

# Heated and Refrigerated Incubators

MIR-162-PA | MIR-262-PA

MIR-154-PA | MIR- 254-PA | MIR-554-PA

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# Heated and Refrigerated Incubators

Panasonic MIR series incubators are designed for general laboratory applications requiring fixed setpoint or cycling temperature control. A selection of five cabinet sizes offers programmed operation and integrated alarms for a wide temperature range.

## Heated and Refrigerated Incubators

MODEL NUMBER	VOLUME (CU.FT.)	EXTERIOR DIMENSIONS (W X F-B X H)	HEATED	REFRIGERATED	PROGRAMMABLE TEMPERATURE	VOLTAGE, POWER CONNECTION
MIR-162-PA	3.3 93 L	22.8" x 23.4" x 32.3" 580 x 595 x 820 mm	yes	—	5°C above ambient to 80°C	
MIR-262-PA	5.4 153 L	28.7" x 25.4" x 34.3" 730 x 645 x 870 mm	yes	—	5°C above ambient to 80°C	
MIR-154-PA	4.3 123 L	27.6" x 22.8" x 40.1" 700 x 580 x 1018 mm	yes	yes	- 10°C to 60°C	115V NEMA 5-15
MIR-254-PA	8.4 238 L	27.6" x 22.8" x 63.7" 700 x 580 x 1618 mm	yes	yes	- 10°C to 60°C	
MIR-554-PA	14.3 406 L	31.5" x 32.8" x 71.3" 800 x 832 x 1810 mm	yes	yes	- 10°C to 60°C	

Programmable for multifunction laboratory applications.

## Refrigerated Incubators, Environmental Testing Chambers

- The Panasonic MIR series offers accurate temperature control and uniformity in a wide range of temperatures, making them suitable for various applications.
- Programmable with 12 step, 10 program capability and wide temperature range that goes from -10°C up to +60°C with excellent temperature uniformity.
- Improved usability with modern design, improved gentle air circulation that reduces media drying and adjustable low vibration.

## Wide Range of Applications

The MIR-154-PA and MIR-254-PA refrigerated incubators are ideal in testing applications such as:

- Industrial testing in the electrical, machinery, textiles industries
- Chemical testing e.g., storage, stability, acid/alkali, durability
- Food industry for packaging, quality control and stability
- Testing for waste water, BOD, soil testing
- Microorganism culturing
- Germination experiments

## Programmable

- Numeric direct keyed input
- Memory of operation start date and hour with delay start timer
- Either clock mode or count down mode can be used for program setting





### Flexibility

The Panasonic MIR series offers accurate temperature control and uniformity in a wide range of temperatures, making them suitable for various applications.

- The MIR-154-PA and MPR-254-PA are programmable with 12 step, 10 program capability
- Wide temperature range from -10°C to +80°C
- Excellent temperature uniformity
- ON-OFF control of chamber lighting – controlled by programming

### Improved Usability

- Gentle air circulation that reduces media drying
- Adjustable low vibration for sensitive materials testing
- Full alarm package

### Energy Savings

In addition to a microprocessor-controlled high efficient heater output and compressor ON/OFF, a renewal control program and low heat-emission inner chamber fan are newly adopted that allow high-energy saving operation over a wider range of ambient environments.

### P.I.D. Controller

Microprocessor-based P.I.D. (proportional, integral, derivative) control with digital input, full-function alarm and monitoring.

### LCD Controller

The LCD Controller improves user interface for better programming and control. The controller features a pop up menu that can display:

- Current conditions (temperature, date, time (12 hour or 24 hour selectable))
- Alarm condition
- Door Openings
- Light status
- Various settings of each program (12 step, 10 program, clock function and join mode)
- Optional wireless monitoring via LabAlert

**Energy Savings:** In addition to a microprocessor-controlled high efficient heater output and compressor ON/OFF, a renewal control program and low-heat emission inner chamber fan are newly adopted to allow high-energy saving operation over a wider range of ambient environments.





# Heated and Refrigerated Incubators



## **Foamed-in-place Rigid Polyurethane Insulation**

CFC-free foamed-in-place polyurethane is used for the chamber due to its high thermal retention and energy saving properties.

## **Triple-pane Glass Observation Window plus Programmable 15W Fluorescent Lamp**

A highly insulated triple-pane glass observation window and 15W fluorescent lamp are provided for sample observation during experimentation. When observation is not required, an optional light shielding plate (MIR-154-PA/254-PA) can be easily attached. The MIR-554-PA has an observation door included.

## **Automatic Setting Temperature Alarm**

- When the chamber temperature deviates more than  $\pm 1$  to  $\pm 5^{\circ}\text{C}$  (user selectable), all digits of the digital indicator flash. Fifteen minutes later a buzzer will sound. This system also automatically allows programmed operation or setting value changes.
- Independent over-temperature protection provides additional backup circuit and sensor in the rare case of a temperature abnormality.
- Programmed memory backup allows data to be stored for up to 5 hours after a power source interruption.
- Auto-return mechanism returns temperature to normal indicator.
- Self-diagnosing troubleshooting monitor and key lock are provided.

## **Independent Over-temperature Protection Device**

This incubator incorporates an excessive temperature prevention circuit that protects experimentation materials in the rare event that a temperature abnormality occurs. Isolated from the main circuit, this exclusive circuit and sensor operate even if the temperature sensor or microprocessor malfunction, activating an exclusive lamp and buzzer notification. This system turns off the heater and chamber fan motor when over temperature is detected (setting temperature range:  $15^{\circ}\text{C}$ ~ $65^{\circ}\text{C}$ ). It turns off the compressor

when under temperature is detected (setting temperature range  $-15^{\circ}\text{C}$  to  $20^{\circ}\text{C}$ ). Remote alarm contacts are provided for monitoring alarm from a remote location.

## **Programmed Memory Back-up Mechanism**

If the power source is interrupted due to power failure or any other event, programmed data remains stored in memory semi-permanently. When the power source is restored, operation can be continued according to the predetermined program.

## **Automatic Return Buzzer Switch**

After an power failure occurs, the alarm buzzer automatically switches to the ON mode, even if the operator forgets to return the alarm buzzer to the ON mode, thus ensuring safe and secure operation.

## **Key Lock**

A key lock switch is provided so that settings may not be changed.

## **Auto Return Mechanism**

This mechanism automatically returns the chamber temperature indicator to its normal indication when the control key is not operated for approx. 90 seconds at each setting mode. Thus, normal operation is ensured even if the operator forgets an operational procedure during setting.


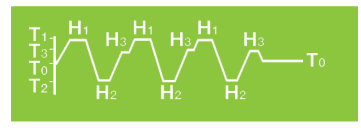
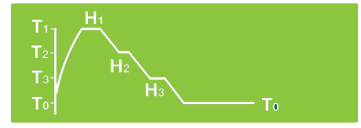
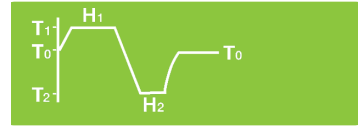
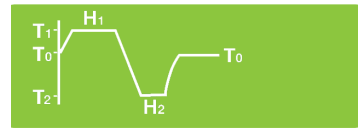
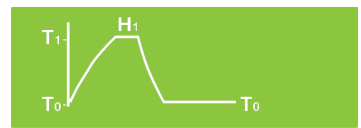
## **Trouble Monitor (Self Diagnostic Function)**

Should a malfunction occur, the location of the malfunction will be indicated on the alpha-numeric display, allowing quick operator response.

## **Options**

- Double stacking option with spacer (only for MIR-154-PA) Model # MIR-S154SB-PW
- Key Mounting Plate: MIR-LP-PW
- Lighting addition kit: MIR-L15-PW
- Light shading plate for glass: MIR-154BP-PW/MIR-254BP-PW
- Chart Recorder: MTR-C958

# Operational Functions – Cooled Incubators

PROGRAM	PROGRAM PROCESS	
PROGRAMMABLE 3-STEP OPERATIONAL FUNCTIONS WITH MICROCOMPUTER CONTROL	<p>Program input is simple and the steps during each operation are indicated via the LCD display. This incubator accommodates a range of diversified experimentation requirements, and is ideal for experimentation during night time or weekends, or when the experiment requires the settings to be changed. It is also ideal for microorganism culture and preservation. Constant operation mode without step operation is also available.</p>	
3 STEP REPEAT OPERATION	<p>Temperature (T1, T2, T3) and Time (H1, H2, H3) are set. Then, limited repeating operations (from 1 to 99 times) or continuously repeated operations are conducted. After a limited repeating operation has been completed, constant operating temperature T0 is retained.</p> <p>Application: Optimum for repeated experiments in which 3 different elemental temperatures and times are combined.</p>	
3 STEP TO CONSTANT OPERATION	<p>Temperature of T1, T2, and T3, correspond to times H1, H2, and H3, respectively. Then, constant operation temperature T0 is retained.</p> <p>Application: Optimum for experiments that require consistent 4-step temperature increases and decreases.</p>	
2 STEP TO REPEATING OPERATION	<p>Using a temperature T1 and T2, operation is repeatedly conducted using time H1 and H2. Application: Optimum for day and night cycle operations of plant material or quality testing for chemicals, foods and samples.</p>	
2 STEP TO CONSTANT OPERATION	<p>With a temperature of T1 and T2, operation is conducted using time H1 and H2. Then, constant operating temperature T0 is retained.</p>	
1 STEP TO CONSTANT OPERATION	<p>With a temperature of T1, operation is conducted using time H1. Then, constant operating temperature T0 is retained.</p> <p>Application: Optimum for automation and labor savings while performing bacteria inspection from culture to preservation, and from preservation to culture.</p>	

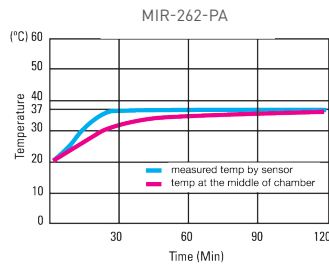
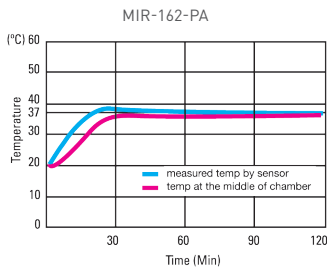


## High-precision Temperature Environment

Panasonic refrigerated incubators incorporate a high precision microprocessor temperature control combined with a heater P.I.D. and compressor ON-OFF system. This system has a feed forward function that inputs the operating conditions of the compressor beforehand, ensuring accurate temperature control for the chamber. In a wide temperature range from -10°C to 60°C, the heater P.I.D. exhibits temperature fluctuation up to 0.2°C, and the Compressor ON-OFF controls precisely ±1.5°C. In addition, the fluctuation of temperature uniformity in the chamber is within ±0.5°C, allowing a full range of precise experimentation from microorganism cultures to various types of incubation and testing.

# Specifications

## Temperature Uniformity Data



### Features

Panasonic MIR-Series incubators are recognized as exceptional units suitable for a wide range of applications that require a temperature range of -10°C to +50°C.

- Stable (PID), flexible [three step programming and temperature range between -10°C to 50°C].
- Multi-purpose and dependable. Frequently used in food industry, water treatment, and microbiology.

### Microprocessor Controlled Timer

The MIR-Series incorporates an 8-bit microprocessor controller for heat and refrigeration control  $\pm 0.2^\circ\text{C}$ . Programmable models include three-step functions useful for investigations involving microbiology, plant cell biology, and more.

- Allows experiments up to 99 hours and 59 minutes
- Desired start time is set by an automatic start (delay function)
- Information function activates buzzer when set time is over
- Keeps set temperature after operation finishes

### Advanced Design

- Control panel with touch keyboard
- Easy-to-read green LED display
- Both temperature and time are indicated on digital displays
- Durable stainless steel for interior cabinet

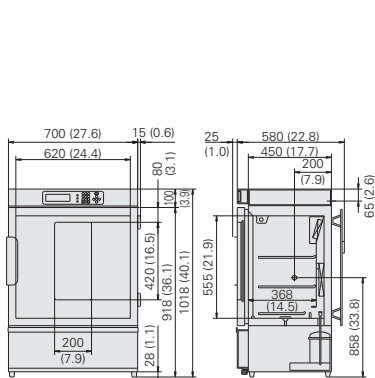
### Precise Temperature Control

- High precision microprocessor controller with heater P.I.D. heater control
- Temperature range 5°C above ambient to 80°C
- Temperature accuracy  $\pm 0.2$  at +37°C
- Temperature uniformity  $\pm 1^\circ\text{C}$

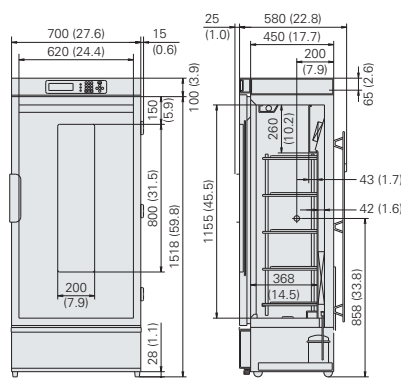
### Accessories

- Key, 1 set
- Light Shielding Plate

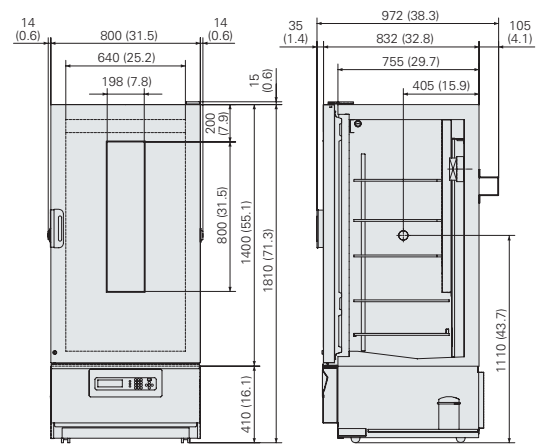
## MIR-154-PA, MIR-254-PA & MIR-554-PA Dimensions



MIR-154-PA  
(mm,in)



MIR-254-PA  
(mm,in)

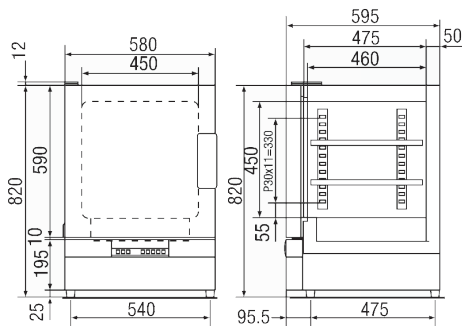


MIR-554-PA  
(mm,in)

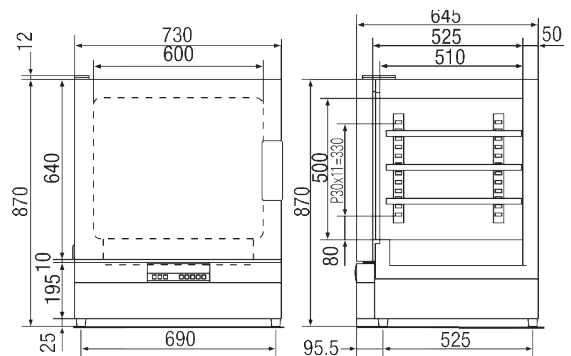
# MIR-162-PA & MIR-262-PA Specifications

MODEL NUMBER	MIR-162-PA	MIR-262-PA
EFFECTIVE CAPACITY	3.3 cu.ft. 93 L	5.4 cu.ft. 153 L
EXTERIOR DIMENSIONS W X F-B X H	22.8" x 23.4" x 32.3" 580 x 595 x 820 mm	28.7" x 25.4" x 34.3" 730 x 645 x 870 mm
INTERIOR DIMENSIONS W X F-B X H	17.7" x 18.1" x 17.7" 450 x 460 x 450 mm	23.6" x 20.1" x 19.7" 600 x 510 x 500 mm
EXTERIOR FINISH	Baked acrylic finish on galvanized steel	Baked acrylic finish on galvanized steel
INTERIOR FINISH	Stainless Steel (S US-304)	Stainless Steel (S US-304)
DOOR	Outer: Baked acrylic on galvanized steel Inner: Glass	Outer: Baked acrylic on galvanized steel Inner: Glass
SHELVES	2, Stainless steel, Wire	3, Stainless steel, Wire
INSULATION	Fiber Glass	Fiber Glass
CIRCULATION SYSTEM	Natural Convection	Natural Convection
HEATER	200W, Sheathed Heater	300 W, Sheathed Heater
TEMPERATURE SETTING INDICATION	Digital setting with digital display	Digital setting with digital display
TEMPERATURE CONTROL	Microprocessor P.I.D system, air-jacket construction	Microprocessor PID system, air-jacket construction
AUTOMATION SETTING TEMPERATURE ALARM	When temperature deviates approx. $\pm 2.5^{\circ}\text{C}$ , visual and audible alarm	When temperature deviates approx. $\pm 2.5^{\circ}\text{C}$ , visual and audible alarm
OVER TEMPERATURE PROTECTION DEVICE	Visual and audible alarm	Visual and audible alarm
TEMPERATURE RANGE	Ambient $+5^{\circ}\text{C}$ to $+80^{\circ}\text{C}$	Ambient $+5^{\circ}\text{C}$ to $+80^{\circ}\text{C}$
TIMER	Automatic timer with delay function 00:00 to 99:59	Automatic timer with delay function 00:00 to 99:59
TEMPERATURE UNIFORMITY	$\pm 1^{\circ}\text{C}$	$\pm 1^{\circ}\text{C}$
POWER SOURCE / VOLTAGE	115V / 60 Hz / 1 phase	115V / 60 Hz / 1 phase
POWER CONSUMPTION	200 W	300 W
NET WEIGHT	97 lbs 44 kg	134 lbs 64 kg

## MIR-162-PA & MIR-262-PA Dimensions



MIR-162-PA



MIR-262-PA

# Heated and Refrigerated Incubator Specifications

## Heated and Refrigerated Incubator Specifications

MODEL NUMBER	MIR-154-PA	MIR-254-PA	MIR-554-PA
EFFECTIVE CAPACITY	4.3 cu.ft. 123 L	8.4 cu.ft. 238 L	14.3 cu.ft. 406 L
EXTERIOR DIMENSIONS W X F-B X H	27.6" x 22.8" x 40.1" 700 x 580 x 1018 mm	27.6" x 22.8" x 63.7" 700 x 580 x 1618 mm	31.5" x 32.8" x 71.3" 800 x 832 x 1810 mm
INTERIOR DIMENSIONS W X F-B X H	24.4" x 15.2" x 21.9" 620 x 386 x 555 mm	24.4" x 15.2" x 42.8" 620 x 386 x 1088 mm	25.2" x 21.7" x 45.7" 640 x 550 x 1160 mm
EXTERIOR FINISH	Galvanized Steel with baked on finish		
INTERIOR FINISH	Stainless Steel		
DOOR	Reversible painted steel & triple pane glass with observation window	Reversible painted steel & triple pane glass with observation window	Painted steel & triple pane glass with observation door & key
SHELVES	3, PE coated steel wire, adjustable	5, PE coated steel wire, adjustable	5, PE coated steel wire, adjustable
INSULATION	Foam-in-place rigid polyurethane		
CIRCULATION SYSTEM	Forced air circulation		
COMPRESSOR	150W, Hermetic Type	250W, Hermetic Type	250W, Hermetic Type
EVAPORATOR	Fin and tube type, forced air circulation		
CONDENSER	Wire and tube type natural air cooling system		
DEFROSTING SYSTEM	Selectable manual start or timer defrost, natural vaporisation of drain water		
HEATER	141W, Cord Heater	218W, Cord Heater	332W, Cord Heater
TEMPERATURE SETTING INDICATION	Digital Setting with Digital Display		
TEMPERATURE CONTROL	Microprocessor P.I.D system, (when compressor operates, ON/OFF control)		
TEMPERATURE SENSOR	Thermistor		
AUTOMATION SETTING TEMPERATURE ALARM	When temperature deviates approx. $\pm 2.5^{\circ}\text{C}$ , visual and audible alarm		
OVER TEMPERATURE PROTECTION DEVICE	Visual audible alarm		
PROGRAMED OPERATION	12-step repeat from 1-98 times or continuous repeat		
TEMPERATURE RANGE	-10°C to 60°C		
TEMPERATURE CONTROLLABILITY	$\pm 0.2^{\circ}\text{C}$ at heater PID control (Temperature setting 50°C, ambient temperature 20°C, no load) $\pm 1.5^{\circ}\text{C}$ at compressor ON/OFF control (Temperature setting 5°C, ambient temperature 20°C, no load)		
TEMPERATURE UNIFORMITY	$\pm 0.5^{\circ}\text{C}$ (Temperature setting 37°C, ambient temperature 20°C, no load)		
POWER SOURCE: VOLTAGE	115V / 60Hz / 1 phase		
POWER CONSUMPTION	160 W	240 W	290 W
INTERIOR LAMP	15 W x 1, fluorescent lamp (setting temperature +5°C to 50°C)		
NET WEIGHT	172 lbs 78 kg	238 lbs 108 kg	453 lbs 205 kg
ACCESSORIES	Key 1 set, Light shielding plate 1	Key 1 set, Light shielding plate 1	Key 1 set

**Panasonic**

Panasonic Healthcare Corporation of North America  
1300 Michael Drive, Suite A, Wood Dale, IL 60191  
Toll Free USA (800) 858-8442, Fax (630) 238-0074  
us.panasonic-healthcare.com

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