

Model description:

Climatic chamber integrated solar simulator



APPLICATIONS :

- Solar PV Simultaneous performance and weather testing.
- Thermal cycling test, Damp heat test, Humidity freeze test, UV preconditioning test.
- Normal Operating Cell Temperature and low irradiance performance testing.
- Non-stop reliability testing or light aging up to 1800 hours.
- IEC 61215 (c-Si PV): 10.1, 10.2, 10.5, 10.6, 10.7, 10.9, 10.10, 10.11, 10.12, 10.13 and 10.14.
- IEC 61646 (thin-film PV): 10.1, 10.2, 10.4, 10.5, 10.6, 10.7, 10.9, 10.10, 10.11, 10.12, 10.13 and 10.19.
- Material testing Accelerated life testing (ALT), weathering and degradation of plastics.
- Bio energy Laboratory crop growth in simulated climate conditions.
- Photochemistry Photoactive material testing, performance testing of artificial photosynthesis.

TEST CAPACITIES :

Solar simulator :

| | |
|-------------------------|---|
| Solar simulator class: | AAA (IEC 60904-9). |
| Spectral match Class A: | 0.75-1.25 (wavelength intervals 400 nm -1100 nm). Close spectral match up to 1700 nm. |
| Uniformity: | Class A: < 2 %. |
| Stability: | Class A: < 2 %. |
| Intensity: | 1000 W/m maximum, Standard Test Condition (STC), Dimming to 27% by computer control. Higher intensities on request. |
| Optional UV content: | 1 sun: UV-B: 5 W/m \pm 20 %, UV-A: 63 W/mm \pm 15 %. Other UV levels on request. |



Climate chamber :

| | |
|--------------------------|------------------|
| Temperature range : | -45°C to +180°C. |
| Temperature stability : | ± 0.3°C. |
| Temperature uniformity : | Within 3°C. |
| Heating / cooling rate : | 4°C/min. |
| Humidity range : | 10 % to 98 % RH. |
| Humidity stability : | ± 2.5 % RH. |
| Humidity uniformity : | Within 10 % RH. |

ILLUMINATION SYSTEM :

| | |
|--------------------------|--|
| Lamp type : | Mixed gas (patent pending). |
| Lamp lifetime : | Type 1: 9000 hr . Type 2: 1800 hr. |
| Number of lamps : | 42 pieces (total), 21 pieces of each type. |
| Time to full intensity : | 15 minutes. |
| Time before restart : | 15 minutes. |

ELECTRICAL SYSTEM :

Solar simulator :

| | |
|-----------------------------|--|
| Power consumption : | 5.8 kVA (continuous), 6.8 kVA (maximum). |
| Connection : | 400V, 50-60 Hz, 3 phase + N + PE, 16A. |
| Allowable mains stability : | ± 15%. |
| Customization : | Other configurations upon request. |

Climate chamber :

| | |
|-----------------------------|--|
| Power consumption : | 27.6 kVA. |
| Connection : | 400V, 50-60 Hz, 3 phase + N + PE, 32A. |
| Allowable mains stability : | ± 10 %. |
| Acknowledgements : | Other configurations upon request. |

DIMENSIONS AND INSTALLATION REQUIREMENTS :

| | |
|---|---|
| Test surface (class A, <2%) : | 500 mm x 500 mm. |
| Illuminated area : | 900 mm x 900 mm. |
| External dimensions (combined setup) : | 2200 mm x 2800 mm x 1955 mm (W x D x H). |
| Internal dimensions (climate chamber) : | 1100 mm x 1000 mm x 1000 mm (W x D x H). |
| System weight : | 955 kg. |
| Additional space required : | 500 mm around for installation and maintenance. |
| Environmental conditions : | Low dust level, air-conditioning system that is able to remove heat load. 0 °C to 40 °C (32 °F to 104 °F) / max 75% RH. |

FEATURES :

- Computer control and monitoring system.
- Programmable thermal and humidity cycling.
- Mains voltage stabilization system.
- Cold sky infrared filter system.

OPTIONAL ADD-ONS :

- Measurement system.
- Day/night illumination cycling.
- Controllable UV-A, UV-B and UV-C lamps.

In cooperation with :