

## Plant Growth Chambers

MLR-352/352H



**Temperature range** (MLR-352)

**0°C to +50°C** (Light OFF)

**+10°C to +50°C** (Light ON)

**Lighting range**

**0 lx to 20,000 lx**

(Adjustable)

**Humidity range** (MLR-352H only)

**60% RH to 90% RH** (Light OFF)

**55% RH to 85% RH** (Light ON)

### Versatile Plant Growth Chambers

- Suits a wide range of applications
  - Culture of plant cells, tissues and organs
  - Acclimation and rearing of plants
  - Incubation and rearing of insects
- Graphic LCD provides easier operation
- Programmable temperature, lighting and humidity functions (MLR-352H)
- Microprocessor PID control and Refrigeration Capacity Control
- Data logging function

# MLR-352/352H

The wide variety of temperatures and lighting patterns that are essential in plant research can now be accurately reproduced and controlled. And you get humidity control\* too!

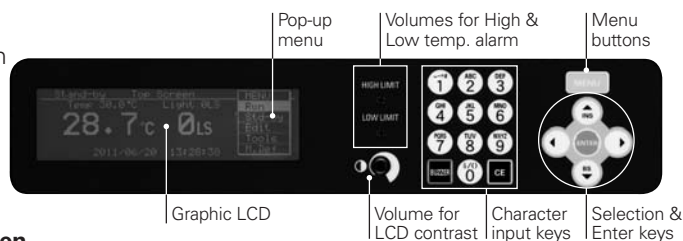
(\*MLR-352H only)

## Features

- Microprocessor PID and Refrigeration Capacity Control eliminate temperature fluctuations and thereby improve temperature control. This allows superior precision experiments plus energy and electricity savings.
- Programmable temperature function is perfect for temperature cycle and vernalization treatment research.
  - 12-step programs x 10 patterns can be memorized.
  - Selectable clock mode or timer mode
  - Multiple programs can be linked (Join mode).
  - Starting day and time of operation can be programmed.
- Operation data of approximately last 2 weeks (6-minute intervals) can be automatically recorded.
  - Data can be retrieved on the control panel.
  - Data can be transmitted to a PC (CSV data via Ethernet (LAN) Interface MTR-L03 or RS232C/RS485 Interface MTR-480).
  - Easy calibration: temperature and humidity can be calibrated easily from the control panel.
- Small and lightweight, high-molecular membrane-type humidity sensor also boasts a high degree of accuracy and reproducibility. Of the newest high-molecular membrane type, the humidity sensor accurately measures chamber humidity (MLR-352H only).

## Control Panel

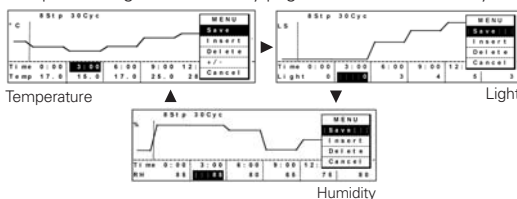
Graphic LCD panel with pop-up menu function on control panel provides more visual display and allows intuitive operation.



## Program Setting Screen

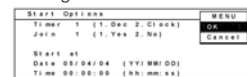
### 1. Selection of menu

Temperature light and humidity pages scroll with down key



### 2. Various ways of starting programs

Selection from Clock mode & Timer mode. Setting of Join mode and Start time available.



### 3. Data logging function

Operation data can be recorded



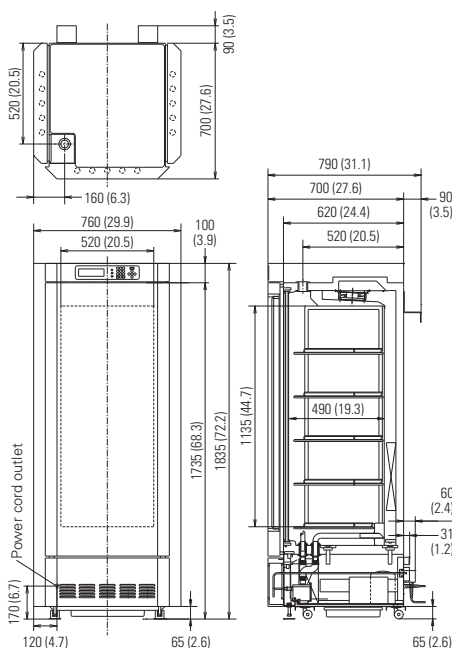
## Specifications

Model No.	MLR-352	MLR-352H
<b>External dimensions (W x D x H)</b>	760 x 700 x 1835 (mm) / 29.9 x 27.6 x 72.2 (inch)	
<b>Internal dimensions (W x D x H)</b>	520 x 490 x 1135 (mm) / 20.5 x 19.3 x 44.7 (inch)	
<b>Effective capacity</b>	294 litres (10.4 cu.ft.)	
<b>Shelves</b>	PE coated steel wire, 4 pcs. Inner dimensions: W465 x D450 (mm) / 18.3 x 17.7 (inch), Maximum load: 25kg/shelf PE coated steel wire with stainless steel cover, 1 pc. (bottom) Inner dimensions: W355 x D395 (mm) / 14.0 x 15.6 (inch), Maximum load: 25kg/shelf	
<b>Access port</b>	40mm diameter x 1 (chamber top position)	
<b>Casters</b>	4	
<b>Air circulation</b>	Forced air circulation	
<b>Compressor</b>	Hermetic type, 250W	
<b>Heater</b>	334W	381W
<b>Defrost</b>	Automatic defrost (2 patterns in MLR-352, 3 patterns in MLR-352H), Manual defrost	
<b>Option</b>	Panasonic DAQ (data acquisition) system: MTR-5000-PW / MTR-L03-PW or MTR-480-PW	
<b>Net weight (approx.)</b>	226kg (498 lbs.)	235kg (518 lbs.)
<b>Control related specifications</b>		
<b>Temperature control range (AT 20°C, no load)</b>	0°C to +50°C (light off) +10°C to +50°C (light on)	+5°C to +50°C (light off) +10°C to +50°C (light on)
<b>Temperature distribution</b>	±3.5°C (light on), ±1.5°C (light off) (AT 20°C, no load) ±2.5°C (light on), ±1.0°C (light off) (Set temperature 25°C, AT 20°C, no load)	
<b>Temperature fluctuation</b>	±0.3°C (Set temperature 25°C, AT 20°C, no load)	
<b>Temperature control</b>	Microcomputer PID and Refrigeration capacity control	
<b>Lighting range</b>	0 lx to 20,000 lx Fluorescent lamp 40W x 15, 6 increments (0, 1, 2, 3, 4, 5)	
<b>Humidity</b>	N/A	Ultrasonic humidifier PID control
<b>Humidity control range</b>	N/A	60 to 90%RH (+15°C to +45°C and light off) 55 to 85%RH (+15°C to +45°C and light on)
<b>Program function</b>	Temperature and light Temperature, light and humidity 12-step repeat from 1 - 98 times or unlimited. Max. 10 programs memorized. Clock mode, Timer mode and Join mode available, Start date and time reservation function Up to approx. 14 days with 6-minute intervals (record cannot be logged during a power failure). The daily information can be shown in graph display. (Older data will be overwritten automatically when memory becomes full.)	
<b>Data logging function</b>	Up to approx. 14 days with 6-minute intervals (record cannot be logged during a power failure). The daily information can be shown in graph display. (Older data will be overwritten automatically when memory becomes full.)	
<b>Real time clock</b>	Battery back-up for clock function	
<b>Analog output for recording</b>	0 to 100mV / Temperature: 0 to +50°C / Light: 0 to 5 / Humidity: 0 to 100%RH	
<b>Alarms and safety</b>	Temperature alarm, High and low temperature limit, Humidity alarm	
<b>Voltage specification by destination</b>		
<b>Representative destination</b>	Europe 230V, 50Hz (CE)	MLR-352-PE MLR-352H-PE
	Korea 220V, 60Hz	MLR-352-PK MLR-352H-PK
	Thailand 220V, 50Hz	MLR-352-PB MLR-352H-PB

Caution: Panasonic guarantees the product under certain warranty conditions. Panasonic in no way shall be responsible for any loss of content or damage to content.  
• Appearance and specifications are subject to change without notice.

## Dimensions (MLR-352H)

Unit: mm (inch)



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**Medical devices quality management system: ISO13485**



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