

Automated Thermal Testing of Power Devices

Simplified Thermal Test Integration with a ThermoStream® or Sigma Platform and the Keysight B1505A and B1506A Power Device Analyzer

Designers can now characterize device behavior over wide temperature ranges using the [HP289-PM thermal platform](#) or [ThermoStream air forcing system](#). Both integrate directly with the Keysight Analyzer to minimize measurement issues introduced when routing longer cables to external temperature test equipment.

The thermal platform (ambient to +250°C) and ThermoStream (-50 to +250°C) meet the needs for high heat and extreme cold testing applications. Automated temperature cycling, data logging, and remote communications are featured in both temperature test systems.

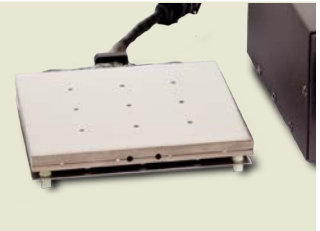


B1506A



Enclosure for use with B1505A

Minimizing measurement issues associated with long cables; Sigma Thermal Platforms interface with the Analyzer via the Keysight Thermal Plate Compatible Enclosure



The rapid thermal cycling and precise control of the ATS ThermoStream combine with the Analyzer via the Keysight ThermoStream Compatible Enclosure



Enclosure for use with B1506A

HP289-PM Thermal Platform (Hot Plate)

Automated High Temperature Device Testing for Keysight Power Device Analyzers



(Shown with Optional Accessory Cable)

The HP289-PM is a temperature controlled platform designed to integrate with the Keysight B1505A and B1506A Power Device Analyzers. The platform permits automated control of plate temperature, from enclosure ambient to 250°C, for characterization of power devices such as IGBTs and MOSFETs.

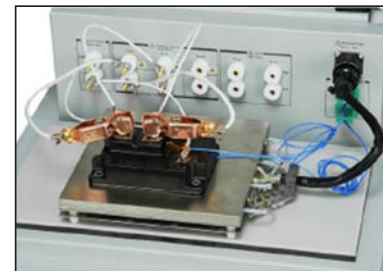
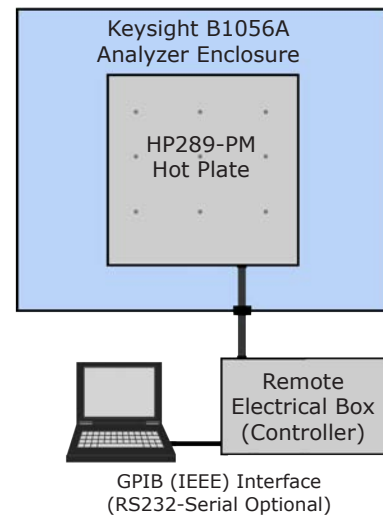
The plate system comprises the Thermal Platform and Controller, which interface with the Keysight Analyzer via a Connection Harness incorporated in the Analyzer. The plate sits in the Analyzer's test fixture, minimizing cable length and risk of oscillation.

Key Features

- Automated temperature cycling
- Real-time data logging
- Dynamic (DUT) temperature control
- Local and remote operations

Specifications

Platform Model	HP289-PM (inTEST SPEC #1.000.928)
Temperature Range	Enclosure ambient to +250°C
Platform Surface	Electroless nickel plating with hole pattern for device fixturing
Platform Dimensions	1.2"H x 6.7"W x 6.7"D (3.0cm x 17.0cm x 17.0cm) Length of platform umbilical: 5.1" (13.0cm) <i>(Additional sizes available, contact factory or your sales representative)</i>
Controller Dimensions	5.4"H x 11.0"W x 9.7"D (13.7cm x 27.9cm x 24.6cm) Length of controller umbilical: 59.0" (1.5m)
Power Requirements	Voltage Configurable: 100 to 120 / 200 to 240VAC Frequency: 50/60 Hz Current: up to 10A
Temperature Controller	Watlow PM Series controller w/ RTD input, SSR output Communication via GPIB (IEEE 488.2 compliant) Temperature Sensor: 100 Ohm RTD
Control Safety	Platform over-temperature protection (default +265°C) Temperature Sensor: 100 Ohm RTD
Operating Environment	Temperature: 5 to 35°C (23°C nominal) Humidity: 70% maximum Altitude: 2000m maximum
Compliance	Designed to meet CE, EN 61010, NEC
Documentation	User Manual
Options	<ul style="list-style-type: none"> • HP391-PM Optional Size Platform (SPEC #1.001.004) 1.2"H x 6.7"W x 9.1"D (3.0cm x 17.0cm x 23.0cm) <i>(Additional sizes available, contact factory or your sales representative)</i> • For RS232-Serial communication via USB 2.0, use Optional Platform/Controller (SPEC# 1.000.744) • 1' Accessory Cable for independent operation of Thermal Platform (SPEC #7.000.025) <i>(Additional sizes available, contact factory or your sales representative)</i>



Hot plate shown integrated with Keysight Analyzer B1506A



ThermoStream Temperature Forcing System

Automated High/Low Temperature Device Testing for Keysight Power Device Analyzers

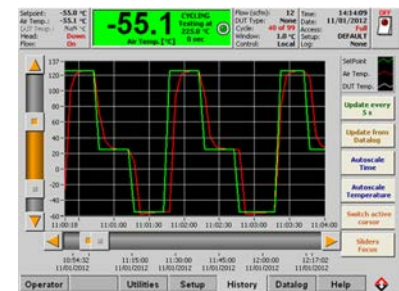
The ThermoStream temperature forcing system docks to an optional Keysight thermal enclosure delivering -50 to 250°C air to the test setup. With rapid thermal cycling and precise temperature control, the ThermoStream is ideal for reliability testing and characterization of high power devices.

Key Features

- Automated temperature cycling
- Real time data logging
- Dynamic (DUT) temperature control
- Local and remote operations
- Frost-free test environment
- Energy saving modes

Specifications

Keysight Enclosure Temperature Range*	-50° to +250°C <i>(must use Models ATS-750/850 to achieve this temperature range)</i>
Transition Rate*	Programmable, up to 18°C/sec
System Airflow Output*	4 to 18scfm (1.9 to 8.5 l/s) continuous
Temperature Display Resolution	±0.1°C
Temperature Accuracy	1.0°C (when calibrated against NIST standard)
Temperature Sensor Ports	Internal diode, thermocouples (T & K), RTD (100 Ohm)
Remote Communications	Ethernet, IEEE-488, RS232
System Dimensions	42.5"H x 24.0"W x 28.5"D (108.0cm x 61.0cm x 72.4cm)
Maximum Reach	63.0" (160.0cm)
Maximum Operating Height	51.2" (130.3cm) extended height option: 74.0" (188.0cm)
Minimum Operating Height	27.2" (69.1cm) extended height option: 32.0" (81.3cm)
Power Requirements	200 - 250VAC (230V nominal), 50/60Hz, 30 amp, 1phase <i>(For your specific configuration, contact factory or your sales representative)</i>
Compressed Air Requirements	Clean, Dry Air (CDA), Filtered to 5 micron particulate contamination. Oil Content: <0.1 ppm, by weight, filtered to 0.01 micron oil contaminant. Dewpoint: <10°C @ 6.2 BAR (90PSI)
Air Supply Pressure	6.2 to 7.6 BAR (90 to 110PSIG)
Total Air Flow Required	7.1 to 14.2 l/s (15-30scfm) 11.8 l/s (25scfm) nominal
Air Supply Temperature	+20° to +25°C; +22°C nominal
Operating Environment	+20° to +28°C; +23°C nominal 0 to 60% humidity, 45% nominal
Configurations available for other applications	<ul style="list-style-type: none"> • ATS-710/810** Series: Temp. Range -80° to +225°C Model 710: 50/60Hz / Model 810: 60Hz • ATS-750/850 Series - Temp. Range -90° to +300°C Model 750: 50/60Hz / Model 850: 60Hz
* Under nominal operating conditions ultimate low temperatures (±1°C) achieved at 12scfm	
** Reduced upper temperature range	



ThermoStream cycling screen



ThermoStream docked with enclosure

The inTEST Thermal family includes three temperature-related corporations: Temptronic, Sigma Systems, and Thermonics. Products include [thermal chambers](#) and [plates](#), [portable temperature environments](#), and [process chillers](#).