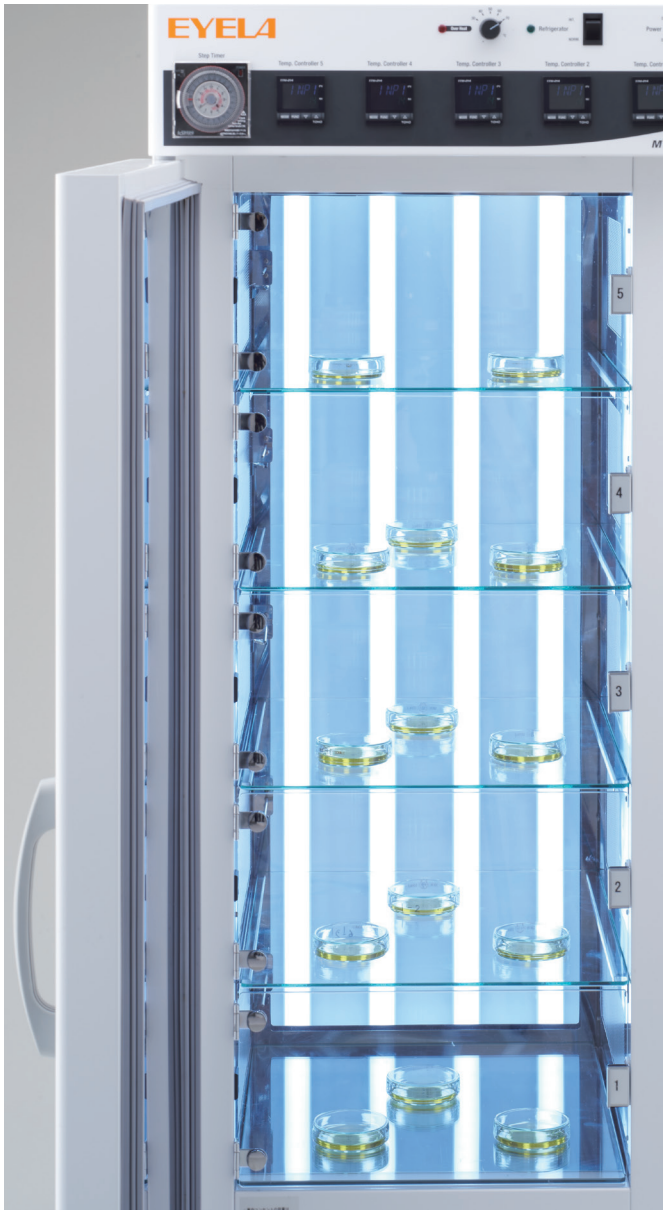
EYELA

# Temperature Ramp Incubator

## *5 Chambers with Individual Temperature Control LED Illumination for Day/Night Cycle Operation*

## Model MTI-1000/1100




**Low GWP Refrigerant R448A (GWP value 1386)**

※GWP stands for Global Warming Potential. It represents the capacity of a greenhouse gas to contribute to global warming compared to carbon dioxide, which has a GWP value of 1.

### Precise individual temperature control

The Temperature Ramp Incubator has the function of five (5) independent temperature-controlled chambers, allowing users to set up different environment conditions in each chamber.

【Example】

The same seeds were exposed to five different temperatures, simulating 14-hour day and 10-hour night, and their germination was observed.

**・Conditions**

Illumination: 4 lamps (15,000lx), 14 hours ON, 10 hours OFF with 24-hour cycle timer.

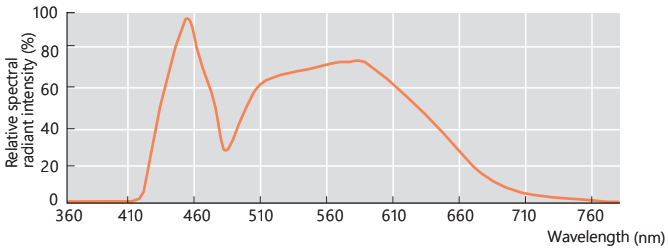

Equipment used
MTI-1100

| Chamber | Temperature |
|---|---|
| 5 | 32˚C |
| 4 | 28˚C |
| 3 | 24˚C |
| 2 | 20˚C |
| 1 | 16˚C |

### Standard 40W x 4 LED lamps (cool white)

The illumination intensity can be adjusted by turning on 1 to 4 LED lamps, and a 24-hour cycle timer allows for creating day and night environments. Cool white LED lamps provide brightness of up to 15,000lx and a long life of approximately 40,000 hours.

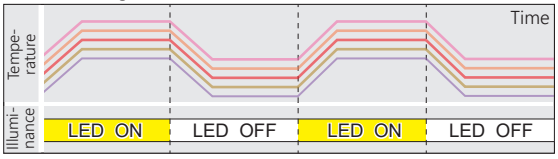
**Relative spectral radiant intensity of cool white LED lamps**




### Equipped with 2-step program

The model MTI-1100 allows you to set 2-step program to reproduce day and night temperatures. Day/night tests can be performed by switching the cool white LED lamps on and off using the ON-OFF timer.

**2-step programmable temperature control**




The temperature can be controlled in two steps to turn the LED lamp on and off. Day/night operation is possible based on temperature and illuminance.

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MTI-1000

MTI-1100

## Chamber illumination

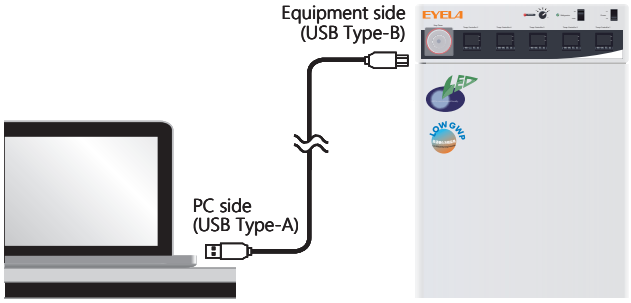
Cool white straight LED lamps
1 lamp ON: Approx. 4,000lx
2 lamps ON: Approx. 8,000lx
3 lamps ON: Approx. 12,000lx
4 lamps ON: Approx. 15,000lx


**Power supply**
100V 15A

It can be powered from a household outlet.

**Equipped with standard casters and adjusters**

## Simple measurement and control software (ESMon)

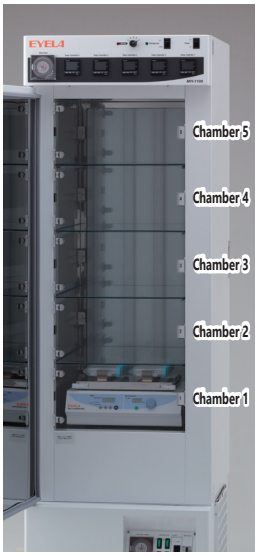



Temperature data for each chamber can be obtained on PC, and the data can be recorded and processed.
In addition, the model MTI-1100 can output the temperature of each chamber as analog (0 to 5 VDC), so it can be connected to a data logger or recorder.

## ■Specifications

| Model | MTI-1000 | MTI-1100 |
|---|---|---|
| Cat. No. | 283330 | 283340 |
| Temp. control range | 5 to 50°C | |
| Temp. control accuracy | Chamber 1:±2.5°C～,Chamber 2: ±1.5°C～, Chamber 3 to 5:±1.0°C～ | |
| Number of chambers | 5 chambers | |
| Illumination | Cool white straight tube LED lamp 40W x 4 pcs | |
| Temp. control method | Constant temperature control | 2-step temperature control |
| Temp. control | Chamber 1 (bottom level) Refrigerator ON-OFF control (NORM. mode), Refrigerator ON-OFF + timer control (INT. mode), Other chamber heater control (P.I.D.) | |
| Illumination time | 24-hour timer (minimum setting 15 min.) | |
| Heater | 600W | |
| Refrigerator/refrigerant | Air-cooled, 400W output, R448A (GWP value 1386) | |
| External input/output | USB communication terminal, simplified software ESMon for model MTI (accessory) | |
| | — | Chamber 1 to 5 measured temperature output |
| Shelf load capacity / Material | Equal distribution Max.25kg/shelf, Tempered glass | |
| Inner outlet | 1 port in each chamber (5 total 0.5A max.) | |
| Inner chamber dimensions / Capacity | 400(375)W×470D×195H (mm)/Approx. 37L | |
| Ambient temperature range | 5 to 30°C | |
| External dimensions / Weight | 560W x 670(711)D x 1780H(mm)/Approx. 160kg | |
| Power input/Rated power supply | 15A, 1.5kVA 100VAC 50/60Hz | |

※Performance is measured in NORM. mode, room temperature 20°C, rated power supply voltage 50Hz, no illumination, and no load.
※Illuminance is measured from the center of the chamber facing rearward. Illuminance decreases as LED lamps deteriorate.
※Power input includes the capacity of the outlet in the chamber (0.5A).
※Temperature setting of each chamber is subject to conditions.

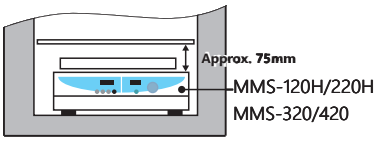



## A shaker can be installed for shaking culture.

One unit of shaker can be instlled in the chamber 1. The compatible shaker models are MMS-120H, 220H, 320, and 420.

※The shaking speed of the shaker must be within 150 rpm for rotary shaking and 100 rpm for reciprocal and figure-8 shaking.

※The distance between the top surface of the shaker and the shelf board above is 75mm.




Model MTI

## Options

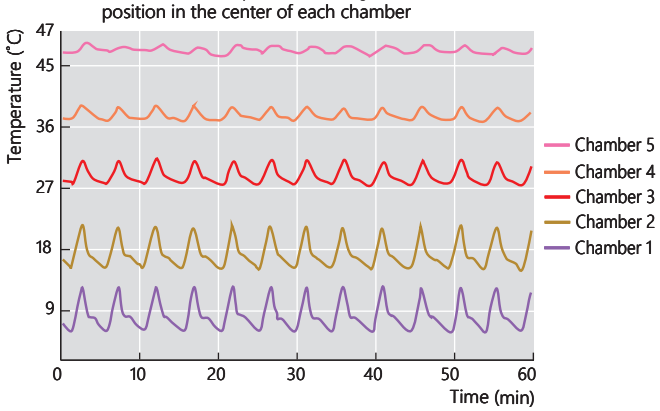
**Recorder**
Model µR-10000
Cat. No. 217060
※Only for MTI-1100

**Recorder output cord (1 pc)**
Cat No. 147570
※Five (5) output cords are required to record temperatures in the chamber 1 to 5.

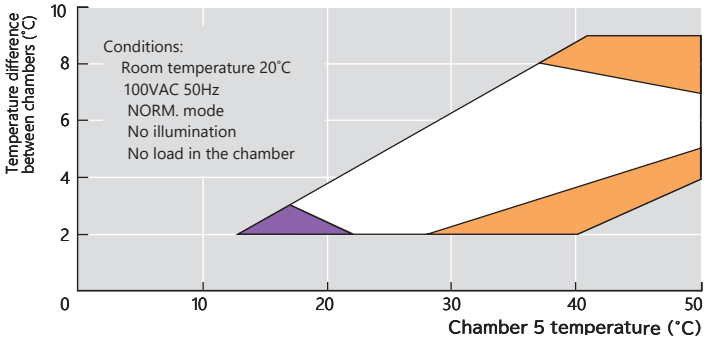
## Data

### ■Temperature control accuracy

Conditions: Room temperature 20°C, 100VAC 50Hz, LED off, no load in the chamber, temperature settings 9, 18, 27, 36, 45°C, sensor position in the center of each chamber




### ■Temperature setting range




This graph shows the possible settings for the chamber 5 and between each chamber, assuming the same temperature difference across the five chambers. When the room temperature is 5°C, control of the section becomes unavailable. Similarly, when the room temperature is 30°C, control of the section becomes unavailable. A temperature difference must be maintained between each chamber. (Example) If the chamber 5 is set to 30°C, the temperature difference between each chamber can range from 2°C to 6°C.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