



PV MODULES & SOLAR PANELS TESTING



ET-Series Environmental Test Chambers for Solar Panels and PV Modules testing with uncompromised features at competitive prices. Ideal for choosing your best suit for variable sizes of Solar Panels and PV Modules from the available range of standard and Custom-Built Chambers. High performance & inherent reliability guaranteed for continuous testing of your products



THERMAL CYCLE, HF & DAMP HEAT TEST



SAMPLE TESTING SPECIFICATIONS OF SOLAR PANELS/PV MODULES

The rapid change in the growth of solar industry has led to the high demand creation for solar products/modules in the recent years. Especially the PV modules that generate solar energy the demand has been phenomenon in the last few years. Hence the need for testing these products for various environmental stresses viz., temperature, humidity, solar radiations etc., has been increased substantially. In order meet this demand on a cost-effective solution Envisys Technologies manufactures the test chambers suitable to comply various international standards like IEC, UL and other organizations.

Standards	Testing Procedures
IEC 61215	Crystalline silicon terrestrial photovoltaic (PV) modules Temp. Cyclic Test: - 40 deg C to +85 deg C for 50 cycles or 200 cycles Humidity Freeze -40 deg C to +85 deg C & 85% RH – 10 Cycles Damp Heat: +85 deg C & 85% RH for 1000 hours Humidity control during the temperature ramp
IEC 61646	Thin-film terrestrial PV modules - Temp. Cyclic Test: - 40 deg C to +85 deg C for 50 cycles or 200 cycles Humidity Freeze -40 deg C to +85 deg C & 85% RH – 10 Cycles Damp Heat: +85 deg C & 85% RH for 1000 hours No humidity control during the temperature ramp
IEC 61730	PV module safety qualification test: Part 2: Requirement for testing
IEC 62108	CPV modules and its assemblies-Design Qualification
UL 1703	Flat Plate PV Modules and Panels
ASTM E1171	Test Methods for PV modules in cyclic temp and humidity conditions

The above table indicates the sample test procedures of solar panels/PV modules testing according the most recognized standards. Envisys can design and manufacture chambers according to the customer needs on specified standards, sizes of panels, ramp rate or if the customer wishes to have independent chamber for damp heat cycle, we can provide the same to meeting your demand of testing the panels.

CONTROL CONSOLE

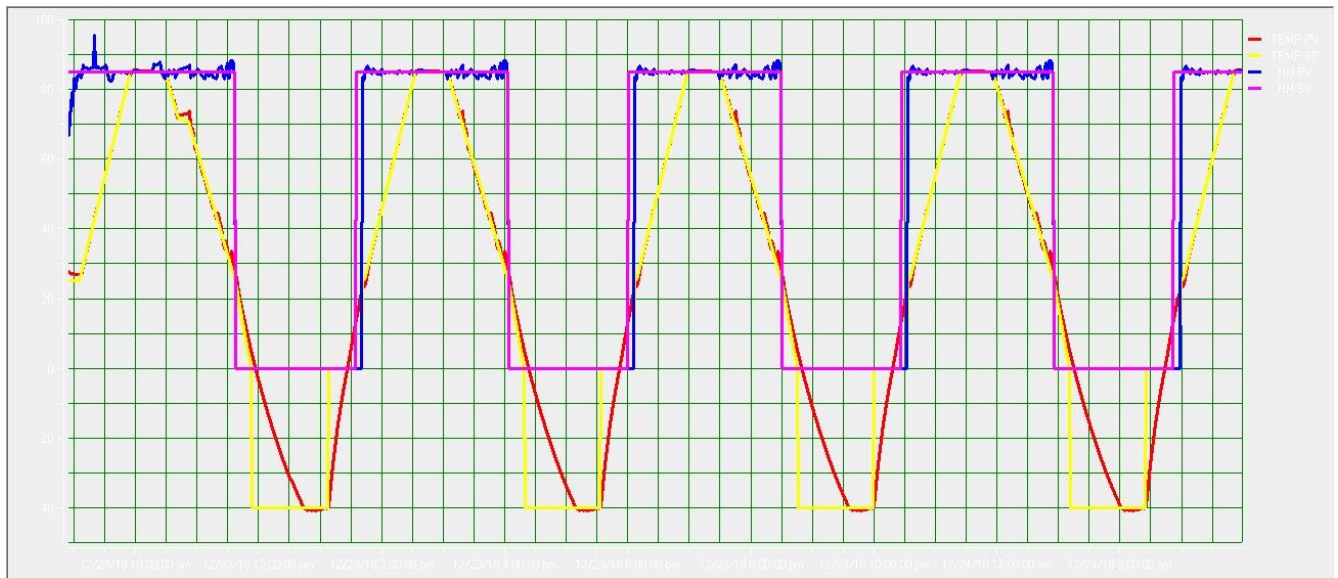


Color Touch Screen Controller is built around high-performance core hardware with integrated functionality. Touch screen controller is constructed with Cast Aluminum IP 66 protected enclosure for front screen with many added features viz., Dual USB host port, on board 256MB non-volatile flash memory and extended external memory up to 2 GB.

Touch screen controller allows the user to easily view and access information through the 7" Resistive Analog touch screen and through web server using a PC. In addition, USB host port allows direct transfer of log files, program files and report to the external storage devices like Hard disk USB drive.

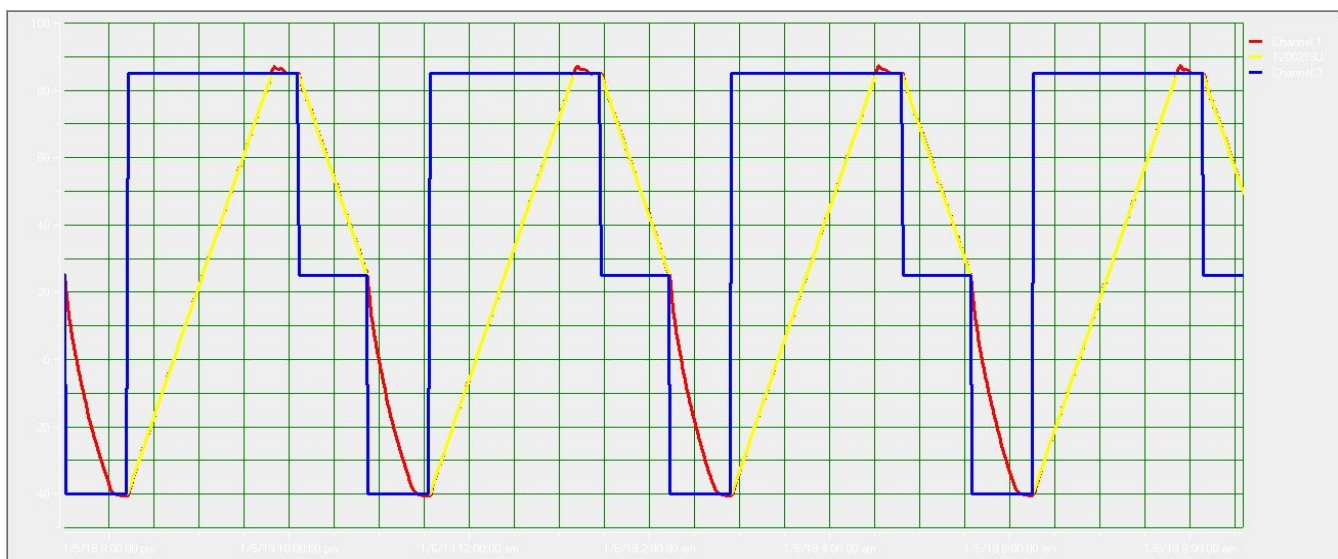
ET-touch controller is configured with independent loops control (Temperature or RH) with expanded digital, analog and PID control capabilities.

TEST PERFORMANCE CHARTS



HF CYCLE TEST GRAPH

Test Description: Humidity Freeze Test - In place of 20hrs we have conducted the trial test for 30 minutes.



THERMAL CYCLING TEST

Test Description: Ramp down from 25 to -40 deg C at 100 deg C / h max. Soak for a min of 10 minutes. Ramp up to 85 deg C at 100 deg C / h or less. Soak for min 10 minutes. Return to ambient (25 deg C – Total cycle 6 hours.



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