



# Operating Instructions

Pharmaceutical Refrigerator

**MPR-S163**

**MPR-S313** Series



**MPR-S163**

Please read the operating instructions carefully before using this product, and keep the operating instructions for future use.

See page 32 for all model numbers.



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# INTRODUCTION

- Read the operating instructions carefully before using the appliance and follow the instructions for safety operation.
- PHC Corporation never guarantees any safety if the appliance is used for any objects other than intended use or used by any procedures other than those mentioned in the operating instructions.
- Keep the operating instructions in an adequate place to refer to it as necessary.
- The contents of the operating instructions will be subjected to change without notice due to the improvement of performance or functions.
- Contact our sales representative or agent if any page of the operating instructions is lost or page order is incorrect.
- Contact our sales representative or agent if any point in the operating instructions is unclear or if there are any inaccuracies.
- No part of the operating instructions may be reproduced in any form without the expressed written permission of PHC Corporation.

## IMPORTANT NOTICE

PHC Corporation guarantees this product under certain warranty conditions. However, please note that PHC Corporation shall not be responsible for any loss or damage to the contents of the product.

### <Intended Use>

This equipment is designed for storage of pharmaceuticals, samples and reagents.

# PRECAUTIONS FOR SAFE OPERATION

**It is imperative that the user complies with the operating instructions as it contains important safety advice.**

Items and procedures are described so that you can use this unit correctly and safely. If the precautions advised are followed, this will prevent possible injury to the user and any other person.

Precautions are illustrated in the following way:






Failure to observe WARNING signs could result in a hazard to personnel possibly resulting in serious injury or death.



Failure to observe CAUTION signs could result in injury to personnel and damage to the unit and associated property.

Symbol shows;















-  This symbol means caution.
-  This symbol means an action is prohibited.
-  This symbol means an instruction must be followed.

Be sure to keep the operating instructions in a place accessible to users of this unit.

# PRECAUTIONS FOR SAFE OPERATION

















## WARNING

-  **Do not use the unit outdoors.** Current leakage or electric shock may result if the unit is exposed to rain water.
-  **Only qualified engineers or service personnel should install the unit.** The installation by unqualified personnel may cause electric shock or fire.
-  **Install the unit on a sturdy floor and take an adequate precaution to prevent the unit from turning over.** If the floor is not strong enough or the installation site is not adequate, this may result in injury from the unit falling or tipping over.
-  **Never install the unit in a humid place or a place where it is likely to be splashed by water.** Deterioration of the insulation may result which could cause current leakage or electric shock.
-  **Never install the unit in a flammable or volatile location.** This may cause explosion or fire.
-  **Never install the unit where acid or corrosive gases are present** as current leakage or electric shock may result due to corrosion.
-  **Always ground (earth) the unit to prevent electric shock.** If the power supply outlet is not grounded, it will be necessary to install a ground by qualified engineers.
-  **Never ground the unit through a gas pipe, water main, telephone line or lightning rod.** Such grounding may cause electric shock in the case of an incomplete circuit.
-  **Connect the unit to a power source as indicated on the rating label attached to the unit.** Use of any other voltage or frequency other than that on the rating label may cause fire or electric shock.
-  **Never store volatile or flammable substances** in this unit if the container cannot be sealed. These may cause explosion or fire.
-  **Do not insert metal objects such as a pin or a wire into any vent, gap or any outlet on the unit.** This may cause electric shock or injury by accidental contact with moving parts.
-  **Use this unit in safe area when treating the poison, harmful or radiate articles.** Improper use may cause bad effect on your health or environment.
-  **Turn off the power switch (if provided) and disconnect the power supply to the unit prior to any repair or maintenance** of the unit in order to prevent electric shock or injury.
-  **Do not touch any electrical parts (such as power supply plug) or operate switches with a wet hand.** This may cause electric shock.

# PRECAUTIONS FOR SAFE OPERATION











## WARNING

-  **Ensure you do not inhale or consume medication or aerosols** from around the unit at the time of maintenance. These may be harmful to your health.
-  **Never splash water directly onto the unit** as this may cause electric shock or short circuit.
-  **Never put containers with liquid on the unit** as this may cause electric shock or short circuit when the liquid is spilled.
-  **Never bind, process, or step on the power supply cord, or never damage or break the power supply plug.** A broken power supply cord or power supply plug may cause fire or electric shock.
-  **Do not use the power supply cord if its power supply plug is loose.** Such power supply cord may cause fire or electric shock.
-  **Never disassemble, repair, or modify the unit yourself.** Any such work carried out by an unauthorized person may result in fire, or electric shock or injury due to a malfunction.
-  **Disconnect the power supply plug if there is something wrong with the unit.** Continued abnormal operation may cause electric shock or fire.
-  **Do not position this unit and the other unit so that it is difficult to operate the disconnection of the power supply plug.** Failure to disconnect the power supply plug may cause fire if there is something wrong with the unit.
-  **When removing the power supply plug from the power supply outlet, grip the power supply plug,** not the cord. Pulling the power supply cord may result in electric shock or fire by short circuit.
-  **Disconnect the power supply plug** before moving the unit. Take care not to damage the power supply cord. A damaged power supply cord may cause electric shock or fire.
-  **Disconnect the power supply plug when the unit is not used for long periods.** Keeping the connection may cause electric shock, current leakage, or fire due to the deterioration of insulation.
-  **If the unit is to be stored unused in an unsupervised area for an extended period, ensure that children do not have access and that doors are locked completely with a key.**
-  **The disposal of the unit should be accomplished by appropriate personnel.** Remove doors to prevent accidents such as suffocation.
-  **Do not put the packing plastic bag within reach of children** as suffocation may result.




# PRECAUTIONS FOR SAFE OPERATION

## CAUTION

-  This unit must be plugged into a dedicated circuit protected by branch circuit breaker.
-  Use a dedicated power source as indicated on the rating label attached to the unit. A multiple-tap may cause fire resulting from abnormal heating.
-  **Connect the power supply plug to the power source firmly after removing the dust on the plug.** A dusty plug or improper insertion may cause a heat or ignition.
-  **Never store corrosive substances such as acid or alkali** in this unit if the container cannot be sealed. These may cause corrosion of inner components or electric parts.
-  **Check the setting when starting up of operation after power failure or turning off of power switch.** The stored items may be damaged due to the change of setting.
-  **Be careful not to tip over the unit** during movement to prevent damage or injury.
-  **Prepare a safety check sheet (copy the last page)** when you request any repair or maintenance for the safety of service personnel.
-  **Do not touch the hot surface.** This may cause burns.

## SYMBOLS ON THE UNIT

The symbols are attached to the pharmaceutical refrigerator. The following table describes the symbols.

	This symbol indicates that caution is required. Refer to product documentation for details.
	This symbol indicates a hot surface.
	This symbol is attached to covers that access high-voltage electrical components to prevent electric shock. Only a qualified engineer or service personnel should be allowed to open these covers.

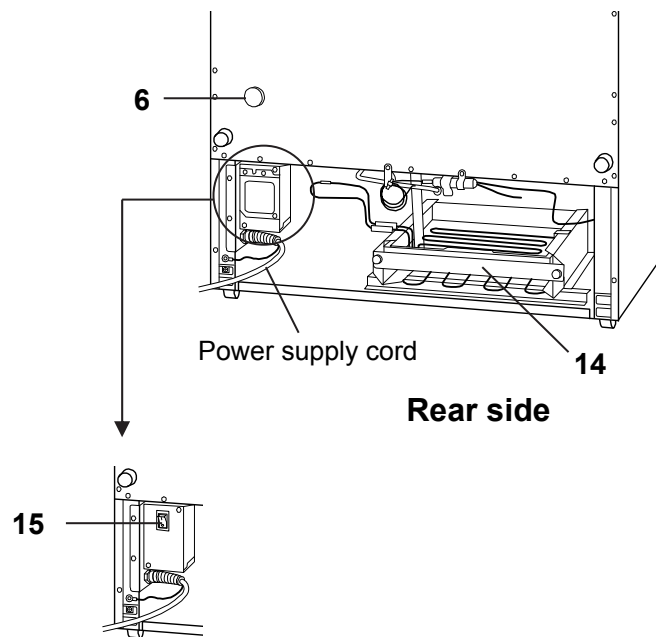
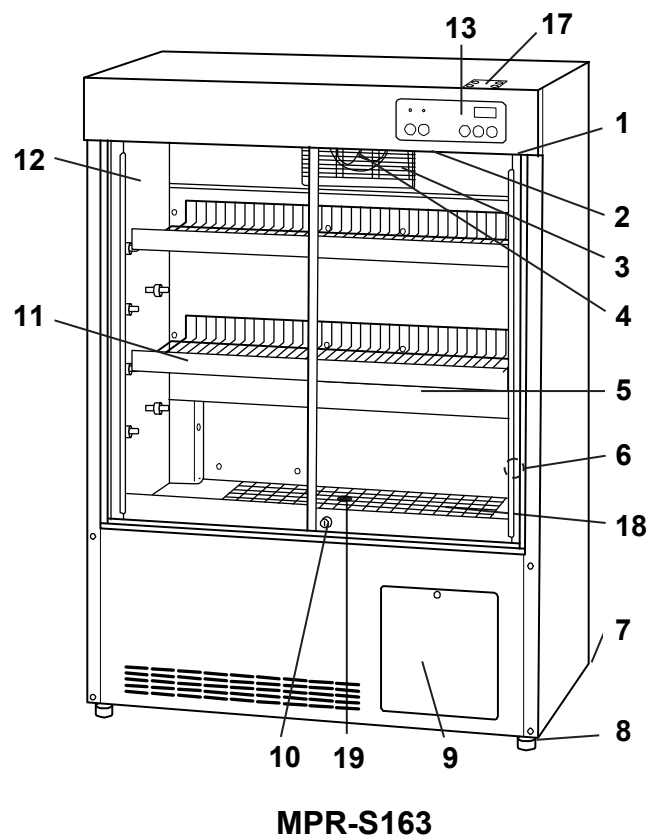
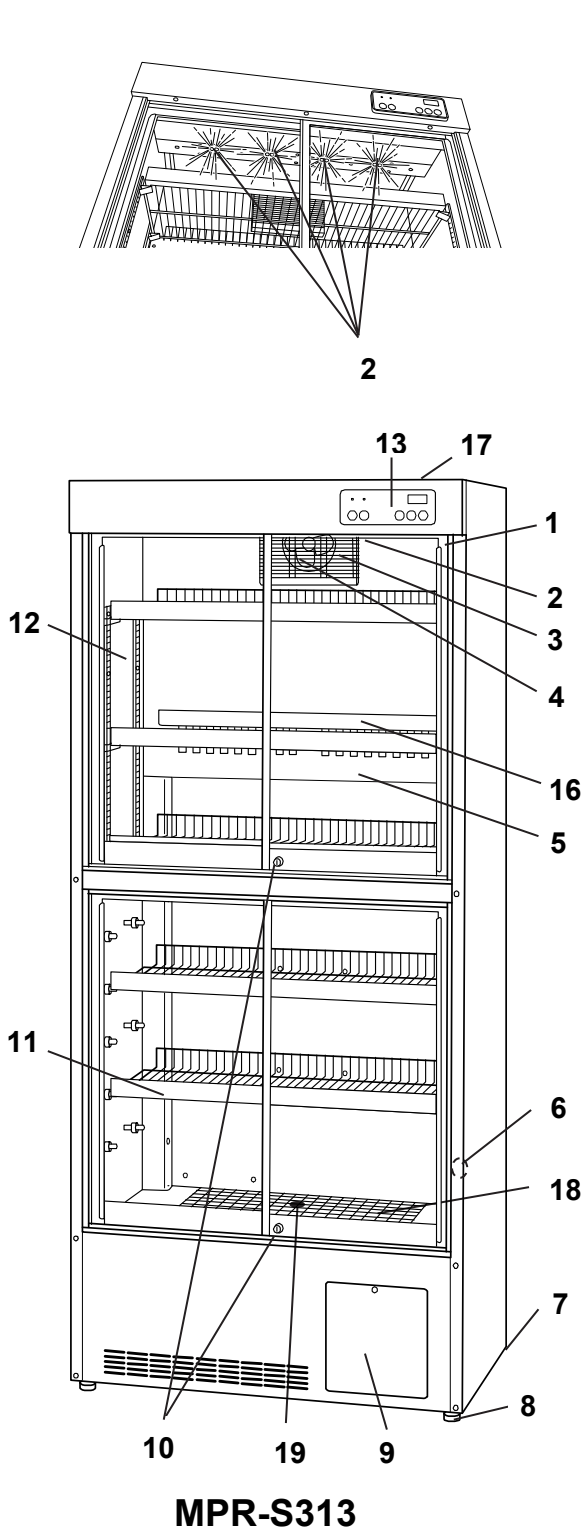


# ENVIRONMENTAL CONDITIONS

This equipment is designed to be safe at least under the following conditions (based on the IEC 61010-1):

- Indoor use;
- Altitude up to 2000 m;
- Temperature 5 °C to 40 °C;
- Maximum relative humidity 80 % for temperature up to 31 °C decreasing linearly to 50 % relative humidity at 40 °C;
- Mains supply voltage fluctuations up to  $\pm 10$  % of the nominal voltage;
- Transient overvoltages up to the levels of OVERVOLTAGE CATEGORY II;
- Temporary OVERVOLTAGES occurring on the mains supply;
- Applicable pollution degree of the intended environment (POLLUTION DEGREE 2 in most cases);

# REFRIGERATOR COMPONENTS



# REFRIGERATOR COMPONENTS

**1. Door switch**

**2. LED light:** White LED light.

**3. Air intake vent:** Be careful not to block off. If air intake vent is blocked, the chamber temperature becomes unstable. Also be careful not to insert the finger or enter the foreign materials.

**4. Air circulating fan:** Circulate the cooled air in the chamber.

**5. Air exhaust vent:** Be careful not to block off.

**6. Access port:** This port allows cables to be passed into the chamber.

**Note:** If an instrument requiring a power source is placed inside the chamber, the cable can be led through the access port. After installation, a rubber cap should be used to seal the access port. Failure to do this can affect the temperature uniformity inside the chamber and lead to condensation on the outside of the access port.

**7. Caster:** Mounted on the back side. When moving the unit, tilt the unit backward a little for easy carrying.

**8. Leveling foot:** Adjust the height by screw bolt to install the unit in level.

**9. Space for a temperature recorder:** Location for an optional temperature recorder. (page 30)

**10. Key lock:** Insert the key and turn to the clockwise 180° with pressing into the head of lock when lock the doors.

**11. Shelf**

**12. Door:** Consists of double pair glass with heat ray reflection film. Be careful not to break the glass.

**13. Control panel:** Displays operating condition of the unit and used to set chamber temperature etc. (page 10)

**14. Evaporating tray:** Places in rear bottom of the frame. Pull out forward for removing. (page 24)

**15. Power switch (MPR-S163-PE and MPR-S313-PE only):** This is for turning ON/OFF the power to the unit. (ON-“I”, OFF-“O”)

**16. Exhaust vent cover (MPR-S313 only):** Always install the exhaust vent cover on the back of the shelf when the shelf is located at the front of the air exhaust vent.

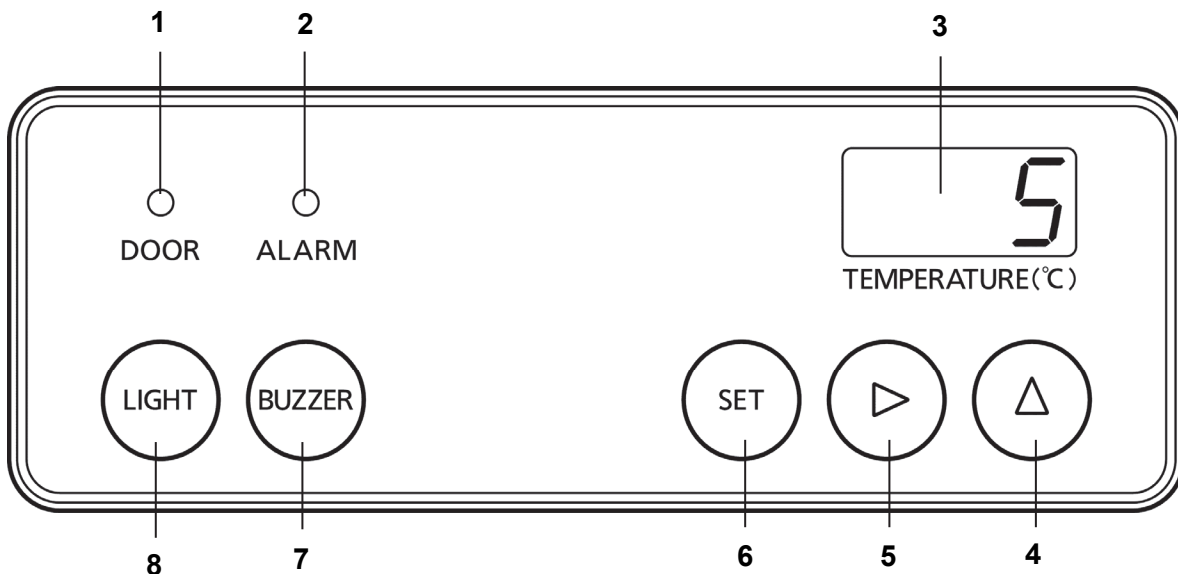
**17. Space for battery mounting box:** A battery mounting box can be attached here. Switch on the battery switch of the battery mounting box. (page 21)

**18. Drain board:** The samples can be placed on a drain board.

**19. Drain cap:** Remove the cap when the water resulting from defrosting is drained. The drained water is evaporated in the evaporating tray under the unit. Attach the cap after drainage.

# REFRIGERATOR COMPONENTS

## Control panel components



**1. Door check indicator (DOOR):** The red LED lamp is lit when the door is opened.

(After 2 minutes the door check indicator lights; the alarm buzzer is activated to notice the door opening.)

**2. Alarm indicator (ALARM):** The red LED lamp blinks during an alarm status. (page 22, 23)

**3. Temperature display:** Normally, the current chamber temperature is displayed in the temperature display. When the high/low temperature alarm or 0 °C alarm is activated, the current chamber temperature blinks (refer to page 22). When the self-diagnostic function detects an abnormality, the error code is displayed (refer to page 23).

**4. Numerical value shift key (▲):** Pressing this key for 5 seconds at temperature display mode causes the setting mode. Pressing this key at setting mode makes the figure on the temperature display to change.

**5. Digit shift key (▶):** Pressing this key at setting mode makes the digit to be inputted on the temperature display to change. Pressing this key for 5 seconds at temperature display mode causes the setting mode for key lock.

**6. Set key (SET):** Pressing this key at temperature display mode enables the temperature setting. (page 14) Pressing this is at the end of setting mode memorizes the setting.

**7. Alarm buzzer stop key (BUZZER):** Pressing this key silences the alarm buzzer when the alarm buzzer sounds. But the remote alarm is not canceled.

**8. LED light key (LIGHT):** Turn on the LED light by pressing this key. To turn off the LED light, press this key again. If it is turned on by LED light key, it will be turned off automatically after setting time. LED light turns off when the door is opened and then closed.

■“temperature display mode”: the status which the temperature display shows the current chamber temperature

■“setting mode”: the status which the temperature display is ready to be entered after pressing numerical value shift key for about 5 seconds.

# INSTALLATION SITE

To operate this unit properly and to obtain maximum performance, install the unit in a location with the following conditions:

■ **A location not subjected to direct sunlight**

Do not install the unit under direct sunlight. Installation in a location subjected to direct sunlight cannot obtain the intended performance.

■ **A location with adequate ventilation**

Leave at least 10 cm around the unit for ventilation. Poor ventilation will result in a reduction of the performance and consequently the failure.

■ **A location away from heat generating sources**

Avoid installing the unit near heat-emitting appliances such as a heater or a boiler etc. Heat can decrease the intended performance of the unit.

■ **A location with little temperature change**

Install the unit under stable ambient temperature. The allowable ambient temperature is between -5 °C and 35 °C.

■ **A location with a sturdy and level floor**

Always install the unit on a sturdy and level floor. The uneven floor or tilted installation may cause failure or injury. Install the unit in stable condition to avoid the vibration or noise. Unstable condition may cause vibration or noise.



## **WARNING**

**Install the unit on a sturdy floor.** If the floor is not strong enough or the installation site is not adequate, this may result in injury from the unit falling or tipping over.

**Select a level and sturdy floor for installation.** This precaution will prevent the unit from tipping. Improper installation may result in water spillage or injury from the unit tipping over.

■ **A location not prone to high humidity**

Install the unit in the ambient of 80 %R.H. or less humidity. Installation under high humidity may cause current leakage or electric shock.



## **WARNING**

**Do not use the unit outdoors.** Current leakage or electric shock may result if the unit is exposed to rain water.

**Never install the unit in a humid place or a place where it is likely to be splashed by water.** Deterioration of the insulation may result which could cause current leakage or electric shock.

■ **A location without flammable or corrosive gas**

Never install the unit in a location where it will be exposed to flammable or corrosive gas. This may cause explosion or fire or may result in the current leakage or electric shock by the corrosion of the electrical components.

■ **A location without the possibility of anything fall**

Avoid installing the unit in the location where anything can fall down onto the unit. This may cause the breakdown or failure of the unit.

# INSTALLATION

## 1. Removing the packing materials and tapes

Remove all transportation packaging materials and tapes. Open the doors and ventilate the unit. 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 panels with a dry cloth.

### Note:

Remove the cable tie banding the power supply cord. Prolonged banding may cause the corrosion of the cord coating.

## 2. Installing the unit

Stretch the leveling feet by rotating them to contact them to the floor. Ensure the unit is horizontally. (Fig. 1)

## 3. Fixing the unit

Two fixtures are attached to the rear of the frame. Fix the frame to the wall with these fixtures and rope or chain. (Fig. 2)

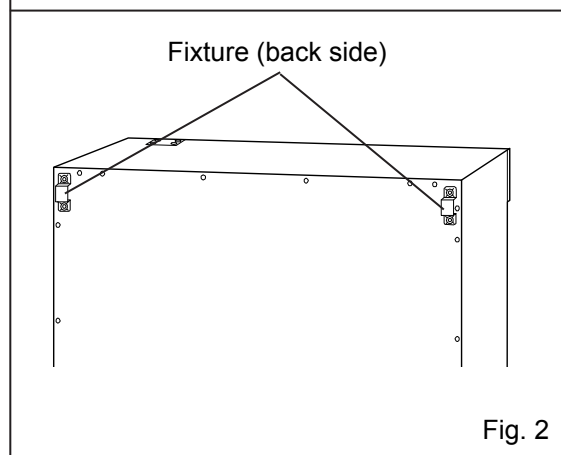
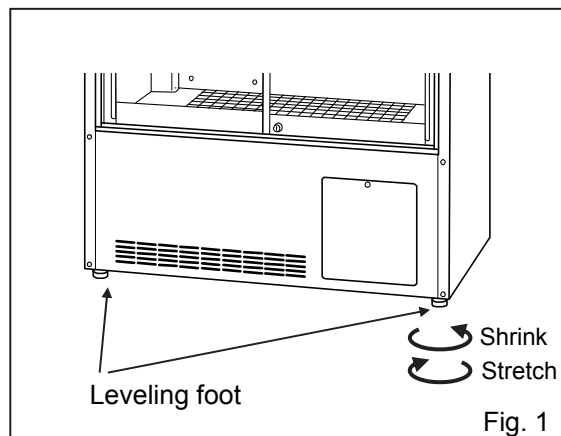
### Note:

Contact our sales representative or agent if the unit should be fixed for earthquake resistant.

## 4. Ground (earth) the unit

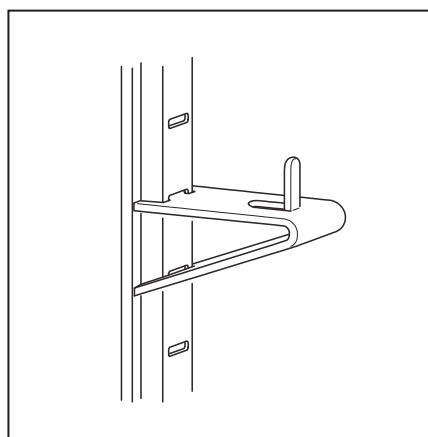
The ground (earth) is for preventing the electric shock in the case of the electrical insulation is unanticipated degraded. Always ground the unit at the time of installation.

- A 3-prong plug with grounding pole, there is no need for electric work for grounding.
- If the power supply outlet is not grounded, it will be necessary to install a ground by qualified engineers.



## Installation of shelf

The position of shelf stopper is changeable. Set the shelf stopper at desired position. The shelf should be horizontal. (MPR-S313 only)



# START-UP OF UNIT

To commence the operation (initially or after temporary power off due to the cleaning, maintenance, etc.), follow the procedure below:

- The operation is resumed automatically after recovery from power failure with the setting before power failure.

1. Check the power switch is OFF. (MPR-S163-PE and MPR-S313-PE only)

2. Check that the battery switch of battery mounting box for power failure alarm (optional component) is OFF if the battery mounting box for power failure alarm is installed.

3. Connect the power supply cord to the dedicated power source before putting samples in the chamber.

4. Turn on the power switch. (MPR-S163-PE and MPR-S313-PE only)

→ At the power on, the high temp. alarm is activated. The alarm indicator blinks and the blinking chamber temperature is displayed.

- At the start-up with the factory setting, the high temp. alarm is activated when the chamber temperature is higher than 10 °C, therefore the high temp. alarm works (High temp. alarm; temperature display blinks, alarm indicator blinks, buzzer sounds after 15 minutes)

5. Set the desired chamber temperature. (page 14)

- The factory setting of chamber temperature is 5 °C.

## <Important>

- When the power supply has been turn off, wait 5 minutes or more after recovery of power supply, connect the power supply plug to the outlet (and turn on the power switch of the MPR-S163-PE or MPR-S313-PE). The compressor requires 5 minutes to re-start.

It takes about 1 hours to reach the set temperature (ambient temp. 30 °C, no load, without containers)

6. On the temperature display, check that the chamber temperature reaches the set temperature.

7. Turn on the battery switch of battery mounting box for power failure alarm (optional component) if the battery mounting kit for power failure alarm is installed.

8. By opening the door, check that the LED light is on.

9. Put the samples in the chamber gradually.

- Putting a large amount of samples in the chamber at a time causes the temperature rise.

- Never block the air intake vent or air exhaust vent in the chamber.

10. As needed, set the alarm temperature (page 17 to 18), LED lighting time (page 16), delay of door alarm (page 19), alarm buzzer recovery (page 20), and the lock of chamber temperature setting (page 15).

## <Attention>

- The condensation may be found on the glass of refrigerator door under high temperature and humidity condition. Wipe off the condensation with a soft dry cloth.

# CHAMBER TEMPERATURE SETTING

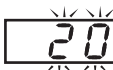





Set the temperature of chamber according to the usage condition. This unit keeps the storage items for long period with adequate chamber temperature.

	Temperature
Setting range	between 2 °C and 14 °C
Initial setting (at factory)	5 °C

The chamber temperature of 2 °C may cause partial freeze of stored items.

Example: Change the chamber temperature to 4 °C from 5 °C.

Following shows an example. Change the setting as necessary.

	Description Operation	Key operated	Indication after operation
1	Connect the power supply cord to the outlet. (only when start-up of unit)	-----	The current chamber temperature is displayed. 
	Turn on the power switch. (MPR-S163-PE/MPR-S313-PE only)		
2	Press the set key.	SET	The current setting is displayed and the first digit blinks. 
3	Set the temperature to 4 with the digit shift key and the numerical value shift key.		When pressed, the settable digit is shifted.
			When pressed, the figure of settable digit changes. 
4	Press the set key.	SET	Set temperature is memorized and the current chamber temperature is displayed. 

■ The setting mode returns to the temperature display mode automatically when 90 seconds has passed without any key operation. In this case, any setting before pressing set key (SET) is not memorized.

## <Important>

■ It is recommended to install a temperature recorder (optional component) to check the highest/lowest chamber temperature when the item which needs severe temperature control is stored.





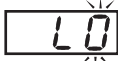

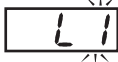

# KEY LOCK FUNCTION

The temperature setting of chamber can be locked to avoid accidental change. When the lock is ON, the change of chamber temperature is unable even if the key on the control panel is operated.

■ Initial setting (at factory): Lock is OFF

Display	Mode	Function
L 0	Lock is OFF	Enable to change of temperature setting
L 1	Lock is ON	Disable to change of temperature setting

Example: Changing the lock status to ON from OFF (initial setting).

	Description Operation	Key operated	Indication after operation
1	-----	-----	The current chamber temperature is displayed. 
2	Press the digit shift key for about 5 seconds.		The current setting is displayed and the first digit blinks. 
3	Press the numerical value shift key and scroll the figure to 1		When pressed, the figure of settable digit changes. 
4	Press the set key	SET	The key lock is set to ON. The current chamber temperature is displayed. 

■ The setting mode returns to the temperature display mode automatically when 90 seconds has passed without any key operation. In this case, any setting before pressing set key (SET) is not memorized.

# DEFROSTING

The following 2 types of defrosting methods is provided for the refrigerator. Both of them are controlled automatically.

## ● Cycle defrosting

The chamber temperature is kept stable by ON/OFF operation of the compressor. When the compressor is OFF (stopped), the frost on the evaporator is melted by the heater. This defrosting never influences to the chamber temperature.

## ● Defrosting by defrost sensor

The cycle defrosting may not be sufficient to remove the frost on the evaporator when the ambient temperature is high, the door is opened frequently, or heavy moist items are stored in the chamber. In this case, the defrosting operation is started automatically when the defrost sensor detects the frost. During the defrosting, the current chamber temperature and dF is displayed alternately on the temperature display.

After completion of defrosting, dF display is disappeared and normal operation resumes.

## <Important>

■ During the defrosting, the chamber temperature reaches around 10 °C temporary.

■ Too much frost is accumulated on the evaporator when the chamber is running under high temperature and humidity condition. For example, the unit starts to defrost once a week with 2 °C setting in the ambient of 30 °C and 80%R.H.

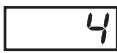




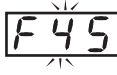





# LED LIGHTING TIME SETTING

The LED light is automatically turned off after setting time when the LED light is turned on by pressing the LED Light key. The method of change of lighting time is as follows.

■ Initial setting (at factory): 10 minutes

Example: Changing the LED lighting time to 5 minutes from 10 minutes

Following shows an example. Change the setting as necessary.

	Description Operation	Key operated	Indication after operation
1	-----	-----	The current chamber temperature is displayed. 
2	Press the numerical value shift key for about 5 seconds.		F00 is displayed and the first digit blinks. 
3	Set the figure to F45 with the digit shift key and numerical value shift key.		When pressed, the settable digit is shifted.
			When pressed, the figure of settable digit changes. 
4	Press the set key.	SET	The current setting is displayed and the first digit blinks. 
5	Set the figure to 005 with the digit shift key and the numerical value shift key.		When pressed, the settable digit is shifted.
			When pressed, the figure of settable digit changes. 
6	Press the set key.	SET	The setting is memorized and the current chamber temperature is displayed. 

■ The setting mode returns to the temperature display mode automatically when 90 seconds has passed without any key operation. In this case, any setting before pressing set key (SET) is not memorized.

■ The LED lighting time can be changed from 0 minute to 15 minutes.

■ The LED light keeps off when the lighting time set to 000 in procedure 5.

# ALARM TEMPERATURE SETTING

## Setting of high temperature alarm

The abnormal temperature rise is notified by the blink of alarm indicator and display of chamber temperature, and the alarm buzzer (15 minutes after blink) when the high temperature alarm is set. Always set the high temperature alarm to avoid the damage of storage items due to the temperature rise.





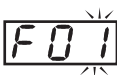





■ Settable range of high temperature alarm:

Between the set temperature of chamber plus 2 °C and  
the set temperature of chamber plus 14 °C

■ Initial setting (at factory): the set temperature of chamber plus 5 °C

Example: Changing the high temperature alarm to 3 °C from 5 °C plus the set temperature of chamber.

Following shows an example. Change the setting as necessary.

	Description Operation	Key operated	Indication after operation
1	-----	-----	The current chamber temperature is displayed. 
2	Press the numerical value shift key for about 5 seconds.		F00 is displayed and the first digit blinks. 
3	Press the numerical value shift key and scroll the figure to 1.		When pressed, the figure of settable digit changes. 
4	Press the set key.	SET	The current setting is displayed and the first digit blinks. 
5	Scroll the figure to 003 by using the digit shift key and the numerical value shift key.		When pressed, the settable digit is shifted.
			When pressed, the figure of settable digit changes. 
6	Press the set key.	SET	Alarm temperature is memorized and the current chamber temperature is displayed. 

■ The setting mode returns to the temperature display mode automatically when 90 seconds has passed without any key operation. In this case, any setting before pressing set key (SET) is not memorized.

### <Important>

■ The alarm may be activated after defrosting or when too much items are stored in the chamber, depending on the setting of high temperature alarm. This is not a malfunction. The alarm is cancelled automatically when the chamber temperature reaches the set temperature.

# ALARM TEMPERATURE SETTING

## Setting of low temperature alarm

The abnormal temperature descent is notified by the blink of alarm indicator and display of chamber temperature, and the alarm buzzer (15 minutes after blink) when the low temperature alarm is set. Always set the low temperature alarm to avoid the damage of storage items due to the temperature descent.



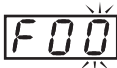

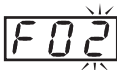
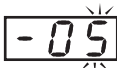


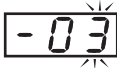

■ Settable range of low temperature alarm:

Between the set temperature of chamber minus 2 °C and  
the set temperature of chamber minus 14 °C

■ Initial setting (at factory): the set temperature of chamber minus 5°C

Example: Changing the low temperature alarm to minus 3 °C from minus 5 °C plus the set temperature of chamber.

Following shows an example. Change the setting as necessary.

	Description Operation	Key operated	Indication after operation
1	----	----	The current chamber temperature is displayed. 
2	Press the numerical value shift key for about 5 seconds.		F00 is displayed and the first digit blinks. 
3	Press the numerical value shift key and scroll the figure to 2.		When pressed, the figure of settable digit changes. 
4	Press the set key.	SET	The current setting is displayed and the first digit blinks. 
5	Scroll the figure to -03 by using the digit shift key and the numerical value shift key.		When pressed, the settable digit is shifted.
			When pressed, the figure of settable digit changes. 
6	Press the set key.	SET	Alarm temperature is memorized and the current chamber temperature is displayed. 

■ The setting mode returns to the temperature display mode automatically when 90 seconds has passed without any key operation. In this case, any setting before pressing set key (SET) is not memorized.

### <Important>

■ The abnormal temperature descent is notified by the blink of alarm indicator and display of chamber temperature, and the alarm buzzer (15 minutes after blink) when the chamber temperature is 0 °C or lower with regardless the setting of low temperature alarm. In this case, the remote alarm terminal is changed to alarm status. This is a precaution against the freezing of storage items.

# SETTING OF DELAY OF DOOR ALARM





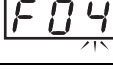


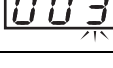

The door check indicator is lit when the door is opened, and the alarm buzzer sounds with some delay to notice the door opening.

The delay time (between lighting of the door check indicator and activation of the alarm buzzer) can be changed. Set an appropriate delay time according to the condition of use to prevent the rise of chamber temperature resulting from inadequate door close.

- Setting range of delay time: 0 and 15 minutes (0 minutes: no delay time)
- Initial setting (factory setting): 2 minutes

Example: Change the delay time to 3 minutes from 2 minutes

Following shows a sample setting. Set the desired delay time according to the condition of use.

	Description of operation	Key operated	Indication after operation
1	-----	-----	The current chamber temperature is displayed. 
2	Press the numerical value shift key for about 5 seconds.		F00 is displayed and the first digit blinks. 
3	Press the numerical value shift key and scroll the figure to 4.		When pressed, the figure of settable digit changes. 
4	Press the set key.	SET	The current setting is displayed and the first digit blinks. 
5	Press the numerical value shift key and scroll the figure to 3.		When pressed, the figure of settable digit changes. 
6	Press the set key.	SET	Delay time is memorized and the current chamber temperature is displayed. 

■ The setting mode returns to the temperature display mode automatically when 90 seconds has passed without any key operation. In this case, any setting before pressing set key (SET) is not memorized.

# SETTING OF ALARM BUZZER RECOVERY

The alarm buzzer recovers and notifies the abnormality again after preset period (alarm buzzer recovery time) if the same alarm status is continued after the alarm buzzer is stopped by pressing the alarm buzzer stop key (BUZZER). Always set the alarm buzzer recovery time to avoid the false recognition of alarm status.

- Settable range of alarm buzzer recovery time:

10 minutes interval between 10 and 60 minutes (setting; between 010 and 060) or

No recovery (setting; 000)

- Initial setting (at factory): 30 minutes

The alarm buzzer never recovers once the alarm buzzer is silenced by pressing the alarm buzzer stop key (BUZZER) if the alarm buzzer recovery time is set to 000 (no recovery). Nevertheless, the alarm buzzer sounds when other alarm status is detected.

Example: Changing the alarm buzzer recovery time to 20 minutes from 30 minutes.

Following shows an example. Change the setting as necessary.

	Description Operation	Key operated	Indication after operation
1	-----	-----	The current chamber temperature is displayed.
2	Press the numerical value shift key for about 5 seconds.		F00 is displayed and the first digit blinks.
3	Set the figure to F25 with the digit shift key and the numerical value shift key.		When pressed, the settable digit is shifted.
			When pressed, the figure of settable digit changes.
4	Press the set key.	SET	The current recovery time is displayed. The second digit blinks.
5	Scroll the figure to 020 with the numerical value shift key.		When pressed, the figure of settable digit changes.
6	Press the set key.	SET	The setting is memorized and the current chamber temperature is displayed.

- The setting mode returns to the temperature display mode automatically when 90 seconds has passed without any key operation. In this case, any setting before pressing set key (SET) is not memorized.
- Do not set the alarm buzzer recovery time during the alarm status.

# OPERATION CHECK AFTER RECOVERY

After recovery from a power failure, the unit will resume operation automatically with the setting (chamber temperature, lock of temperature setting, alarm temperature, alarm buzzer recovery time) before power failure. Accordingly, there is no need for re-set however, always check the running status after recovery.

- The setting is memorized by nonvolatile memory during power failure.

<Attention>

- After recovery from a power failure, always check the unit starts the operation normally with the setting before power failure.

## REMOTE ALARM TERMINAL (OPTION)

A remote alarm terminal is mounted on the battery mounting box (MPR-48B1). (Optional component)

The alarm is outputted from this terminal. Contact capacity is DC 30 V, 2 A.

Contact output:

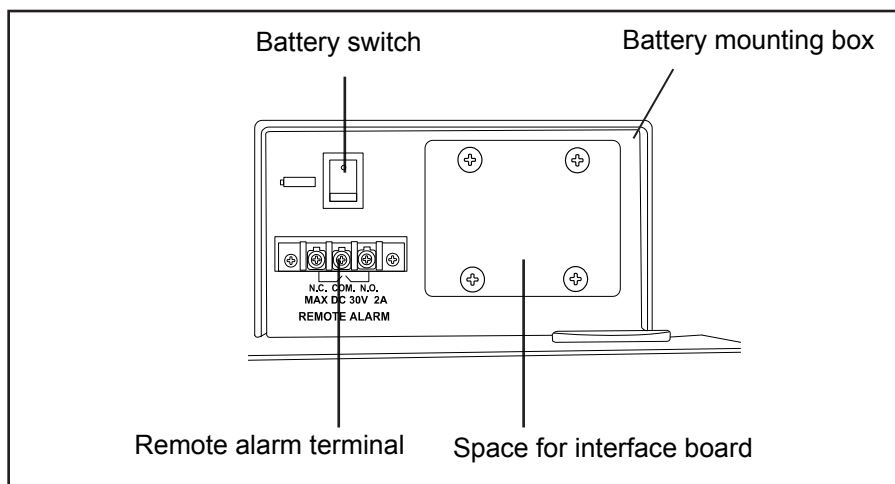
	between COM. and N.O.	between COM. and N.C.
At normal	Open	Close
At abnormal	Close	Open

### Note:

- The buzzer is silenced by pressing alarm 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 for MPR-S163-PE and MPR-S313-PE only.



# ALARM FUNCTIONS

This unit has the alarm functions shown below.

Contact our sales representative or agent after moving the storage items to other refrigerator if the alarm status continues because there is a possibility of any failure.

Alarms	Situation	Indication	Alarm buzzer	Remote alarm
High temperature alarm	The chamber temperature reaches the setting of high temperature alarm.	Alarm indicator blinks. Displayed temp. blinks.	Intermittent tone with 15 minutes delay	Alarm status with 15 minutes delay. (MPR-48B1 installed)
Low temperature alarm	The chamber temperature reaches the setting of low temperature alarm.	Alarm indicator blinks. Displayed temp. blinks.	Intermittent tone with 15 minutes delay	Alarm status with 15 minutes delay. (MPR-48B1 installed)
0 °C alarm	The chamber temperature reaches 0 °C.	Alarm indicator blinks. Displayed temp. blinks.	Intermittent tone	Alarm status. (MPR-48B1 installed)
Power failure alarm	Power failure. The power supply cord is disconnected.	-----	-----	-----
Power failure alarm (MPR-48B1 installed)	The power switch is off. (MPR-S163-PE/ MPR-S313-PE only)	Alarm indicator blinks.	Intermittent tone	Alarm status.
Door alarm	The door is open.	Door check indicator lights.	Intermittent tone with 2 minutes delay.	-----

■ The remote alarm terminal is in alarm status in conjunction with the alarm buzzer. However, the alarm status of the remote alarm terminal is not cancelled by pressing the alarm buzzer stop key (BUZZER).

# SAFETY FUNCTIONS

This unit has the safety functions shown below.

Safety	Situation	Indication and alarm buzzer	Safety operation
Over-heat protection	Thermal fuse temperature exceeds 70 °C	-----	The defrost heater is off to avoid the temperature rise.
Over-cool protection	The temperature is lower than about 0 °C.	-----	Compressor is off to avoid the temperature descent.
Auto-return	There is no key pressing for 90 seconds in the setting mode.	-----	The setting mode is returned to the temperature display mode.
Key lock	The key lock is ON (L1).	-----	Change of temperature setting is disable.



# SELF DIAGNOSTIC FUNCTIONS

This unit has the self diagnostic functions shown below.

Contact our sales representative or agent if an error code (ex. E01) is displayed resulting from the self diagnostic.

Self diagnostic	Situation	Indication	Alarm buzzer	Remote alarm
Sensor abnormality	The thermal sensor is disconnected.	Alarm indicator blinks. E01 and -50 is displayed alternately.	Intermittent tone	Alarm status (MPR-48B1 installed)
	The thermal sensor is short-circuited.	Alarm indicator blinks. E02 and 50 is displayed alternately.		
	The defrost sensor is disconnected.	Alarm indicator blinks. E03 and chamber temp. are displayed alternately.		
	The defrost sensor is short-circuited.	Alarm indicator blinks. E04 and chamber temp. are displayed alternately.		
Battery check (MPR-48B1 installed)	About 3 years have passed. (time to replace the battery)	F-1 and chamber temp. is displayed alternately.	-----	-----
	<MPR-S163-PE/ MPR-S313-PE only> About 3 years have passed with the power switch on. (time to replace the battery)			

- The remote alarm terminal is in alarm status in conjunction with the alarm buzzer. However, the alarm status of the remote alarm terminal is not cancelled by pressing the alarm buzzer stop key (BUZZER).

# ROUTINE MAINTENANCE



## CAUTION

**Always disconnect the power supply to the unit prior to any repair or maintenance** of the unit in order to prevent electric shock or injury.

**Ensure you do not inhale or consume medication or aerosols** from around the unit at the time of maintenance. These may be harmful to your health.

## Cleaning of cabinet

- Clean the unit once a month. Regular cleaning keeps the unit looking new.
- 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. Wipe off the condensation on the glass or exterior of the cabinet with a dry soft cloth. (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.

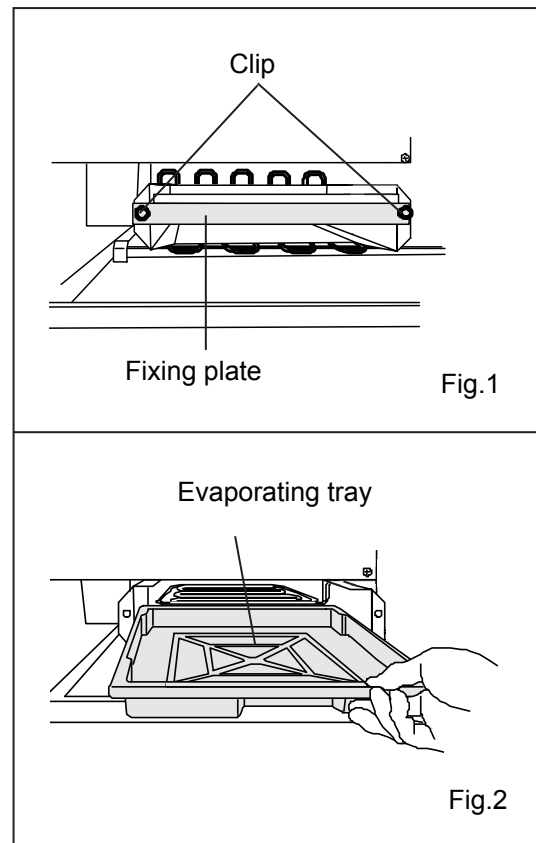
### <Important>

- Never pour water onto or into the unit. This may cause electric shock or failure.
- **Do not use a brush, an acid, a thinner, laundry soap, a powder detergent, boiling water for cleaning.** These cause damage of painted surface or failure of plastic and rubber components. Also, do not wipe the plastic and rubber components by a volatile material.

## Cleaning of evaporating tray

The evaporating tray is placed in the bottom rear of the unit. Clean the evaporating tray twice or three times a year.

1. Remove the fixing plate by pulling the clip toward front. (Fig.1)
2. Pull out the evaporating tray. (Fig.2)
3. Dispose remaining water in the evaporating tray.
4. Clean the evaporating tray with dilute neutral dishwashing detergent and then rinse away the detergent with water. Do not use hot water.
5. After the cleaning, replace the fixing plate to its original position, and fix it by the clips.



# TROUBLESHOOTING

If the unit malfunctions, check out the following before calling for service.

Malfunction	Check/Remedy
The unit does not operate at all	<ul style="list-style-type: none"><li>□ The unit is not connected to the power supply properly.</li><li>□ The power switch is not turned on. (MPR-S163-PE / MPR-S313-PE only)</li><li>□ The capacity and voltage of power supply is not sufficient.</li><li>□ There is a power failure.</li><li>□ The circuit breaker on the supply circuit is activated. → A breaker of 15 A or more is recommended.</li></ul>
The alarm is activated at start-up	<ul style="list-style-type: none"><li>□ The alarm status is kept until the chamber temperature reaches the set temperature.</li><li>□ The alarm buzzer recovers after 30 minutes even if the alarm buzzer is silenced by pressing the alarm buzzer stop key (BUZZER).</li></ul>
The alarm is activated during operation	<ul style="list-style-type: none"><li>□ The door was kept opened for a long time.</li><li>□ The door is opened.</li><li>□ An error code is displayed on the temperature display. (page 23) → Contact our sales representative or agent.</li></ul>
Noisy	<ul style="list-style-type: none"><li>□ The floor is not sturdy.</li><li>□ The installation site is not level.</li><li>□ The unit is tilted.</li><li>□ The cabinet contacts the surrounding wall.</li></ul>
When the refrigerator does not get cold enough	<ul style="list-style-type: none"><li>□ The door is frequently opened.</li><li>□ The unit is in direct sunlight.</li><li>□ The ventilation around the unit is blocked.</li><li>□ There is a nearby heat source.</li><li>□ The ambient temperature is too high. → The allowable ambient temperature is between -5 °C and 35 °C.</li><li>□ The storage items are too much.</li><li>□ The air exhaust vent is blocked up with storage items.</li><li>□ The access port is not covered. → The access port should be covered with the insulation and rubber caps when no use.</li></ul>

## DISPOSAL OF UNIT

### WARNING

If the unit is to be stored unused in an unsupervised area for an extended period **ensure that children do not have access and doors cannot be closed completely.**  
**The disposal of the unit should be accomplished by appropriate personnel. Always remove doors** to prevent accidents such as suffocation.

### Decontamination of chamber

Before disposing the pharmaceutical refrigerator with biohazardous danger, decontaminate the pharmaceutical refrigerator to the extent possible by the user.

# DISPOSAL OF UNIT

(English)

## Information on Disposal for Users of Waste Electrical & Electronic Equipment (private households)



This symbol on the products and/or accompanying documents means that used electrical and electronic products should not be mixed with general household waste.

For proper treatment, recovery and recycling, please take these products to designated collection points, where they will be accepted on a free of charge basis. Alternatively, in some countries you may be able to return your products to your local retailer upon the purchase of an equivalent new product.

Disposing of this product correctly will help to save valuable resources and prevent any potential negative effects on human health and the environment which could otherwise arise from inappropriate waste handling. Please contact your local authority for further details of your nearest designated collection point.

Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.

### For business users in the European Union

If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information.

### Information on Disposal in other Countries outside the European Union

This symbol is only valid in the European Union.

If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.

(German)

## Benutzerinformationen zur Entsorgung von elektrischen und elektronischen Geräten (private Haushalte)



Dieses Symbol auf Produkten und/oder begleitenden Dokumenten bedeutet, dass verbrauchte elektrische und elektronische Produkte nicht mit gewöhnlichem Haushaltsabfall vermisch werden sollen.

Bringen Sie zur ordnungsgemäßen Behandlung, Rückgewinnung und Recycling diese Produkte zu den entsprechenden Sammelstellen, wo sie ohne Gebühren entgegengenommen werden. In einigen Ländern kann es auch möglich sein, diese Produkte beim Kauf eines entsprechenden neuen Produkts bei Ihrem örtlichen Einzelhändler abzugeben.

Die ordnungsgemäße Entsorgung dieses Produkts dient dem Umweltschutz und verhindert mögliche schädliche Auswirkungen auf Mensch und Umgebung, die aus einer unsachgemäßen Handhabung von Abfall entstehen können. Genauere Informationen zur nächstgelegenen Sammelstelle erhalten Sie bei Ihrer Gemeindeverwaltung.

In Übereinstimmung mit der Landesgesetzgebung können für die unsachgemäße Entsorgung dieser Art von Abfall Strafgebühren erhoben werden.

### Für Geschäftskunden in der Europäischen Union

Bitte treten Sie mit Ihrem Händler oder Lieferanten in Kontakt, wenn Sie elektrische und elektronische Geräte entsorgen möchten. Er hält weitere Informationen für sie bereit.

### Informationen zur Entsorgung in anderen Ländern außerhalb der Europäischen Union

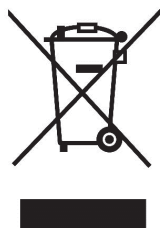
Dieses Symbol ist nur in der Europäischen Union gültig.

Bitte treten Sie mit Ihrer Gemeindeverwaltung oder Ihrem Händler in Kontakt, wenn Sie dieses Produkt entsorgen möchten, und fragen Sie nach einer Entsorgungsmöglichkeit.

# DISPOSAL OF UNIT

(French)

## Informations relatives à l'évacuation des déchets, destinées aux utilisateurs d'appareils électriques et électroniques (appareils ménagers domestiques)



Lorsque ce symbole figure sur les produits et/ou les documents qui les accompagnent, cela signifie que les appareils électriques et électroniques ne doivent pas être jetés avec les ordures ménagères.

Pour que ces produits subissent un traitement, une récupération et un recyclage appropriés, envoyez-les dans les points de collecte désignés, où ils peuvent être déposés gratuitement. Dans certains pays, il est possible de renvoyer les produits au revendeur local en cas d'achat d'un produit équivalent.

En éliminant correctement ce produit, vous contribuerez à la conservation des

ressources vitales et à la prévention des éventuels effets négatifs sur l'environnement et la santé humaine qui pourraient survenir dans le cas contraire.

Afin de connaître le point de collecte le plus proche, veuillez contacter vos autorités locales.

Des sanctions peuvent être appliquées en cas d'élimination incorrecte de ces déchets, conformément à la législation nationale.

### Utilisateurs professionnels de l'Union européenne

Pour en savoir plus sur l'élimination des appareils électriques et électroniques, contactez votre revendeur ou fournisseur.

### Informations sur l'évacuation des déchets dans les pays ne faisant pas partie de l'Union européenne

Ce symbole n'est reconnu que dans l'Union européenne.

Pour vous débarrasser de ce produit, veuillez contacter les autorités locales ou votre revendeur afin de connaître la procédure d'élimination à suivre.

(Spanish)

## Información sobre la eliminación para los usuarios de equipos eléctricos y electrónicos usados (particulares)



La aparición de este símbolo en un producto y/o en la documentación adjunta indica que los productos eléctricos y electrónicos usados no deben mezclarse con la basura doméstica general.

Para que estos productos se sometan a un proceso adecuado de tratamiento, recuperación y reciclaje, llévelos a los puntos de recogida designados, donde los admitirán sin coste alguno. En algunos países existe también la posibilidad de devolver los productos a su minorista local al comprar un producto nuevo equivalente.

Si desecha el producto correctamente, estará contribuyendo a preservar valiosos recursos y a evitar cualquier posible efecto negativo en la salud de las personas y en el medio ambiente que pudiera producirse debido al tratamiento inadecuado de desechos. Póngase en contacto con su autoridad local para que le informen detalladamente sobre el punto de recogida designado más cercano.

De acuerdo con la legislación nacional, podrían aplicarse multas por la eliminación incorrecta de estos desechos.

### Para empresas de la Unión Europea

Si desea desechar equipos eléctricos y electrónicos, póngase en contacto con su distribuidor o proveedor para que le informe detalladamente.

### Información sobre la eliminación en otros países no pertenecientes a la Unión Europea

Este símbolo sólo es válido en la Unión Europea.

Si desea desechar este producto, póngase en contacto con las autoridades locales o con su distribuidor para que le informen sobre el método correcto de eliminación.

# DISPOSAL OF UNIT

(Portuguese)

## **Informações sobre a eliminação de resíduos para utilizadores de equipamentos eléctricos e electrónicos (utilizadores particulares)**



Este símbolo nos produtos e/ou documentos anexos significa que os produtos eléctricos e electrónicos usados não devem ser misturados com os resíduos urbanos indiferenciados.

Para efectuar um tratamento, recuperação e reciclagem correctos, leve estes produtos para pontos de recolha próprios para o efeito, onde serão aceites gratuitamente. Em alternativa, em alguns países, poderá devolver os produtos ao seu revendedor local, aquando da compra de um produto novo equivalente.

A eliminação correcta deste produto ajudará a poupar recursos valiosos e evitar quaisquer potenciais efeitos negativos na saúde humana e no ambiente, que poderiam resultar de um tratamento incorrecto de resíduos. Contacte as autoridades locais para obter mais informações sobre o ponto de recolha mais perto de si.

Poderão ser aplicadas multas pela eliminação incorrecta deste resíduo, de acordo com as leis locais.

### **Para utilizadores não particulares na União Europeia**

Se pretender eliminar equipamento eléctrico e electrónico, contacte o seu revendedor ou fornecedor para obter mais informações.

### **Informações sobre a eliminação noutros países fora da União Europeia**

Este símbolo apenas é válido na União Europeia.

Se pretender eliminar este produto, contacte as suas autoridades locais ou revendedor e peça informações sobre o método de eliminação correcto.

(Italian)

## **Informazioni per gli utenti sullo smaltimento di apparecchiature elettriche ed elettroniche obsolete (per i nuclei familiari privati)**



Questo simbolo sui prodotti e/o sulla documentazione di accompagnamento significa che i prodotti elettrici ed elettronici usati non devono essere mescolati con i rifiuti domestici generici.

Per un corretto trattamento, recupero e riciclaggio, portare questi prodotti ai punti di raccolta designati, dove verranno accettati gratuitamente. In alternativa, in alcune nazioni potrebbe essere possibile restituire i prodotti al rivenditore locale, al momento dell'acquisto di un nuovo prodotto equivalente.

Uno smaltimento corretto di questo prodotto contribuirà a far risparmiare preziose risorse ed evitare potenziali effetti negativi sulla salute umana e sull'ambiente, che potrebbero derivare, altrimenti, da uno smaltimento inappropriato. Per ulteriori dettagli, contattare la propria autorità locale o il punto di raccolta designato più vicino.

In caso di smaltimento errato di questo materiale di scarto, potrebbero venire applicate delle penali, in base alle leggi nazionali.

### **Per gli utenti aziendali nell'Unione Europea**

Qualora si desideri smaltire apparecchiature elettriche ed elettroniche, contattare il rivenditore o il fornitore per ulteriori informazioni.

### **Informazioni sullo smaltimento in nazioni al di fuori dell'Unione Europea**

Questo simbolo è valido solo nell'Unione Europea.

Qualora si desideri smaltire questo prodotto, contattare le autorità locali o il rivenditore e chiedere informazioni sul metodo corretto di smaltimento.

# DISPOSAL OF UNIT

(Dutch)

## Informatie over het weggooien van elektrische en elektronische apparatuur (particulieren)



Dit symbool betekent in Europa dat gebruikte elektrische en elektronische producten niet bij het normale huishoudelijke afval mogen.

Lever deze producten in bij de aangewezen inzamelingspunten, waar ze gratis worden geaccepteerd en op de juiste manier worden verwerkt, teruggewonnen en hergebruikt. In Nederland kunt u uw producten bij uw winkelier inleveren bij de aanschaf van een vergelijkbaar nieuw product.

Wanneer u dit product op de juiste manier als afval inlevert, spaart u waardevolle hulpbronnen en voorkomt u potentiële negatieve gevolgen voor de volksgezondheid en het milieu, die anders kunnen ontstaan door een onjuiste verwerking van afval. Neem contact op met uw gemeente voor meer informatie over het dichtstbijzijnde inzamelingspunt of raadpleeg [www.nvmp.nl](http://www.nvmp.nl), [www.ictoffice.nl](http://www.ictoffice.nl) of [www.stibat.nl](http://www.stibat.nl).

## Voor zakelijke gebruikers in de Europese Unie

Neem voor het weggooien van elektrische en elektronische apparatuur contact op met uw leverancier voor verdere informatie.

## Informatie over verwijdering van afval in landen buiten de Europese Unie

Dit symbool is alleen geldig in de Europese Unie.

Neem wanneer u dit product wilt weggooien, contact op met de lokale overheid of uw leverancier en vraag wat de juiste verwijderingsmethode is.

(Swedish)

## Information om kassering för användare av elektrisk & elektronisk utrustning (privata konsumenter)



Om denna symbol finns på produkterna och/eller medföljande dokumentation, betyder det att förbrukade elektriska och elektroniska produkter inte ska blandas med vanliga hushållssopor.

För korrekt hantering, inhämtning och återvinning, ska dessa produkter lämnas på återvinningscentraler, där de tas emot utan kostnad. I vissa länder kan du som ett alternativ lämna in dina produkter hos återförsäljaren, när du köper en motsvarande, ny produkt.

Om denna produkt avyttras korrekt sparas värdefulla resurser och eventuellt negativa effekter på den mänskliga hälsan och miljön förhindras, vilket kan bli fallet vid felaktig avyttring. Kontakta din lokala myndighet för mer information om var din närmsta återvinningsstation finns.

Böter kan tillämpas vid felaktig avyttring av dessa sopor, i enlighet med lagstiftningen i landet.

## För företagsanvändare inom den Europeiska gemenskapen

Om ni vill kassera elektrisk eller elektronisk utrustning, vänligen kontakta er återförsäljare eller leverantör för mer information.

## Information om kassering i övriga länder utanför den Europeiska gemenskapen

Denna symbol gäller bara inom den Europeiska gemenskapen.

Om du vill kassera denna produkt ska du kontakta de lokala myndigheterna eller din återförsäljare, och fråga om korrekt avyttringsmetod.

# TEMPERATURE RECORDER (OPTION)

## WARNING

**Always disconnect the power supply to the unit prior to attachment of a temperature recorder in order to prevent electric shock or injury.**

A temperature recorder is available for the refrigerator as the optional component. The type of the temperature recorder is MTR-G04A or MTR-G04C and MTR-0621LH. For the attachment, the recorder fixing is necessary. Following shows the combination of recorder with the recorder fixing. Contact our sales representative or agent for the attachment of a temperature recorder.

Temperature recorder	Recorder fixing
MTR-0621LH	MPR-S30
MTR-G04A or MTR-G04C	MPR-S7

# INTERFACE BOARD (OPTION)

Two kinds of interface board are available as an optional component. MTR-480 has a connector for RS232C and a connector for RS485. MTR-L03 has a connector for LAN.

- The interface board (MTR-480) and interface board (MTR-L03) cannot be used at the same time.
- Contact our sales representative or agent for the purchase of interface board.
- For the installation of an interface board, the battery mounting box is needed since the interface board should be attached to the battery mounting box.



# SPECIFICATIONS

Product name	Pharmaceutical refrigerator MPR-S163	Pharmaceutical refrigerator MPR-S313
External dimensions	W800 mm x D465 mm x H1090 mm	W800 mm x D465 mm x H1800 mm
Internal dimensions	W720 mm x D300 mm x H725 mm	W720 mm x D350 mm x H1435 mm
Effective capacity	158 L	340 L
Exterior	Painted steel	
Interior	Stainless steel	
Door	Sliding type, 2-layer pair glass with heat ray reflection film x 2	Sliding type, 2-layer pair glass with heat ray reflection film x 4
Insulation	Rigid polyurethane foamed-in place	
Shelf	Hard steel wire on clear coating x 2, Allowable load; 20 kg/shelf Inner dimensions; W700 mm x D238 mm	Hard steel wire on clear coating x 5, Allowable load; 20 kg/shelf Inner dimensions; W700 mm x D238 mm
Access port	Inner diameter; 30 mm, Rear side	
Cooling method	Forced air circulation, Direct cooling	
Compressor	Hermetic type, Output; 90 W	Hermetic type, Output; 160 W
Evaporator	Fin and tube type	
Condenser	Wire and tube	
Refrigerant	R-407D	
Defrosting	New cycle defrost and forced defrost	
Defrost heater	87 W	91 W (USA only), 101 W (Other area)
Drain-pan heater	25 W	
Temperature controller	Electronic control system	
Temperature display	Digital display (in 1 °C increments)	
Thermal sensor	Thermistor sensor	
Alarms	High temp. alarm, Low temp. alarm, 0 °C alarm, Door alarm, Power failure alarm (only when an optional component MPR-48B1 is installed)	
Lamp	LED Light	
Weight	71 kg	100 kg
Accessories	1 set of key	
Optional components	Temperature recorder (MTR-0621LH) Temperature recorder (MTR-G04A), Temperature recorder (MTR-G04C) Recorder fixing (MPR-S30); for MTR-0621LH, Recorder fixing (MPR-S7); for MTR-G04A/G04C Battery mounting box (MPR-48B1) Interface board (MTR-480)*, Interface board (MTR-L03)*	

\* For the data acquisition system MTR-5000 user only. Contact our sales representative or agent for purchase.

- Design or specifications will be subject to change without notice.
- Refer to the updated catalog when ordering an optional component.

# PERFORMANCE

Product name	Pharmaceutical refrigerator MPR-S163	
Model number	MPR-S163-PK MPR-S163-PT MPR-S163-PR	MPR-S163-PE
Temperature control range	Between 2 °C and 14 °C (ambient temp.; -5 °C to 35 °C, no load)	
Noise level	35 dB (A scale)	
Maximum pressure	1800 kPa	
Rated voltage	AC 220 V	AC 220 V/230 V/240 V
Rated frequency	60 Hz	50 Hz
Amperage	1.0 A	0.9 A
Power consumption	140 W	130 W
Usable condition	-5 °C to 35 °C, 80%R.H. or less	

Product name	Pharmaceutical refrigerator MPR-S313		
Model number	MPR-S313-PA	MPR-S313-PK MPR-S313-PT MPR-S313-PR	MPR-S313-PE
Temperature control range	Between 2 °C and 14 °C (ambient temp.; -5 °C to 35 °C, no load)		
Noise level	40 dB (A scale)		
Maximum pressure	2000 kPa		
Rated voltage	AC 115 V	AC 220 V	AC 230 V/240 V
Rated frequency	60 Hz	50 Hz/60 Hz	50 Hz
Amperage	3.2 A	1.5 A/1.4 A	1.3 A
Power consumption	245 W	185 W/195 W	185 W
Usable condition	-5 °C to 35 °C, 80 %R.H. or less		

- The above data is measured based on our internal basis.
- Design or specifications will be subject to change without notice.
- The unit with CE mark complies with EU directives.

## **CAUTION**

**Please fill in this form before servicing.  
Hand over this form to the service engineer to keep for his and your safety.**

### Safety check sheet

**1. Refrigerator contents :**

Risk of infection: ☐Yes ☐No  
Risk of toxicity: ☐Yes ☐No  
Risk from radioactive sources: ☐Yes ☐No

(List all potentially hazardous materials that have been stored in this unit.)

Notes :

**2. Contamination of the unit**

Unit interior

No contamination ☐Yes ☐No  
Decontaminated ☐Yes ☐No  
Contaminated ☐Yes ☐No

Others:

**3. Instructions for safe repair/maintenance/disposal of the unit**

a) The unit is safe to work on ☐Yes ☐No  
b) There is some danger (see below) ☐Yes ☐No

Procedure to be adhered to in order to reduce safety risk indicated in b) below.

Date :

Signature :

Address, Division :

Telephone :

Product name :  
Pharmaceutical  
Refrigerator

Model :  
MPR-

Serial number :

Date of Installation :

Please decontaminate the unit yourself before calling the service engineer.

# PHC Corporation

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Printed in Japan  
LDCL035400-0  
S0418-0