INSTRUCTION MANUAL

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2014

Un packing list

DBD-001-**110 / 220 or**
DBD-002-**110 / 220:**

- 1 x One Block Genius Dry Bath Incubator or
  1 x Two Block Genius Dry Bath Incubator
- 1 x US Plug Power Cord or
  1 x Euro Plug Power Cord or
  1 x UK Plug Power Cord or
  1 x Israel Plug Power Cord
- 1 x Genius Dry Bath Incubator Instruction Manual

DBD-001-**T-110 / 220 or**
DBD-002-**T-110 / 220:**

- 1 x One Block Genius Dry Bath Incubator or
  1 x Two Block Genius Dry Bath Incubator
- 1 x External Temperature Probe
- 1 x US Plug Power Cord or
  1 x Euro Plug Power Cord or
  1 x UK Plug Power Cord or
  1 x Israel Plug Power Cord
- 1 x Genius Dry Bath Incubator Instruction Manual

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Table of Contents

Warning

Genius Dry Bath Incubator has been tested and found to comply with safety limits for the CE regulation. Also, Genius Dry Bath Incubator is RoHS compliant to deliver confident product which meets the environmental directive. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their expense. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. It is strongly recommended the user to read carefully the following points before this equipment is operated.

1. Read and follow carefully the manual instructions.
2. Do not alter the equipment. Failure adhered to these directions could result in personal and/ or laboratory hazards, as well as invalidate equipment warranty.
3. Use a properly grounded electrical outlet with correct voltage and current handing capacity.
4. Disconnect from power supply before maintenance and servicing. Refer servicing to qualified personnel.
5. In the event, solution is accidentally spilled into the instrument, disconnect grounded plug and the user must carry out appropriate decontamination measurements. For instance, turning it upside down to avoid solution contacting the internal components. Remove bottom cover and inspect to assure solution has not contacted elements, thermostat or connector. Replace damaged parts.
6. Do not use in the presence of flammable or combustible material; fire or explosion may result. This device contains components, which may ignite such materials.
7. Refer maintenance and servicing to qualified personnel.
8. Ensure that the system is connected to electrical service according to local and national electrical codes. Failure to properly connection may create fire or shock hazard.

9. Ensure the appropriate used materials and correct operation to avoid possible hazards of explosion, implosion or release of toxic or flammable gases arising from the materials being overheated.
10. Always use the block lifter to remove hot blocks, and wear appropriate protection to avoid burning your hand.

ATTENTION: Hot surface!

11. The unit shall be operated Only by qualified personnel.

Safety Information

Use the high level of precautions against any electrical device. Before connecting with the electrical supply, check the supply voltage is within the range stated at the rating label, and this device must be earthed. Place the unit in a safe and dry location and MUST NOT touch things in the surrounding. Also do follow the safety precautions for chemicals / dangerous materials, and hot surface. If needed, please contact qualified service representative

Environmental Conditions

Ensure the instrument is installed and operated strictly in the following conditions:

- ≤95% RH
- 75 KPa-106 Kpa
- Altitude not to exceed 2000 meters
- Ambient ~ 40℃ operating temperature

Avoiding Electrical Shock

Follow the guidelines below to ensure safe operation of the unit.
Genius Dry Bath Incubator has been designed to use with shielded wires thus minimizing any potential shock hazard to the user. We recommends against the use of unshielded wires.

To avoid electrical shock:

1. In the event of solution accidentally spilled into the instrument, it must be dried out for a period of time, at least 2 hours, and restored to NORMAL

CONDITION before each operation.

2. NEVER connect or disconnect wire leads from the power jacks when the power is on.
3. WAIT at least 5 seconds after stopping a run before handling output leads or connected apparatus.
4. ALWAYS make sure that hands, work area, and instruments are **clean** and **dry** before making any connections or operating the equipments.
5. ONLY connect the power cord to a properly grounded AC outlet.

Avoiding Damage to the Instrument

1. Do not attempt to operate the device if it is damaged.
2. Protect this unit from physical damage, corrosive agents and extreme temperatures (direct sunlight etc).
3. For proper ventilation and safety concerns, keep at least 10 cm of space behind the instrument, and at least 5 cm of space on each side.
4. Do not operate Genius Dry Bath Incubator in high humidity environments (> 95%), or where condensation may occur.
5. Prior to apply any cleaning or decontamination method other than manufacturer's recommendation, users should check with the manufacturer's instruction to confirm if the proposed method will not damage the equipment.

Equipment Operation

Follow the guidelines below to ensure safe operation of the unit:

1. Check the displayed temperature figure and external temp. probe to see if it is over temperature scale and check if it will function in the case of a single fault at least once per day.
2. NEVER access any HAZARDOUS LIVE parts.
3. Do not apply lids or covers on the tube heated inside Genius Dry Bath Incubator to prevent possible hazards of explosion and damages.

Symbols

The symbols used on Genius Dry Bath Incubator are explained below.

Used on Genius Dry Bath Incubator to indicate an area where a potential shock hazard may exist.

Used on Genius Dry Bath Incubator to indicate a warning. Consult the manual to avoid possible personal injury or instrument damage.

ATTENTION: Hot surface!

Used on Genius Dry Bath Incubator to indicate a disposal instruction. **DO NOT** throw this unit into a municipal trash bin when this unit has reached the end of its lifetime. To ensure utmost protection of the global environment and minimize pollution, please recycle this unit.

Product Specifications

Controller	Digital microprocessor controller
Display	LED display
Heating Power	125W for DBD-001
	200W for DBD-002
Power Rating	1.0A for DBD-001
	1.6A for DBD-002
Temperature Control Range	5°C above ambient to 150°C
Temperature Increment	0.1°C
Temperature Calibration	Yes
Temperature Uniformity @37°C	± 0.2°C
Temperature Accuracy @37°C	± 0.2°C
Timer	1 ~ 999 mins, continuous
Safety Device	Leakage proof for heating chamber
	Over Temperature protection
	SSR failure detection
Operating Temperature	Ambient to 40°C
Heating Chamber Material	Molded aluminum alloy chamber
Block Material	Aluminum
Block Type	Standard and customized types are available
Data Log	RS 232 (Max. 2.5 meter long)
Rated Voltages	110V~ or 220V~; 50/60Hz
Unit Dimension	200 x 290 x 80mm (W x L x H)
Weight	approx.2.6 kg for DBD-001
	approx. 2.8kg for DBD-002

Product Description

One and two block Genius Dry Bath Incubators use interchangeable heating block modules for a variety of applications, including restriction digests, denaturing DNA, BUN, melting agar, coagulation studies, hybridization and Hot Start thermo-cycled reaction. Due to its molded aluminum alloy chamber, it can be applied as a mini water bath. All models incorporate a PID controller for easy temperature selection, rapid heat up and excellent stability. Temperature may be set in 0.1°C increments from 5°C above ambient to 150°C. An optional temperature probe is available for placing directly in samples. A timer equipped may be set from 1 to 999mins for user's convenience. In addition to the optional Data Logging software package, another optional Function Control software package, which controls dry bath incubator through a computer is also a comprehensive design for your experiment.

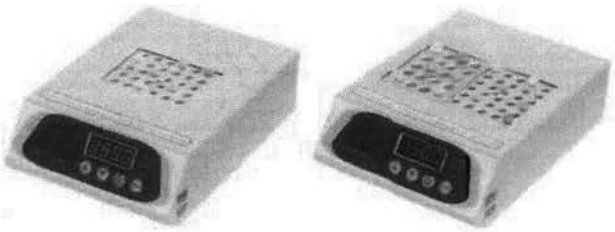
Features:

Microprocessor controller with digital display
User temperature calibration
Leakage proof for molded aluminum alloy heating chamber
Single and Dual block modes
Optional external temperature probe is available
Optional Data Logging software package is available
Optional Function Control software package is available

Introduction

Overview

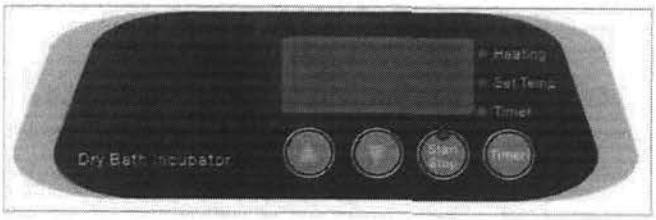
one and two block Genius Dry Bath Incubators are comprehensive designs for wide varieties of applications. Excellent temperature control figures can deliver accurate and reliable experimental results from one experiment to another. Genius Dry Bath Incubators are also space compact instruments with competitive pricing offerings, user friendly with great value. More importantly, Genius Dry Bath Incubators are RoHS compliant and designed to comply with the CE regulation.



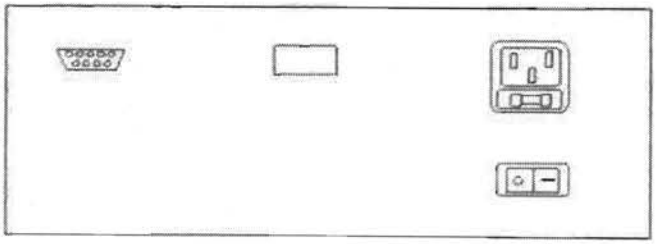
DBD-001 DBD-002

Controls and Features

Please refer to the following page for the location of the following controls and features.



Front of Unit



Rear of Unit

1. **Key** – to increase either temperature or time value

2. **Key** – to decrease either temperature or time value

3. **Key** – activate or stop the unit.

4.  **Key** – set or select timer mode

5. **TIMER** – This LED light indicates on Timer Mode

6. **Set Temp** - This LED light indicates temperature is on setting value

7. **Heating** –This LED light indicates temperature is increasing.

8. **AC Power Switch** – to switch the unit power ON/OFF

9. **AC Power Cord and Fuse Holder** – Power Cord Socket and Fuse Holder

10. **RS232 Connected Port** – for Data Log

Installation Instructions

Genius Dry Bath Incubator is actually an already installed instrument. As long as it is placed on a sturdy and level surface in a safe, dry place, and one or two heating aluminum block(s) is/are inserted into the bath or simply water, as a water bath, it is ready for operation.

Operation Instructions

1. Place Genius Dry Bath Incubator on a sturdy and level surface in a safe, dry place, away from laboratory traffic.

2. Ensure that the AC power switch is OFF, then plug the three-pronged power cord into a grounded three-prong AC outlet of the appropriate voltage (115V or 220V as indicated on the rating sticker near the AC cord on the back of the unit).

3. Select suitable module block(s) or appropriate water volume and put it / them into the Genius Dry Bath Incubator.

4. Turn the AC power ON.

5. Run temperature calibration procedure when using the instrument first time (see page 12).
6. Press  or  Key to adjust the desired temperature.
7. If setting heating time is required, press  Key, and then press  Key or  Key to adjust timer upon your request. The unit will stop with alarm while timer is up.
8. Press the  Key to start heating.
9. If to reset timer is required during heating, press  Key to deactivate heating.
10. If the optional external temperature probe is used, plug it into the connector which on the rear panel.
11. Press  Key again to stop the unit.

Operation protection mechanism

Error Types	Description
Err1	If the displayed temp. value is over 5°C than the set temp value during operation, Err1 will be displayed with alarm, and the instrument will shut down automatically.
Err2	If temp. value raises automatically after power on the instrument and without pressing START Key to start heating, Err2 will be displayed with alarm. This problem is due to SSR failure.
Err3	If internal temp. sensor is broken or connection problem occurs during operation, Err3 will be displayed with alarm, and the instrument will shut down automatically.

Temperature Calibration

Genius Dry Bath Incubator with the optional block(s) has been calibrated as a set. But, different kinds of block or water will not have the same result and may have different influences. For optimum accuracy temperature control or while changing with different kinds of block or water, Genius Dry Bath Incubator should be calibrated in accordance with the procedure outlined below.

1. Insert a 300mm calibrated laboratory thermometer into the thermometer holding port, which is on the block, or in the middle of chamber when water is filled.
2. Switch the main power ON and press Start/Stop Key simultaneously. A "DU~DU" sound from Genius Dry Bath with a LED segment flashing on the display (bottom left segment) indicates the unit is under Calibration Mode. Release the Start/Stop Key.

This Segment will be flashing

3. Press ▲ or ▼ Key to adjust display value, which you want to control temperature accurately. And then press Start/Stop Key.
4. Wait for around 40~50 min until **"all LED figure"** is flashing.
5. Adjust display value to the same figure as thermometer. And then press Start/Stop Key.
6. The calibrated procedure is finished. Please wait for few more minutes that microprocessor will automatically adjust displayed temperature value to the same value with thermometer measured.

Data Log Software Instructions

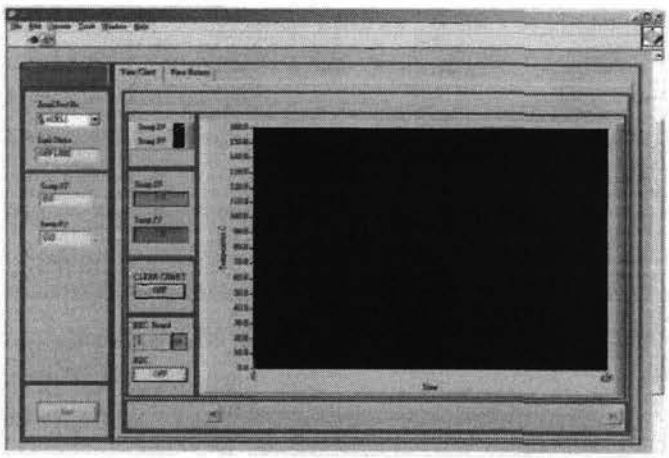
Installation Instruction

1. Insert the CD into CD ROM and press the setup.exe in the Installer Folder for installation.

2. Follow up the instructions shown on the computer display screen to complete the installation.

Operation Instruction

1. Start MD-01-LOG software program and then the below screen will be shown. There are two main sections, View Chart, and View History in this software.

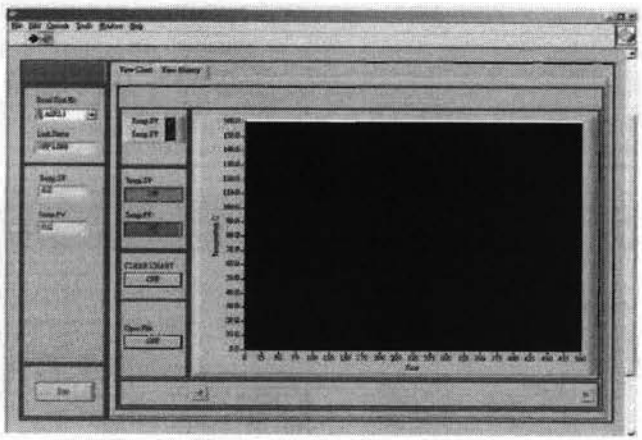


2. View Chart Section:

Serial Port No.	Communication port selections between computer and Genius Dry Bath Incubator
Link Status	Indication whether Genius Dry Bath Incubator is linked with computer or not
EXIT	To exit this software
Temp. SV	The set temperature value

Temp. PV	The real temperature value being measured
Temp. SV ON / OFF	To show the temp set value on the table or not
Temp. PV ON / OFF	To show the real time temp value on the table or not
REC. period	To set up how frequent the operation data is recorded
REC. period ON / OFF	To start or stop recording
CLEAR CHART OFF	To clear up the curves in the table

3. View History Section:



Serial Port No.	Communication port selections between computer and Genius Dry Bath Incubator
Link Status	Indication whether Genius Dry Bath Incubator is linked with computer or not
Temp. SV	The set temperature value
Temp. PV	The real temperature value being measured
Temp. SV ON / OFF	To show the temp set value on the table or not
Temp. PV ON / OFF	To show the real time temp value on the table or not
CLEAR CHART OFF	To clear up the curves in the table
Open File	ON: to view historic record data OFF: No historic record data is shown

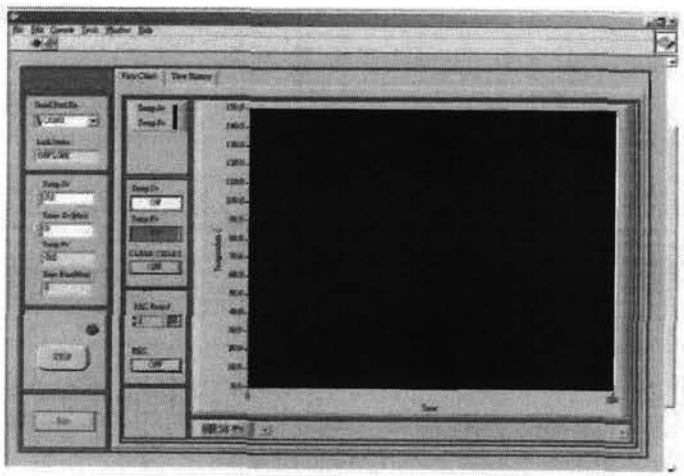
Function Control Software Instructions

Installation Instruction

1. Insert the CD into CD ROM and press the setup.exe in the Installer Folder for installation.
2. Follow up the instructions shown on the computer display screen to complete the installation.

Operation Instruction

1. Start **DBD-001** software program and then the below screen will be shown. There are two main sections, View Chart, and View History in this software.

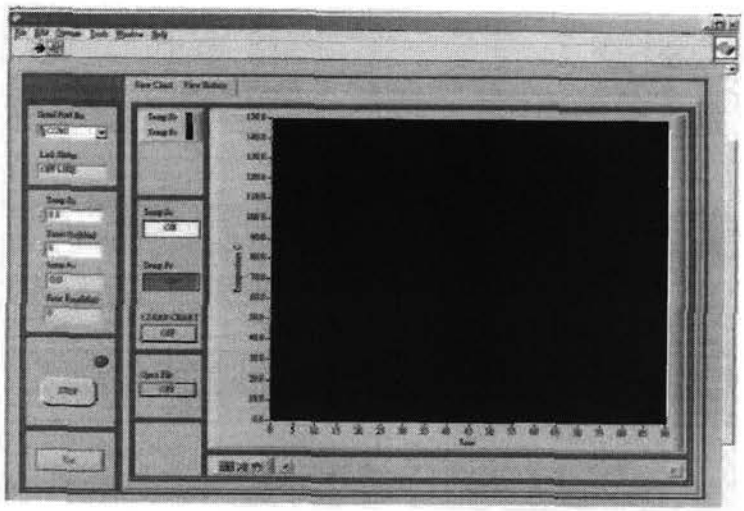


2. View Chart Section:

Serial Port No.	Communication port selections between computer and Genius Dry Bath Incubator
Link Status	Indication whether Genius Dry Bath Incubator is linked with computer or not
STOP	For Genius Dry Bath Incubator ON / OFF control
EXIT	To exit this software
Temp. SV	The set temperature value
Temp. PV	The real temperature value being measured

Timer SV (Min)	To set operation time
Time RUN (Min)	To indicate how many minutes Genius Dry Bath Incubator is being operated
Temp. SV ON / OFF	To show the temp set value on the table or not
Temp. PV ON / OFF	To show the real time temp value on the table or not
REC. period	To set up how frequent the operation data is recorded
REC. period ON / OFF	To start or stop recording
	Enlarge the record table
	Move the record table

3. View History Section:



Serial Port No.	Communication port selections between computer and Genius Dry Bath Incubator
Link Status	Indication whether Genius Dry Bath Incubator is linked with computer or not
STOP	To stop the software and instrument
EXIT	To exit this software
Temp. SV	The set temperature value
Temp. PV	The real temperature value being measured
Timer SV (Min)	To set operation time
Time RUN (Min)	To indicate how many minutes Genius Dry Bath Incubator is being operated

Temp. SV ON / OFF	To show the temp set value on the table or not
Temp. PV ON / OFF	To show the real time temp value on the table or not
CLEAR CHART OFF	To clear up the curves in the table
Open File	ON: to view historic record data OFF: No historic record data is shown
	Enlarge the record table
	Move the record table

Troubleshooting Guide

Many operating problems may be solved by carefully reading and following the instructions in this manual accordingly. Some suggestions for troubleshooting are given below. Should these suggestions not resolve the problem, please contact our SERVICE DEPARTMENT or a distributor in your region for assistance. If troubleshooting service is required, please include a full description of the problem.

Problem	Recommendations
LED does not light up	Check the **FUSE**
	Ensure that the AC power switch is ON
	Check the three-pronged power cord are properly plugged into a grounded three-prong AC outlet of the appropriate voltage

Maintenance

Genius Dry Bath Incubator may be cleaned with a moist cloth containing a mild soap solution. The chamber and blocks are aluminum alloy and may be cleaned with any of the commercial aluminum cleaners on the market.

Ordering Information

Cat. No.	*Description*
DBD-001 -110/220	GENIUS Dry Bath Incubator (one block unit); without block
DBD-002-110/220	GENIUS Dry Bath Incubator (dual block unit); without block
DBD-001-T-110/220	GENIUS Dry Bath Incubator (one block unit) with an External Temp Probe
DBD-002-T-110/220	GENIUS Dry Bath Incubator (dual block unit) with an External Temp Probe

ACCESSORIES

DBD-RS232	RS 232 cable
DBD-P01	Thermocouple
DBD-DLSW	Data Logging software package
DBD-PCSW	Function Control software package
DBD-DLSW-R	Data Logging software package, including a RS 232 cable
DBD-PCSW-R	Function Control software package, including a RS 232 cable
DBD-BL95	Block Lifter
300-1-111101	For Microplate; Titerplate (Plane bottom for single block unit only)
300-1-111103	For 96 wells Deep Microplate or PCR plate (for single block unit only)
300-1-111102	For Microplate; Titerplate (for dual block unit only)
300-1-111104	For 96 wells Deep Microplate or PCR Plate (for dual block unit only)
300-1-111105	For 0.2 ml tube, 64 wells (or 0.2 ml PCR Strip tube for 8 wells x 8)
300-1-111106	For 0.5 ml tube, 20 wells
300-1-111107	For 1.5 or 2.0 ml tube, 20 wells For 1.5 V-shaped tube only, 20 wells Double Side Block: One side for 1.5 or 2.0 ml tube, 20 wells; another side for 0.5 ml tube, 30 wells on the opposite side Combination: 1.5 or 2.0 ml tube, 12 well and 0.5 ml tube, 12 wells (On the same side)
300-1-111108	Well size: 13 mm, 20 wells
300-1-111109	Well size: 17 mm, for 15 ml centrifuge tube, 12 wells
300-1-111110	Well size: 20 mm, 12 wells
300-1-111111	Well size: 25 mm, 6 wells
300-1-111112	For 50 ml Centrifuge tube, 4 wells

Note:

1. Dimension of Standard Aluminum Block is approximately W104 x L79 x D50 mm .
2. Customized Aluminum block is also available.