

# Freeze Thaw Chambers



**Labtop Programed Logic controlled (PLC ) Freeze thaw chambers** are used for drug excursion testing, concrete and asphalt testing, coating and adhesive testing, outdoor weathering testing and extensively used in packaging and pharmaceutical industries, food and beverage industries , for testing and measuring the resistance of products deterioration caused by repeated cycles of **freezing** and **thawing**. Temperature range adjustable from -20.0°C to 60.0 °C .

## Cabinet construction

The cabinet of Labtop Freeze Thaw Chambers are insulated with high density CFC free Poly Urethane Foam. Interior of the chambers are mirror finish stainless Steel (304 SS, 1.0 mm thick). The exterior is white powder coated (1.0 mm thick) mild steel and the door has magnetic gasket with a keyed door lock. Specially designed solid stainless steel wire mesh trays ensure even temperature distribution and storage inside. GMP models are in total stainless steel (Inside S. S 304 with mirror finish and outside. S.S 304 dull finish and inner S.S316 is also available on request at extra cost )

## Safety Features

- Miniature circuit breaker to protect electronic components in case of abnormal power supply
- Audio visual alarm when temperature deviates from set temperature
- Provision for mobile alert via GSM Technology
- Safety cut off when temperature crosses 60.0 °C.

# PROGRAMMABLE LOGIC CONTROLLER (PLC) SYSTEM

A **programmable logic controller (PLC)** is a digital computer used for automation of controlling electromechanical processes, such as **control** of Temperature, Speed, Door open/Close, Time and other event management with less maintenance hence no moving parts.

- 4.3" HMI with color Display and touch screen
- Configurable access for 72 users
- Privilege based grouping
- Multi level Password protected Human Machine Interface (HMI)
- Data storage to record set values, process values, date & time with variable time intervals
- High speed Ethernet connectivity
- incorrect password attempt and user lock
- Online data can be printed with date and time stamp
- Non operational screen auto logout
- Configurable maintenance reminder pop up alarm
- Individual Alfa numeric user ID and password
- User operation will be recorded and saved in memory
- Online and offline Log reports on HMI
- Safety cut off for over shoot and under shoot
- Programmable alarms with event management
- Precise control of temperature by using PID control Action
- Data storage capacity up to 200000 readings
- Self diagnostic system with error messages



## **ALERT MANAGEMENT:**

- SMS alert message can be send to 5 users with notifications.
- Email alert can be sent to 15 users with notifications.
- Call alert can be send to 5 users with voice messages with notifications .

## **Salient Features**

- Unidirectional air flow system ensures even temperature distribution and quick recovery after door openings.
- Foamed in place CFC free PUF insulation ensures temperature stability and reduced power consumption.
- Safety cut off in case of temperature overshoot
- Specially designed solid stainless steel wire mesh trays ensure even temperature distribution.
- U-shaped Stainless-Steel tubular heater
- 50 mm Validation port for external validation
- Caster wheels for ease of mobility
- Various accessories are available as option
- Transparent Acrylic inner door
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- Cyclic temperature control

| Technical Specifications                      |                     |               |               |               |                |                |                |
|---|---------------------|---------------|---------------|---------------|----------------|----------------|----------------|
| <b>Volume</b>                                 | 100 Liters          | 200 Liters    | 300 Liters    | 400 Liters    | 600 Liters     | 800 Liters     | 1000 Liters    |
| <b>Temperature</b>                            | -25 °C to 70 °C     |               |               |               |                |                |                |
| <b>Accuracy</b>                               | ± 0.5 °C            |               |               |               |                |                |                |
| <b>Uniformity</b>                             | ± 1.0 °C            |               |               |               |                |                |                |
| <b>Controller system</b>                      | Micro control / PLC |               |               |               |                |                |                |
| <b>No. Of tray</b>                            | 2                   | 3             | 4             | 4             | 4              | 8              | 8              |
| <b>No. of Doors</b>                           | Single              | Single        | Single        | Single        | Single         | Double         | Double         |
| <b>Power</b>                                  | 500 W               | 500 W         | 500W          | 500 W         | 750 W          | 1000 W         | 1500 W         |
| <b>Voltage</b>                                | 230 V AC , 50/60 Hz |               |               |               |                |                |                |
| Dimensions (W x D x H ) in mm and weight (kg) |                     |               |               |               |                |                |                |
| <b>Internal Dim</b>                           | 435x400x600         | 505x400x1005  | 565x450x1205  | 635x530x1205  | 745x670x1205   | 1120x600x1205  | 1150x670x1300  |
| <b>External Dia</b>                           | 580x845x1275        | 650x880x1680  | 710x935x1885  | 780x1010x1880 | 890x1150x1960  | 1370x1075x1920 | 1400x1145x1920 |
| <b>Packing size</b>                           | 707x972x1478        | 777x1007x1883 | 837x1062x2088 | 907x1137x2083 | 1017x1277x2163 | 1497x1202x2123 | 1527x1272x2123 |
| <b>Net Weight</b>                             | 120                 | 145           | 200           | 255           | 280            | 310            | 335            |
| <b>Gross Weight</b>                           | 175                 | 225           | 275           | 325           | 350            | 400            | 425            |

**NB :**

P- Models are with Programmable logic control (PLC)  
G- Models are made out of Stainless steel 304 (GMP)

## LABTOP DATALINX SOFTWARE

Title 21 CFR Part 11 is the part of Title 21 of the Code of Federal Regulations that establishes the United States Food and Drug Administration (FDA) regulations on electronic records and electronic signatures (ERES). Part 11, as it is commonly called, defines the criteria under which electronic records and electronic signatures are considered trustworthy, reliable, and equivalent to paper records.

- 21CFR-PART 11 compliance.
- Browser based software
- Multiple chamber data acquisition on single software.
- Reports in Tabular and Graphical form
- Mean Kinetic Temperature Report.
- Automatic Back up Provision.
- Privilege based Group creation
- Privilege based user creation
- Trend analysis report
- Equipment audit trial report
- User ID with Alfa numeric password protection
- Multi user environment (LAN)
- Multiple level password with automatic expiry
- Electronic signature
- Separate reports for alarm and events
- Remote integrations with Control systems.
- Software audit trial report
- Email, SMS and call alert in case of system failure
- Online and offline trends

## **OPTIONAL ACCESSORIES**

### **Data Scanner**

Eight/Sixteen Channel programmable temperature Data Scanner for record, store and print the data online and off line with variable print time intervals, suitable for 80 col. Dot matrix printer.

### **PC interface communication**

Micro controller based PID controller to record, store and print the set values, process values, Date & time with variable print time intervals with RS-485 communication.

### **Power Backup**

Uninterrupted online power supply for PLC in case of power failure

### **Trays**

Additional tray suitable for above equipment as per your requirement

### **Software**

"LABTOP DATALINX " CFR 21 Part 11 compliance windows based communication software for data management. Complete with RS-485 multi dropping to monitor chambers to one software.

### **Timer**

Micro controller based programmable cyclic timer of 999 Hrs for controlling of various conditions

### **Light bank**

Chamber Illumination with LED Light bank for photosynthesis studies

### **Ultra violet lamp**

Chamber illumination with UV-C lamp to sterilize the interior

**Mobile alert**

Mobile alert via GSM Technology in case of system failure

**Door access**

Biometric magnetic door access for secured door opening and closing with PC interface communication

**DOCUMENTATION**

GMP complaint models LABTOP offers IQ, OQ, PQ and DQ validation with documentation, reports, calibration and test certificates.

**CALIBRATION**

The equipment is calibrated with the help of master calibrator, which is certified for its accuracy by Electronics Regional Testing Laboratory (ERTL West) Government of India recognized testing laboratory with traceable reference to National Physical Laboratories (NPL).