

# Lab Companion

## Multi-Layer Temperature And Humidity Test Chamber

C-230-40-2C

Custom Solution

### Brief Introduction



If you want to buy a constant temperature and humidity test chamber, but the laboratory space is limited, then the multi-layer constant temperature and humidity test chamber is definitely suitable for you! The biggest feature of the double-layer/three-layer constant temperature and humidity test chamber is to save space. Because it has two or three independent test boxes which is equivalent to two or three general constant temperature and humidity chambers. It's suitable for limited laboratory space or a large number of small size products (mobile phones, ICs, electronic components, etc.). Effectively save space, electricity, water, and ensure the uniformity of the chamber.

# Lab Companion

## Particularities:

1. Save laboratory space;
2. The double/three-layer chamber can be operate separately suitable for the batch test of small size products.
3. The cost of multi-layer test chamber is relatively low due to all of the chambers share one shell and one refrigeration system.
4. The size of the top and bottom chamber can be be customized according to the needs of customers. Besides, the bottom chamber can be smaller or bigger than the top one.

## Technical Features:

Dimensions (mm)	Width	Height	Depth
Useful	750	600	550
Overall	1250	1870	1840

### **Temperature range:**

from -40°C to +150°C

### **Humidity range:**

20~98%RH

## Homogeneity and Regulation:

### **Temperature fluctuation:**

$\leq \pm 0.5^{\circ}\text{C}$

### **Temperature deviation:**

$\leq \pm 2.0^{\circ}\text{C}$

### **Temperature uniformity:**

$\leq 2^{\circ}\text{C}$

### **Temperature rise time:**

3°C/min (20°C→ +150°C) The whole process of nonlinear heating, without load)

### **Temperature drop time:**

2°C/min (20°C→-40°C) The whole process of nonlinear cooling, without load)

# Lab Companion

## Appearance Introduction and Description:

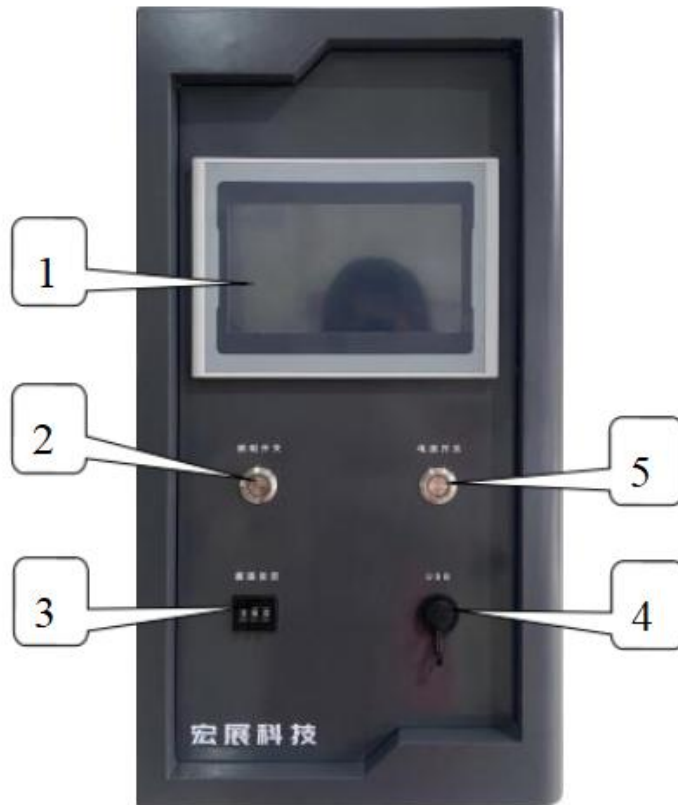
### 1. Front and side of the machine



Number	Name	Illustration
1	Three color lights	Green running, yellow standby, red fault
2	The control panel	Operation panel for machine operation
3	The door lock	Pull the vertical door to open it
4	Glass window	To observe the inner workings of the laboratory

# Lab Companion

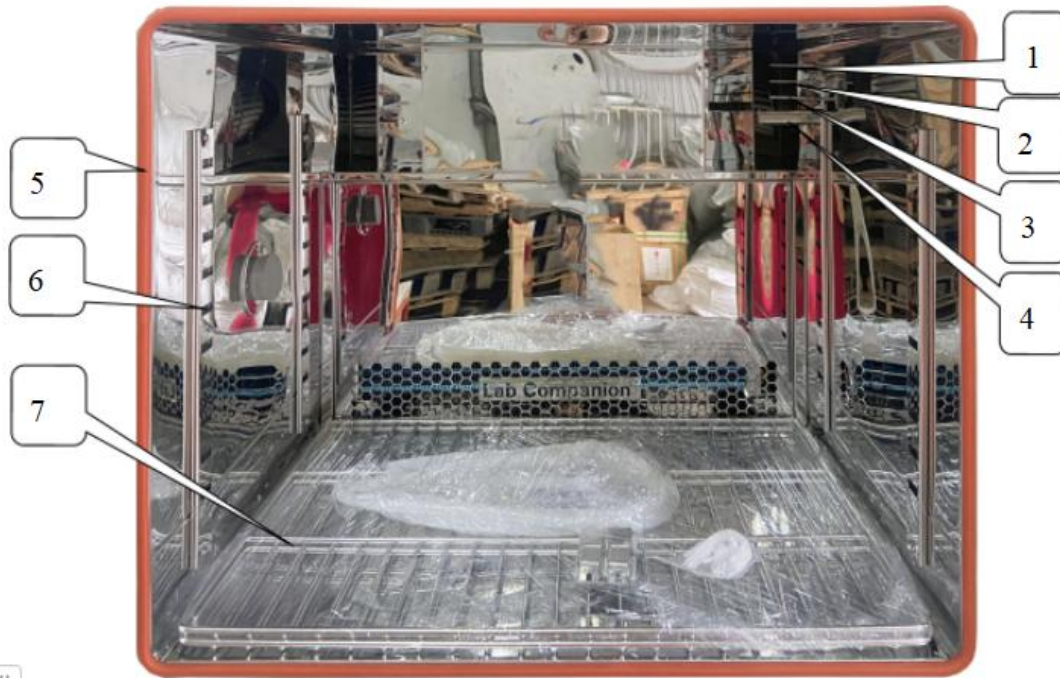
## 2. Control panel



Number	Name	Illustration
1	Controller	Touch screen programmable controller (Refer to controller manual)
2	Lighting switch	Lighting switch to observe the glass window.
3	Over temperature Setting	To Set the upper temperature limit in the test area
4	USB interface	Used to copy curves or document-related data
5	Power switch	Power switch on the control panel.

# Lab Companion

## 3. Test area



Number	Name	Illustration
1	Thermal resistance sensor	Used for panel overtemperature sensing the temperature of the inner chamber
2	Thermal resistance sensor	Used for the controller to sense the temperature of the inner chamber
3	Thermal resistance sensor	Used for the controller to sense the temperature of the inner chamber
4	Water tank	When hanging a wet cloth, one end of the wet cloth should be penetrated about half of the sensor, and the other end should be completely immersed in the water tank
5	sealant	Heat preservation and air leakage prevention
6	Sample rack track	Used to secure the sample holder
7	Sample holder	Used to place test products

# Lab Companion

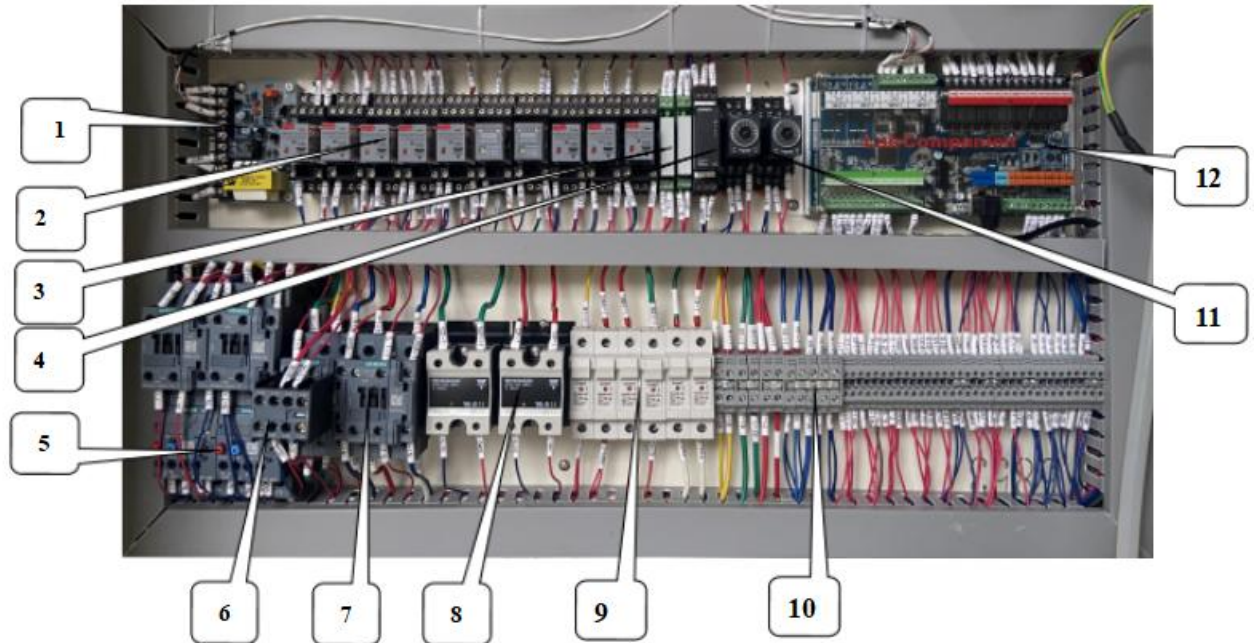
## 4. The cooling machine room



Number	Name	Illustration
1	Water purifier	Filter water for impurities when doing humidity
2	compressor	Compression refrigeration
3	Pressure protection controller	When the pressure in the pipeline is too high or too low, the controller will alarm
4	condenser	Cooling refrigerant

# Lab Companion

## 5. Power distribution room



Number	Name	Number	Name
1	Overheated plate	7	Ac contactor
2	Intermediate relay	8	Solid state relay
3	Cold and hot valve solid state relay	9	Fuse
4	Underinverting phase protector	10	Connector terminal
5	Thermal overload relay	11	Time relay
6	Auxiliary contact	12	Temperature controller

# Lab Companion

## Test Report:

Temperature Sensor °C	-60°C	-40°C	0°C	20°C	40°C	85°C	125°C	25°C 25%	50°C 50%	60°C 95%
<b>1</b>	-59.7	-39.9	0.2	20.1	40.2	84.9	125.0	24.8	50.3	59.4
<b>2</b>	-59.4	-40.0	0.5	19.7	40.5	85.0	124.7	25.0	50.5	59.2
<b>3</b>	-59.6	-40.2	0.7	20.3	40.7	85.3	125.0	25.2	50.7	59.6
<b>4</b>	-59.8	-40.5	0.9	20.6	40.6	85.4	125.2	25.3	50.5	59.8
<b>5</b>	-60.0	-40.6	1.0	20.5	40.8	85.7	125.6	25.5	50.8	60.0
<b>6</b>	-60.2	-40.2	1.2	20.2	41.0	85.9	125.9	25.7	51.0	60.2
<b>7</b>	-60.0	-40.5	1.5	20.5	41.2	86.0	125.7	25.9	51.3	60.0
<b>8</b>	-59.8	-40.7	1.0	20.9	40.9	86.1	125.9	26.0	51.0	59.8
<b>9</b>	-59.5	-40.9	0.9	21.0	40.7	86.3	125.6	26.0	50.8	59.6
Temperature deviation	0.6	0.9	1.5	1.0	1.2	1.3	0.9	1.0	1.3	0.8
Humidity display value								24.5%	49.6%	94.2%
Temperature uniformity	0.8	1.0	1.3	1.3	1.0	1.4	1.2	1.2	1.0	1.0