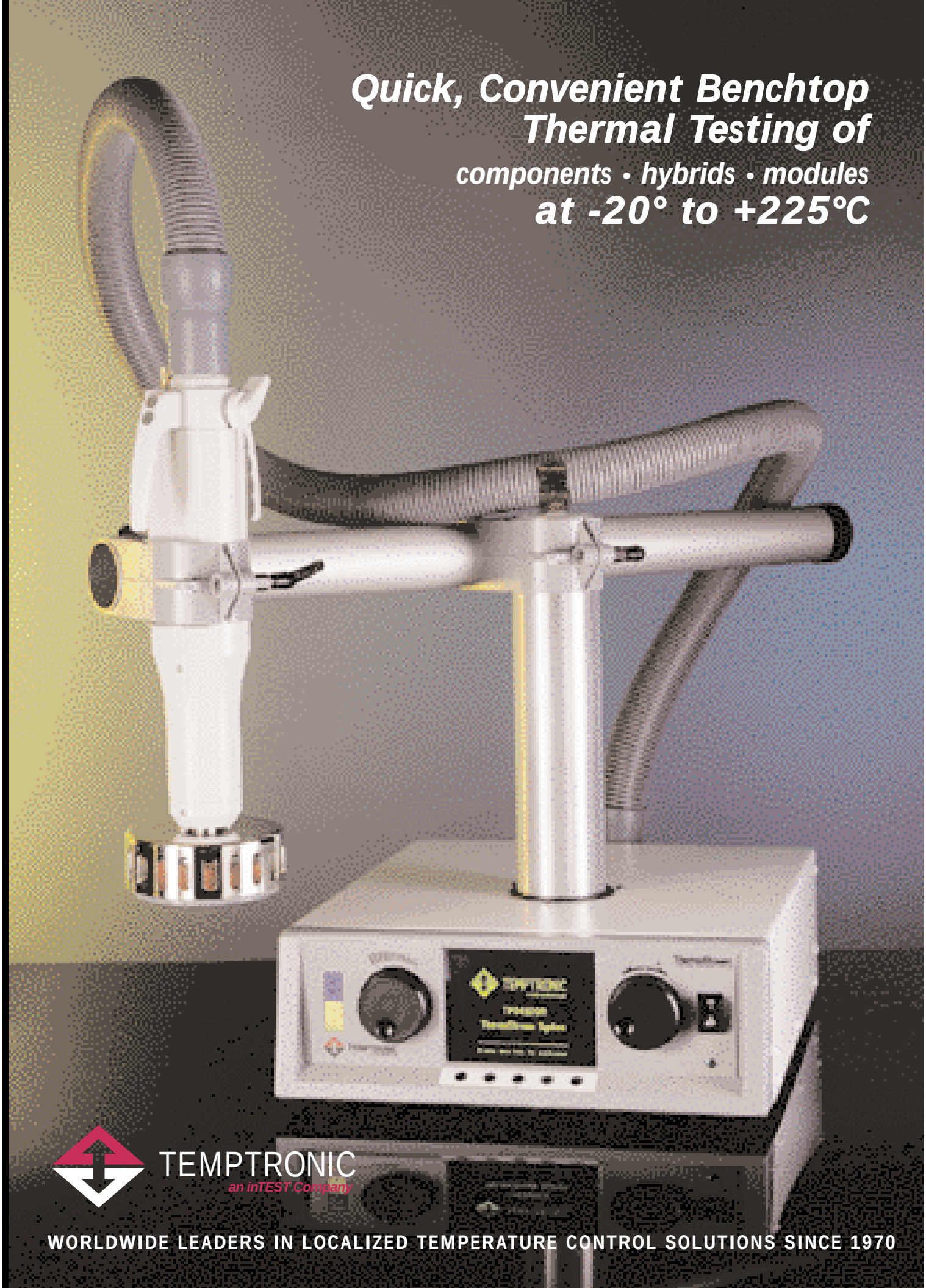
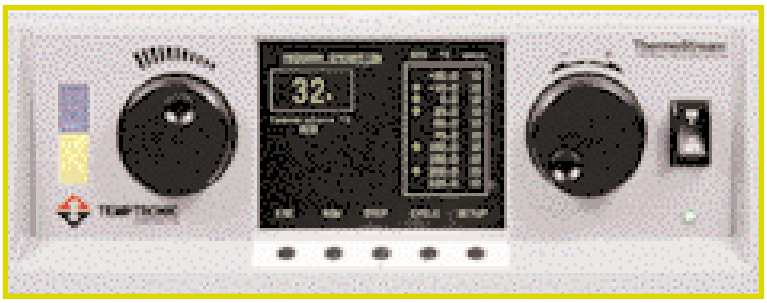

Quick, Convenient Benchtop
Thermal Testing of
components • hybrids • modules
at -20° to +225°C
TEMPTRONIC
an inTEST Company
WORLDWIDE LEADERS IN LOCALIZED TEMPERATURE CONTROL SOLUTIONS SINCE 1970

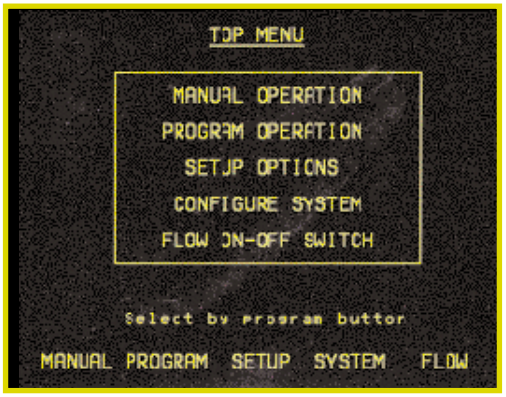
Model TP04100A Series ThermoStream® System



***Model TP04100A** ThermoStream® System, compact in size for benchtop use, provides precise, temperature controlled air from **-20° to +225°C** for thermally testing, cycling and characterizing components, hybrids and modules at the tester site or on a printed circuit board.*

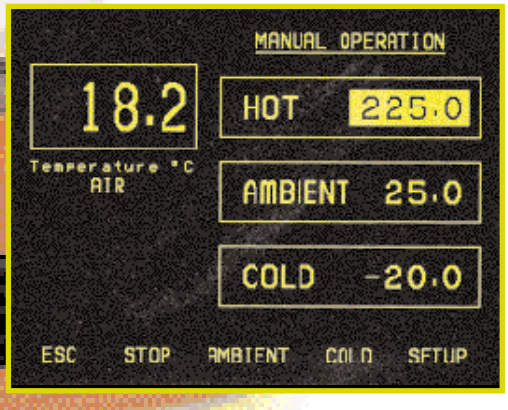
Quick Set and Select Operation

The TP04100A can be operated from the bright Graphical Display Screen and front panel or via the IEEE-488.2 or RS232 remote interfaces, which are standard features.



Menu-driven operation provides fast, simple control of all functions using the Program Buttons. Selections from the "TOP MENU" lead the user through setting basic and advanced thermal test programs and other system parameters. The user can also toggle the Thermal Wand airflow ON/OFF. "SETUP OPTIONS" and "CONFIGURE SYSTEM" Screens provide additional access for setting system operating parameters.

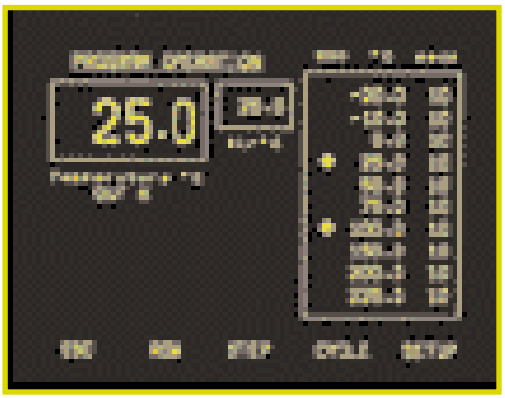
The Graphical Display Screen with five corresponding Program Buttons for menu selection and a Rotary Encoder Knob make the digital setting of temperatures, ramp rates, soak times, cycles and all other system parameters and functions at the front panel **fast and easy.** Airflow from 1 to 3 liters/second (2 to 6 scfm) can be adjusted for hot setpoint temperatures, at the Air Flow Adjustment Knob on the front panel.



Full-featured for Design, Engineering and Production Test

The "Manual Operation" Mode provides three temperature setpoints: Hot, Ambient and Cold. **Up to ten temperature test set-up profiles can be selected.** For optimized throughput, ramp, soak, cycle temperature functions can also be performed in this mode.

Up to ten advanced temperature profiles, including ramp, soak, cycle, can be created in **"Program Operation" Mode.** AIR or DUT thermal control, sensor type (T or K), "At-Temperature" Window and additional settings can be selected. For test repeatability and quick convenient set-up, temperature profiles can be saved for future recall and use.



Graphical Display of Real-Time Status

The status of set temperature(s), current temperature of both air and DUT (while in DUT Control Mode), and cycle count, as well as system status messages are displayed in real-time alphanumeric format.

Remote Control and ATE Compatibility

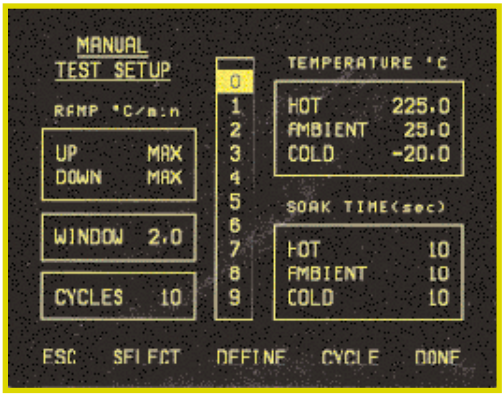
System control can be performed at the front panel or via the IEEE-488.2 or RS232 remote interfaces. Customized temperature profile test programs can be created by the end user for remote host control. The MCT Standard tester interface, Start Test/End of Test (ST/EOT) is also included. The remote interface ports are located on the system's rear panel. As with all Temptronic ThermoStream Systems, the TP04100A interfaces with all major testers. Instructions at the "CONFIGURE SYSTEM" Screen simplify system set-up with instructions for remote interfaces in the comprehensive manual. For complete control while operating from a remote host, automatic Local Lockout prevents the system from accepting any local commands.

Precise Control in Air or DUT Mode

Controlling the temperature in "Air Mode" provides fast transitions of the system airflow to the temperature setpoint. In "DUT Mode", the TP04100A transitions to the temperature setpoint while sensing the actual device case temperature at the DUT, using Temptronic's patented DUT Dual Loop Control*. Current air and DUT temperatures are displayed simultaneously in DUT mode.

A temperature sensor (T Type or K Type) is placed in contact with the DUT and connected at the front panel, providing continuous, real-time DUT temperature measurements to the controller. The TP04100A achieves temperature precision at the DUT site, keeping the DUT within the "At Temperature" Window. Improving test efficiency, the "At Temperature" Window provides a tolerance range around the actual desired temperature for the DUT at which testing may be performed. Continuous temperature sampling at the DUT ensures consistent, precise temperature control.

(*US Patent no. 4,734,872)



"SMART Tuning" Speeds Transitions

Enhancing test throughput with efficient thermal transitions, Temptronic's SMART Tuning feature automatically sets the most effective ramp rate and path to bring the device to temperature. While minimizing temperature overshoot at the DUT (while in DUT Control Mode), SMART Tuning calculates the temperature/time response of the DUT and adjusts the temperature control.

Hand-held Thermal Wand Adds Flexibility and Convenience

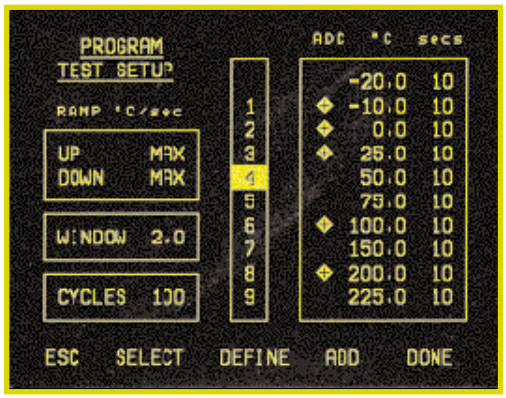
The compact Thermal Wand can be held in-hand for direct placement at the DUT or, for added stability, kept in the optional Thermal Wand Stand Assembly mounted to either the controller cabinet or the optional Benchmount Stand Assembly. The expanding, locking and 340 degree rotating Thermal Wand Stand ensures proper placement of the Thermal Wand nozzle over the DUT. When attached to the controller, the stand's horizontal arm reaches out from either side of the controller chassis.

Convenient Coupling to the DUT on the Tester Or Printed Circuit Board

For correct coupling of the thermal wand nozzle to the test site and maximum temperature transfer to the DUT, an Insulation Kit of non-conductive thermal shrouds of various sizes and sheets of non-conductive material is used. The insulation sheet and

thermal shroud, while surrounding the DUT, also protect the tester and surrounding devices from temperature extremes. Proper coupling ensures test repeatability and keeps transition times to a minimum.

Attaching to the Thermal Wand and aligning at the DUT site for a precision thermal environment, the optional transparent thermal cap includes a glass wall and a protective metal guard. Optional shrouds and sheets of conductive and non-conductive material of various thicknesses are also available.



Purge air maintains the test socket and test fixtures at close to room temperature whether testing at high or low temperatures and can be added to reduce any moisture, frost or overheating of tester electronics.

Maximizing Reliability and Product Support

The TP04100A's modular mechanical design enhances product reliability and support. Product upgrades with optional accessories, such as the Benchmount Stand Assembly, extended reach arm or Thermal Cap, are readily installed. Swap-out modules ensure quick system preventive maintenance and module replacement.

Long term product support includes a system warranty, comprehensive multilingual operator's manual, optional service agreements, training and a toll-free product support hot-line. For convenient local service, Temptronic's worldwide network of factory-trained customer service representatives provide rapid response to inquiries and long term product support.

Thermal Accuracy Confirmed

For traceable thermal accuracy, prompt calibration of the sensors (including T Type and K Type) in Air and DUT modes at a high and low temperature can be performed by the user. The "CALIBRATE SYSTEM" Screen leads the operator through this simple procedure, which can be completed in approximately 10 minutes.

ESD Protection

The TP04100A ThermoStream's airflow is ionically balanced (free of static charge) and contributes no measurable static charge to the DUT or test enclosure. When the transparent Thermal Cap is coupled with the optional Conductive Shroud Kit and Conductive Insulation Sheets for interfacing to a tester socket, an ESD dissipative environment is ensured and no additional ionizer is required.

Approved Worldwide by International Standards

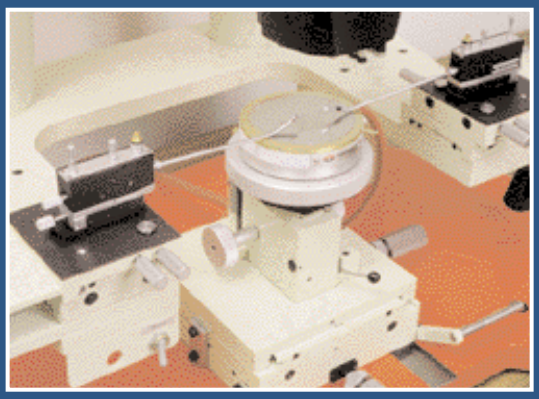
The TP04100A system is CE approved, bears the CE Compliant Mark and is designed to meet standards requirements for UL and CSA. All Temptronic Systems are CFC-free (no Chloroflourocarbons) and in compliance with all national and international environmental protection measures for clean air.

For testing small subassemblies and PCBs from -20° to +225°C, ThermoFixture® and custom enclosures provide a frost-free thermal environment with an optional ATE interface.

- Compact, lightweight system fits bench top
- Hand-held Thermal Wand for convenience and flexibility in bringing temperature to the DUT
- Selectable ramp/soak/cycle thermal test set-up routines
- Create and save up to 10 individual thermal test set-up routines
- User-friendly “Quick Set and Select” menu control at front panel display
- Clear graphical display of thermal test status and temperature parameters
- Thermal control directly at device with patented DUT Dual Loop Control
- IEEE.488.2, RS232, ST/EOT interfaces
- No LN_2, CO_2 or refrigerants required
- Compliant with international standards; bears CE Mark

Model TP04100A ThermoStream® System

Complete Thermal Test Solutions



ThermoChuck® Systems for probing wafers, chips, hybrids and other flat devices at hot and cold temperature.

ThermoMap™ thermal imaging system for full color mapping of the temperature distribution of a device with 1 micron spatial and 0.1°C thermal resolution; for use in design, analysis and hot spot location.

ThermoFixture™ for testing hybrids, MCMs, modules, PCBs and other devices in a custom enclosure with fixturing for integration with ATE test systems.

ThermoZone® for testing in-circuit probing and troubleshooting component arrays, burn-in boards and small electronic and electromechanical subassemblies.

ThermoSocket® Systems for testing and locating micron size defects on chips in minutes, even at 30 microwatt power levels.

ThermoSpot® Systems for testing and fault isolation of individual components at precise hot and cold temperature at the tester socket or on a printed circuit board.

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