

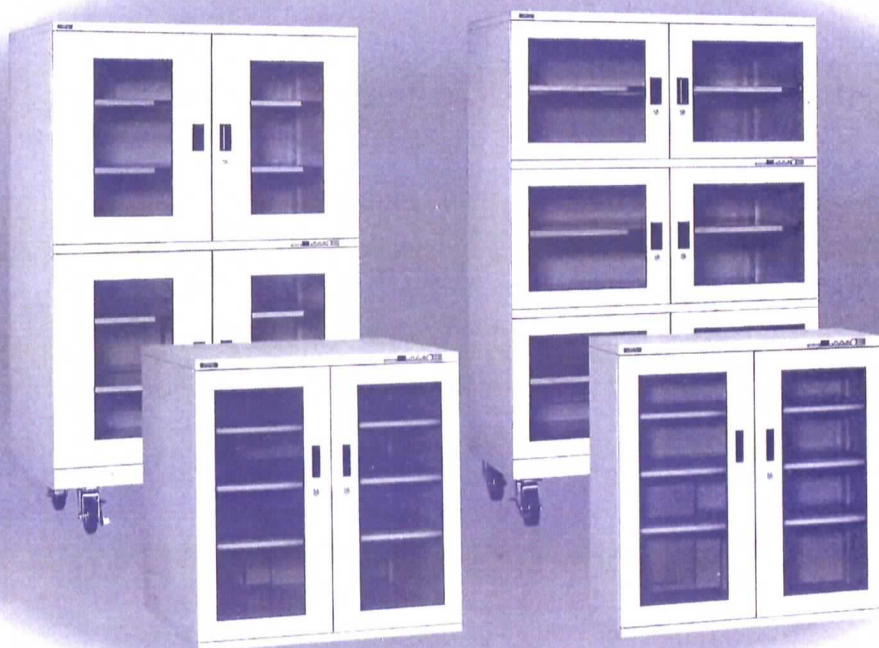
idely used in Semiconductor Industry,  
biotech, Physical, Chemical, Medical  
Institutes, Microfilms and Optics Storage

# SUPER DRY

AUTO-ELECTRONIC  
DRY CABINET

## INSTRUCTION MANUAL

- Thank you for purchasing our SUPER DRY.
- In order to use SUPER DRY more properly and safety, please read this INSTRUCTION MANUAL carefully, and consult our representatives for any questions.
- Please keep this INSTRUCTION MANUAL with the GUARANTEE CERTIFICATE carefully for future reference.



 Totech

**SUPER DRY** AUTO-ELECTRONIC DRY CABINET **AUTO DRY**







Pioneer of the Practical use of the Shape Memory Alloy

Manufactured by TOYO LIVING CO.,LTD.







## SAFETY GUIDANCE

Please read this SAFETY GUIDANCE carefully to avoid any possible danger of electric shock or damage to SUPER DRY due to improper use.

### **WARNING**

<p>Unplug SUPER DRY if there is any smoke or smell coming from it.</p> <p> Do not try to repair the electric dry unit. To do so could void your warranty.</p> <p>Unplug</p>	<p>Unplug SUPER DRY in case of a spilled liquid inside it.</p> <p> It can cause electric shock.</p> <p>Unplug</p>	<p>Do not disassemble or reconfigure the electric dry unit.</p> <p> It can cause electric shock.</p> <p>Disassemble</p>
<p>Do not put flammable or explosive materials inside SUPER DRY.</p> <p> It can cause electric shock.</p> <p>Prohibition</p>	<p>Do not operate SUPER DRY in a damp or wet environment.</p> <p> It can cause electric shock.</p> <p>Prohibition</p>	<p>Do not damage, twist, pull or place anything heavy on the power cord.</p> <p> It can cause electric shock.</p> <p>Prohibition</p>

### **CAUTION**

<p>Do not block off the shutter. Always keep the electric dry unit upright. Do not place the unit sideways or upside down.</p> <p> It can cause fire or damages.</p> <p>Prohibition</p>	<p>Do not plug or unplug SUPER DRY with a wet hand. Make sure to plug it properly.</p> <p> It can cause electric shock.</p> <p>Prohibition</p>	<p>Do not stand on or place anything heavy on SUPER DRY.</p> <p> There is an extreme tipping danger.</p> <p>Prohibition</p>
<p>Do not put any flammable or volatile liquids such as ether, benzene, LP gas or alcohol etc inside SUPER DRY.</p> <p> It can cause explosion.</p> <p>Prohibition</p>	<p>Do not place any hydrochloric acid, sulfuric acid or other corrosive chemicals inside SUPER DRY.</p> <p> It can cause corrosion.</p> <p>Prohibition</p>	<p> Glass doors of SUPER DRY may shatter under impact.</p> <p>Caution</p>

If you have any questions regarding the safe operation of SUPER DRY, please contact our representatives or our service centre directly [thanks@totech.com](mailto:thanks@totech.com).

## APPLICATIONS

SUPER DRY maintains preset internal humidity levels from 1-50%RH, regardless of ambient relative humidity, and it is ideal for the storage of the following items:

- 1) Storage of all kinds of Integrated Circuits(IC)  
e.g. Monolithic, LSI, VLSI, ULSI, Bipolar, MDS, CCD, MCM, DIP, SOP, SSOP, TSOP, VSOP, SDIP, SIP, SOJ, SVP, QFJ, CSP, KGD, PGA, QFP, TCP, LCA and BGA etc.
- 2) Storage of Silicon Wafers
- 3) Storage of Aerospace related Instruments and Tools
- 4) Storage of Optical Equipments and Machine Tools
- 5) Storage of Watches
- 6) Storage of PDP Inspection Equipments, Liquid Crystal Cleaning Equipments, LCD's and TAC's etc.
- 7) Storage of LED's & LD's
- 8) Ideal for moisture-proof and anti-oxidation storage applications, offering protection from rust, mold and deterioration.



## SUPERIOR FEATURES OF SUPER DRY

### 1) Speedy Dehumidification

After recycling the drying agent by heat, the interlocked fan inside the electric dry unit starts to move for about 2 hours to accelerate the moisture absorption.

### 2) Exceptional Recovery Times

The interlocked fan stops operating when the door is open to ensure minimal inflow of outside ambient air. Once the doors are closed, this fan starts operating again to accelerate the moisture absorption inside SUPER DRY.

### 3) Continuous Dehumidification (Hyper series only)

Two electric dry units in Hyper series ensure moisture is absorbed at all times.

### 4) Flexible Humidity Setting

Ultra low humidity 1-5%RH or low humidity 1-50%RH can be flexibility adjusted for different applications.

### 5) Convenient Digital Control Panel

Precise humidity setting is easily controlled by a front digital control panel without opening the doors.

### 6) ESD Safe Design

Equipped with conductive paint, conductive glass doors, stainless steel shelves and  $1M\Omega$  ground wire, SUPER DRY is perfectly protected from ESD.

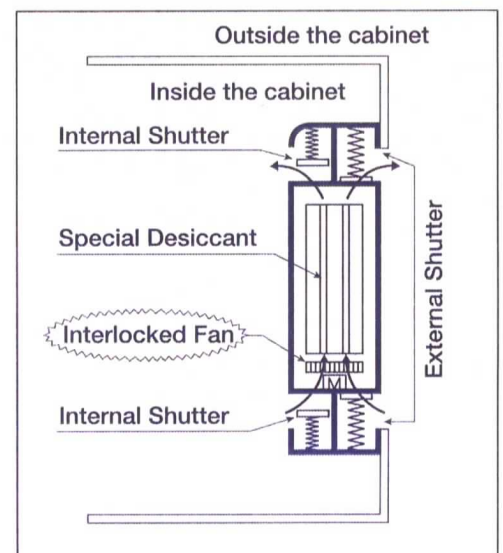
### 7) Dust Free Design

Urethane casters and stainless steel shelves make SUPER DRY especially suitable for use in various kinds of clean rooms.

## DEHUMIDIFICATION PROCESS

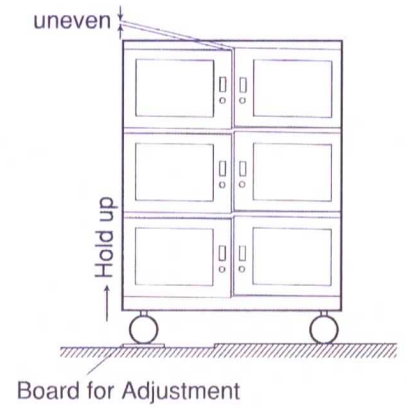
SUPER DRY is a dry cabinet which relies on a drying agent to control humidity levels. This drying agent will be rejuvenated (recycled) for 1 hour in every 6 hours. Its drying agent is completely recyclable and there is no required maintenance. During the recycling period, absorbed moisture will be discharged through the external shutter. After recycling, the shutter will close and moisture inside dry cabinet will once again be absorbed by the refreshed drying agent. This dehumidification cycle will continue until the set humidity point is achieved. Once the humidity level exceeds the setting level, this dehumidification cycle will start again.

Every SUPER DRY has contact switches installed on each of the doors to control a fan inside the electric dry unit. The interlocked fan operates for about 2 hours after the drying agent is rejuvenated in order to accelerate moisture absorption. The interlock fan stops when the door is opened to minimize inflow of ambient air into the unit. The interlock fan will operate for 20 minutes when the doors are closed to speed up moisture absorption inside SUPER DRY.

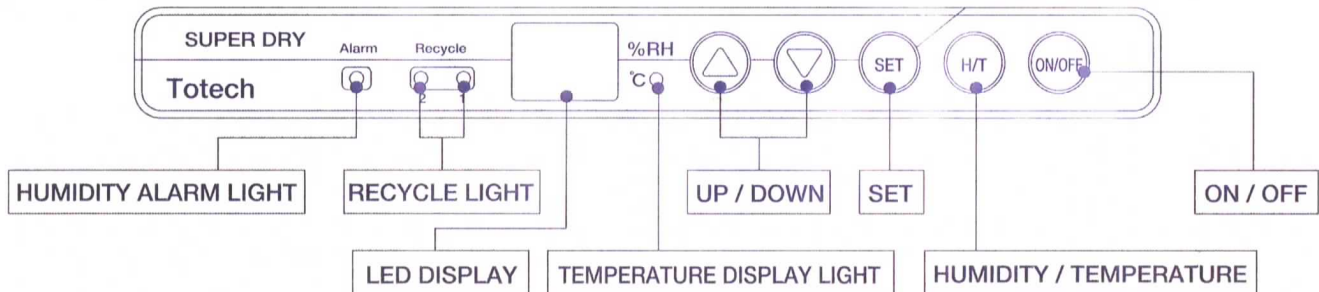


# INSTALLATION

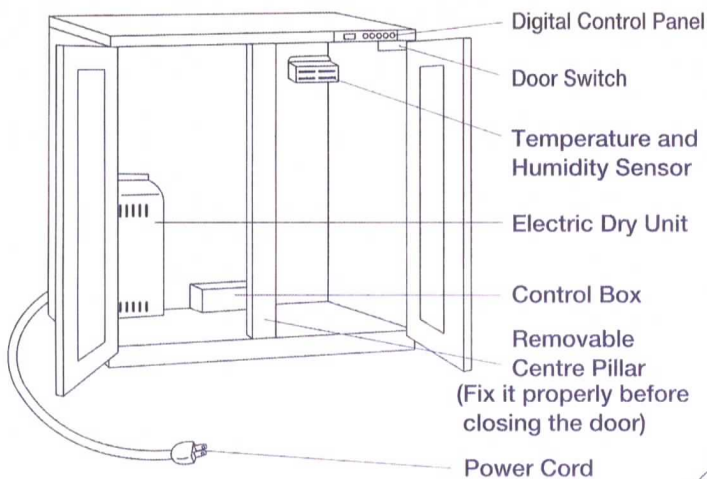
Do not operate SUPER DRY near the shutter of air-conditioner, the places with high temperature, smoke and dust or the places direct to the sun.  
Adding an extra board if necessary to place SUPER DRY on a stable place to avoid any uneven to the glass doors.



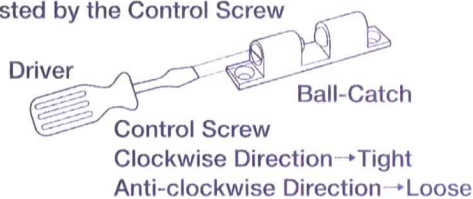
# PARTS OF SUPER DRY



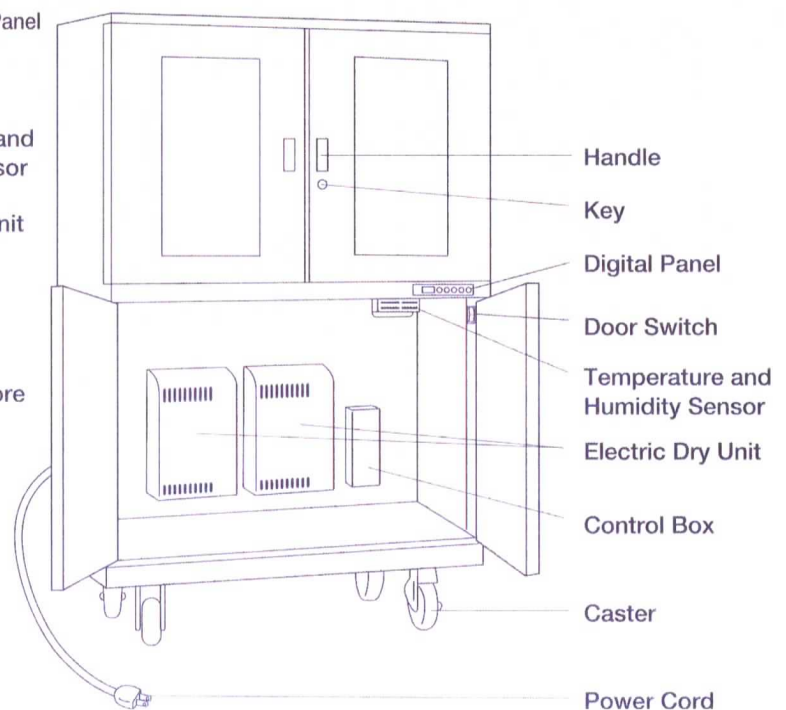
## Medium Size



Ball-Catch of the sensor support can be adjusted by the Control Screw



## Large Size





- 1) Plug in SUPER DRY and let it run one to two days before storing any items.
- 2) Power ON/OFF
  - Press the “ON/OFF” button, internal humidity level will be shown on the LED DISPLAY.
  - During the dehumidification process (for details, please refer to P.2 “Dehumidification Process” ), both “RECYCLE LIGHT” will be on for Hyper series (installed with two electronic dry units), while only one “RECYCLE LIGHT” will be on for 02 series (installed with one electronic dry unit only). These lights will switch off when the dehumidification process finishes.
  - To switch off SUPER DRY, press the “ON/OFF” button again.
- 3) Adjust the humidity level
  - Press the “SET” button.
  - Adjust the humidity level by pressing either “UP” or “DOWN” button. (Initial humidity setting is 1%RH).
  - Press the “SET” button when finish setting. Current humidity level inside the dry cabinet will be shown on the display.
- 4) Display the temperature level
  - Press the “H/T” button.
  - The “TEMPERATURE DISPLAY LIGHT” will be on, current internal temperature will be shown on the LED DISPLAY.
  - This “TEMPERATURE DISPLAY LIGHT” will switch off after 5 seconds automatically and the display will show the current internal humidity level.
- 5) Set the humidity alarm

(The “HUMIDITY ALARM LIGHT” will be on if the internal RH level exceeds the set point.)

  - Press both “DOWN” and “SET” button at the same time to set the humidity alarm function.
  - When the display is flashing, adjust the humidity setting point by pressing either “UP” or “DOWN” button (There is no initial setting, the setting point descends from “99” to “98” by pressing the “DOWN” button).
  - Press the “SET” button again, the digital and the dot on the right hand side corner will flash. This digit shows the time for the humidity alarm to activate.
  - Adjust this activated time by pressing either “UP” or “DOWN” button.
  - Press the “SET” button when finish setting. The internal humidity level will be shown on the display again.

E.g. this light will be on if the internal RH level exceeds 50% for 20 minutes, if the RH setting point is 50%RH and the time setting value is 20 minutes.
- 6) Set the Door Alarm Buzzer (provided as option, please refer to p.6)

(This “Door Alarm Buzzer” will sound when the door is left open for a certain period of time)

  - Press both “UP” and “SET” button at the same time to set the door alarm buzzer function.
  - When the display is flashing, adjust the activated time (in minutes) for the door alarm buzzer by pressing either “UP” or “DOWN” button (The initial setting is 2 minutes).
  - Press the “SET” button again when you finish setting. The internal humidity level will be shown on the display again.
- 7) Set the key lock function
  - To lock the key, press both “H/T” and “SET” button for more than 3 seconds under the power on condition.
  - To unlock the key, press the “SET” button for more than 5 seconds.

# TROUBLE SHOOTING

Check the following list before asking for repair services.

## 1) No Display

- Has SUPER DRY been switched on by pressing the “ON/OFF” button?
- Is SUPER DRY properly plugged in?
- Is the fuse or the breaker of the electric dry unit damaged?
- Is there any power?

## 2) Humidity level does not drop down to the set point

- Is the humidity point correctly set?
- Is the centre pillar of SUPER DRY properly installed?
- Are the doors of SUPER DRY tightly closed?
- Are the doors of SUPER DRY frequently opened?

### Note:

The humidity level inside SUPER DRY will be affected by the stored materials and the outside ambient atmosphere. The humidity level will not drop down at once if the stored materials are very damp. The humidity level will not rise above the ambient humidity level as SUPER DRY is not equipped with humidification capability.

Please contact our representatives or our service centre directly [thanks@totech.com](mailto:thanks@totech.com) for any questions.

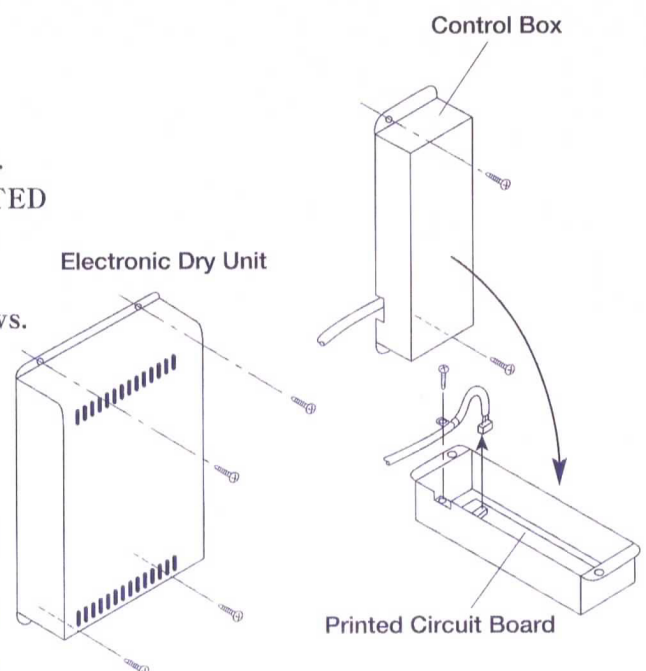
Please refer to the following instruction in case of any replacement of the electric dry unit or PCB .

### Replacement of the Electronic Dry Unit

- 1) Put out the plug.
- 2) Remove the CONTROL BOX by loosening 4 screws.
- 3) Detach the connector JP8 & JP9 from the PRINTED CIRCUIT BOARD and the ground wire from the terminal.
- 4) Take out the Electric Dry Unit by loosening 4 screws.

### Replacement of the PRINTED CIRCUIT BOARD

- 1) Put out the plug.
- 2) Take out the CONTROL BOX by loosening 4 screws.
- 3) Detach the connector for Electric Dryer Unit (JP8 & JP9 ), connector for power supply (JP4), connector for humidity sensor (JP7), connector for digital control panel (JP5), connector for door switch (JP3), connector for AC output (JP2) and connector for DC input (JP10 (5V) + JP11 (12V) )





## SUPER DRY

Model	HSD-1106-01	HSD-1104-01	SD-1106-02	SD-1104-02	SD-702-02
Humidity Control	Digital Control Panel				
Humidity Sensor	Static Electricity Type				
Effective Capacity(L)	1160				680
External Dimensions WxHxD(cm)	120X184X67				62X184X78
Weight(Kg)	167	162	160	155	110
Material	Steel Body with Anti-Static Coating				
Door	Steel Door (S) with Conductive Glass Windows				
Electronic Dry Unit	U-2001FX2		U-2001FX1		
Rated Voltage	AC100V,110V,120V,220V,240V(50/60Hz)*alternative				
Maximum Power	500W		250W		
Mean Power Consumption	56W/hr, 40kW/Month		28W/hr, 20.2kW/Month		
Accessories	5 Stainless Shelves & a Key				

Model	SD-502-02	SD-302-02	SD-252-02	SD-151-02
Humidity Control	Digital Control Panel			
Humidity Sensor	Static Electricity Type			
Effective Capacity(L)	510	340	252	145
External Dimensions WxHxD(cm)	88X90X74	50X123X64	88X90X38	50X63X58
Weight(Kg)	60	60	39	29
Material	Steel Body with Anti-Static Coating			
Door	Steel Door (S) with Conductive Glass Windows			
Electronic Dry Unit	U-2001FX1			U-1401FX1
Rated Voltage	AC100V,110V,120V,220V,240V(50/60Hz)*altemative			
Maximum Power	250W			175W
Mean Power Consumption	28W/hr, 20.2kW/Month			21W/hr, 15.1kW/Month
Accessories	3 Stainless Shelves & a Key	7 Stainless Shelves & a Key	3 Stainless Shelves & a Key	

### Environmental Conditions

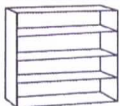
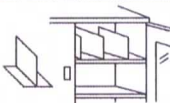
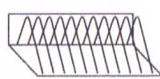
-Temperature : 5℃ to 40℃

-Altitude : up to 2000m

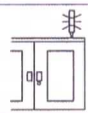
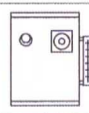
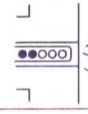
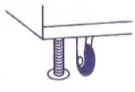


-Relative humidity : 80% RH for temperature up to 31℃ decreasing linearly to 50% RH at 40℃

## OPTIONS

Available for all SUPER DRY

	Extra shelves for all models are available, it allows you to customize SUPER DRY more effectively.
	Dividers inserted on a shelf allow to organize the cabinet in different configurations.
	Reel Rack allows you to place any tapes or reel components.

Only available when purchase together with SUPER DRY, unavailable for those shipped cabinets.

	Humidity Alarm Light flashes when the internal RH level exceeds its setting point.		Various optional N2 equipments provide more effective use of SUPER DRY.
	Humidity Alarm Buzzer sounds when the internal RH level exceeds its setting point.		Castors and Anchoring Legs are available for flexible movement or effective stabilization.
	Door Alarm Buzzer sounds when the door is left open for a certain pertain of time.		Wrist Strap Connection allows you to ground yourselves prior to handling ESD sensitive inventory.

\* Others options and custom order are available, please contact our representatives directly for details.

**SUPER DRY**

## GUARANTEE CERTIFICATE

TOYO LIVING promises to repair the electric dry unit of SUPER DRY mentioned below without any charges within the guarantee period. This GUARANTEE CERTIFICATE will not be issued again, please keep it carefully.

Model			
Guarantee Period	From	(Date)	Electric Dry Unit 1 Year
Personal Information	Name		
	Address		
Place of Purchase	Name / Address		

### Conditions for Free Repair

1. SUPER DRY is operated correctly according to the illustration mentioned in this INSTRUCTION MANUAL.
2. Show this GUARANTEE CERTIFICATE to our representatives or directly to our service centre.
3. Charges are necessary in the following conditions.
  - (a) Defects caused by misuse or disassemble.
  - (b) Defects caused by drop down of SUPER DRY after purchasing.
  - (c) Defects caused by natural disasters such as earthquakes etc.
  - (d) Defects caused by the connection to other equipments.
4. Without showing this GUARANTEE CERTIFICATE.