

# The University of Iowa Dezii Translational Vision Research Group

Page 1 of 7

## TITLE: Operation of the Panasonic Ultra-Low Temperature Freezer

SOP Number: \_\_\_\_\_ D-GLO-EQP-002 \_\_\_\_\_

Revision Number: \_\_\_\_\_ 0 \_\_\_\_\_

Effective Date: \_\_\_\_\_ 08 Aug 2015 \_\_\_\_\_

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Date: \_\_\_\_\_

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### A. OBJECTIVE

This document describes the operation of the Sanyo Ultra-Low Temperature Freezer in The University of Iowa Dezii Translational Vision Research Group (DTVR).

### B. APPLICABILITY

This document applies to all personnel at DTVR.

### C. PROCEDURE

#### 1.1 Setup

##### 1.1.1 Installation

- 1.1.1.1 Install the unit in a level area free from vibration with a minimum of 6 inches of space on the sides and rear and 12 inches at the top.
- 1.1.1.2 Ensure the equipment is not positioned in direct sunlight or near heating diffusers, radiators, or other sources of heat. The ambient temperature range at the location must be 59 to 90°F (15 to 32C).
- 1.1.1.3 Connect the equipment to the correct power supply. Before connecting the freezer to a power source, be sure to check the dataplate for correct voltage. Standard NEMA plugs are provided with all units. Wiring diagrams are attached to the back of the cabinet.
- 1.1.1.4 The unit must be level. This unit has adjustable feet to use when leveling.

#### 1.2 Control Panel

##### 1.2.1 Control Panel Features

- 1.2.1.1 The control panel is located on the bottom left, front side of the freezer. There are three pushbuttons to change the temperature display, or to adjust temperature and alarm setpoints. The thermometer display provides a quick visual indicator of current cabinet temperatures and alarm conditions.

**TITLE: Operation of the Panasonic Ultra-Low Temperature Freezer**

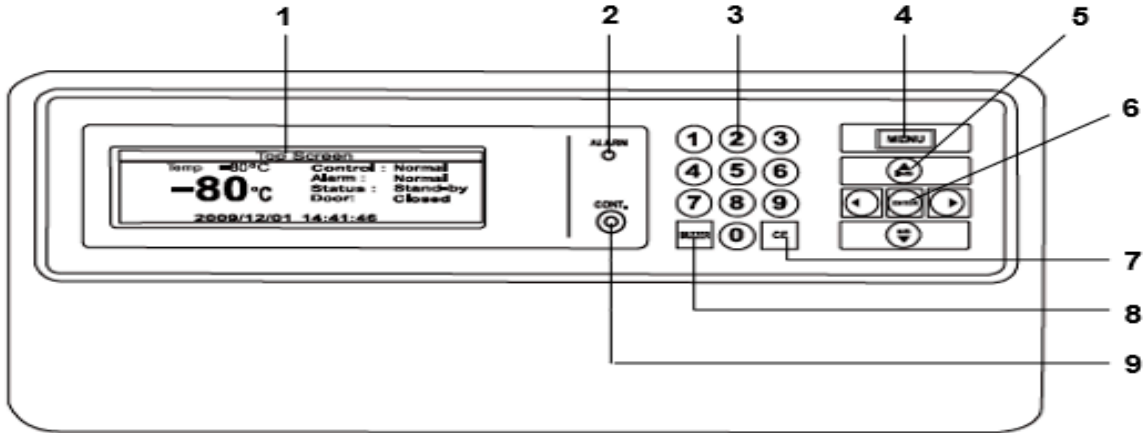
SOP Number:           D-GLO-EQP-002          

Revision Number:           0          

Effective Date:           08 Aug 2015          

1.2.2 Control Panel Functions

**Control panel**



1. Main Temperature Display – during normal operation, shows cabinet temperature in degrees Celsius, as measured by the sensor inside the cabinet.
2. Thermometer – Shows cabinet temperature and alarm conditions.
3. Power Failure – illuminated when the main power supply is interrupted.
4. Service required – illuminated when the controller is in service programming mode or when simulated warm or cold alarm conditions are failing to occur during an alarm test.
5. Increase – pushbutton used to increase setpoint values in programming mode and for various display functions.
6. Door ajar – illuminated when the freezer door is open and the alarm is activated.
7. Battery low – illuminated when the backup battery is low.
8. Decrease – pushbutton used to decrease setpoint values in programming mode and for various display functions.
9. Scan – pushbutton used to change the main display and for various other functions.
10. Audible alarm – illuminates during warm and cold alarm conditions.

1.3 Remote Alarm Terminal

1.3.1 The terminal of the remote alarm is installed at the lower left side of the unit. The alarm is outputted from this terminal. Contact capacity is DC 30 V, 2 A.

	Between C.O.M. and N.O.	Between C.O.M. and N.C.
At normal	Open	Close
At abnormal	Close	Open

**TITLE: Operation of the Panasonic Ultra-Low Temperature Freezer**

SOP Number:           D-GLO-EQP-002          

Revision Number:                           0                          

Effective Date:                   08 Aug 2015                  

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Note: • The buzzer is silenced by pressing buzzer stop key (BUZZER) on the control panel during alarm condition. (A remote alarm is continuing the operation.) The buzzer will be activated again after certain suspension if the alarm condition is continued.

• The alarm is actuated when the power supply plug is disconnected from the outlet or the power switch is OFF.

1.4 Air Intake Port

1.4.1 When a door is closed and opened soon, a door does not sometimes open this product. The warm air which went into the chamber is cooled down rapidly, and this is because air inside the chamber contracted. When a door is closed and opened soon, a door is easy to open with the following process.

1. Turn the cap of the left side counterclockwise about two laps. (That can be removed completely)
2. Put the air into the chamber from about twenty seconds, and open a door.
3. Close a cap if a door opens.

Note: A door may not open in the above method when there are frost and ice in the air intake port. In that case, open a cap, and investigate the matter whether there is no frost inside the air intake port. Remove frost inside the air intake port by "Stick for air intake port cleaning" of the accessories when there is frost. Clean an air intake port every month even when there is no frost inside the air intake port

1.5 Start-Up of the Unit

1. Connect the power cord to the dedicated outlet having appropriate rating with the chamber empty, and turn on the power switch on the freezer.
2. Turn off the switch of the backup cooling kit (optional component) if it is installed.
3. Turn on the battery switch.
4. The audible alarm may activated. In this case, press the buzzer stop key (BUZZER) to silence the alarm.
5. Set the desired chamber temperature. See page 18 for the temperature setting.
6. Check that the chamber temperature reaches the desired temperature.
7. Turn on the switch of backup cooling kit (optional component) if it is installed.
8. Check that the alarm lamp blinks and the buzzer sounds by pressing the alarm test key.
9. After confirming the above, you can put articles into the chamber in a small batch to prevent the temperature rise.

1.6 Operation after Power Failure

1.6.1 The set value is memorized by nonvolatile memory. Accordingly, the chamber

**TITLE: Operation of the Panasonic Ultra-Low Temperature Freezer**

SOP Number:           D-GLO-EQP-002          

Revision Number:                           0                          

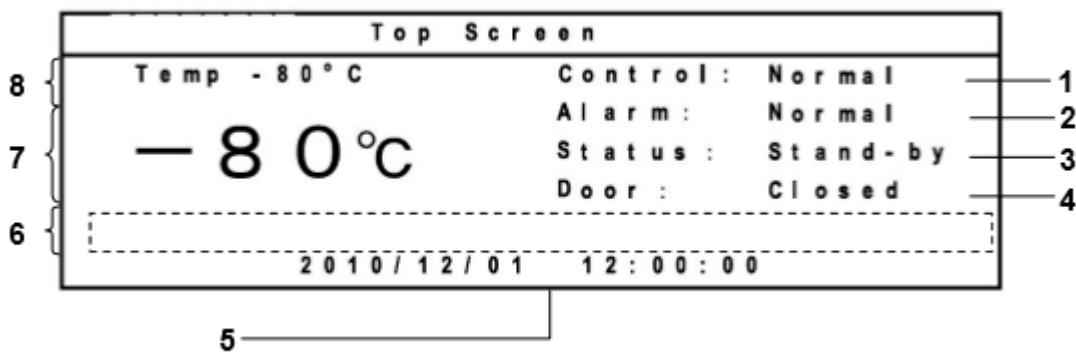
Effective Date:           08 Aug 2015          

resumes the operation with setting before power failure. During the power failure, the clock function is operating.

1.7 Function of Control Panel

1. Setting of standby operation: To set a running condition at the start-up. (refer to page 17 of Manual)
2. Setting of log interval and sending to PC: To set a log interval (page 30) and to send a log date to PC. (refer to page 25 of Manual) When this function is used, an optional interface board is necessary. Contact our sales representative or agent at the time of installation of the optional parts.(refer to page 51 of Manual)
3. Setting of date and time: To set the date and time shown on the top screen. (refer to page 28 of Manual)
4. Setting of alarm: To set the high or low temperature alarm(refer to page 19 of Manual). Also, to set the alarm delay (refer to page 20).
5. Default setting: To set the default items including LCD back color. (refer to page 27 of Manual)
6. Alarm test: The test of alarm buzzer, alarm lamp and remote alarm is effective by pressing the buzzer stop key (BUZZER) for about five seconds during normal operation. Pressing the key again finishes the alarm test.

1.8 Top Screen of Control Panel (When the power switch is turned on, the top screen is displayed on the LCD panel).



1. Operation indication (Control): "Normal" (initialization value) is indicated by the normal operation. "ECO" is indicated in the saving energy mode. Refer to page 27.
2. Display of alarm (Alarm) : "Normal" is usually indicated. "Alarm" or "Warning" is displayed during the alarm status and the additional message is displayed in the message column. "Test" is displayed at the alarm test. For the details of the alarm status, refer to page 33 through page 35.

**TITLE: Operation of the Panasonic Ultra-Low Temperature Freezer**

SOP Number:           D-GLO-EQP-002          

Revision Number:                           0                          

Effective Date:                   08 Aug 2015                  

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3. Display of status (Status): “Stand-by” is usually displayed. A status number is displayed and an additional message is displayed in the message column when the operation monitor system detects the specified status. Refer to page 33 for the operation monitor system.
4. Display of door status (Door): “Closed” is displayed when the door is close. “Open” is displayed when the door is open.
5. Display of date and time: The current date and time are displayed.
6. Message column: An additional messages is displayed when the alarm status. Refer to page 33 through page 35 for the details.
7. Display of current value: Current value of chamber temperature is displayed.
8. Display of setting: Set value of chamber temperature is displayed.

1.9 Running Operations and Various Settings

- 1.9.1 Refer to the User Manual for guidance on programming specification, and for various settings.

1.10 Alarm Buzzer

- 1.10.1 Temperature alarm buzzer (intermittent tone) is informed with the intermittent tone of the buzzer when a high temperature alarm (High Alarm) or a low temperature alarm (Low Alarm) occur. Buzzer informs it with the intermittent sound when an alarm condition goes on for more than alarm the time when it was set up with Delay. Push buzzer stop key (BUZZER) to stop the alarm. The alarm buzzer sounds again if an alarm is not solved in the time when it is set up with ring back. When alarm sounds, a remote alarm is activated, too.
- 1.10.2 Door alarm buzzer (intermittent tone) is informed with the intermittent tone if it is the condition that the door opens beyond the time when it is set up with door delay. It stops if a door is closed.
- 1.10.3 Filter alarm buzzer (intermittent tone) is informed with the intermittent tone when the temperature of filter sensor is beyond +48.0C Buzzer sound stops when the temperature of the filter sensor is less than +43.0C

Note: Buzzer stops if the buzzer stop key (BUZZER) is pushed when an alarm occurs and a buzzer sounds.

1.11 Monitor of Freezer Status

- 1.11.1 This product has the operation monitor system which shows it in table 14 of the User Manual. It is the system to inform it of the operation conditions of the product. Operation conditions are indicated in the Status indication of the top screen and the message indication.

1.12 Alarms and Safety Functions

- 1.12.1 This product has alarm & safety functions which are located in table 15 (Alarm and Safety Function List) of the User’s Manual.

1.13 Routine Maintenance

- 1.13.1 Cleaning of the Cabinet

**TITLE: Operation of the Panasonic Ultra-Low Temperature Freezer**

SOP Number:           D-GLO-EQP-002          

Revision Number:                           0                          

Effective Date:                   08 Aug 2015                  

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1.13.1.1 Clean the unit once a month. Regular cleaning keeps the unit looking new.

1.13.1.2 Use a dry cloth to wipe off small amounts of dirt on the outside and inside of the unit and all accessories. If the outside panels are dirty, clean them with a diluted neutral dishwashing detergent. (Undiluted detergent can damage the plastic components. For the dilution, refer to the instruction of the detergent.) After the cleaning with the diluted detergent, always wipe it off with a wet cloth. Then wipe off the cabinet or accessories with a dry cloth.

1.13.1.3 Never pour water onto or into the unit. Doing so can damage the electric insulation and cause failure.

1.13.1.4 The compressor and other mechanical parts are completely sealed. This unit requires absolutely no lubrication.

1.13.1.5 Check the backup cooling kit by pressing test switch once a month if it is installed.

1.13.1.6 Remove the frost or ice on the chamber wall and clean the condenser filter once a month.

1.13.2 Defrosting of Inside of Wall

1.13.2.1 The frost is built at the upper portion of the chamber and inner door. The excessive frost possibly make some gap between the cabinet and door gasket, which may cause poor cooling. Remove the frost on the inner door with a scraper enclosed with the unit. The User Manual, page 36 shows the procedure for removing the chamber frost.

Note: For removing the frost, do not use a tool with sharp edge such as a knife or a screw driver.

1.13.3 Cleaning of Intake Port

1.13.3.1 The cap of the left side is turned counterclockwise, and this product is removed, and the outer air is adopted into the chamber, and it opens an outer door. Therefore, frost is easy to be settled around the air intake port inside the chamber. Clean it in the case shown on page 37 of the User's Manual.

1.13.4 Troubleshooting

1.13.4.1 If the unit malfunctions, check out the "Check/Remedy" section on page 38 of the User's Manual before calling for service.

# The University of Iowa Dezii Translational Vision Research Group

Page 7 of 7

**TITLE: Operation of the Panasonic Ultra-Low Temperature Freezer**

SOP Number:           D-GLO-EQP-002          

Revision Number:           0          

Effective Date:           08 Aug 2015          

---

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D. HISTORY

Effective Date	Revision	Change
08 Aug 2015	0	Original document