



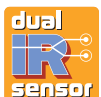
New CO₂ incubator design delivers exceptional ease of use, ease of cleaning and also prevents contamination.



KM-CC17R



KM-CC17RH2



KM-CC17RH2
KM-CC17RU2



Next Generation of Incubator for Optimum Cell Culture.

Panasonic's new CO₂ incubator with a touchscreen control panel delivers improved usability, rapid cleaning, and effortless maintenance while keeping its tradition of outstanding environmental stability and precision performance.



Grow results, not bacteria!

KM-CC17R Incubator

Optimized for high-value samples including hard-to-grow and contamination-sensitive media/reagents.

Applications:

- Stem cell research
- Autologous tissue regeneration
- Genomic and proteomic expression
- Esoteric plant and amphibian cell culture
- Hyper-sensitive and transgenic cell culture
- Low volume media microplate work

Easy Use & Easy Maintenance

Tray catches integrated with the chamber interior minimize cleaning time while **LCD panel enhances operation.**



Responds to gloved finger action.



Menu screen



LCD Touch Panel Controller

A WVGA color LCD touch panel delivers full control over different protocols. Control can be performed with gloved fingers as the touch panel has resistive coating.

Integrated Tray catches

Tray catches are integral parts of the chamber, opening up more space for trays, allowing the incubator to accommodate more culture containers.

(Comparison with MCO-19AIC)



KM-CC17R's interior components



KM-CC17R's tray catches (integral part of the chamber)



USB port

Note: It is impossible to use USB memory which is required password input.



Log screen example (CO₂ level)

USB Memory Data Transfer

Standard USB port provided for convenient log data transfer to a USB memory stick and to a PC. Data log period is 1.5 months using 2-minute intervals.



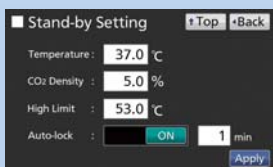
Internal dimension

16 dishes (MCO-19AIC) → **20 dishes** (KM-CC170R)

Up to 20 ø100mm dishes (92mm) can be arrayed (5 horizontally x 4 vertically)
*In-house comparison

Maximum Security Control with Electric Lock

Automatic door locking can be set on the KM-CC17RH2 (standard equipped with electric lock) and other models equipped with the optional electric lock (KM-CCPL1). One to six digit password protection can also be set for releasing the lock.



Stand-by setting screen



Password input window

Optimal Humidity Control

Stable humidity control not influenced by environmental conditions and frequent incubator door openings.



Humidity control bar

Japan and US patents pending

Field-reversible Door (select right/left opening)

The reversible door can be right or left opening depending on the installation space or positioning of peripheral equipment. Each outer door corner has a special aluminum grip for easier opening.



inCu saFe Construction for Germicidal Protection

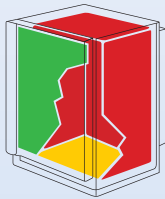
- Panasonic offers exclusive use of inCu saFe copper-enriched stainless steel alloy interior surfaces within a technical design created to eliminate contamination sources and to mitigate the effect of airborne contaminants introduced through normal use.
- Chart summarizes test results with four strains of mycoplasma. Results demonstrate how Panasonic inCu saFe copper-enriched stainless steel alloy offers germicidal properties of conventional C1100 copper while maintaining both corrosion-proof and discoloration-resistant properties of conventional stainless steel 304.

Mycoplasma Stain	Positive Control	Conventional Stainless Steel 304	Panasonic inCu saFe	Conventional Copper C1100
Mycoplasma fermentans PG18	YES	YES	NO	NO
Mycoplasma orale CH19299				
Mycoplasma arginini G230				
Mycoplasma hominis PG21				

"YES" means that mycoplasma strains grew on the material.
"NO" means that no mycoplasma strain grew on the material.

Accurate Temperature Control

- The patented Direct Heat and Air Jacket conditioning system precisely regulates temperature through three independent heating zones under microprocessor PID* control. Uniform temperatures are further enhanced by gentle fan circulation.



Direct Heat and Air Jacket Conditioning System

*Proportional Integra Derivative

- The main heater provides precise temperature control.
- The bottom heater warms the distilled water and controls chamber humidity.
- The outer door heater prevents condensation on the inner door and facilitates quick temperature recovery after door openings.

- To avoid cell culture desiccation, the KM-CC17R maintains up to 90% RH at 37° C.
- Humidification is achieved by reliable natural evaporation and forced-air circulation and protected by an automatic optical sensor for low water level alerts.

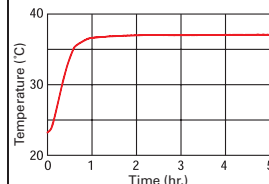


Precise CO₂ Control

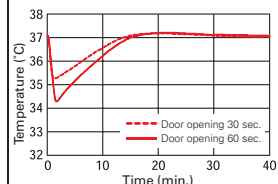
- Panasonic proprietary single beam, dual detector infrared CO₂ system offers unprecedented control accuracy and stability by simultaneously measuring two wavelengths for continuous zero calibration.
- Benefits include ultra-fast recovery without overshoot and accurate CO₂ averages during periods of frequent incubator access with multiple door openings.
- An optional STD gas auto calibration kit is available.

Performance Data

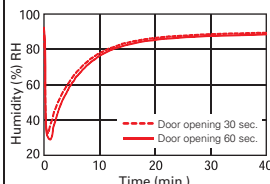
Temperature pull-up characteristics



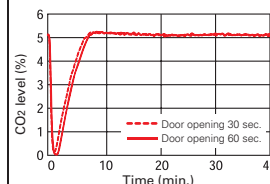
Temperature recovery characteristics



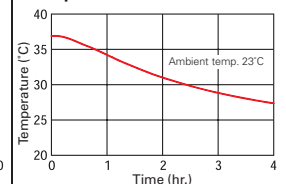
Humidity recovery characteristics



CO₂ level recovery characteristics

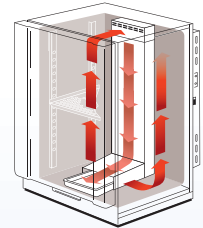


Temperature decrease characteristics when power failure occurs



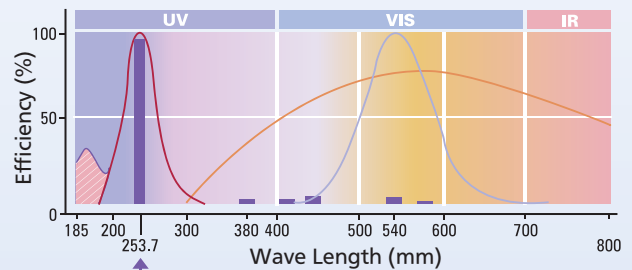
SafeCell UV Decontamination

- SafeCell UV includes a programmable ultraviolet lamp, isolated from cell cultures, that decontaminates conditioned air and humidity reservoir water to prevent contamination without affecting cell cultures in vitro.
- Contaminants trapped within the humidifying pan at the base of the plenum are destroyed by high intensity, ozone-free ultraviolet light.



Airflow and water pan decontamination using a UV system

- Decontaminated, humidified air is released from the lower plenum for vertical convection through and around the perforated shelves. Interior air motion is suspended when the door is opened, minimizing movement of room air contaminants into the chamber. The unique air duct system also improves temperature recovery characteristics.



Use of the KM-CC17RH2/CC170RU2 ultraviolet lamp is a highly effective, ozone-free contamination control technique.

- Panasonic Lamp
- Ozone Release
- Germicidal Effect
- Sunlight

The SafeCell UV lamp cycle is factory set for normal use, and can be re-programmed as desired by entering parameters through the central microprocessor control panel. Program parameters for the H₂O₂ decontamination cycle are non-adjustable for operator safety.

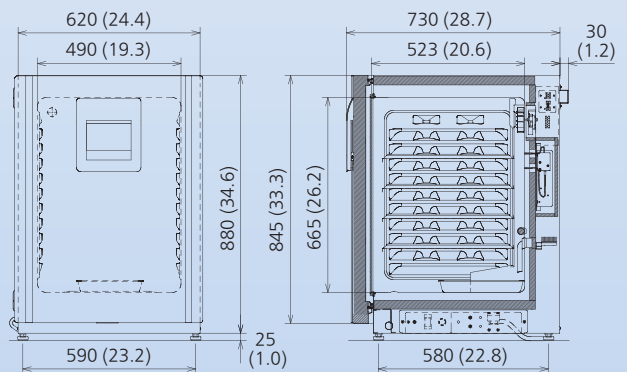
Data Management

- Multi-point data logging offers push-button graphical display. Panasonic DAQ* system permits remote transmission, data logging and live monitoring.

*Data Acquisition

Dimensions

Unit: mm (inch)



Performance Data

H₂O₂ Decontamination Cycle



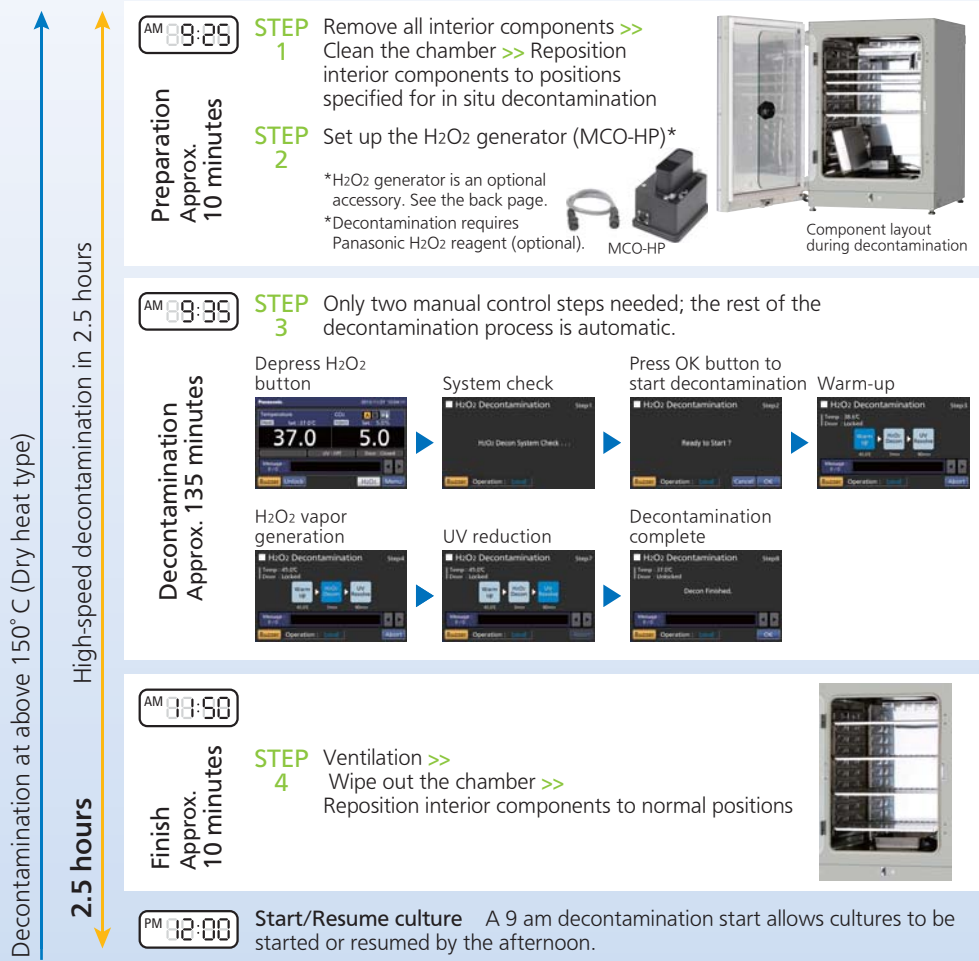
Rapid, Effective and Safe H₂O₂ Decontamination Cycle

Industry-first, Panasonic unique high-speed decontamination system utilizing vaporized H₂O₂ offers time-saving and documented chamber decontamination with complete safety.

- Full decontamination process takes less than three hours, saving valuable time. For example, if the decontamination cycle is started at 9 am, the unit will be ready for use in the afternoon.
- All interior components are decontaminated in situ. No need for time-consuming removal and autoclaving.
- No high heat emission. No need for removal of sensors.

- After decontamination H₂O₂ vapor is decomposed to harmless water and oxygen by UV light.
- Outer door is automatically locked during the decontamination cycle by the electric interlock system to ensure operator safety.
- Unlike a high heat decontamination incubator, Panasonic's unique H₂O₂ decontamination cycle does not emit high heat. Therefore, when two KM-CC17R units are stacked, one incubator can be decontaminated without affecting the temperature in the other.

H₂O₂ decontamination process (example)



Chamber conditions during decontamination

Start of H₂O₂ solution vaporization
H₂O₂ solution in the H₂O₂ generator (MCO-HP) is sprayed into the chamber by the ultrasonic transducer.

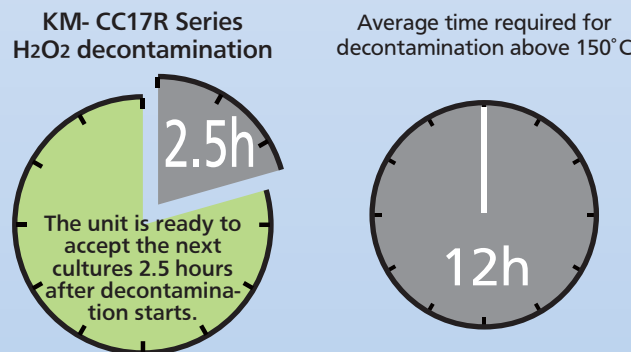
H₂O₂ fills up chamber
H₂O₂ mist is quickly gasified to thoroughly penetrate the chamber.

UV radiation for H₂O₂ reduction
• UV lamp comes on.
• H₂O₂ gas is reduced to water and oxygen.

*Above H₂O₂ vaporization photos are concept images only. During actual decontamination, the door is locked by the electric interlock to prevent inadvertent opening.

*Above decontamination process is performed with standard interior items. Additional shelves and dishes may reduce decontamination effectiveness.

Time comparison between the H₂O₂ decontamination process and sterilization at above 150°C



One-day cultures are not possible with dry heat type incubators.

*Decontamination time shown above is for indication only. Actual process time may differ depending on chamber cleaning time and set-up time.

- Decontamination requires Panasonic exclusive H₂O₂ reagent
- During decontamination, the door is locked by the electric lock to prevent inadvertent opening.
- Above decontamination process is performed with standard interior items. Additional shelves and dishes may reduce decontamination effectiveness.

*Panasonic research as of November 2013

12 hours

PM 09:25

Specifications

	KM-CC17R2	KM-CC17RU2	KM-CC17RH2
Contamination control			
Touch panel (WVGA full color LCD)	Standard	Standard	Standard
USB data logging	Standard	Standard	Standard
H ₂ O ₂ decontamination system	Optional	Optional	Standard
SafeCell UV system	Optional	Standard	Standard
inCu saFe copper-enriched stainless interior	Standard	Standard	Standard
Single beam, dual detector IR CO ₂ sensor	Standard	Standard	Standard
Direct Heat & Air Jacket (DHA) heating system	Standard	Standard	Standard
Environmental performance			
Temperature control range	+5°C above ambient to 50 °C*1 (Ambient temperature: 5°C–35°C)		
Temperature control uniformity	±0.25°C (23°C ambient, setting: 37°C, CO ₂ : 5%, no load)*2		
CO ₂ control range and deviation	0% to 20% / ±0.15% (23°C ambient, setting 37°C, 5% CO ₂ , no load)		
CO ₂ sensor platform	Ceramic based, single beam infrared sensor, with dual wavelength measurement for continuous auto-zero calibration		
CO ₂ sampling, patent pending	No moving parts; airflow pass over in/out ports to sustain continuous sampling		
CO ₂ calibration	Automatic, continuous zero reference calibration. Optional STD gas auto calibration		
Airflow	Gentle vertical airflow, continuous with inner door closed		
Interior humidity	95% ±5%R.H. at 37°C by natural evaporation with humidifying pan		
Control, monitoring, alarm			
Temperature and CO ₂ control	P.I.D. control system setpoint resolution 0.1°C, 0.1%		
Data acquisition	Automatic log function of temperature, CO ₂ , Door opening/closing, Alarm and CSV file output		
Communication	Remote alarm contacts standard. Optional 4-20mA connection. Optional with RS232C/ RS485/LAN data ports		
Cabinet design and construction			
Exterior cabinet and door	Galvanized steel with backed-on finish		
Interior and shelves	Copper-enriched stainless steel		
Inner door	Tempered glass		
Insulation	Rigid foam polyurethane		
Outer door	Reversible heated		
Access port	Diameter 30mm port with non-VOC silicone stoppers (1 on back side)		
Leveling feet	4, Adjustable		
Energy and CO₂ utilities			
Maximum power consumption	Max. 379W		
Maximum heat discharge	1,070kJ/h		
CO ₂ gas connection	4mm to 6mm inner diameter tubing		
CO ₂ gas pressure	0.03 MPa (G) (0.3Kgf/cm ² G, 4.3psiG) from two stage CO ₂ regulator		
Dimensions, weights, capacities			
Interior dimensions (W x D x H)	490 x 523 x 665 (mm) / 19.3 x 20.6 x 26.2 (inch)		
Exterior dimensions (W x D x H) *3	620 x 710 x 900 (mm) / 24.4 x 28.0 x 35.4 (inch)		
Volume	165 liters (5.8 cu.Ft.)		
Shelves	4 supplies as standard (Maximum 10), 450 (W) x 450 (D) x 12 (H) mm, maximum load 7kg/shelf		
Net weight	80kg (176 lbs)		

Voltage	Model No.			
220–240V, 50/60Hz (CE)		KM-CC17R2E	KM-CC17RU2E	KM-CC17RH2E
110–120V, 60Hz		KM-CC17R2A	KM-CC17RU2A	—

*1 When ambient temperature is 25°C, temperature control range: 30 °C~50 °C. Regardless of ambient temperature, the maximum of temperature control range is always 50°C.

*2 The measurement condition complies with Panasonic specified measuring method. *3 Exterior dimensions of main cabinet only. See dimension drawings showing handles and other external projections.

Double Stackable Design

Optional securing hardware allows two units to be stacked in a double chamber configuration.

Double-stacking matching table

Spacer for double-stacking		Upper unit
		KM-CC17R
Lower unit	KM-CC17R	KM-CCP17PS2W
	MCO-19AIC(M)	KM-CCP17SB2W
	MCO-18AC	
	MCO-20AIC	KM-CCP17SB2W
	MCO-5AC	—
MCO-5M		

*For positioning units on a roller base (KM-CCP17RB2), please refer to "Optional Accessories".

*If configuring a double-stack, make sure the double-stacking dedicated securing hardware and spacer are used (see "Optional Accessories").



Appearance and specifications are subject to change without notice.
Caution: Panasonic guarantees the product under certain warranty conditions.
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Optional Accessories

	KM-CC17R2	KM-CC17RU2	KM-CC17RH2
H ₂ O ₂ decon set	UV system set (KM-CCP17US2)	Standard equipment	
H ₂ O ₂ decon board	KM-CCPHB1		Standard equipment
Electric lock	KM-CCPL1		Standard equipment
H ₂ O ₂ generator	MCO-HP		
Double stacking bracket	KM-CCP17PS2		
Stacking plate	KM-CCP17SB2		
H ₂ O ₂ reagent	MCO-H2O2		
Gas regulator	MCO-100L		
Gas auto changer	MCO-21GC		
STD gas auto calibration kit	MCO-SG		
Tray	KM-CCP17ST1 (same as that of standard accessory)		
Half tray	MCO-25ST		
Roller base	KM-CCP17RB2		
Optional Software product			
Data acquisition system	MTR-5000		
Interface board; for LAN	MTR-L03		
Interface board; for RS232C/RS/485	MTR-480		
Optional product for using in the chamber	Shaker for CO ₂ incubator (MIR-S100C)		
Interface board	MCO-420MA		



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