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SD and SDB Cabinets

INSTRUCTION MANUAL for SD Cabinets

Thank you for purchasing our dry cabinet.

In order to use the drying cabinet properly and safer, please read this INSTRUCTION MANUAL carefully, and consult our representatives for any questions.

Please keep this INSTRUCTION MANUAL carefully for future reference.



SD and SDB Cabinets

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SD and SDB Cabinets

1. SAFETY GUIDANCE

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

- 

Unplug the drying cabinet if there is any smoke or smell coming from it. Do not try to repair the electric drying unit. Doing so could void your warranty

Unplug
- 

Unplug the drying cabinet in case of spilled liquid inside it. It may cause electric shock.

Unplug
- 

Do not disassemble or reconfigure the electric drying unit. It may cause electric shock.

Disassemble
- 

Do not put flammable or explosive materials inside the drying cabinet. It may cause electric shock, fire or damages.

Prohibition
- 

Do not operate the drying cabinet in a damp or wet environment. It may cause electric shock.

Prohibition
- 

Do not damage, twist, pull or place anything heavy on the power cord. It may cause electric shock.

Prohibition
- 

Do not block off the shutter. Always keep the electric drying unit upright. Do not place the unit sideways or upside down. It may cause fire or damages.

Prohibition
- 

Do not plug or unplug the drying cabinet with a wet hand. Make sure to plug it properly. It may cause electric shock.

Prohibition
- 

Do not stand on or place anything heavy on the drying cabinet. There is an extreme tipping danger.

Prohibition
- 

Do not put any flammable or volatile liquids such as ether, benzene, LP gas or alcohol etc inside the drying cabinet. It may cause explosion.

Prohibition
- 

Do not place any hydrochloric acid, sulfuric acid or other corrosive chemicals in the drying cabinet . It may cause corrosion.

Prohibition
- 

The glass doors of the drying cabinet may shatter under impact.

Caution

If you have any questions regarding the safe operation of the drying cabinet, please contact our representatives.

SD and SDB Cabinets

2. APPLICATIONS

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

- ✓ 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.
- ✓ Storage of Silicon Wafers
- ✓ Storage of Aerospace related Instruments and Tools
- ✓ Storage of Optical Equipments and Machine Tools
- ✓ Storage of Watches
- ✓ Storage of PDP Inspection Equipments, Liquid Crystal Cleaning Equipments, LCD's and TAC's etc.
- ✓ Storage of LED's & LD's
- ✓ Ideal for moisture-proof and anti-oxidation storage applications, offering protection from rust, mold and deterioration.

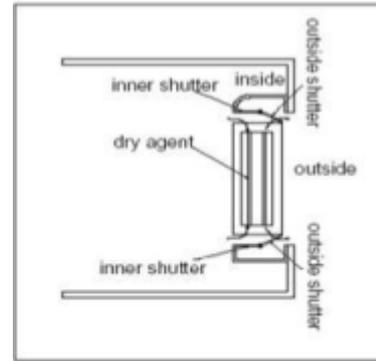
3. SUPERIOR FEATURES OF DRYING

- ✓ Fast Dehumidification
After recycling the drying agent by heat, the interlocked fan inside the electric drying unit starts to operate for about 2 hours to accelerate the moisture absorption.
- ✓ Exception Recovery Times
The integrated fan stops operating when the door is open to ensure minimal flow of outside ambient air. Once the doors are closed, this fan starts operating again to accelerate the moisture absorption inside dry cabinet.
- ✓ Continuous Dehumidification (SD-1104, SD-1106 and SD-1704).
Two electric drying units in those series ensure moisture is absorbed at all times.
- ✓ Flexible Humidity Setting
Ultra low humidity 1-5%RH or low humidity 1-50%RH can be adjusted flexibly for various applications.
- ✓ Convenient Digital Control Panel
Precise humidity setting is easily controlled by a front digital control panel without opening the doors.
- ✓ ESD Safe Design
Equipped with conductive paint, conductive glass doors and stainless steel shelves, our drying cabinet is perfectly protected against ESD.
- ✓ Dust Free Design
Urethane casters and stainless steel shelves make the drying cabinet especially suitable for use in various kinds of clean rooms.

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4. DEHUMIDIFICATION PROCESS

Our drying cabinet relies on a drying agent to control humidity levels. This drying agent will be static regenerated (recycled) for 30 minutes 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 regenerated 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.

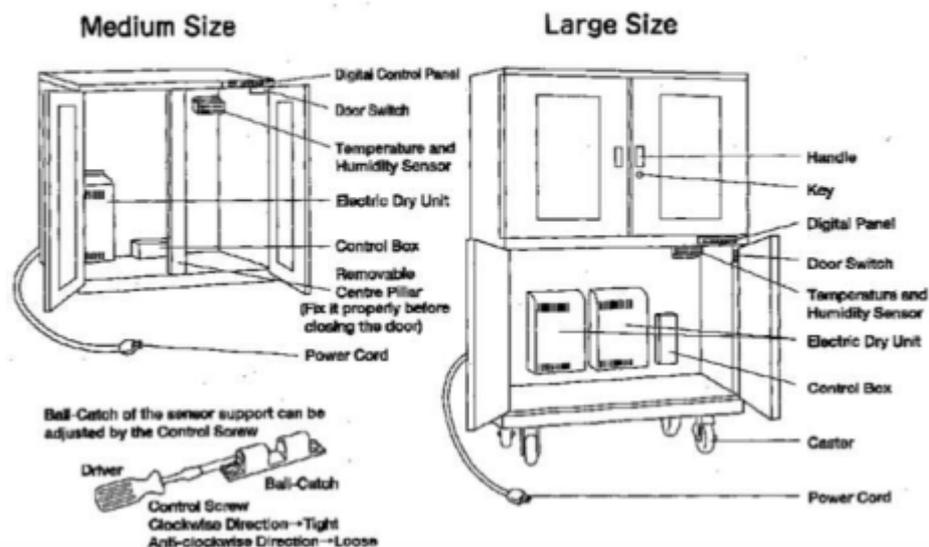
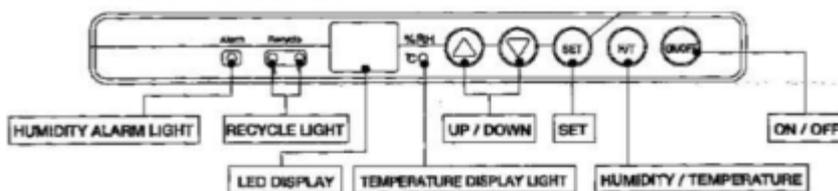


Every drying cabinet has contact switches installed on each of the doors to control a fan inside the electric drying unit. The integrated fan operates for about 2 hours after the drying agent is regenerated in order to accelerate moisture absorption. The integrated fan stops when the door is opened to minimize inflow of ambient air into the unit. The integrated fan will operate for 20 minutes when the doors are closed to speed up moisture absorption inside the drying cabinet. For the cabinets that are equipped with two drying units, every 3 hours one of the drying units is regenerating. This way there is always one drying unit absorbing moisture from the air in the cabinet.

5. INSTALLATION

Do not plug in the cabinet when it is standing near the exhaust of air-conditioners, places with high temperature, smoke, dust or a place with direct sunshine. Please use the extra metal plates to stabilize the cabinet if it is standing on an unstable surface. After you plug in the drying cabinet allow the cabinet atmosphere to stabilize before taking the cabinet into use.

6. PARTS OF DRYING CABINET



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7. ADJUSTMENTS

1. Plug in the drying cabinet 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 LIGHTS" will be on by SD-1104, SD-1106 and SD-1704 series, (installed with two electronic drying units), while only one "RECYCLE LIGHT" will be on for series installed with one electronic drying unit only. These lights will switch off when the dehumidification process finishes.
- ✓ To switch off the drying cabinet, press the "ON/OFF" button again.

3. Adjusting 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 drying cabinet will be shown on the display.

4. Display of 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 automatically switch off after 5 seconds and the display will show the current internal humidity level.

5. Setting the humidity alarm

(The "HUMIDITY ALARM LIGHT" will be on if the internal RH level exceeds the setting 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 setpoint descends from "99" to "98" by pressing the "DOWN" button)
- ✓ Press the "SET" button again, the digit 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. Setting 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. Setting the time of **N2 Auto-Purge-System (provided as option)**

- ✓ Press both "H/T" and "DOWN" button at the same time to set the purging time.
- ✓ When the display is flashing, adjust the activated time (in minutes) for the N2 Auto-Purge-System by pressing either "UP" or "DOWN" button (The initial setting is 10 minutes).

Press the "SET" button again when you finish setting, the internal humidity level will be shown on the display again.

8. Setting 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.

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8. CALIBRATION

The calibration of a cabinet can be done by adjusting the offset value of the digital display.

Remark: Before calibrating, a reference value must be determined with an additional calibrated hygrometer (i.e. the cabinet atmosphere must be measured). Attention: do not measure the humidity during the recycling mode of the drying unit!

Instructions:

- ✓ Unplug the main Power Plug.
- ✓ Press both adjustment buttons ("UP" and "DOWN"), and keep pressed while plugging the main power plug again. During this time the LED display is blank.
- ✓ Press "ON / OFF", the current offset value will be shown on the LED display.
- ✓ Press the "SET" button to start the calibration, the current offset value on the LED display will begin to flash.
(To end the calibration program and start the operation of SUPER DRY, press the "ON/OFF" twice)
- ✓ Adjust the humidity offset point with the "UP" or "DOWN" button: "UP" increases, "DOWN" decreases the *offset value*. After finishing adjustments press the "SET" button again. The new offset value will be shown on the LED display.

E.G. the humidity display on the digital control panel is 3%RH, and the actual humidity inside SUPER DRY is 1%RH, so set the offset value to 2 (3-1=2)

Maximum offset value	-9
Minimum offset value	9
Initial offset value	0

- ✓ By pressing the "ON/OFF" button once, the cabinet will return to the standby condition. To operate the cabinet, press the "ON/OFF" button a second time. Press the "SET" button and follow the above instruction from point 3 to restart the calibration.

* The Temperature Display Light on the digital control panel will be on during the process from item 2 to item 3.

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9. TROUBLESHOOTING

Check the following list before asking for repair services.

1. No Display

- ✓ Has the drying cabinet been switched on by pressing the "ON/OFF" button?
- ✓ Is the drying cabinet properly plugged in?
- ✓ Is the fuse or the breaker of the electric drying 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 the drying cabinet properly installed?
- ✓ Are the doors of the drying cabinet tightly closed?
- ✓ Are the doors of the drying cabinet frequently opened?

Note: The humidity level inside the drying cabinet 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 if the drying cabinet is not equipped with humidification capability.

Please contact our representatives or our service centre directly for any questions.
service.superdry-totech.com

Please refer to the following instructions in case of any replacement of the electric drying unit or PCB.

Replacement of the Electronic Drying Unit

1. Remove the plug.
2. Remove the CONTROL BOX by loosening 4 screws.
3. Detach the connector JP6 & JP9 from the PRINTED CIRCUIT BOARD and the ground wire from the terminal.
4. Take out the Electric Drying Unit by loosening 4 screws.

Replacement of the PRINTED CIRCUIT BOARD

1. Remove the plug.
2. Take out the CONTROL BOX by loosening 4 screws
3. Detach the connector for Electric Dryer Unit (JP6 & JP9), connector for power supply (JP2), connector for humidity sensor (JP7), connector for digital control panel (JP5), connector for door switch (JP3), connector for AC output (JP4) , connector for DC5V input (JP10).

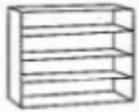
Model	SD/SDB-151-21	SD-302-21	SD-502-21	SD-702-21	SD/SDB-1104-21	SD/SDB-1106-21	SDF-1704-21
Humidity control	Microcomputer						
Humidity sensor	Capacitive						
Effective volume/L	145	340	500	700	1160	1160	1700
Dimensions/cm B x H x T	50x63x58	50x123x64	88x90x74	620x184x78	120x184x67	120x184x67	120x184x96
Weight/kg	29	60	60	110	160	160	197
Adjustable shelves	3	7	3	5	5	5	5
Cabinet and doors	ESD dissipative painted						
Drying unit	1 x U-2000				SD 2x U-2000 SDB 1x U-2000		
Average energy usage	28 W/h				SD 56 W/h SDB 28 W/h		
Power supply	AC 230V / 50Hz AC 120V / 60Hz						

Environmental conditions:

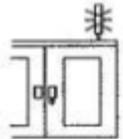
- ✓ Temperature 5°C - 40°C
- ✓ Altitude up to 2000m
- ✓ Relative humidity: 80% RH for temperatures up to 31°C decreasing linearly to 50% RH at 40°C

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10. OPTIONS



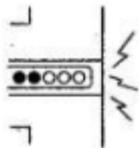
Extra shelves & Dividers are available for all models. It allows you to customize the dry / storage cabinet more effectively.



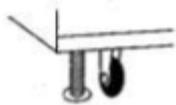
Humidity Alarm Light flashes when the internal RH level exceeds its setting point.



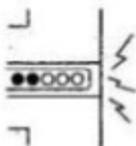
Various optional N2 equipments provide more effective use of N2.



Humidity Alarm Buzzer sounds when the internal RH level exceeds its setting point.



Casters and Anchoring Legs are available for flexible movement of effective stabilization.



Door Alarm Buzzer sounds when the door is left open for a certain period of time. (standard SD, SDB not deliverable)



Wrist Strap Connection allows you to ground yourself prior to handling ESD sensitive inventory.

Available for all SD-Series drying cabinet.
Others options and custom orders are available, please contact our representatives direct for details.

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11. CE - DECLARATION

With this writing, we:

Totech Europe BV
De Linge 28
8253 PJ Dronten
The Netherlands

confirm that the drying cabinet described corresponds with the fundamental safety and health demands of the following EC instructions:

EN55011: 1998+A1:1999+A2:2002
EN61000-6-2:2001
2006/95/EG
2004/108/EG

Totech Europe B.V.
Gerhard Kurpiela,



technical director