

Chapter 1 - Product Information

1.1 About CelCulture CO₂ Incubators

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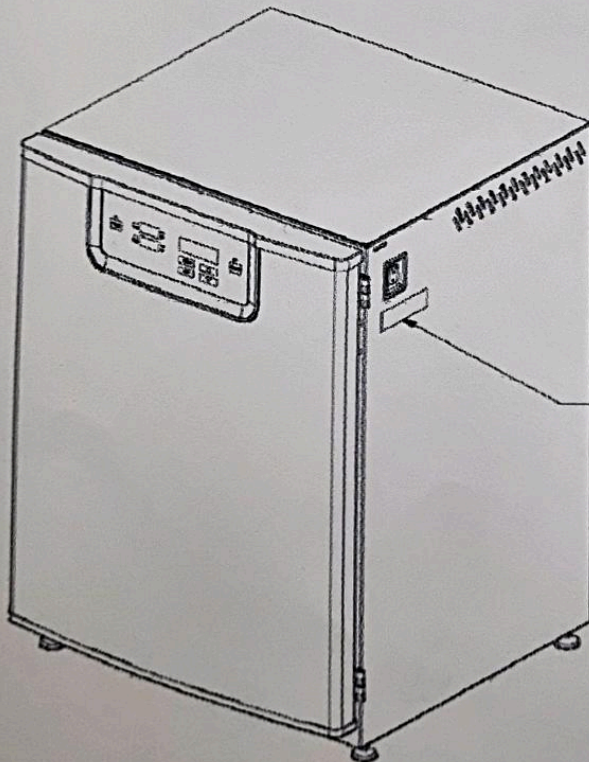
A CO₂ Incubator is a device for controlling the temperature, humidity, CO₂ level, and other conditions in which a cell culture is being grown or maintained. Incubators are essential for experimental work in cell biology, microbiology and molecular biology and are widely used in scientific research to grow and maintain cell cultures. Other typical fields of application include tissue engineering, in vitro fertilization, neuroscience, cancer research and other cell research.

The most common setting of the CO₂ Incubators is 37°C temperature, 5% CO₂ concentration and 90-95% humidity, for culturing mammalian cells. Mammalian cells have very stringent requirements of the environment, which can be closely monitored and maintained by the use of CO₂ Incubators. Other applications such as hypoxic study or microorganism culture can also be carried out in CO₂ Incubators by adjusting the settings of temperature from ambient + 3°C to 60°C, CO₂ concentration from 0% to 20%, O₂ concentration 1% to 20.7% and humidity up to 97%*.

* Up to 97.0% RH is achievable, but Esco cannot guarantee No Condensation on chamber walls, base and ceiling at such high levels of %RH.

Note: Given high-accurate temperature and CO₂ level measurement and high-precision control, it is especially suitable for growing mammalian cells at 37°C and in the presence of 5% CO₂.

1.2 Labels



ESCO

21 Changi South Street 1
Singapore 486779
Tel: +65 6542 0800
Fax: +65 6542 4800
www.escoincubator.com

Model: CCL-170B-8
Serial: 2011-58528
Power: 785W 220-240VAC 50/60HZ 1PH
FLA: 3.4A Interior Volume: 170L
Manufactured in 2011



Model – model of the unit
Serial – the unit's serial number
Power – max power requirement and electrical specification
Interior Volume – the unit's inner chamber volume
Manufactured in ... - year of manufacture

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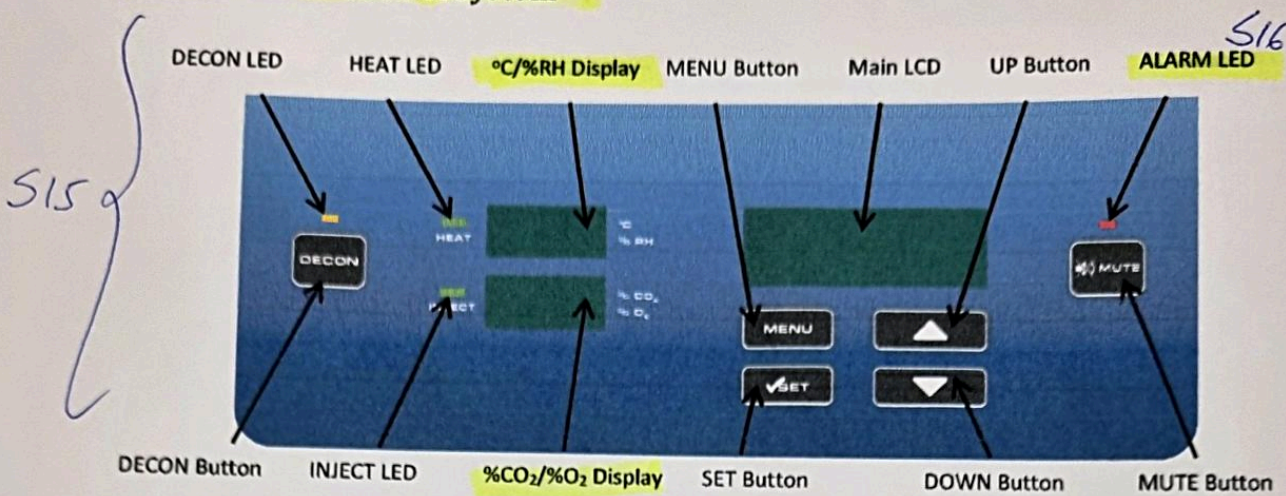
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CO₂ Incubator

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Chapter 3 - Control System and Operation

3.1 CelCulture Control System



DECON Button & DECON LED

- To activate 90°C moist heat decontamination procedure
- During decontamination procedure, the yellow DECON LED will light up

MENU Button

- When the main LCD shows normal display – MENU button will activate the menu options
- Within the menu display – MENU button will bring up the previous menu level

SET Button

- Within the menu display – SET button will confirm a selection or value

UP/DOWN Buttons

- Within the menu display – UP and DOWN buttons will scroll the display up and down
- When an input is required – UP and DOWN buttons will increase and decrease a value
- Within the system set point display – pressing UP button once will run the incubator in HEATING mode.
- Within the system set point display – pressing DOWN button once will run the incubator in COOLING mode (applicable only for Celculture CO₂ Incubator with Peltier cooling system - P series).

516 MUTE Button & ALARM LED

- MUTE button will mute the audible alarm for a period of time
- The red ALARM LED will light up whenever an alarm condition is triggered

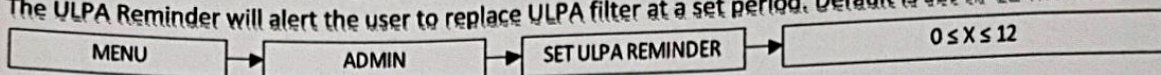
HEAT LED

- HEAT LED will light up whenever a heating process is activated

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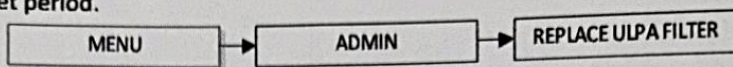
3.2.3.14 Set ULPA Reminder (For 170L & 240L models)

The ULPA Reminder will alert the user to replace ULPA filter at a set period. Default is set to 12 months.



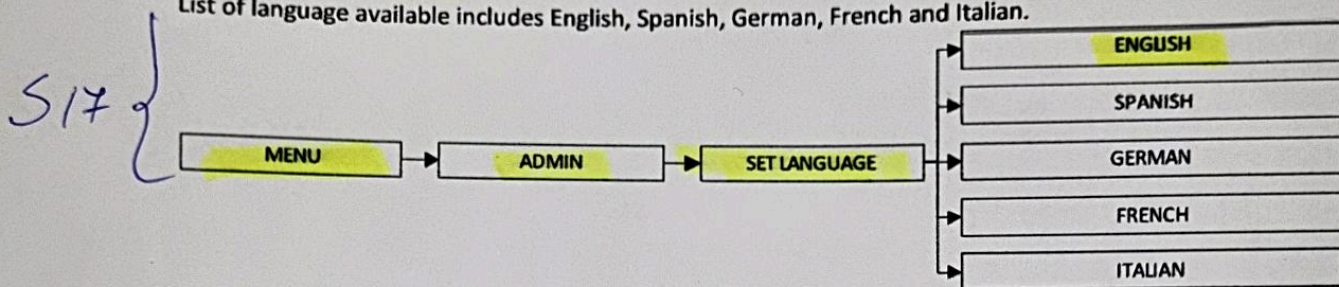
3.2.3.15 Replace ULPA Filter (For 170L & 240L models)

The replace ULPA filter settings must be set when replacing ULPA filter in order for the Set ULPA Reminder to reset based on the set period.



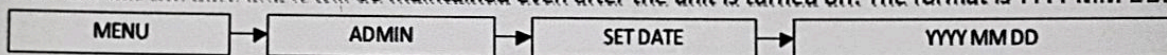
3.2.3.16 Set Language

List of language available includes English, Spanish, German, French and Italian.



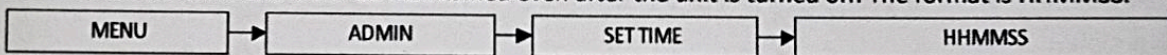
3.2.3.17 Set Date

User can set the date and it will be maintained even after the unit is turned off. The format is YYYY MM DD.



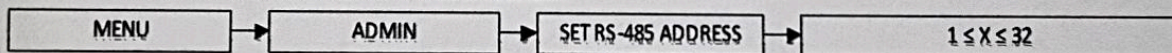
3.2.3.18 Set Time

User can set the time and it will be maintained even after the unit is turned off. The format is HHMMSS.



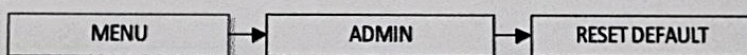
3.2.3.19 Set RS-485 Address (for unit with optional Voyager monitoring software)

User can set the RS-485 address for PC connection.



3.2.3.20 Reset Default

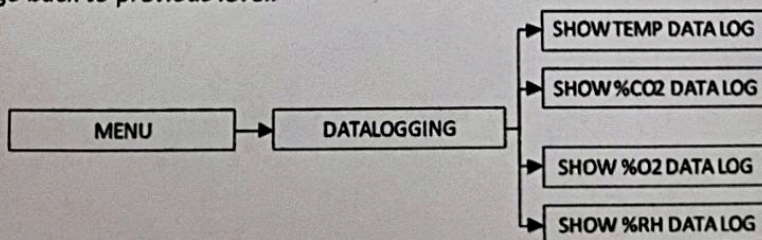
User can reset the unit to the factory default settings by choosing this option. The features being reset are all set points and alarms.



3.2.4 Data Logging

3.2.4.1 Show Data Log

User can set to show temperature, %CO₂, %O₂ (for suppressed O₂ model) and %RH (for units with optional RH display) data log. The data format is MMDDYY HHMM INFO. Use the UP/DOWN buttons to read through the log. Press MENU to go back to previous level.



Chapter 7 – Technical Specifications

MODEL	CCL-050_-_ CCL-050B-7-JP	CCL-170_-_ CCL-170B-7-JP	CCL-240_-_ CCL-240B-7-JP
Temperature			
Temp. Control Method	Direct Heat and Air Jacket Using Microprocessor PID		
Temp. Range, °C	Amb. +3 to 60		
Temp. Uniformity, °C	<± 0.2*		<± 0.3*
Temp. Accuracy, °C	<± 0.1		
Recovery Time** (after 1 minute door opening)	4 mins	6 mins	6 mins
Ambient Temp. Range	18 to 34°C (64 to 93 °F)		
CO₂			
CO ₂ Control System	Microprocessor PID		
CO ₂ Range, % CO ₂	0-20		
CO ₂ Accuracy, % CO ₂	± 0.1		
CO ₂ Sensor	Infrared (IR) Sensor*** / TC Sensor		
CO ₂ Recovery Time*** (after 1 min door opening, 98% from initial value)	Standard unit: 8 mins Suppressed O ₂ model: 8 mins	Standard unit: 4 mins Suppressed O ₂ model: 5 mins	Standard unit: 5 mins Suppressed O ₂ model: 5 mins
O₂ SPECS (For Suppressed O₂ Model)			
O ₂ Control System	Microprocessor PID		
O ₂ Range, % O ₂	1-20.7%		
O ₂ Accuracy, % O ₂	± 0.1		
O ₂ Sensor	Galvanic cell type		
O ₂ Recovery Time (after 1 minute door opening)	At 1.0% O ₂ by volume: 10 mins At 5.0% O ₂ by volume: 6 mins	At 1.0% O ₂ by volume: 20 mins At 5.0% O ₂ by volume: 10 mins	At 1.0% O ₂ by volume: 24 mins At 5.0% O ₂ by volume: 12 mins
Humidity			
Humidification Method	Humidity Pan		
Humidity Range, % RH	Up to 97%*****		
Physical Construction			
Interior Volume	50 L (1.8 cu.ft.)	170 L (5.7 cu.ft.)	240 L (8.5 cu.ft.)
External Dimensions (W x D x H)	500 x 500 x 655 mm (19.7" x 19.7" x 25.8")	660 x 660 x 900 mm (26.0" x 26.0" x 35.4")	750 x 665 x 900 mm (29.5" x 26.2" x 35.4")
Internal Dimensions (W x D x H)	345 x 375 x 390 mm (13.6" x 14.8" x 15.4")	505 x 530 x 635 mm (19.9" x 20.9" x 25.0")	595 x 620 x 635 mm (23.4" x 24.4" x 25.0")
Shipping Weight	70 kg (154.3 lbs.)	120 kg (264.6 lbs.)	155 kg (341.7 lbs.)
Shipping Dimensions (W x D x H)	660 x 660 x 890 mm (26.0" x 26.0" x 35.0")	850 x 720 x 1150 mm (33.5" x 28.3" x 45.3")	860 x 830 x 1110 mm (33.9" x 32.7" x 43.7")
Number of Shelves	3	4	4
Maximum No. of Shelves	4	7	7
Shelves Area (W x D)	310 x 310 mm (12.2" x 12.2")	470 x 470 mm (18.5" x 18.5")	550 x 550 mm (21.7" x 21.7")
Max. Load per Shelf	4kg/shelf (8.8 lbs./shelf)	11 kg/shelf (24.3 lbs./shelf)	15 kg/shelf (33.1 lbs./shelf)
Available Electrical Configuration	220 -240 VAC, 50/60 Hz, 1Φ 110-130 VAC, 50/60 Hz, 1Φ		
Power Consumption During Decon. Cycle	100 VAC, 50/60 Hz, 1Φ 372 watts	800 watts	1110 watts
Power Consumption at 37°C	37 watts – standard unit 420 watts - JP unit	80 watts	110 watts
Contamination Control			
Interior Material	Stainless steel, type 304		
Contamination Control Methods	1) Main body is EG steel with ISOCIDE antimicrobial coating 2) Moist 90°C OVERNIGHT decon. cycle (HPA validated); 3) 0.2 micron in-line filter for gas inputs; 4) ULPA filter****		

* Data recorded under optimum factory setting conditions

** For temperature not exceeding 37°C

*** For CO₂ not exceeding 5.2%. Recovery time with TC sensor is longer.

**** Not available for 50L

*****Up to 97.0% RH is achievable, but Esco cannot guarantee No Condensation on chamber walls, base and ceiling at such high levels of %RH.

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