

## Model: T40W-600

Product number: A0600-T40W-110-BE (110V)  
A0600-T40W-230-BE (230V)

### 1. Function:

T40W series is a plug and play, fully auto dry cabinet which will be stable at 40°C and  $\cong 5\%RH$ . It is especially designed for moisture sensitive SMD packages to comply with J-STD-033B.

There are 4 main functions:

- 1.1 Wider application in resetting the floor life:** Moisture sensitivity SMD packages which are exposed to the air and exceed the floor life should be stored in the T40W series for resetting the floor life. (see J-STD-033B table 4-1, 4-3)  
For example: If MSD parts of MSD Level 4,5 and 5a are exposed for less than eight hours, they can be stored in a dry cabinet for resetting the floor life. However, if their exposure time is longer than eight hours, the SMD packages should be stored at 40°C in a T40W series to reset the floor life.
- 1.2 Labor saving:** SMD packages shipped in low temperature carriers may not be baked in a traditional high temperature oven with the temperature higher than 40°C, as it will cause deformation of the carriers. Storing in a T40W series, operators do not need to remove the SMD package to thermally safer carriers. It saves labor cost and eliminates the chance of damaging the carriers.
- 1.3 Embedded Alarm:** The temperature or relative humidity of interior cabinet exceeds the preset value will activate the embedded alarm of buzz and flash in the control panel.
- 1.4 Memo Cards:** Special "Slash Cover Sheet" design to allow inseting the memo cards which can record the necessary storage information of MSD management.



pic 1

### 2. Features:

- 2.1 Modular Design:** This is a modularly designed dry cabinet. The main modules are display controller, power box, dehumidifier, shelf, caster wheel and cable. All of the modules can be replaced easily.
- 2.2 Green Design:** The performance of the dry cabinet can be upgraded by just changing the modules. There will be no waste materials created to pollute the environment. The old modules can be collected and sent back to the maker. Dr.Storage dry cabinets can be used as long as the cabinet structure is in good condition. It means that the product life could last for 10 or 20 years. Thousands of our dry cabinets have been serving their owners for more than 15 years.
- 2.3 Data Recording:** It is important to verify that the condition of storage meets the regulation of J-STD-033B. The users can connect note book PCs directly to the RS232 port of the cabinet to acquire the data or use our data logger to record the data. With our data recording function, the historical fluctuation of relative humidity and temperature can be shown clearly in the graph. The floor life of the Moisture Sensitive Devices can also be calculated in the software. This uniquely patented function can easily verify if the SMD packages are stored at proper condition. It is very convenient for those who carry out quality assurance procedures.
- 2.4 Memo Cards:** Special "Slash Cover Sheet" design to allow inseting the memo cards which can record the necessary storage information of MSD management.
- 2.5 Calibration Reminding:** The drift effect of sensors might influence the accuracy. In order to help complying with the regulation of ISO, a unique design of calibration expiration reminding function is offered in this model. When the sensor runs over 365 days, the decimal point in the panel will be flashed for reminding the user.
- 2.6 Alarm Setting:** There are two ways of alert - flash and buzz. Alert can be activated when the relative humidity or temperature is higher than the setting of upper limit. And the flash and buzz alert can be activated by different delay time.



Control Panel

pic 2



Memo Cards

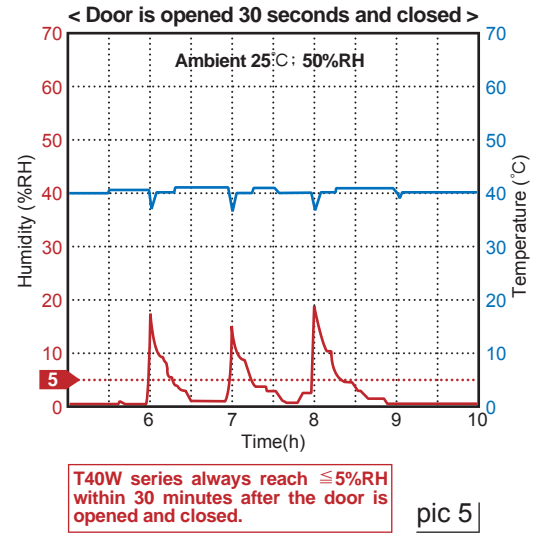
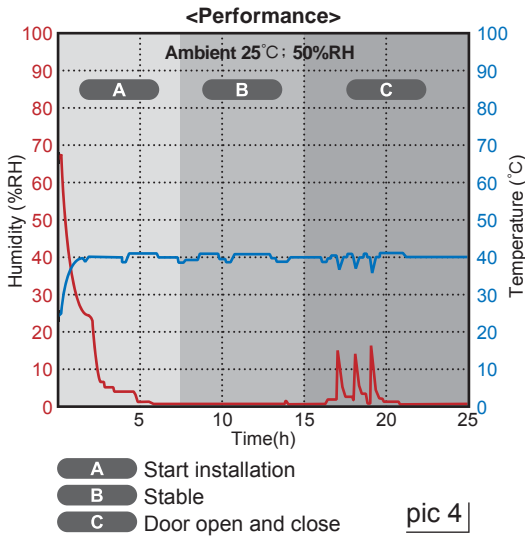
pic 3

### 3. Specifications:

- 3.1 Temperature & Humidity Range:** 40  $\pm$  2°C,  $\cong 5\%RH$
- 3.2 Outside Dimension:** W600\*D770\*H1805mm
- 3.3 Capacity:** 385L
- 3.4 Shelves:** 5 shelves (p/n: A0600-D3-SUS)
- 3.5 Color:** black
- 3.6 Voltage:** 110V/230V (select voltage in advance)
- 3.7 Display Precision:**  $\pm 1.0^\circ C$ ,  $\pm 3.0\%RH$
- 3.8 Software:** Humidity Manager V2 for drawing the curve of RH and temperature.
- 3.9 Structure:** 1mm thick carbon steel with antistatic paint.
- 3.10 Door:** Compression handles, airtight magnetic sealers and antistatic glass.
- 3.11 Wheel:** 4 antistatic 3" wheels, two of them with brakes.
- 3.12 Grounding Wire:** 1M $\Omega$ . (940mm long)
- 3.13 ESD Paint:** 10<sup>3</sup>~10<sup>9</sup> $\Omega$ . (surface resistance)
- 3.14 Power Consumption:** Max. 600W; Ave. 300Wh
- 3.15 Baking 40°C Dry Cabinet is suitable for ambient temperature >15°C.**

# Baking 40°C Dry Cabinet

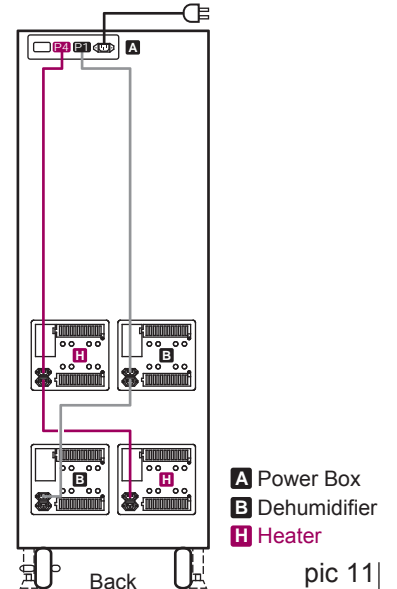
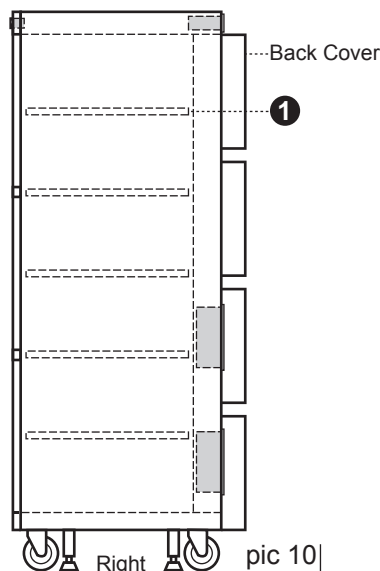
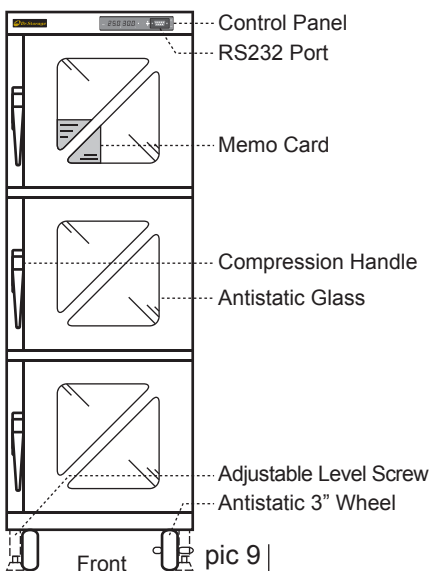
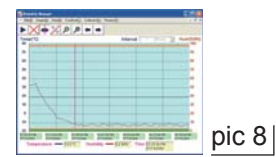
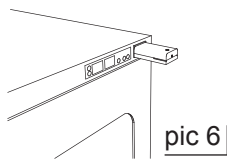
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## 4. Additional options:

| Item           | ①                        | ②              | ③               | ④  |  |
|----------------|--------------------------|----------------|-----------------|--|--|
| Product Number | A0600-D3-SUS (stainless) | DL-5           | DL-5-1          | DLR-5  | LOG-S3.0   |
| Product Name   | Shelf                    | Data Logger    |                 | Data Reader  | Humidity Manager V3  |
| Description    | W500*D480*H20mm          | 3,900 records. | 40,000 records. | Data reader can transfer the records of data logger to PC through the USB. | It can calculate floor life of Moisture Sensitive Devices. |
| Picture        |                          |                |                 |  |  |

② Data Logger → Plug in RS232 port → Recording → Plug in data reader → Software draws a graph of relative humidity and temperature.



## IPC/JEDEC J-STD-033B

**Table 4-1 Reference Conditions for Drying Mounted or Unmounted SMD Packages (User Bake: Floor life begins counting at time = 0 after bake)**

| Package Body   | Level | Bake @ 125°C                  |   | Bake @ 90°C<br>≤5% RH         |   | Bake @ 40°C<br>≤5% RH         |   |
|--|-------|-------------------------------|---|-------------------------------|---|-------------------------------|---|
|  |       | Exceeding Floor Life by >72 h | Exceeding Floor Life by ≤72 h                     | Exceeding Floor Life by >72 h | Exceeding Floor Life by ≤72 h                     | Exceeding Floor Life by >72 h | Exceeding Floor Life by ≤72 h                     |
| Thickness ≤1.4 mm  | 2     | 5 hours                       | 3 hours   | 17 hours                      | 11 hours  | 8 days                        | 5 days  |
|  | 2a    | 7 hours                       | 5 hours   | 23 hours                      | 13 hours  | 9 days                        | 7 days  |
|  | 3     | 9 hours                       | 7 hours   | 33 hours                      | 23 hours  | 13 days                       | 9 days  |
|  | 4     | 11 hours                      | 7 hours   | 37 hours                      | 23 hours  | 15 days                       | 9 days  |
|  | 5     | 12 hours                      | 7 hours   | 41 hours                      | 24 hours  | 17 days                       | 10 days   |
|  | 5a    | 16 hours                      | 10 hours  | 54 hours                      | 24 hours  | 22 days                       | 10 days   |
| Thickness >1.4 mm ≤2.0 mm  | 2     | 18 hours                      | 15 hours  | 63 hours                      | 2 days  | 25days                        | 20 days   |
|  | 2a    | 21 hours                      | 16 hours  | 3 days                        | 2 days  | 29 days                       | 22 days   |
|  | 3     | 27 hours                      | 17 hours  | 4 days                        | 2 days  | 37 days                       | 23 days   |
|  | 4     | 34 hours                      | 20 hours  | 5 days                        | 3 days  | 47 days                       | 28 days   |
|  | 5     | 40 hours                      | 25 hours  | 6 days                        | 4 days  | 57 days                       | 35 days   |
|  | 5a    | 48 hours                      | 40 hours  | 8 days                        | 6 days  | 79 days                       | 56 days   |
| Thickness >2.0 mm ≤4.5 mm  | 2     | 48 hours                      | 48 hours  | 10 days                       | 7 days  | 79 days                       | 67 days   |
|  | 2a    | 48 hours                      | 48 hours  | 10 days                       | 7 days  | 79 days                       | 67 days   |
|  | 3     | 48 hours                      | 48 hours  | 10 days                       | 8 days  | 79 days                       | 67 days   |
|  | 4     | 48 hours                      | 48 hours  | 10 days                       | 10 days   | 79 days                       | 67 days   |
|  | 5     | 48 hours                      | 48 hours  | 10 days                       | 10 days   | 79 days                       | 67 days   |
|  | 5a    | 48 hours                      | 48 hours  | 10 days                       | 10 days   | 79 days                       | 67 days   |
| BGA package >17 mm x 17 mm or any stacked die package (See Note 2) | 2-6   | 96 hours                      | As above per package thickness and moisture level | Not applicable                | As above per package thickness and moisture level | Not applicable                | As above per package thickness and moisture level |

**Note 1:** Table 4-1 is based on worst-case molded lead frame SMD packages. Users may reduce the actual bake time if technically justified (e.g., absorption/desorption data, etc.). In most cases it is applicable to other nonhermetic surface mount SMD packages.

**Note 2:** For BGA packages >17 mm x 17 mm, that do not have internal planes that block the moisture diffusion path in the substrate, may use bake times based on the thickness/moisture level portion of the table.

**Note 3:** If baking of packages >4.5 mm thick is required see appendix B.

**Table 4-3 Resetting or Pausing the “Floor Life” Clock at User Site**

| MSL Level          | Exposure Time @ Temp/Humidity                   | Floor Life | Desiccator Time @ Relative Humidity | Bake      | Reset Shelf Life |
|--------------------|---|------------|-------------------------------------|-----------|------------------|
| 2, 2a, 3, 4, 5, 5a | Anytime<br>≤40°C/85% RH                         | reset      | NA                                  | Table 4.1 | Dry Pack         |
| 2, 2a, 3, 4, 5, 5a | > floor life<br>≤30°C/60% RH                    | reset      | NA                                  | Table 4.1 | Dry Pack         |
| 2a, 3, 4           | >12 hrs<br>≤30°C/60% RH                         | reset      | NA                                  | Table 4.1 | Dry Pack         |
| 2, 2a, 3, 4        | ≤12 hrs<br>≤30°C/60% RH                         | reset      | 5X exposure time<br>≤10% RH         | NA        | NA               |
| 5, 5a              | >8 hrs<br>≤30°C/60% RH                          | reset      | NA                                  | Table 4.1 | Dry Pack         |
| 5, 5a              | ≤8 hrs<br>≤30°C/60% RH                          | reset      | 10X exposure time<br>≤5% RH         | NA        | NA               |
| 2, 2a, 3           | Cumulative time<br>≥ floor life<br>≤30°C/60% RH | pause      | Anytime<br>≤10% RH                  | NA        | NA               |

※ according to IPC/JEDEC J-STD-033B