



PHARMA DEVILS

Formulation, Research and Development Department

STANDARD OPERATING PROCEDURE

Department: Formulation, Research and Development	SOP No.:
Title: Operation and Maintenance of Humidity Chamber (Newtronic)	Effective Date:
Supersedes: Nil	Review Date:
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- 1.0 OBJECTIVE:**
To lay down a procedure for operation and maintenance of Humidity Chamber (Newtronic)
- 2.0 SCOPE:**
This SOP is applicable to Formulations Research and Development.
- 3.0 RESPONSIBILITY:**
- 3.1 In-charge stability cell (FR&D) will be responsible for operation and maintenance.
 - 3.2 Manager – FR&D will ensure the maintenance.
 - 3.3 Head – FR&D for implementation and compliance.
- 4.0 DEFINITION(s):**
Not Applicable
- 5.0 PROCEDURE:**
- 5.1 OPERATION**
- 5.1.1 Switch 'ON' the mains at the backside of the cabinet.
 - 5.1.2. Switch the instrument 'ON' 'RUN' LED glows indicating that the unit is run menu.
 - 5.1.3. Unlock the controller cabinet.
 - 5.1.4. Setting of Temperature, Humidity, Printing and Clock parameters.
 - 5.1.5. Pressing SET key to enter in this mode. The flow chart of setting of parameter is as follows. Use up (,) and down (+) arrow keys to change the settings. In set mode the centerline will display the parameter's name and its present value that is to be set.

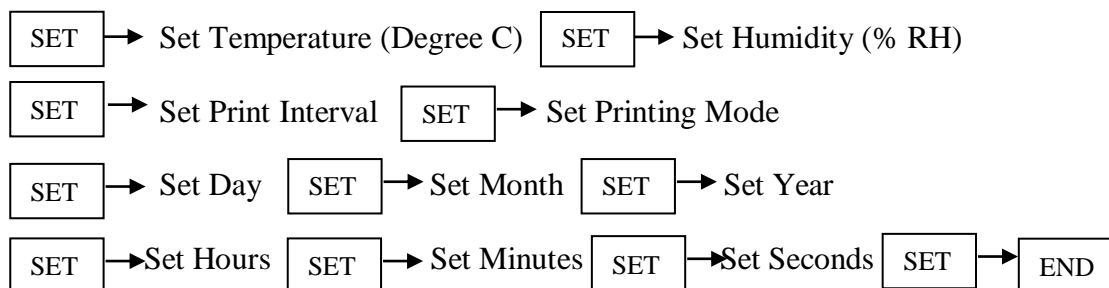


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- 5.1.5.1 Run the chamber as with the required condition. (25°C/60%RH or 30°C/60%RH or 40°C/75% RH)
- 5.1.5.2 Once the programme has been set it should not be changed
- 5.1.5.3 If the programme is changed the chamber shall be validated for changed parameters.
- 5.1.5.4 Lock the controller cabinet.
- 5.1.5.5 Controller key definitions and functions of controller are as per Annexure 02.
- 5.1.5.6 Key definitions and functions of Relays and Alarms are as per Annexure 03.
- 5.1.6. ACQUIRING DATA FROM NEWTRONIC STABILITY CHAMBER.**
- 5.1.6.1 Check the Computer system and **CONVERTER** is powdered ON and proper connection has been done.
- 5.1.6.2 To acquire data from machine enter password and click on **Data** on menu bar go to **Acquire from** and click on the machine from which data has to acquire.
- 5.1.6.3 After acquiring data from the machine and storing on a hard disk successfully the software will automatically clear machine's memory will display a message that "**Data Acquired Successfully And Memory Cleared**".
- 5.1.7. VIEWING ACQUIRED DATA:**
- 5.1.7.1 Click on **File** on the menu bar and click on **Open** log.
- 5.1.7.2 The Log Data window will open and select the machine from Machine Name once can view the logged data.
- 5.1.7.3 To view graphical representation click on **Graph** button.
- 5.1.7.4 To generate Kinetic Mean Temperature of displayed readings Click on **Generate Mean Kinetic Temperature** button.
- 5.1.8. PROCEDURE TO SAVE THE READINGS AS HISTORY FILE**
- 5.1.7.1 Click on the **Save as History file** button.
- 5.1.7.2 The software will ask for a valid file name, enter the name and click OK. The data from log file will be transferred to the history file.
- 5.1.7.3 To open the history file click on **File** on the menu bar and click on **Open Hist.**
- 5.1.9. PROCEDURE TO VIEW REAL TIME.**
- 5.1.8.1 To view real time data click on **Data** on menu bar and click on **Real Time.**
- 5.1.10. PROCEDURE TO VIEW SCANNER READINGS**
- 5.1.9.1 To view the scanner readings click on "**Validation**".
- 5.1.9.2 To plot the graph of scanner readings click on **Graph** button.
- 5.2 PROCEDURE FOR GENERAL MAINTENANCE**



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- 5.2.1 Check for the chamber fan and condenser fan. If found loose tighten it.
- 5.2.2 Check the compressor.
- 5.2.3 Check the heater terminals.
- 5.2.4 Check the sensor and clean once in 15 days.
- 5.2.5 Clean the chamber fan from inside and outside weekly.
- 5.2.6 Check the drainpipe provided at the bottom of the chamber regularly.
- 5.2.7 Check the working of safety thermostat.
- 5.2.8 Clean the boiler box and boiler reservoir tank.
- 5.2.9 Clean the boiler heater with the help of polish paper frequently.

6.0 REFERENCE(s):
Not Applicable

7.0 ABBREVIATION(s):

Abbreviation	Full Description
SOP	Standard Operating Procedure
FR&D	Formulation, Research and Development
°C	Degree centigrade
RH	Relative Humidity

8.0 FLOWCHART(s):
Not Applicable



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9.0 ANNEXURE(s):

Annexure No.	Details/Title of Annexure	Format No. (Current version)
Annexure 01	Temperature, Printing and Clock parameters setting menu	-
Annexure 02	Controller key definitions and functions of controller	-
Annexure 03	Key definitions and functions of Relays and Alarms	-
Annexure 04	Display during acquiring data from Newtronic stability chamber	-
Annexure 05	Display during viewing acquired data	-
Annexure 06	Display during generating mean kinetic temperature	-
Annexure 07	Display during save the readings as history file	-
Annexure 08	Display during view real time data	-
Annexure 09	Display during scanner readings	-



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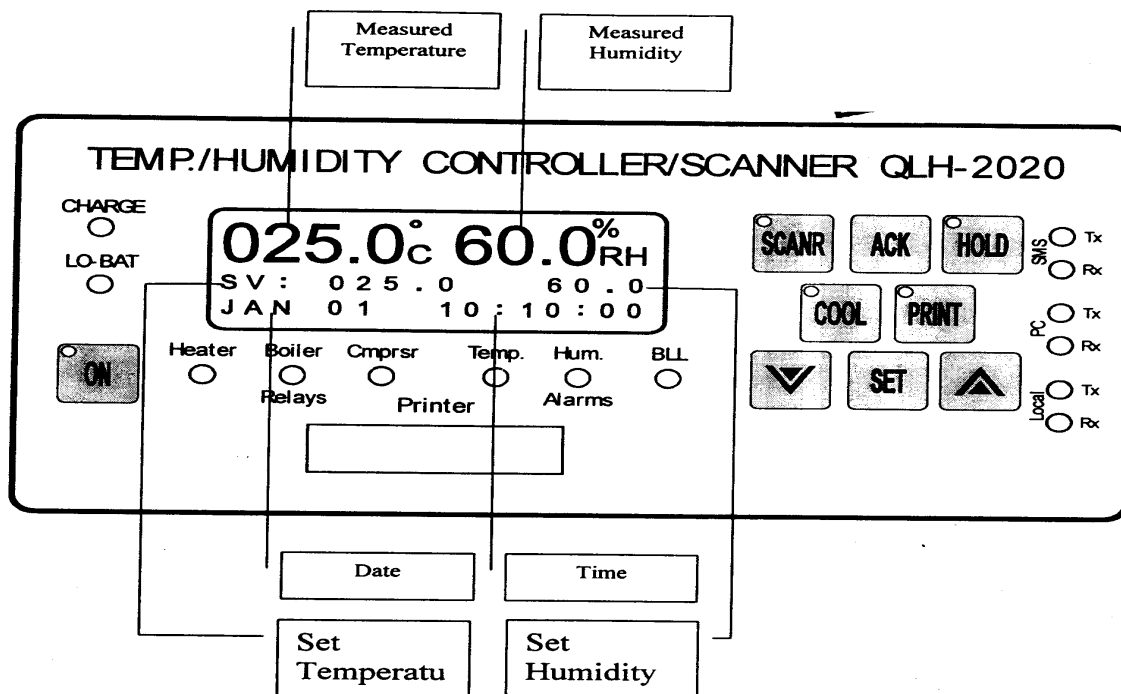
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Annexure 01

Temperature, Printing and Clock parameters setting menu





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Annexure 02

Controller key Definitions and Functions of Controller

Key definitions and functions



This key is to be used for setting as well as for viewing all parameters. Press this key to enter in SET mode.



This key controls function of the compressor. If LED above this key is off, then compressor will remain off. Press this key, LED above this key is ON and compressor will be on after delay of 3 minutes. In ON mode compressor is continuously on and heater controls temperature.



Press this key to print stored data in the memory on a printer. If LED on this key is on indicates printing is in progress. If the LED is blinking indicates that printer is not powered ON or not connected properly.



Use these arrow keys to change the parameters in set parameter mode. Pressing the key Temperature / Humidity will change by 0.1. If the key is kept pressed than Temperature / Humidity will change by 0.1 for first 10 steps then it will change by 1.0 for next 10 steps, then by 10.0



The controller will give audio and visual alarm if the measured temperature and humidity deviates $\pm 2^{\circ}\text{C}$ or $\pm 5\% \text{RH}$ from the set value. By pressing this key one can acknowledge the alarm and audio alarm stops. The audio alarm will not be acknowledged if the deviation is more than the proportional band or water level in boiler tank is low.



Press this key to go to scanner mode. In scanner mode set humidity window will show Channel number and measured temperature and humidity windows will show it's respective temperature and humidity. The LED on this key is ON, indicates the controller is in the scanner mode.



Press this key to hold any particular channel in scanner mode. The LED on this key is ON, indicates that a channel has been on hold.



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Annexure 03

Key definitions and functions of Relays and Alarms

RELAYS

- Heater** This LED indicator indicates ON/OFF operation of chamber heater (Dry heater).
- Cmprsr** This LED indicator indicates ON/OFF operation of compressor.
- Boiler** This LED indicator indicates ON/OFF operation of boiler heater (Wet heater).

ALARMS

- Temp.** If this LED is ON or Blinking indicates measured temperature has deviated $\pm 2^\circ$ C from the set temperature.
- Hum.** If this LED is ON or Blinking indicates measured humidity has deviated $\pm 5\%$ RH from the set humidity.
- BLL** This LED indicator when OFF; indicates presence sufficient water level in the boiler tank. If this LED indicator is blinking indicates insufficient water level in the boiler tank.



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Annexure 04

Display during acquiring data from Newtronic Stability Chamber





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Annexure 05 Display during viewing acquired data

Plot graph of recorded readings

View the recorded readings.

Print the selected readings.

Save the readings as history file

Delete the recorded readings.

Generate Mean Kinetic Temperature.

S/N	Date	Time	Set	Measured	Set	Measured
1	07-07-2000	10:00	25.0	24.9	60.0	59.1
2	07-07-2000	22:00	25.0	25.1	60.0	60.0
3	08-07-2000	10:00	25.0	25.4	60.0	60.1
4	08-07-2000	22:00	25.0	25.0	60.0	60.0
5	09-07-2000	10:00	25.0	25.0	60.0	60.0
6	09-07-2000	22:00	25.0	25.1	60.0	59.5
7	10-07-2000	10:00	25.0	25.1	60.0	60.3
8	10-07-2000	22:00	25.0	25.4	60.0	60.2
9	11-07-2000	10:00	25.0	24.8	60.0	60.0
10	11-07-2000	22:00	25.0	25.4	60.0	59.8
11	12-07-2000	10:00	25.0	25.4	60.0	61.4
12	12-07-2000	22:00	25.0	25.4	60.0	60.4



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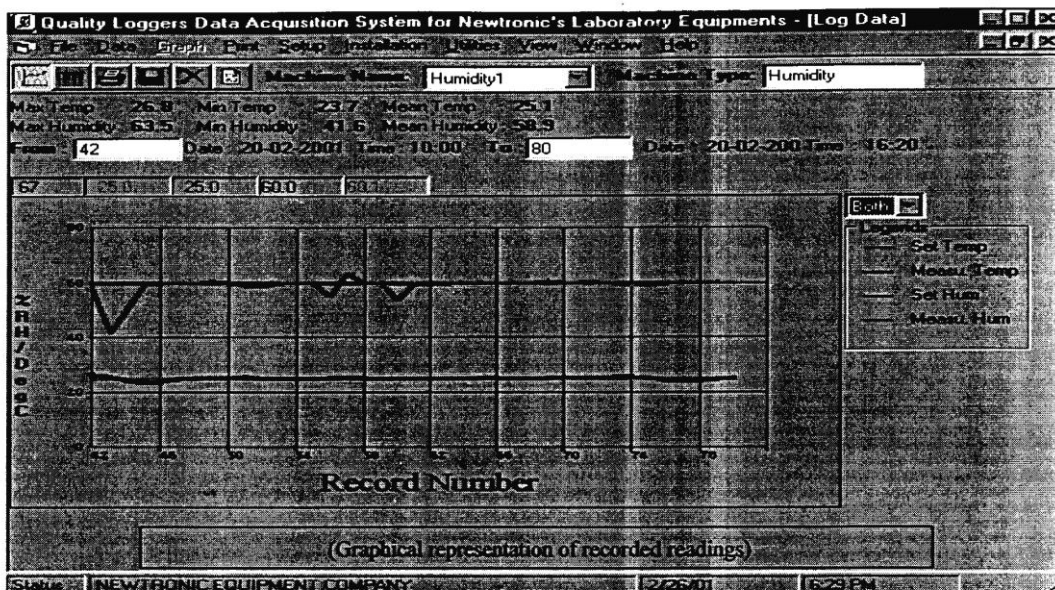
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Annexure 06

Display during generating mean kinetic temperature



S.No.	No.	Start Date	End Date	Max(Deg C)	Min(Deg C)	Mean(Deg C)
1	1	07-07-2000	13-07-2000	25.4	24.8	25.2
2	2	14-07-2000	20-07-2000	25.4	25.4	25.4
3	3	21-07-2000	27-07-2000	25.4	25.4	25.4
4	4	28-07-2000	03-08-2000	25.4	25	25.3
5	5	04-08-2000	10-08-2000	25.4	25	25.2
6	6	11-08-2000	17-08-2000	25.4	25.4	25.4
7	7	18-08-2000	24-08-2000	25.4	25.4	25.4
8	8	25-08-2000	31-08-2000	25.4	25.4	25.4

Mean Kinetic Temperature = 25.34
Average temperature = 25.3
Deviation from Average temperature = -0.04



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Annexure 07

Display during save the readings as history file

Quality Loggers Data Acquisition System for Newtronic's Laboratory Equipments

File Data Print Setup Installation View Window Help

Machine Name: WALK2560 Controller Type: QLH_2020

Max Temp : 25.9 Min Temp : 23.7 Mean Temp : 25.0
Max Humidity : 63.4 Min Humidity : 57.1 Mean Humidity : 60.0

From : 1 Date : 02-12-2002 Time : 09:30 To : 1497 Date : 03-01-2003 Time : 09:00

Record-ddmm/yyyy HH:MM Temperature °C Humidity %Rh

No.	Date	Time	Temp 1	Temp 2	Humidity 1	Humidity 2
1486	03-01-2003	03				
1487	03-01-2003	04				
1488	03-01-2003	04				
1489	03-01-2003	05				
1490	03-01-2003	05				
1491	03-01-2003	06				
1492	03-01-2003	06:30	25.0	25.0	60.0	60.0
1493	03-01-2003	07:00	25.0	25.0	60.0	60.0
1494	03-01-2003	07:30	25.0	25.0	60.0	60.0
1495	03-01-2003	08:00	25.0	25.2	60.0	60.0
1496	03-01-2003	08:30	25.0	25.0	60.0	59.6
1497	03-01-2003	09:00	25.0	25.0	60.0	59.9

Save data in History folder.

Enter a valid filename without any extension.

OK Cancel

Status: DR.REDDYFR&D 03/01/03 1:44 PM



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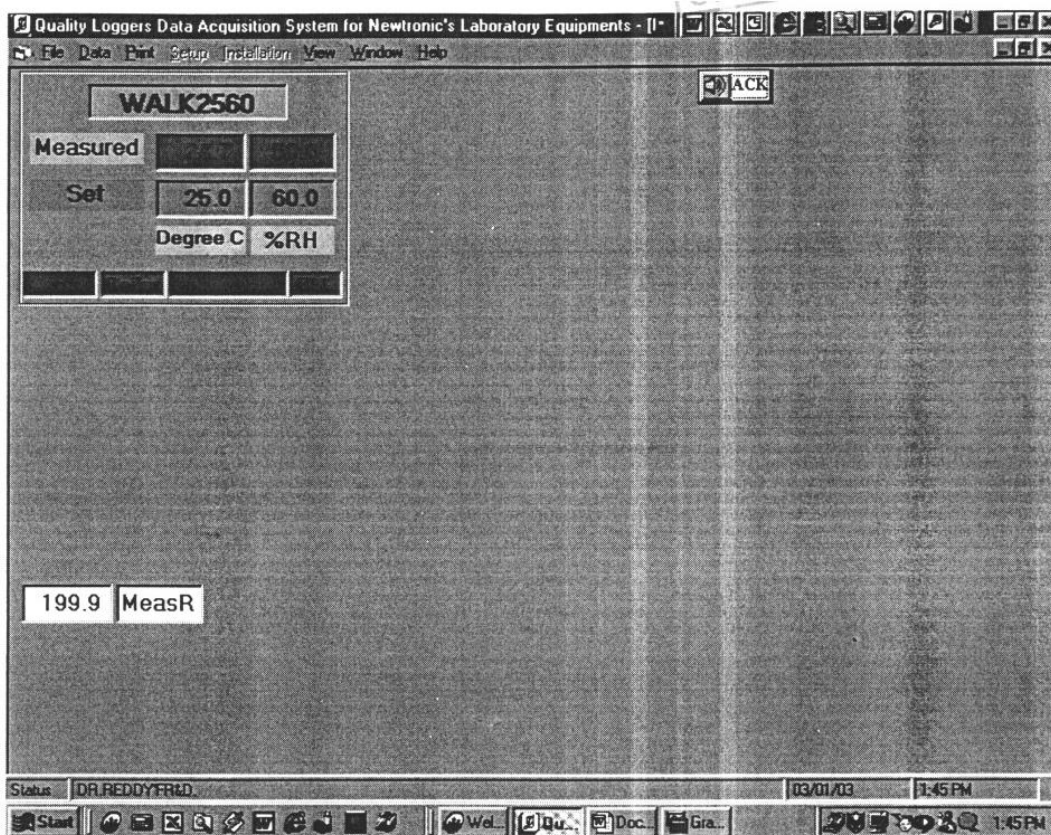
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Annexure 08

Display during view real time data





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Annexure 09

Display during scanner readings

Quality Loggers Data Acquisition System for Newtronic's Laboratory Equipments - [1]

File Data Print Setup Installation View Window Help

Machine Name: WALK2560 Controller Type: QLH_2020

Max Temp : 25.9 Min Temp : 23.7 Mean Temp : 25.0
Max Humidity : 63.4 Min Humidity : 57.1 Mean Humidity : 60.0

From : 1 Date : 02-12-2002 Time : 09:30 To : 1497 Date : 03-01-2003 Time : 09:00

No.	Date	Time	Chn 1	Chn 2	Chn 3	Chn 4	Chn 5	Chn 6	Chn 7	Chn 8	Chn 1
Rec	dd-mm-yyyy	HH-MM	°C	°C	°C	°C	°C	°C	°C	°C	*RH
1488	03-01-2003	04:30	25.2	25.5	25.4	25.2	24.9	21.4	25.1	24.6	60.2
1489	03-01-2003	05:00	25.0	25.3	25.4	25.2	24.9	21.4	25.2	24.6	59.5
1490	03-01-2003	05:30	25.2	25.3	25.4	25.1	24.9	21.4	25.1	24.5	59.3
1491	03-01-2003	06:00	25.0	25.5	25.4	25.1	24.9	21.3	25.1	24.6	60.2
1492	03-01-2003	06:30	25.0	25.5	25.4	25.2	24.9	21.4	25.2	24.6	60.4
1493	03-01-2003	07:00	25.0	25.5	25.4	25.2	25.0	21.4	25.2	24.6	60.0
1494	03-01-2003	07:30	25.0	25.5	25.4	25.3	24.9	21.4	25.2	24.6	60.0
1495	03-01-2003	08:00	25.2	25.5	25.4	25.2	24.9	21.4	25.2	24.6	60.0
1496	03-01-2003	08:30	25.0	25.5	25.4	25.2	25.0	21.4	25.1	24.6	59.6
1497	03-01-2003	09:00	25.0	25.5	25.4	25.3	25.0	21.5	25.2	24.7	59.9

Status: DR.REDDYFR&D 03/01/03 1:46 PM