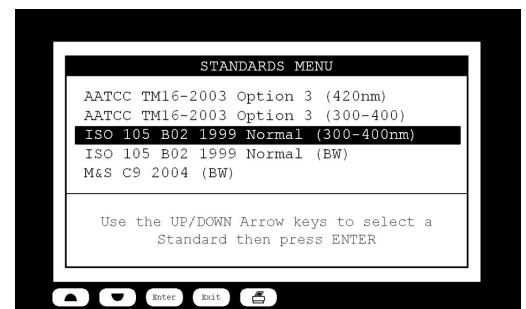
Inexperienced operators can literally begin a test in 3 simple steps:

- >> **Select a Standard**
- >> **Set an Exposure Time**
- >> **Press the START key**

In this simplified mode, the test will begin and finish uninterrupted, performing all the necessary functions required by the chosen test method.

For the more demanding user, who is proficient with light fastness testing, the **Apollo²** software can be set to operate in its comprehensive mode.

This allows skilled operators to access the system control functions via a password protected area and make any changes or alterations to the test parameters that best suit specific customer testing requirements.



Apollo² has product performance standards pre-programmed and stored within its system. In the simplified mode, the operator has quick access to a shortlist of 5 of the most popular light fastness standards and test methods.

The comprehensive standards menu allows operators to select, view, edit, create and reset a set of 40 programmable standards.

Apollo²

XENON ARC LIGHT AND WEATHER FASTNESS TESTER 800

> Panel Printer

Apollo² comes equipped with a quiet, high speed, long life thermal panel printer. Its primary function is for the continuous monitoring and logging of testing conditions but can also be used to document the setting of each menu and for fault diagnostics.

> Established Long Arc Xenon Lamp Technology

In **Apollo²**, the samples being tested rotate around a 2200W air cooled xenon lamp specifically developed for **long-term performance**.

Our 2200W lamp faithfully reproduces the closest simulation to natural sunlight-essential when you need to predict a fabric's performance in **real-life situations**.

Example Data Logger Printout

DATA LOGGER						
AATCC TM16-2003	Option 3 (300-400)					
Turning Mode	ON					
Weathering	OFF					
Irradiance Level	48.0W/m2					
Sensor Wavelength	300-400nm					
Optical Filters	7 x IR 0 x UV 0 x WG					
Time/Date	CHT	%RH	rpm	W/m2	kJ	
11:28 22-12-05	44	30	5.0	48.0	175	
11:38 22-12-05	47	25	5.0	50	28.8	
11:48 22-12-05	45	30	5.0	47	57.6	
11:58 22-12-05	44	30	5.0	47	86.4	
12:08 22-12-05	44	30	5.1	49	115.2	
12:18 22-12-05	44	30	4.9	49	144.0	
12:28 22-12-05	44	30	5.0	48	172.8	
SYSTEM MESSAGE						
EXPOSURE COMPLETE						
Thu 12:28 22-12-05 (Runtime:1h 00m) [109]						

Standard Information

Target Values

Actual Values
Logged Every 10
Minutes in this
Example

Established Xenon Lamp Technology



Easy to Assemble Lantern



> Advanced Filter System & User-friendly Lantern Design

Advanced engineering techniques and extensive quality control capabilities have enabled us to incorporate a durable range of optical filters, used to modify and control the spectral output of the lamp.

Furthermore, the ergonomic design of the lantern enables operators to **quickly and safely** remove and replace the filters.

> SolarSens Radiometer

Apollo², is complemented by SolarSens; a radiometer designed to measure light and temperature, which is relayed **reliably** via wireless communication to the instrument.

SolarSens is a robust device specifically developed to withstand the effects of moisture and humidity.

Importantly, SolarSens exactly replicates the movement of the holders and the specimens, so it achieves unparalleled accuracy of measurement.

To prove its accuracy, we have put in place a professional and traceable calibration procedure which is offered by **Healink**, the Service and Calibration Division of **James H. Heal**.



SolarSens & Specimen Holders



SolarSens

> Upgrading Your Apollo 700

Owners of the Apollo Xenon Arc Light and Weather Fastness Tester Model 700 can upgrade their instrument by purchasing the Apollo Upgrade Kit through **Healink**.

Technical Data

LIGHT SOURCE	2200W (adjustable) air-cooled xenon lamp	TEST CHAMBER HUMIDITY	Humidification: Ultrasonic mist generating transducers
IRRADIANCE	SolarSens UV multi-sensing radiometer and black standard thermometer SolarSens incorporates: 3 x UV sensors operating at wavelengths of: 340nm, 420nm and 300-400nm Automatic sensor selection (via test parameters) Optical filter arrangements for simulating indoor/outdoor exposure and automotive environment utilising combinations of KGI, UGI I and Window Glass Automatic prompt when lamp or optical filters require changing		Measurement: Chamber Relative Humidity Sensor Range: 0 to 95% RH Readability: 0.1% RH Accuracy: ± 1.5% RH
STANDARDS	Pre-programmed standards: AATCC Test Method I6-1998 Option H AATCC Test Method I6-2003 Option 3 AATCC Test Method I6-2003 Option 5 AATCC Test Method I39-2000 AATCC Test Method I69-2003 Option 1 AATCC Test Method I69-2003 Option 3 AATCC Test Method I69-2003 Option 4 ASTM D 2565-99 ASTM D 4459-99 ASTM G 155-00a DIN 75 202 I998 ISO 105 B02 1999 Extreme High EH ISO 105 B02 1999 Extreme Low EH ISO 105 B02 1999 Normal Conditions ISO 105 B02 1999 American Conditions ISO 105 B04 1994 ISO 105 B06 Conditions Set No.1 ISO 105 B06 Conditions Set No.2 ISO I 1341 Test Method 2C ISO I 2040 1997 M&S C9 M&S C9A	WEATHERING	Built-in weathering facility Programmable rain cycle Water consumption: 3.5 l/hr (at 25% rain) Optional Water Purification Unit
TEST CHAMBER TEMPERATURE	Cooling: 2 x Variable speed waterproof axial fans Variable re-circulation of air in chamber Heating: Stainless steel 0 to 500W finned heater Measurement: Chamber Temperature Sensor Range: 0 to 100°C Readability: 0.1°C Accuracy: ±0.4°C Black Standard Thermometer (BST) incorporated into SolarSens	TURNTABLE	Turntable takes up to 11 double-sided specimen holders or up to 10 specimen holders and SolarSens Turntable Speed: 1-7 rpm in 0.1 rpm steps Optional flip flop mode – every revolution of the turntable specimen holders rotate 180° about their own axis – mode selectable via software
		SPECIMEN EXPOSURE	Total exposure area: 1330cm ² Maximum area per specimen holder side: 135 x 45mm 8 programmable test timers to set favourite exposure durations <i>Continuous running</i> mode for manual checking Irradiation dosage calculated automatically
		LANGUAGES	User configurable Languages: English, French, German, Spanish and Italian
		SAFETY	Safety interlock on all access doors Toughened neutral density viewing window for safe viewing Built-in self-diagnostics & warnings Complies with CE Directives for machine safety, low voltage and EMC
		WARRANTY	18 months

Installation Information

ELECTRICAL SUPPLY	Single phase 230V ±15% (4kW) 50/60Hz (32A)	AMBIENT CONDITIONS	To achieve the widest range of chamber performance, we recommend ambient conditions of 20°C and 65% RH Apollo ² is capable of operating between 16°–24°C and between 30%–65% RH, with some reduction in the instrument's performance, at extreme chamber settings
WATER SUPPLY	Water Connection: Push-in fitting for 8mm (outside diameter) pipe Water Consumption: Light only: 1.6 l/hr (maximum) Weathering: 3.5 l/hr (at 25% rain) Internal water tank capacity: approximately 23l Optional Header/Filler tank to facilitate manual filling Water quality: ultra-pure water to ISO 3696 grade 3	DIMENSIONS & WEIGHT	Width: 745mm Depth: 740mm Height: 1545mm Weight: approximately 200kg

We reserve the right to modify the appearance and/or specification without notice.

How to Order

907-800 Apollo² Light & Weather Fastness Tester Model 800 230V ± 15% (4kW) 50/60Hz

STANDARD ACCESSORIES (ISO & M&S CONFIGURATION)

794-750	1 SolarSens
570-288	11 Specimen Holders
397-357	22 Double Slot Masks
397-358	22 Single Slot Masks
106-800	1 2200W Xenon Lamp
394-255	7 Shortpass Heat-Absorbing IR Filters (KG1)
716-831	1 Borosilicate Cylinder
766-470	1 Pack (500) OBA-free White Specimen Cards
570-308	1 Sample Holder Stand
570-320	1 Optical Filter Holder Stand
195-343	1 Pack (10 rolls) Thermal Paper

CALIBRATION

201-700	ISO Certificate of Calibration for Apollo/SolarSens
---------	---

ADDITIONAL ACCESSORIES FOR ISO TESTS

394-257	Window Glass Filter
378-311	Black Panel Thermometer
766-200	HEAL'S Grey Scale for assessing Change in Colour
766-476	ISO Humidity Test Control Fabric – per pack (25 x 15cm)
766-310	ISO Blue Wool Standards Nos 1-8 – per set (8 pieces each 23 x 15cm)
397-357	Double Slot Mask – 1/3 cover (B02: Method 1)
397-358	Single Slot Mask – 2/3 cover (B02: Method 1)
397-359	Single Slot Mask – 3/4 cover (B02: Method 2)
397-360	Single Slot Mask – 1/2 cover (B02: Method 2)
397-361	Single Slot Mask – 1/4 cover (B02: Method 2)
397-349	Specimen Holder for carpet and thick materials (maximum thickness: 20 mm) with 1/3 and 2/3 cover Masks (B02: Method 1)

ADDITIONAL ACCESSORIES FOR M&S TEST METHODS C9 & C9A

378-311	Black Panel Thermometer
766-200	HEAL'S Grey Scale for assessing Change in Colour
766-476	ISO Humidity Test Control Fabric – per pack (25 x 15cm)
766-310	ISO Blue Wool Standards Nos 1-8 – per set (8 pieces each 23 x 15cm)
540-776	Frame for 7-Segment Bandpass Ultra-Violet Filter
394-256	7-Segment Bandpass Ultra-Violet Filter (UG11)
706-717	BHT-free Polythene Film – 25 micron thick – for M&S C9A – per pack (20m x 766mm wide)

ADDITIONAL ACCESSORIES FOR AATCC TESTS

766-516	AATCC Blue Wool Lightfastness Standard L-2 – per pack (50 x 75cm)
766-517	AATCC Blue Wool Lightfastness Standard L-4 – per pack (50 x 75cm)
766-512	AATCC Gray Scale for Color Change
766-521	AATCC Standard of Fading for L-2
766-522	AATCC Standard of Fading for L-4
397-367	Mask (apertures: 30 x 30mm)
397-368	Mask (apertures: 30 x 15mm)

ADDITIONAL ACCESSORIES FOR ISO WEATHER FASTNESS TESTING

378-311	Black Panel Thermometer
766-200	HEAL'S Grey Scale for assessing Change in Colour
766-310	ISO Blue Wool Standards Nos 1-8 – per set (8 pieces each 23 x 15cm)
540-776	Frame for 7-Segment Bandpass Ultra-Violet Filter
394-256	7-Segment Bandpass Ultra-Violet Filter (UG11)
794-721	Blue Wool Specimen Holder with 2 x 1/3 and 2 x 2/3 cover Masks (BO2: Method 1)

WATER PURIFICATION

790-400	Water purification system; complies with ISO 3696 Grade 3 - supplies Apollo ² with up to 4 litres/hour of pure water
---------	---

OPTIONAL ACCESSORY FOR MANUAL FILLING

570-319	Header/Filler Tank
---------	--------------------

UPGRADES FOR APOLLO LIGHT & WEATHER FASTNESS TESTER MODEL 700

144-674	Apollo Upgrade Kit, comprising: Apollo ² software, machine control panel & thermal printer
570-417	Filter Lantern



JAMES H. HEAL 
& CO. LTD. HALIFAX ENGLAND

Richmond Works, Lake View, Halifax, West Yorkshire HX3 6EP, England. Tel: +44 (0) 1422 366355
Fax: +44 (0) 1422 352440 E-mail: info@james-heal.co.uk Web: http://www.james-heal.co.uk

