# CelMate®

## CO$_2$ Incubators
*Cradle for Beautiful Cells*

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Сургут (3462)77-98-35
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Тула (4872)33-79-87
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Улан-Удэ (3012)59-97-51
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Чебоксары (8352)28-53-07
Челябинск (351)202-03-61
Череповец (8202)49-02-64
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# CelMate®
## CO$_2$ Incubators

### INTRODUCTION

Esco now offers the new CelMate®, 50 L, 170 L, and 240 L, entry-level cell culture CO$_2$ incubator with superb contamination control. It is specifically designed for laboratories looking for a cost-effective CO$_2$ incubator that can provide the best protection for their cell culture.

Sleek, reliable, and intuitive, Esco CelMate® CO$_2$ incubators provide all-rounded sample protection that brings your scientific dreams one step closer to reality.
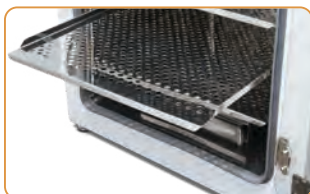
# KEY FEATURES

## CelMate® CO$_2$ INCUBATORS
### *Cradle for Beautiful Cells*

CelMate® CO$_2$ Incubators available in 50 L, 170 L, and 240 L

### SHELVING

- Perforated shelving to improve uniformity
- Anti-tip
- Stainless steel
- Built-in grip
- Dismantles without tools for easy cleaning

### DIRECT HEAT & AIR JACKET

- Fast and uniform heating
- Rapid temperature recovery without overshoot
- Air jacket improves chamber stability

### DUCT WORK

- Directs air flow for rapid recovery and excellent uniformity
- Easily removed for cleaning

### WATER PAN

- Precisely heated by base heater to provide high humidity
- Gentle airflow over water surface accelerates humidity recovery

### ROUNDED CORNERS

- Seamless design
- Facilitates easier cleaning

## ULPA FILTER

- 99.999% efficient, superior to conventional HEPA filters
- Filters air continuously
- Chamber returns to ISO Class 5 cleanliness in 11 minutes upon door closing to prevent contamination

## $CO_2$ SENSOR

- Heat-resistant IR sensor
- Single-beam, dual-wavelength IR sensor is drift-free

## DOOR SWITCH

Automatically turns off the blower, heater, UV, and gas supply when the door is opened

## TOP COVER

Provides quick access to electrical panel components

## SMARTSENSE ™ MICROCONTROLLER INTERFACE

Intuitive, fully equipped control and monitoring system

## BLOWER*

Gentle airflow in chamber improves recovery and uniformity

*Not available in 50 L Model (including top, back, and bottom plenum)*

## OUTER DOOR

- Reversible
- Heated to prevent condensation

## SAMPLE PORT

Allows direct measurement of chamber atmosphere such as $CO_2$ and $O_2$ concentration

## INNER GLASS DOOR

For observing sample cells inside the chamber during operation

## LEVELING FEET

Easily adjustable

## DOOR LATCH

To lock / unlock the glass door

## QUALITY ESCO CONSTRUCTION

- Electrogalvanized steel with white oven-baked epoxy-polyester antimicrobial powder-coated finish.
- External surfaces are powder coated with Esco ISOCIDE™ to eliminate 99.9% of surface bacteria within 24 hours of exposure.
- Ensures a healthier, safer and cleaner lab environment.

# VIVOCELL™ PRECISE PARAMETER CONTROL
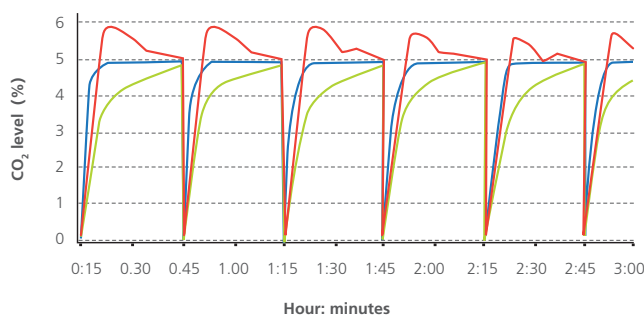
## BEST UNIFORMITY AND CONTROL AMONG THE COMPETITION
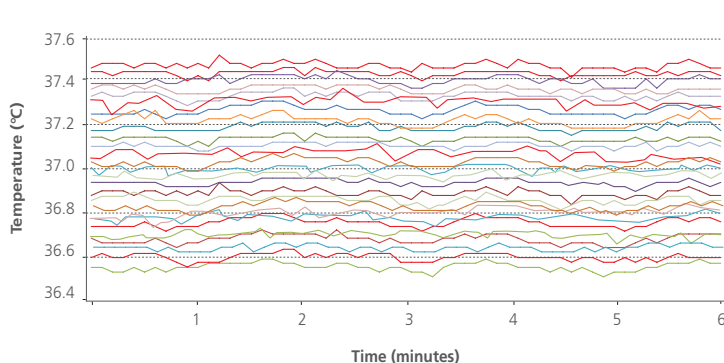




Different lines represent different sensor positions inside the chamber. Esco CelMate® has uniformity variance of less than ± 0.5 ºC which means all the samples are evenly heated.*
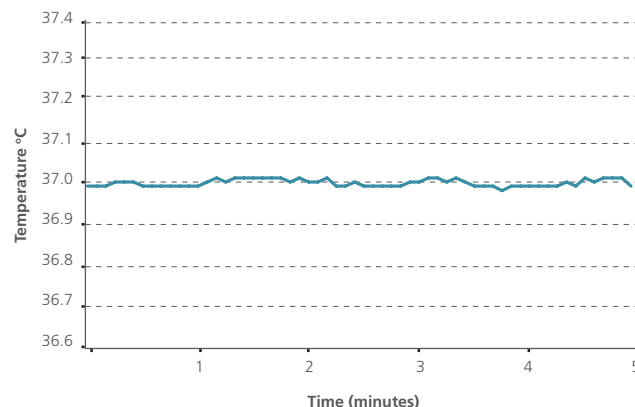
Minimal fluctuation (± 0.2 ºC) ensures temperature stability.*

## FAST $CO_2$, TEMPERATURE AND HUMIDITY RECOVERY WITHOUT OVERSHOOT



Precisely-tuned sensor and software result in fast recovery of $CO_2$ without overshoot. This ensures uniform $CO_2$ levels even with frequent incubator door opening.

Recovery of both temperature and humidity is twice as fast as conventional incubators.

■ Company A's model: overshoot.
■ Company B's model: slow recovery.
■ Esco CelMate®: fast recovery, no overshoot.

## DIRECT HEAT AND AIR JACKET



Air jacket    Heater
Insulation
Outer wall
Inner chamber wall
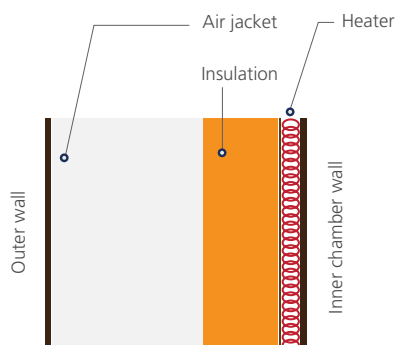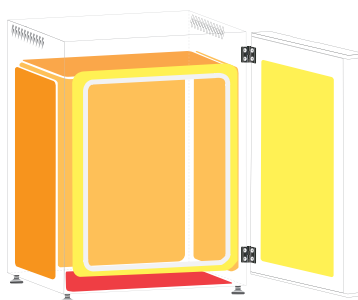
• Direct heating enables rapid temperature recovery while air jacket provides isolation against ambient temperature fluctuations.

• Precise heating in the chamber is achieved by using 8 heaters located in 3 zones. The 3 zones are intelligently controlled by the microcontroller for best temperature uniformity and minimal fluctuation.

*Note: For CLM-050B-_ models, heaters are located in 4 zones (main, bottom, outer door, and back).*

■ The main heater provides precise temperature control.
■ The bottom heater warms the water pan and provides humidity.
■ The outer door heater prevents condensation on glass door and facilitates temperature recovery.

## VENTIFLOW™ FORCED CONVECTION



Airflow
Airflow
Water    Bottom heater
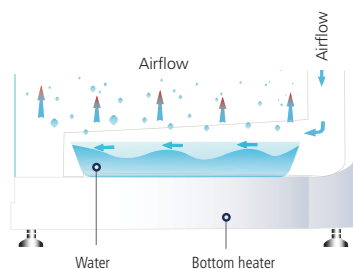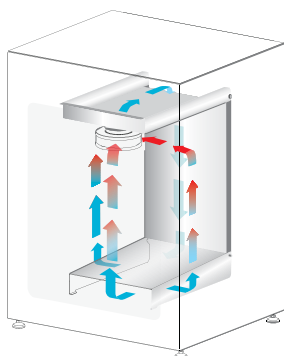
• No disturbance to cell culture.

• Blower automatically stops when door is opened to minimize mixing of chamber and room air.

• Accelerates recovery of chamber air to ISO Class 5 Cleanliness after door closing to prevent contamination.

• Improves $CO_2$, humidity and temperature uniformity.

• Filtered air circulates across water pan to accelerate humidifying process.

*Units were factory-tested under controlled environmental conditions per DIN 12880 standard and Esco method. Esco does not guarantee identical results in the field under differing conditions. Original report available upon request. Model used in the test is CLM-170B-8.*

# ROBUST CONTAMINATION CONTROL

## STERISAFE™ ULPA FILTRATION SYSTEM
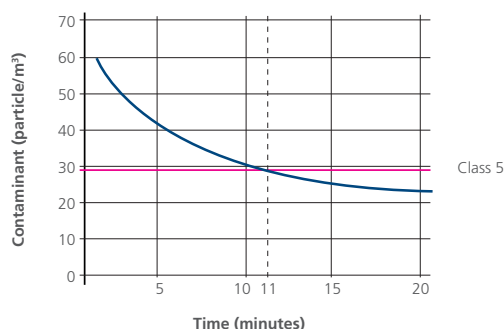


- Chamber air is continuously filtered by ULPA filters to keep the chamber at ISO Class 5 cleanliness. This ensures that all contaminants from both room air and chamber air are filtered, thus only clean air is recirculated.
- ULPA filters operate at 99.999% efficiency, superior to conventional HEPA filters which are 99.99% efficient.
- Chamber achieves ISO Class 5 cleanliness 11 minutes after door closing.*

*Units were factory-tested under controlled environmental conditions per DIN 12880 standard and Esco method. Esco does not guarantee identical results in the field under differing conditions. Original report available upon request. Model used in the test is CLM-170B-8.*

## VALIDATED SWIFTCON™ OVERNIGHT DECONTAMINATION CYCLE
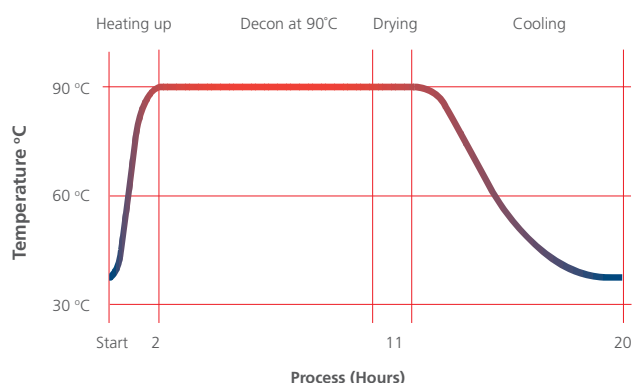


| Microorganisms | Before Decon | After Decon |
|---|---|---|
| Bacillus atrophaeus | $1.59 \times 10^6$ | 0 |
| Aspergillus brasiliensis | $1.52 \times 10^4$ | 0 |
| Pseudomonas aeruginosa | $2.38 \times 10^6$ | 0 |
| Staphylococcus epidermis | $2.33 \times 10^6$ | 0 |
| Escherichia coli | $1.57 \times 10^6$ | 0 |
| Staphylococcus aureus | $5.72 \times 10^6$ | 0 |
| Enterobacter faecalis | $2.15 \times 10^6$ | 0 |

- The automated SwiftCon™ 90°C moist heat decontamination cycle has been proven effective in deactivating normally resistant fungi, bacterial spores and vegetative cells by the Health Protection Agency (HPA) in UK.
- Full decontamination cycle completes within 20 hours.

- Independently proven to be as effective as high temperature decontamination.
- Lower temperature causes less damage to electronic components, therefore prolongs the life span of the incubator.
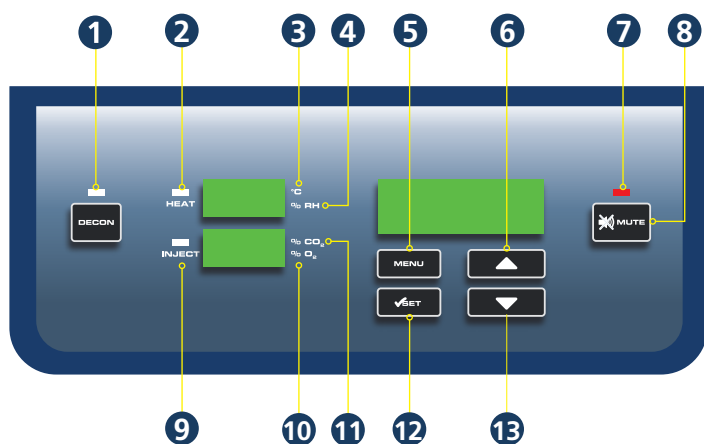
## GAS INJECTION LINES ARE FILTERED



- All gas injection lines are filtered via 0.2 micron inlet filters to remove impurities and contaminants before being injected into the chamber.

- Inlet filters are field-replaceable and are located external to the incubator.

# CONTROLLER TYPE
## USER - FRIENDLY SOFTWARE INTERFACE



1. **Start / stop decontamination cycle**

2. **HEAT LED**
   Lights up when heat is applied to chamber

3. **°C is lit when displaying the temperature**

4. **% RH is lit when displaying the humidity level**

5. **Enter menu / go back to previous menu**

6. **Scroll up / increase value**

7. **ALARMS LED**
   Will blink when errors and warnings occur

8. **Mute alarms**

9. **INJECT LED**
   Lights up when gas is injected

10. **% O$_2$ is lit when displaying the O$_2$ concentration**
    *(not applicable to CelMate®)*

11. **% CO$_2$ is lit when displaying the CO$_2$ concentration**

12. **Confirm value / enter a menu**

13. **Scroll down / decrease value**

• **Comprehensive, user-configurable alarms:**
   - Temperature
   - CO$_2$
   - Humidity (if installed)

• **CelAlert™ alarm system reminds user to replace parts.**

```
NEW CO2 TANK
CO2 TANK NET WEIGHT
IN KG:         0031
NEW CO2 TANK IS SET
```

In addition to CO$_2$ tank low alarm, CelAlert™ has CO$_2$ tank depletion reminder that automatically calculates how much CO$_2$ gas is left in the tank and alerts user to replace the tank one week before the gas is depleted. This gives the user some buffer time to place orders for new tanks.

```
SET ULPA REMINDER
ULPA REMINDER
TIME <MONTHS> :12
REMINDER IS SET
```

ULPA reminder will alert user to replace ULPA filter.

• **Intelligent data and event logger records all incubator parameters for on-screen recall. A 2 MB built-in flash memory guarantees long-term storage of data.**

```
MAIN MENU          DATALOGGING           012016 0724 36.8°C
 CALIBRATION       >SHOW TEMP DATA LOG    012016 0719 37.0°C
 ADMIN              SHOW %CO2 DATA LOG    012016 0714 37.1°C
>DATALOGGING        DATA LOG PERIOD       012016 0709 37.3°C
```

• **Diagnostic interface and online quick help provide comprehensive solutions to frequently encountered problems.**

• **New Safety Alarm System**
   - Temperature Fail-Safe System prevents overshooting of temperature display to +0.4°C of the set point.
   - The Auto-Reset Watchdog will automatically reset the system in the unlikely event of system failure, preventing the controller from freezing.
   - %CO$_2$ Failure Mode prevents build-up of %CO$_2$ over set point in cases of CO$_2$ sensor defect.



# Voyager

**Remote Monitoring, Datalogging, Programming Software**
Esco Voyager is a PC-based software package developed for the remote monitoring, datalogging, and programming / device configuration of Esco thermostatic products.

A centralized monitoring and control system for the laboratory, Esco Voyager provides extra protection for you and your samples.

Voyager interfaces with individual Esco equipment over RS485 using the EscoBUS communications protocol. Multiple equipment maybe interfaced to a single PC.

**Compatible Equipment**
• CelCulture® - CO$_2$ Incubator (CCL)
• CelMate® - CO$_2$ Incubator (CLM)
• Lexicon® - Ultra-low Temperature Freezer
• Isotherm® - Forced Convection Oven (OFA)
• Isotherm® - Forced Convection Incubator (IFA)
• Isotherm® - Refrigerated Incubator (IFC)
• Isotherm® - Natural Convection Incubator (INA)

# REAR PANEL
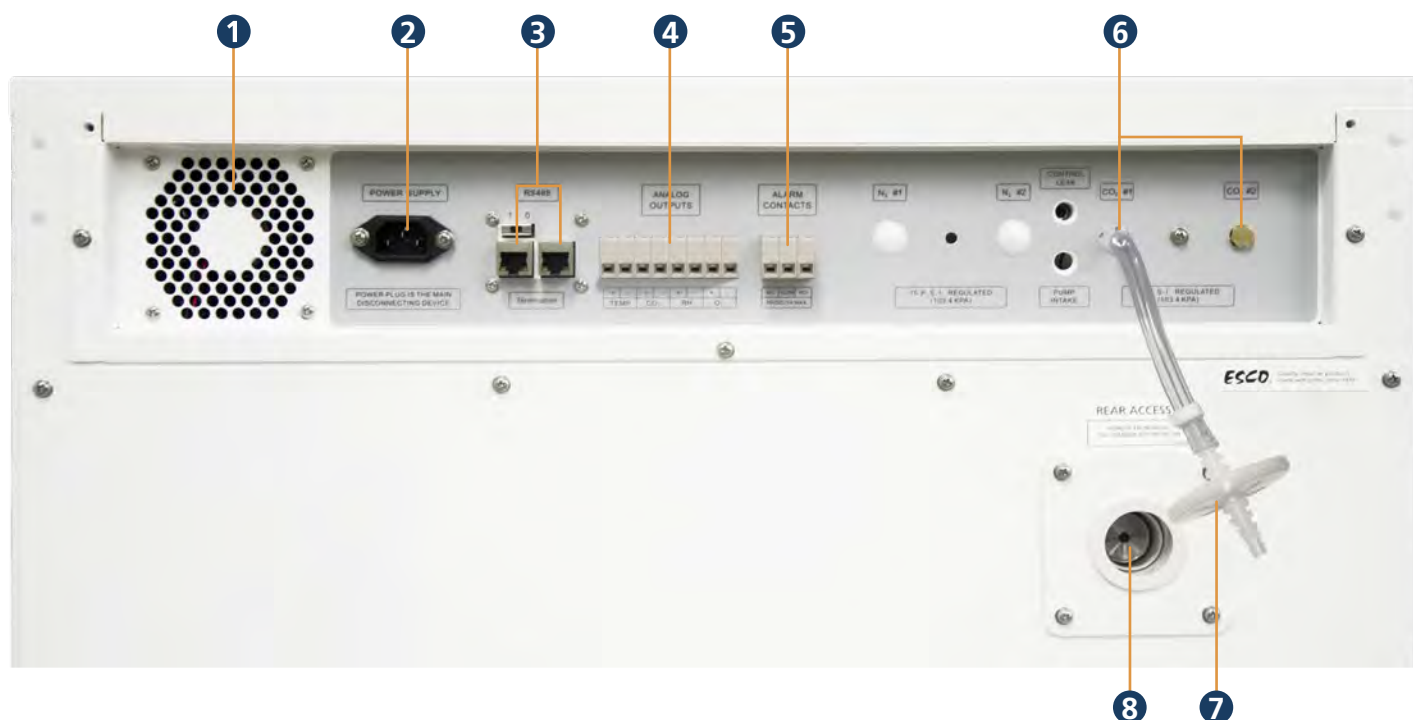


### ① Cooling Fan
Prevents the electrical panel from overheating.

### ⑤ Alarm Contact
A set of relay contacts located on the rear panel of the unit is provided to monitor temperature, humidity, $CO_2$ alarms. These can be connected to a remote alarm system.

### ② Power Supply Inlet
Connects the incubator unit to the power source.

### ⑥ $CO_2$ Gas Supply Inlet
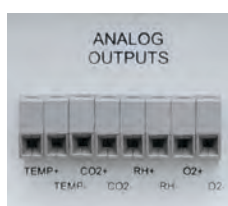Connects the $CO_2$ gas supply to the incubator. Inlet pressure requirement is 15 psi.

### ③ RS485 Communication Port
Provides serial communication port for PC. It can be daisy-chained from one product to another and can also be connected to a PC

### ⑦ Gas Inlet Filter
Provided to remove any contaminants from the gas supply.

### ④ Analog Port (Optional)
Allows the incubator to output analog signals representing temperature, $CO_2$/$O_2$ concentration and relative humidity, depending on the options available in the incubator. This allows the incubator to be connected to an in-house data acquisition or alarm system.

### ⑧ Access Port
Allows cables, hoses or additional sensors to be routed into the work space. A rubber stopper with controlled leak is installed as standard configuration and is part of standard accessories.

# ORDERING INFORMATION

## IR SENSOR MODEL WITH STAINLESS STEEL CHAMBER

| MODELS | ITEM CODE | DESCRIPTION |
|---|---|---|
| CLM-050B-8 | 2170269 | CelMate® Incubator 50 L, IR Sensor, CO$_2$ Control, Moist Heat Decon, 230 VAC, 50/60 Hz (Without Decon Pump) |
| CLM-050B-9 | 2170345 | CelMate® Incubator 50 L, IR Sensor, CO$_2$ Control, Moist Heat Decon, 115 VAC, 50/60 Hz (Without Decon Pump) |
| CLM-170B-8 | 2170106 | CelMate® Incubator 170 L, IR Sensor, CO$_2$ Control, ULPA, Moist Heat Decon, 230 VAC, 50/60 Hz (Without Decon Pump) |
| CLM-170B-9 | 2170250 | CelMate® Incubator 170 L, IR Sensor, CO$_2$ Control, ULPA, Moist Heat Decon, 115 VAC, 50/60 Hz (Without Decon Pump) |
| CLM-240B-8 | 2170107 | CelMate® Incubator 240 L, IR Sensor, CO$_2$ Control, ULPA, Moist Heat Decon, 230 VAC, 50/60 Hz (Without Decon Pump) |
| CLM-240B-9 | 2170251 | CelMate® Incubator 240 L, IR Sensor, CO$_2$ Control, ULPA, Moist Heat Decon, 115 VAC, 50/60 Hz ( Without Decon Pump) |

## IR SENSOR MODEL WITH STAINLESS STEEL CHAMBER AND UV LAMP

| MODELS | ITEM CODE | DESCRIPTION |
|---|---|---|
| CLM-170B-8-UV | 2170252 | CelMate® Incubator, 170L, IR sensor, CO$_2$ control, Moist Heat Decon, UV, 230VAC, 50/60 Hz (Without Decon Pump) |
| CLM-240B-8-UV | 2170254 | CelMate® Incubator, 240L, IR sensor, CO$_2$ control, Moist Heat Decon, UV, 230VAC, 50/60 Hz (Without Decon Pump) |
| CLM-170B-9-UV | 2170253 | CelMate® Incubator, 170L, IR sensor, CO$_2$ control, Moist Heat Decon, UV, 115VAC, 50/60 Hz (Without Decon Pump) |
| CLM-240B-9-UV | 2170255 | CelMate® Incubator, 240L, IR sensor, CO$_2$ control, Moist Heat Decon, UV, 115VAC, 50/60 Hz (Without Decon Pump) |

## ENGINEERING DRAWING

### MODEL 50L
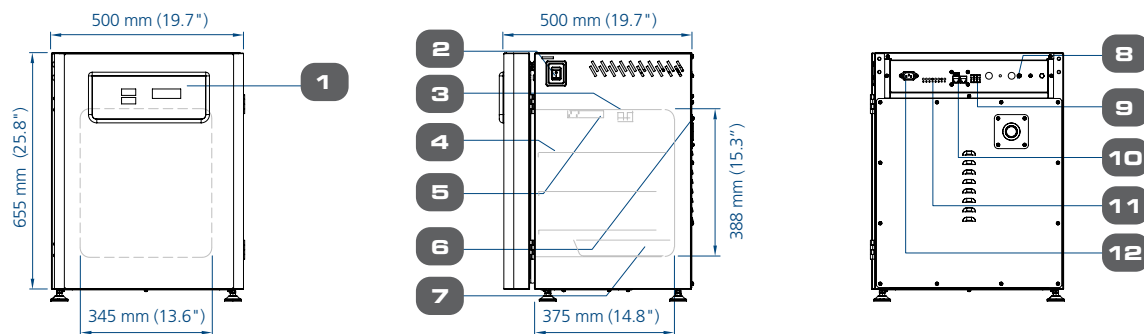


### MODEL 170L
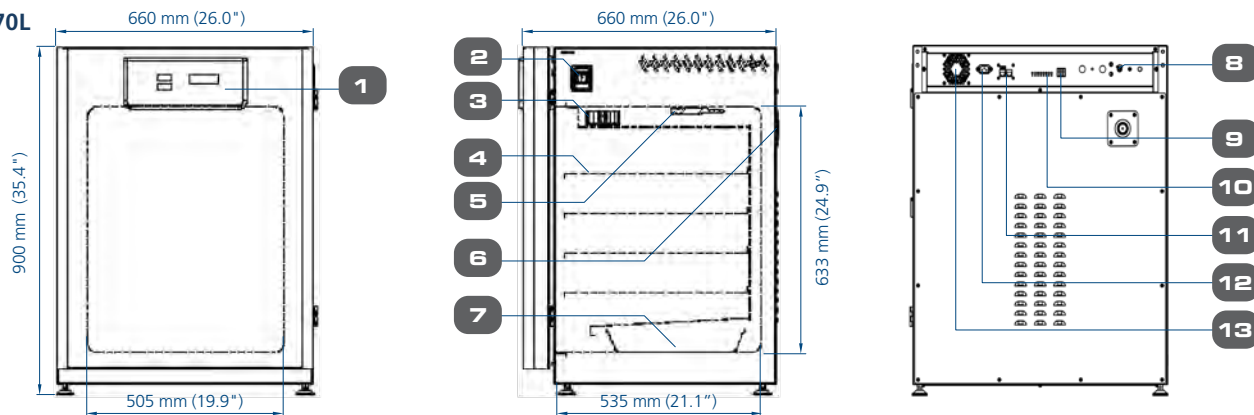


### MODEL 240L
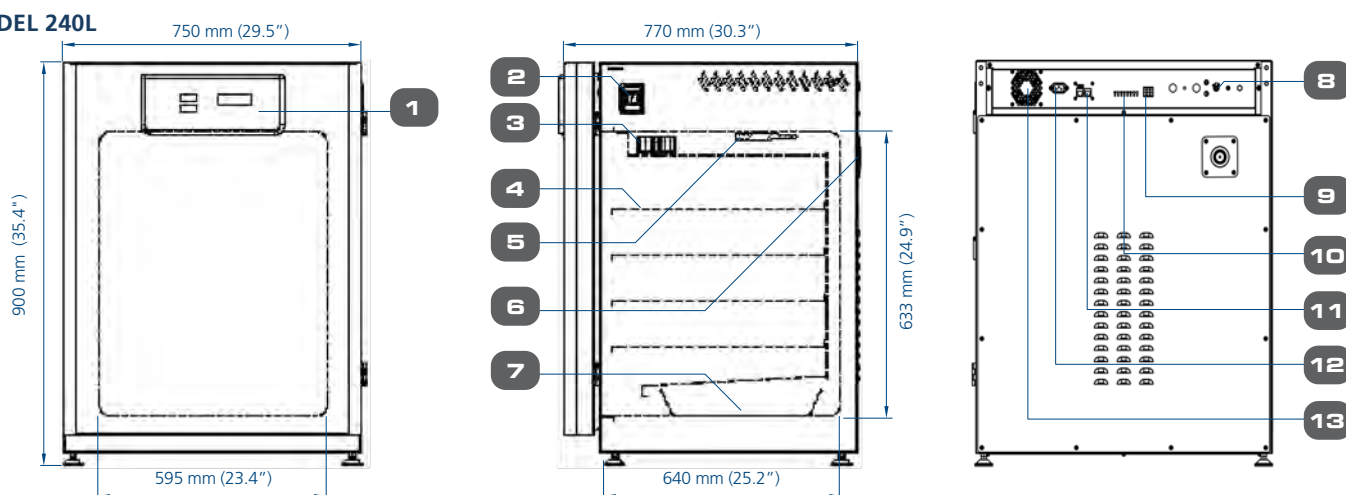


1. Control Panel
2. On / Off Switch
3. Small Fan (50L) / Blower (170L & 240L)
4. Adjustable Shelves
5. IR Sensor
6. Access Port
7. Humidity Pan
8. CO$_2$ Gas Supply
9. Alarm Contact
10. Analog Output
11. RS485
12. Power Supply Inlet
13. Cooling Fan

# GENERAL SPECIFICATIONS
## CELMATE® CO$_2$ INCUBATORS

| | CLM-050B-_ | CLM-170B-_ | CLM-240B-_ |
|---|---|---|---|
| **TEMPERATURE** | | | |
| Temperature Control Method | Direct Heat and Air Jacket using Microcontroller PI | | |
| Ambient Temperature Range | 18 to 34°C (64 to 93 °F) | | |
| Temperature Range, °C | Ambient +7 to 60 | | |
| Temperature Uniformity, °C* | < ±0.5 | | |
| Temperature Accuracy, °C* | <± 0.1 | | |
| Temperature Recovery Time** (after 30 seconds door opening, 98% from initial value) | ≤5 minutes | ≤5 minutes | ≤6 minutes |
| **CO$_2$** | | | |
| CO$_2$ Control System | Microcontroller PI | | |
| CO$_2$ Range, % CO$_2$ | 0-19.5 | | |
| CO$_2$ Accuracy, % CO$_2$*** | ±0.1 | | |
| CO$_2$ Sensor | Infrared (IR) Sensor | | |
| CO$_2$ Recovery Time**** (after 30 seconds door opening, 98% from initial value) | ≤6 minutes | ≤5 minutes | ≤6 minutes |
| **HUMIDITY** | | | |
| Humidification Method | Humidity pan | | |
| Humidity Range, %RH (at 37°C)***** | 85-90 | | |
| **PHYSICAL CONSTRUCTION** | | | |
| Interior Volume | 50 L (1.8 ft$^3$) | 170 L (6 ft$^3$) | 240 L (8.5 ft$^3$) |
| 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 770 x 900 mm (29.5" x 30.3" x 35.4") |
| Internal Dimensions (W x D x H) | 345 x 375 x 388 mm (13.6" x 14.8" x 15.3") | 505 x 535 x 633 mm (19.9" x 21.1" x 24.9") | 595 x 640 x 633 mm (23.4" x 25.2" x 24.9") |
| Chamber Construction — Main Body | Electrogalvanized steel with Isocide™ antimicrobial coating | | |
| Chamber Construction — Interior Material | Stainless steel, type 304 | | |
| Chamber Construction — Number of Shelves | 3 | 4 | 4 |
| Chamber Construction — Maximum Number of Shelves | 4 | 7 | 7 |
| Chamber Construction — Shelves Dimensions (W x D x H) | 305 x 340 x 16 mm (12.0" x 13.39" x 0.63") | 470 x 476 x 16 mm (18.5" x 18.75" x 0.63") | 560 x 585 x 16 mm (22.0" x 23.9" x 0.63") |
| Chamber Construction — Maximum Load per Shelf | 4 kg/shelf (8.8 lbs/shelf) | 11 kg/shelf (24.3 lbs/shelf) | 15 kg/shelf (33.1 lbs/shelf) |
| Electrical Configuration 110-130 VAC, 50/60 Hz — Nominal Power at 37°C | 40.9 W | 42.2 W | 42.2 W |
| Electrical Configuration 110-130 VAC, 50/60 Hz — Maximum Power Consumption | 675.5 W | 1184.3 W | 1727.9 W |
| Electrical Configuration 110-130 VAC, 50/60 Hz — Full Load Amps | 5.3 A | 9.2 A | 13.4 A |
| Electrical Configuration 220-240 VAC, 50/60 Hz — Nominal Power at 37°C | 40.9 W | 42.2 W | 42.2 W |
| Electrical Configuration 220-240 VAC, 50/60 Hz — Maximum Power Consumption | 598.8 W | 1008.9 W | 1270 W |
| Electrical Configuration 220-240 VAC, 50/60 Hz — Full Load Amps | 2.5 A | 4.2 A | 6.5 A |
| Net Weight | 52 kg (114.6 lbs) | 101 kg (222.67 lbs.) | 121 kg (266.76 lbs.) |
| 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 650 x 900 mm (26.0" x 25.6" x 35.4") | 850 x 720 x 1120 mm (33.5" x 28.3" x 44.1") | 850 x 850 x 1120 mm (33.5" x 33.5" x 44.1") |
| Shipping Volume | 0.39 m$^3$ (13.7 ft$^3$) | 0.70 m$^3$ (24.85 ft$^3$) | 0.79 m$^3$ (28.03 ft$^3$) |
| **CONTAMINATION CONTROL** | | | |
| Contamination Control Methods | 1) Main body is electro-galvanized steel with Isocide™ antimicrobial coating; 2) 90°C moist heat OVERNIGHT decontamination cycle (HPA validated); 3) ULPA filter******  4) 0.2-micron inlet filter for gas inputs; 5) 1-micron air circulation filter 6) UV Lamp (for CLM-UV models only) | | |

*All data recorded is specified for standard models with unloaded chambers and tested under optimum factory setting conditions of 23°C and 60% ambient humidity.*
*\*Results are achieved when tested at 37 °C as set point. Results may vary if set point changes and calibration is needed.*
*\*\*For temperature not exceeding 37.2 °C.*
*\*\*\*Results are achieved when tested at 5% CO$_2$ as set point. Results may vary if set point changes and calibration is needed.*
*\*\*\*\*For CO$_2$ level not exceeding 5.2%.*
*\*\*\*\*\* Esco does not guarantee condensation-free chamber at humidity level higher than 90%.*
*\*\*\*\*\*\*Not available for 50 L models.*

# OPTIONS AND ACCESSORIES

### COA-1001 / COA-1001-F Humidity Display

This option allows the incubator to monitor the relative humidity inside the chamber. The probe for the sensor works in freezing conditions (-70°C) and also in temperatures up to 180°C. The sensor is easy to install and has excellent accuracy. The airflow in the chamber does not affect the measurement. The sensor is maintenance-free. It does not need to be removed during 90°C moist heat decontamination cycle.

### COA-1002 / COA-1002-F $CO_2$ Backup

This option allows two tanks of $CO_2$ to be connected to the incubator. It will automatically switch from the primary tank to the secondary tank when low gas pressure is detected on the primary tank.

### COA-1005 / COA-1005-F Analog Output

A set of relay contacts is provided at the rear of the incubator that allows the incubator to output analog signals representing the temperature, $CO_2$ / $O_2$ content and relative humidity, depending on the options available in your incubator. This allows the chamber to be connected to an in-house data acquisition or alarm system. This option can also be field-installed.

The analog signal outputs can be set to operate in either voltage DC (0-5 Vdc) or current (4-20 mA) mode. The factory default setting is voltage. Switch on the board to toggle between the modes.

### COA-2018-F (50L) / COA-2001-F (170 L) / COA-2019-F (240 L) Roller Base

Roller base is available with casters for mobility of your incubators and to provide protection against floor contamination.

### COA-2020-F (50L) / COA-2002-F (170 L) / COA-2021-F (240 L) Floor Stand 200 mm (8.0")
### With Adjustable Feet

Floor stands are available with adjustable feet, with a nominal range of 180 mm to 250 mm (7.1" to 9.8") for comfortable access to the incubator and to avoid floor contamination.

### COA-2022-F (50L) / COA-2003-F (170 L) / COA-2023-F (240 L) Floor Stand 700 mm (27.6")
### With Casters

This support stand raises the incubator to a height of 700 mm (27.6") above the floor for comfortable access. It comes with casters for mobility of your incubators.

### COA-2005-F 2-Stage Gas Regulator for $CO_2$

$CO_2$ and $N_2$ gas input regulators reduce pressure from the tank to the incubator. It has dual pressure gauges, barbed line connection and shut-off valve. It prevents over-pressurization of the gas supply into the incubator which could cause the tubing to burst.

- CGA 320 connector (U.S. Standard)
- BP-BS341-#8-NT4 connector (British Standard)

*Note: Compatible with European DIN477, French NFE29-650 and Australia AS2473*

- G5/8-RH connector (China Standard)

### COA-2024-F (50L)/ COA-2007-F (170 L)/ COA-2025-F (240 L) Extra Shelf with Support Rails (Stainless Steel) for Standard Stainless Steel Chamber

Each CelMate® $CO_2$ incubator comes standard with 3 shelves for 50 L / 4 shelves for 170 L & 240L and it can accommodate up to a maximum of 4 shelves for 50 L / 7 shelves for 170 L & 240 L.

### COA-2010-F Electronic $CO_2$ Analyzer, For $CO_2$ / Temp Measurement
### COA-2016-F Electronic $CO_2$ + $O_2$ Analyzer, For $CO_2$ / $O_2$ / Temp Measurement
### COA-2017-F Electronic $CO_2$ + $O_2$ + RH Analyzer, For $CO_2$ / $O_2$ / RH / Temp Measurement

The electronic analyzer allows the measurement of $CO_2$ concentration, $O_2$ concentration, relative humidity and temperature (temperature probe already included).

### COA-2012-F 6" Chart Recorder, Temp, 115/230 VAC, 50/60 Hz

The chart recorder provides an easy-to-read graph of data vs time. It is a reliable, accurate, and stable instrument for on-the-spot written documentation of incubator chamber temperature. This model offers 6" chart of temperature data.

### COA-2013-F 8" Chart Recorder, Temp/Temp, 115/230 VAC, 50/60 Hz

The chart recorder provides an easy-to-read graph of data vs time. It is a reliable, accurate, and stable instrument for on-the-spot written documentation of incubator chamber temperature. This model offers 8" chart of temperature data and comes with 2 remote probes for dual temperature monitoring.

### COA-2014-F 6" Chart Recorder, Temp/RH, 115/230VAC 50/60 Hz

The chart recorder provides an easy-to-read graph of data vs time. It is a reliable, accurate, and stable instrument for on-the-spot written documentation of incubator chamber temperature. This model offers 6" chart of temperature and humidity data.

### 5250001 Voyager Software Kit

Esco Voyager is a PC-based software package developed for the remote monitoring, datalogging and programming / device configuration of Esco controlled environment laboratory equipment. Compatible equipment includes laboratory ovens and incubators, low temperature incubators, $CO_2$ incubators, and ultra-low temperature freezers.

### COA-2004 (170L) / COA-2042 (240L) 2-UNITS FLOOR STAND

This floor stand allows two units to be stacked without being physically in contact with each other. For the lower unit, it uses roller base for mobility and for easy pull out of the lower unit without the need to remove the upper unit in case of troubleshooting. Floor stand for upper unit also has casters for easy relocation.

### COA-2011-F IQ / OQ DOCUMENTATION

The execution of the IQ / OQ verifies that the incubator is installed and is operating pursuant to the validated Standard Operating Procedures (SOPs).

### PROtect Gen 2

Esco PROtect Generation 2 monitoring automatically send data to a central server to monitor temperature and other parameters and send real-time alerts to users. It complies with ISO 17025, GMP, and GLP requirements.

# ORDERING INFORMATION

| ACCESSORIES | ITEM CODE | DESCRIPTION |
|---|---|---|
| COA-1001 | 5170470 | Humidity Display, Factory-installed |
| COA-1001-F | 5170471 | Humidity Display, Field-installed Kit |
| COA-1002 | 5170472 | CO$_2$ Backup (Tank Switcher), Factory-installed |
| COA-1002-F | 5170473 | CO$_2$ Backup (Tank Switcher), Field-installed |
| COA-1004 | 5170474 | Reversed Door Swing, Factory-installed |
| COA-1005 | 5170475 | Analog Outputs, Factory-installed |
| COA-1005-F | 5170476 | Analog Outputs, Field-installed |
| COA-2018-F | 5170419 | Roller Base (50 L) |
| COA-2001-F | 5170478 | Roller Base (170 L) |
| COA-2019-F | 5170420 | Roller Base (240 L) |
| COA-2020-F | 5170421 | Floor Stand 200 mm (8.0") with Adjustable Feet (50 L) |
| COA-2002-F | 5170479 | Floor Stand 200 mm (8.0") with Adjustable Feet (170 L) |
| COA-2021-F | 5170422 | Floor Stand 200 mm (8.0") with Adjustable Feet (240 L) |
| COA-2022-F | 5170423 | Floor Stand 700 mm (27.6") with Casters (50 L) |
| COA-2003-F | 5170480 | Floor Stand 700 mm (27.6") with Casters (170 L) |
| COA-2023-F | 5170424 | Floor Stand 700 mm (27.6") with Casters (240 L) |
| COA-2005-F | 5170481 | 2-Stage Gas Regulator for CO$_2$<br>Choose one of the connectors below:<br>1080588 - CGA 320 Connector (US standard)<br>1080589 - BP-BS34-#8-NT4 Connector (British standard)<br>1080590 - G5/8-RH Connector (China standard) |
| COA-2024-F | 5170425 | Extra Shelf (50 L, Stainless Steel) with Support Rails |
| COA-2007-F | 5170327 | Extra Shelf (170 L, Stainless Steel) with Support Rails |
| COA-2025-F | 5170426 | Extra Shelf (240 L, Stainless Steel) with Support Rails |
| COA-2008-F | 5170483 | Stacking Kit (one set included with every unit purchased) |
| COA-2010-F | 5170329 | Electronic CO$_2$ Analyzer, For CO$_2$ / Temp Measurement (with Temperature Probe) |
| COA-2016-F | 5170397 | Electronic CO$_2$ + O$_2$ Analyzer, For CO$_2$ / O$_2$ / Temperature Measurement (with Temperature Probe) |
| COA-2017-F | 5170398 | Electronic CO$_2$ + O$_2$ + RH Analyzer, For CO$_2$ / O$_2$ / RH / Temperature Measurement (with Temperature Probe) |
| COA-2011-F | 2170020 | IQ / OQ Documentation |
| COA-2012-F | 2170021 | 6" Chart Recorder, Temp, 115/230 VAC, 50/60 Hz |
| COA-2013-F | 2170022 | 8" Chart Recorder, Temp/Temp, 115/230 VAC, 50/60 Hz |
| COA-2014-F | 2170023 | 6" Chart Recorder, Temp/RH, 115/230 VAC, 50/60 Hz |
| Voyager | 5250001 | Voyager Software Kit |
| COA-2004 | 5170489 | 2-units Floor Stand Stacking Kit (For 170L) |
| COA-2042 | 5170999 | 2-units Floor Stand Stacking Kit (For 240L) |
| COA-2011-F | 2170020 | IQ / OQ Documentation |
| PROtect Gen 2 | (see PROtect Gen 2 brochure) | PROtect Generation 2 monitoring system |