TEMPTRONIC
an inTEST Company

Portable, Compact Environmental Test Systems and Chambers

TP04300B ThermoStream®

TP04300B ThermoStream® System

A Worldwide leader in Localized Thermal Test Solutions since 1970

TP04300B ThermoStream®
ENVIRONMENTAL TEST SYSTEM

Simulate a true test environment from -80° to +225°C at your benchtop, lab, QA or production area with the TP04300B System and compact ThermoChamber™. Versatile and portable, the TP04300B provides controlled temperature to your sample, part, assembly, or printed circuit board at the test site for..

- **Quality Assurance / Reliability Testing**
- **Fast Temperature Cycling**
- **Thermal Shock**
- **Environmental Testing**
- **Design Verification**
- **Production Testing at Temperature**
- **Temperature Source for Vibration Testing**

Serving the..
..semiconductor, automotive, telecommunications, military/defense, RF microwave, fiber optic, medical and commercial electronics

..Industries

Features and Benefits

- **User-friendly *TOUCHSCREEN* control** with intuitive menus for simple set-up and operation
- **Wide temperature range : -80° to +225°C** exceeds most industries' temperature test standards (i.e. MilSpec, PC, telecommunications, automotive, etc.)
- **Fast temperature change rates** for quick thermal cycling or thermal shock testing
- **Easy access** for convenient loading and removal of your samples, products or printed circuit boards for testing
- **Compact, portable** system rolls easily between engineering labs, across the production floor or to your benchtop.
- Temperature measurement and **control at the device, product or sample optimizes test accuracy.**
- **REAL-TIME temperature status** is provided at the system's front panel for increased test control.
- **Graphing and datalogging** with convenient storage to TP04300B hard drive, floppy diskette or output to a printer.
- **Environmentally friendly:** The TP04300B's self-contained mechanical refrigeration system is **CFC-free[1].**
- **Open-loop** heating and cooling airstream system requires only compressed air and electricity; **no LN_2 or CO_2 is needed.**
- **High reliability:** The finest quality system design and materials assure dependability in the 24/7 work environment.
- **BEST customer support:** Our worldwide network of experienced customer service representatives and regional Temptronic service depots provide responsive, quality support.
- **IEEE-488, RS232, ST/ET/SFF and Ethernet** remote interface ports allow for seamless integration with test equipment.

[1] 50 Hz Systems are HCFC-free and CFC-free.

Test, cycle and qualify your sample, printed circuit board or assembly ***from -80° to +225°C*** *at your engineering laboratory or production area in a TP04300B thermal test environment. Simple to operate, the TP04300B has the thermal capacity and modular design to provide a true test environment to your benchtop, to a compact Temptronic chamber or to your existing test set-up or chamber with thermal accuracy and repeatability.*

Model TP04300B
ENVIRONMENTAL TEST SYSTEM

Precise Temperature Control
Fast Temperature Change Rates
Compact, Portable System
User-friendly Touchscreen Operation
Interchangeable Chambers
Versatile, Cost-effective

Portable, Modular Design offers the FLEXIBILITY to adapt easily to your application requirements, operating with..

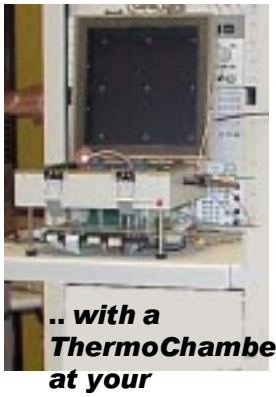
.. your existing chamber, a Temptronic compact chamber, or to your specific application at your benchtop by connecting via our gas transfer hose ("*Flexible Extender*") to the TP04300B base. This *Flexible Extender* hose, supplied standard with each TP04300B system, extends the reach of your system (Choose 2, 4 or 6 foot length) while the TP04300B provides direct temperature control to your sample or product under test.

or

.. the **Temptronic interchangeable ThermoChamber**™ either attached directly atop the TP04300B base, saving floor and benchtop space, or connected via the *Flexible Extender* for use at your test site or benchtop. Each ThermoChamber provides a precisely controlled environment and is available in standard and custom sizes and designs. By simply exchanging the ThermoChamber, the system easily adapts to various applications.

...for a controlled test environment at your test site or benchtop!

.. with your Temptronic ThermoChamber™



.. with a ThermoChamber™ at your BENCHTOP

TP04300B Operating Features

The TP04300 Series high capacity airstream systems provide 18 scfm airflow at temperatures from -80° to 225°C to a chamber or localized environment for a controlled test environment. Utilizing customer-supplied compressed air and electricity, the TP04300B's heating system and patented mechanical refrigeration technology deliver a wide range of temperature, fast temperature change rates and a wide array of capabilities in a portable system:

- Touch-screen front panel with intuitive menus for ease of set-up and operation.
- SIX user-friendly screens offer two levels of control, thermal cycling and test capabilities:
  - *"Operator's" Mode* for testing and cycling at 1 to 3 temperatures
  - Full-featured "*Cycling*" *Mode* with access to graphing, cycling, datalogging and all programmable set-up screens ("*Utility", "Set-up", "History"* ,*"Datalog"*)
- On-screen "*Help"*
- Programmable *ramp/soak/cycle* for convenient thermal cycling
- Graphing and Datalogging; store to hard drive, floppy diskette or output via printer ports
- "At Temperature" Windows for improved test throughput
- Temperature control with sensor measurements directly at the sample or device case, with real-time temperature status on-screen for greater test control
- Type T, Type K, 100 ohm RTD and Internal Diode sensor ports
- Remote control via IEEE-488, RS232, and ST/ET/SFF communications

.. at your TEST STATION

..or connect your TP04300B to your application !

ThermoChamber™

Interchangeable Environmental Chamber for Use with the TP04300B Base System

- **Standard and custom sizes and configurations are available** to meet a variety of applications.
- **Adds versatility.** A ThermoChamber is easily added or removed via the TP04300B "Universal Coupling" for a plug-and-play connection. By using ThermoChambers of different sizes or designs with the TP04300B base, the system is adapted for a multitude of tests and requirements.
- ***Direct Temperature Control*, measured at the sample, product or PCB,** in addition to air temperature measurements.
- **Fully insulated**: Locking latches seal insulation for a controlled environment.
- **Uniform, stable temperature distribution** throughout the chamber.
- **Quicker and more convenient** to heat and cool than a large oven; Compact chamber environment enables more localized temperature control and quicker temperature response than in an expansive oven.
- **Easy access** for loading or removing samples or products for testing; other configurations are available.
- **Complete fixturing** to interface to test equipment for a turnkey system is also available.

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Specifications- TP04300B Base

Standard system configuration	**Includes Base unit and "Flexible Extender" gas transfer hose (with choice of 2, 4, or 6 ft hose)** ThermoChambers and additional *Flexible Extender* hose configurations are available.
Temperature range	**-80º to +225ºC**
Temperature accuracy	1.0ºC (when calibrated against NIST transfer Standard)
Temperature set, display, resolution	± 0.1ºC
Typical temperature change rate[2] (air)	-55º to +125ºC: approx. <5 seconds +125º to -55ºC: approx. <13 seconds
System airflow output	2.4 to 9 liters/sec (5 to 18 scfm) continuous
Temperature control :	"Air" Temperature and "device/sample" temperature are measured separately.
Air temperature	Measured by TP04300B system sensors.
Device/sample sensor ports	Type T and Type K thermocouple; 100 ohm RTD (Temperature is measured *at the sample or product under test using a sensor located at the sample case*)
Direct device/sample control	Control temperature to within ± 0.1ºC with temperature measurement and control at the device or sample
User-friendly operation	**Touch-screen** with intuitive menu access to commands for quick set-up.
Modes of operation	Two: *Operator's* (Basic: three temperature setpoints per screen) and *Cycling* (Full Feature)
Function screens	Six: *"Operator's", "Cycling", "Set-up", "Utility", "History" and "Datalog*"
On-screen help	Included for both *Operator's* and *Cycling* Modes
Display and status indicators	Temperature settings and real-time status and temperature displayed at Touchscreen and via remote interface.
Ramp/soak/cycle configurations	In *Cycling* Mode, set-up table displays **up to 18 ramp/soak/cycle** sets on-screen.
Test set-up configurations	In *Cycling* Mode, unlimited number of set-up tables may be created and stored.
Program and data storage	Datalogging and program files may be stored to hard drive or to a 3.5" floppy diskette.
Graphing	Series of graphs including time/temperature graphs displaying set temperature, air temperature and device/sample temperature.
Datalogging	On-screen and log to files or printer.
Remote interface ports	IEEE-488, RS232, ST/ET/SFF and Ethernet
Mobility	Four swivel castor wheels with locks (10.16 cm (4 in.) diameter); rear handle for ease of transport.
Calibration	Automated, simplified and accurate for all airflows and device types.

[2] Temperature change rate performed under nominal conditions.

Facility Requirements

Power Requirements

200-240 Volt AC (230V nominal), 50 Hz, 30 amp, 1 phase

200-240 Volt AC (230V nominal), 60 Hz, 30 amp, 1 phase

Compressed Air Requirements

Clean, Dry Air: Filtered to 5 micron particulate contamination; oil content: <0.01 ppm by weight, filtered to .01 micron oil contaminant

Dewpoint: <10°C @ 90 PSI

Supply pressure/ input
6.2 to 7.6 BAR (90 to 100 PSI)

Supply flow at minimum supply pressure
7.2 to 14.3 liters/sec (9 to 30 scfm) input (25 scfm nominal)

Air supply temperature
+20° to +25°C (+22°C nominal)

Operating temperature
+20° to +28°C (+23°C nominal)

Humidity
0 to 60% (45% nominal)

Safety / Environmental Features

Refrigerants
Self-contained, non-toxic, non-flammable; no LN_2 or CO_2.

50 Hz system: HCFC-free and CFC-free

60 Hz system: CFC-free

Weight and Dimensions

Dimensions, base unit*
width: 61.0 cm (24 in.)
depth: 71.1 cm (28 in.)
height: 107 cm (43 in.)

* Dimensions do not include optional chamber.

Weight (not packed)
base: 219 kg (483 lbs.)

Part No. SL10330 R/A 05/03