

QUV Accelerated Weathering Tester



Overview

Sunlight, heat, and moisture cause millions of dollars of material damage every year. The QUV® accelerated weathering tester exposes materials to alternating cycles of UV light and moisture at controlled, elevated temperatures. In a few days or weeks, QUV testers can reproduce the damage that occurs over months or years outdoors. And with its newest model, QUV testers can now reproduce the damage caused by 254nm UVC light used in sterilization equipment. With thousands of testers in service worldwide, the QUV tester is the world's most widely used weathering tester.

QUV testers are available in five different models: QUV/basic, QUV/se, QUV/spray, QUV/cw, and QUV/uvc. Each air-cooled tester features Q-Lab's renowned reliability and ease of maintenance. All testers have standard datalogging via ethernet and/or USB, a variety of standard sample holders, automatic fault recognition and alarms, automatic shut-down timer, and a remarkably simple dual touchscreen user interface available in 17 languages.

	basic	se	spray	cw	uvc
SOLAR EYE® Irradiance Control²	—	●	●	●	●
Uninsulated Black Panel (BP) Temp. Control	●	●	●	●	●
Insulated Black Panel (IBP) Temp. Control³	◐	◐	◐	◐	◐
Condensation	●	●	●	●	—
Water Spray	—	—	●	—	—
Near-Room-Temperature BP Control	—	—	—	—	●
Adjustable 3D Specimen Holder Boxes¹	◐	◐	◐	◐	◐
Space Saver Frame for Stacking⁴	◐	◐	◐	◐	◐
Water Repurification System	—	—	◐	—	—

● Standard Feature ◐ Optional Feature

1 See LU-8001 for more information on other standard and custom specimen mounting holder options.

2 See L-3000 for information about SOLAR EYE Irradiance Control calibration using the Universal Calibrator System.

3 Black Panel (BP) temperature control is standard. IBP control recommended for use with plastic specimens and/or 3D specimen holder boxes.

4 See LU-0820 for more information on space saver frames.

Lamps & Irradiance Control

The SOLAR EYE® irradiance control system (used in all models except QUV/basic) continuously monitors and precisely maintains irradiance by adjusting power to the lamps. Irradiance control is very important because changes in light intensity may affect both speed and type of material degradation. The QUV/basic model relies on lamp rotation to approximate controlled irradiance levels.

Models with irradiance control feature programmable setpoints. For example, with UVA-340 lamps, an irradiance of 0.89 W/m²/nm@340nm is a good match with noon summer sunlight. For faster results, the QUV tester can operate at about double the irradiance of noon summer sunlight. See below for some common set points and LU-8160 for more information about selecting lamps for your application.

Irradiance	Warranty ¹	UVA-340	UVA-340+ ²	UVA-351	UVB-313EL	UVB-313EL+ ³	UVC-254 ⁴	QFS-40	Cool White ⁴
Minimum	<i>Reference</i>	0.20	0.35	0.20	0.20	0.35	1.0	0.20	2,000
Low	1,000 hours	0.40-0.59	0.60-0.74	0.35-0.59	0.40-0.47	0.40-0.47	1.1-1.9	0.30-0.43	3,000-3,999
Typical	8,000 hours	0.60-0.90	0.75-0.95	0.60-0.80	0.48-0.62	0.48-0.95	2.0-6.0	0.44-0.52	4,000-6,000
High	1,000 hours	0.91-1.25	0.96-1.85	0.81-1.25	0.63-0.95	0.96-1.85	6.1-10.0	0.53-0.70	6,001-10,000
Maximum	<i>Reference</i>	1.54	2.04	1.54	1.23	2.04	13.0	0.86	20,000

1: Irradiance values less than "Low" and greater than "High" (including Minimum and Maximum reference values) are not warrantied.

2: Some older QUV/basic testers may require an upgrade to work properly with UVA-340+ lamps. Contact Q-Lab Repair for details.

3: UVB-313EL+ lamps must be calibrated using the Universal Calibrator system. They cannot be calibrated with a CR10.

4: Values above are in units of W/m²/nm, except for UVC-254 (mW/cm²) and Cool White (kLux).

Irradiance Calibrations

The QUV SOLAR EYE irradiance control system and on-board sensors can be calibrated quickly and inexpensively using the Universal Calibrator (UC) system. Disposable, ISO 17025-accredited smart sensors can be connected directly to the dual touchscreen display, dramatically simplifying the calibration process and lowers operating costs for users (see L-3000 for more information).



QUV Tester Operating Specifications:

Models	basic	se	spray	cw	uvc
Specimen Orientation	75° from horizontal				
UV Fluorescent Lamps	Quantity: 8 (T12 × 121 cm long) @ 40W ea				
Onboard Irradiance Sensor	—	Wideband (250-400 nm)	Wideband (250-400 nm)	Broadband (300-800 nm)	Narrowband (254 nm)
Black Panel Temp (°C) Light Cycle Temp. ¹ Condensation Cycle Temp.	35-80 40-60	35-80 40-60	35-80 40-60	35-80 — ²	28-73 ³ — ³
Specimen Exposure Area	20 × 50 cm (2x front side) 20 × 108 cm (1x rear side) 4160 cm ² total	20 × 50 cm (2x each side) 4000 cm ² total 20 × 50 cm (2x each side) 4000 cm ² total			
Specimen Capacity⁴	50 Specimens (75 × 150 mm)	48 Specimens (75 × 150 mm)			
Inlet Water Pressure	0.2-5.5 bar (2-80 psi)	0.2-5.5 bar (2-80 psi)	2.8-5.5 bar (40-80 psi) ⁵	0.2-5.5 bar (2-80 psi) ²	— ³
Inlet Water Purity⁶	Tap Water	Tap Water	> 200 kΩ·cm < 5 μS/cm < 2.5 ppm TDS 6-8 pH	Tap Water ²	— ³
Water Consumption⁷ Condensation Spray	5 liters/day —	5 liters/day —	5 liters/day 7 liters/minute	5 liters/day ² — ²	— ³ — ³
External Dimensions (w × h × d)	137 × 135 × 53 cm (54 × 53 × 21 in)				
Weight⁸	136 kg (300 lbs)				
Electrical Requirements⁹	120V ± 10%, 1-Φ 60 Hz, 14A 230V ± 10%, 1-Φ 50/60 Hz, 7A	120V ± 10%, 1-Φ 60 Hz, 16A 230V ± 10%, 1-Φ 50/60 Hz, 8A			

- Minimum and maximum black panel temperatures are dependent on irradiance settings and ambient temperatures.
- The QUV/cw model is able to perform condensation cycles; however, this is not usually applicable for testing indoor materials.
- The QUV/uvc model can achieve a BP temperature range of 28-60°C at min irradiance, and 40-73°C at max irradiance. This model does not allow for condensation or water spray. It also features a high-power blower for near-room-temperature BP testing capabilities, to best replicate conditions experienced during UVC sterilization efforts.
- Other specimen sizes and shapes (including three-dimensional specimens) are readily accommodated in standard or custom specimen holders (see LU-8001).
- Optional booster pump (X-10570-K) is available.
- Water purity requirements can be met by most reverse osmosis, deionization, or distillation systems.
- Water consumption values are dependent upon test and lab conditions. Values shown are maximum for many common standards. To reduce water consumption during spray cycles, consider an optional water repurification system (see LW-6048 for more information).
- Actual shipping weights will be higher and depend upon whether the shipment is domestic, ocean, or air.
- Transformer kits available for 100V (part number V-149-K-INST) or 200V (part number V-149.1-K-INST) operation.

Warranty

The QUV accelerated weathering tester is guaranteed against defects in workmanship or materials for one year. Liability is limited to replacing or repairing any part or parts which are defective in materials or workmanship and are returned to our factory, shipping costs prepaid. Liability in all events is limited to the purchase price paid. Damage due to accident or abuse is not covered. Labor and travel costs are not covered. Q-Lab Corporation makes no other warranties, including implied warranties of merchantability or fitness for a particular purpose, except as may be expressly provided by Q-Lab Corporation in writing. Q-Lab Corporation shall not be liable for any incidental, consequential, special, or contingent damages arising out of the sale or use of any product.



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