

# ESCO

WORLD CLASS. WORLDWIDE.



CelCulture® CO<sub>2</sub> Incubators

## CelCulture®

**CO<sub>2</sub> Incubators**  
*Cradle for Beautiful Cells*



Designed in the USA



## Welcome to Esco

*Esco's Vision is to provide enabling technologies for scientific discoveries to make human lives healthier and safer.*



Esco represents innovation and forward-thinking designs, which are all coupled with the highest standard quality since 1978. The Esco Group of Companies remains dedicated in delivering innovative solutions for the clinical, life sciences, research, industrial, laboratory, pharmaceutical and IVF community. With the most extensive product line in the industry, our products have passed a number of international standards and certifications. Esco operates under ISO 9001, ISO 14001 and ISO 13485.

**Availability and Accessibility.** Headquartered in Singapore, manufacturing facilities are located in Asia and Europe. R&D is conducted worldwide spanning the US, Europe and Asia. Sales, services and marketing subsidiaries are located in 12 major markets including the US, UK, Japan, China and India. Our regional distribution centers are located in China, UK, India, Malaysia, Philippines, Singapore, South Africa, South Korea and United States of America. Because of our worldwide presence, you can be sure that Esco is within your reach.

**High Quality, Reliable and Dependable.** Our customers are confident that only with the best quality, reliable, and dependable products, can they be sure of the accuracy of their research and procedures. Cross functional teams from Esco Production, R&D, Quality Assurance and Senior Management, are regularly assembled to review and implement areas for improvement.

**Esco Cares for Your Safety.** Esco focuses on providing safety not just for your samples but also for users.

**Esco Cares for Your Comfort.** Comfort of our users is ensured by building ergonomic designs and by reducing the noise levels of the units.

**Esco Cares for the Environment.** One in every four of Esco's employees is involved in Research and Development and a number of these evaluate new components and/or designs to produce energy efficient equipment. Being GREEN is more than just modifying the parts we use to produce a new energy efficient technology, it also embodies the every aspect of the company.

**Customer Service and Support.** Our service does not stop once purchase has been made. Esco gives on-time customer service and offers end-user seminars, service training, preventive maintenance, provides educational materials and informative videos.

As Esco takes the opportunity to respond to the world's needs, we aim not just to contribute in the advancement of scientific discoveries but also in making the world a safer, healthier and a better place to live in.

## Products and Application

### Life Sciences Laboratory Equipment

#### Sample Preparation

- Class I Biological Safety Cabinets
- Class II Type A2 Biological Safety Cabinets
- Class II Type B2 Biological Safety Cabinets
- Class III Biological Safety Cabinets
- Horizontal Laminar Flow Clean Benches
- Vertical Laminar Flow Clean Benches
- Laboratory Animal Research Workstations
- Freeze Dryers
- Laboratory Centrifuges

#### Sample Cultivation

- CO<sub>2</sub> Incubators with Cooling System
- CO<sub>2</sub> Incubators with Stainless Steel Exterior
- CO<sub>2</sub> Incubators (Water Jacketed)
- Laboratory Shakers

#### Sample Analysis

- PCR Thermal Cyclers
  - Conventional Thermal Cyclers
  - Real-time PCR Systems
- PCR Sample Handling
  - Microplate Shakers
  - PCR Cabinets

#### Sample Storage & Sample Protection Solutions

- Ultra-low Temperature Freezers
- Lab Refrigerators and Freezers
- Sample Database Management Software
- Intelligent Remote Monitoring Application Protocol
- Remote Monitoring, Datalogging, Programming Software
- Wireless Monitoring System

#### Chemical Research

- Ductless Fume Hoods
- Laboratory Fume Hoods
- Fume Hood Airflow Monitors
- Exhaust Blowers
- Powder Weighing Balance Enclosures

#### General Equipment

##### Laboratory Thermostatic Products

- Laboratory Oven
- Laboratory Incubator
- Refrigerated Incubator
- Natural Convection Incubator

### Medical / IVF Equipment

- IVF Workstation
- Anti-vibration Table
- Benchtop Multi-room Embryo Incubators
- CO<sub>2</sub> Incubators
- Time-Lapse Embryo Incubator
- CO<sub>2</sub> / O<sub>2</sub> Temperature Validation Unit

### Pharmaceutical Equipment

#### Airflow Containment

- Downflow Booths
- Ceiling Laminar Airflow Units
- Laminar Flow Horizontal Trolley
- Laminar Flow Vertical Trolley
- Laminar Flow Straddle Units
- Garment Storage Cabinet
- Ventilated Balance Enclosures

#### Isolation Containment

- Aseptic Containment Isolator (ACTI)
- Weighing and Dispensing Containment Isolator (WDCI)
- General Processing Platform Isolator (GPPI)
- Containment Barrier Isolator (CBI)
- Cell Processing Isolator
- Healthcare Platform Isolator
- Compounding Aseptic Containment Isolator
- Compounding Aseptic Isolator

#### Cross Contamination Facility Integrated Barrier

- Cleanroom Air Showers
- Air Shower Pass Box
- Cleanroom Transfer Hatch
- Pass Boxes
- Soft Wall Cleanroom
- Dynamic Passboxes and Dynamic Floor Label Hatches

#### Barrier Isolation System

- Cytotoxic Safety Cabinets



## CelCulture® CO<sub>2</sub> Incubators

### INTRODUCTION

CO<sub>2</sub> incubators are widely used in scientific research to grow and maintain cell cultures. Typical fields of application include tissue engineering, *in vitro* fertilization, neuroscience, cancer research and other mammalian cell research applications.

Sleek, reliable and intuitive, Esco CelCulture® CO<sub>2</sub> incubators provide complete sample protection that brings your scientific dreams one step closer to reality.

## KEY FEATURES

### CelCulture® CO<sub>2</sub> INCUBATORS *Cradle for Beautiful Cells*



CelCulture® CO<sub>2</sub> Incubators  
available in 3 sizes, 50 L, 170 L, and 240 L.

### ULPA FILTER

- 99.999% efficient, superior to conventional HEPA filters
- Filters air continuously
- Chamber returns to ISO Class 5 cleanliness in 13 minutes upon door closing to prevent contamination



### 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

### O<sub>2</sub> SENSOR

*for suppressed O<sub>2</sub> model*

- Long life
- Stable output signal
- Not affected by CO<sub>2</sub> concentration inside the chamber

### DOOR SWITCH

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

### TOP COVER

Provides quick access to electrical panel components

### CO<sub>2</sub> SENSOR

- IR Sensor
- Single-beam, dual-wavelength IR sensor is drift-free
- Auto-zeroing

### SMARTSENSE™ MICROPROCESSOR INTERFACE

Intuitive, fully-equipped control and monitoring system

### BLOWER

Gentle airflow in chamber improves recovery and uniformity

### OUTER DOOR

- Reversible
- Heated to prevent condensation

### SAMPLE PORT

Allows direct measurement of chamber atmosphere such as temperature and CO<sub>2</sub> concentration

### GLASS DOOR

For observing sample cells inside the chamber during operation

### DOOR LATCH

To lock / unlock the glass door

### LEVELING FEET

Easily adjustable

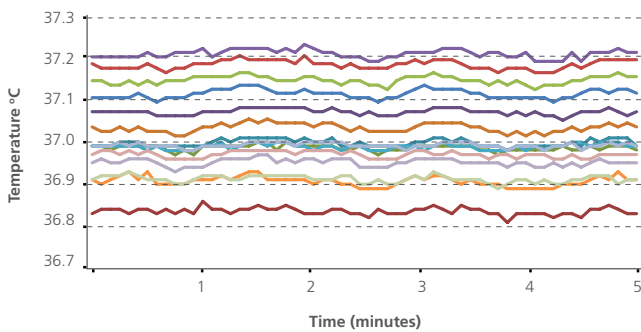
### QUALITY ESCO CONSTRUCTION

- 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.

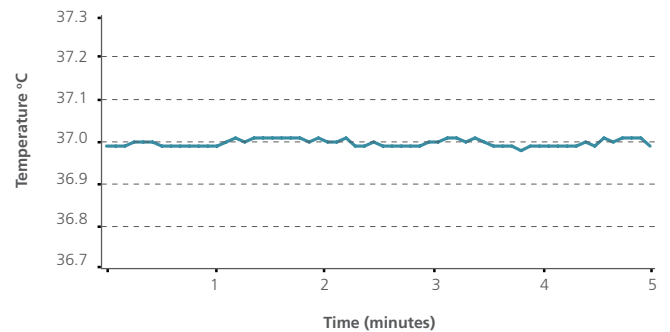
*Note: For 50 L Model, no top plenum, bottom plenum, blower & ULPA Filter.*

# VIVOCELL™ PRECISE PARAMETER CONTROL

## BEST UNIFORMITY AND CONTROL AMONG THE COMPETITION

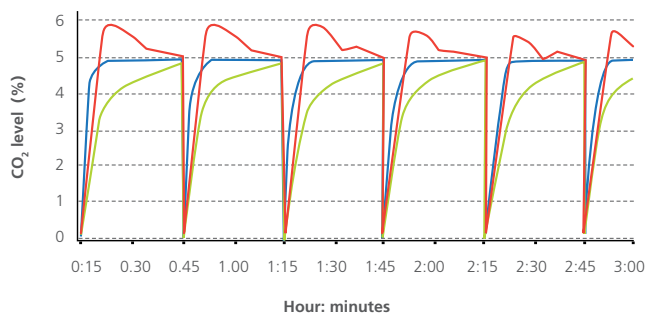


Different lines represent different sensor positions inside the chamber. Esco CelCulture® has uniformity variance of less than  $\pm 0.2$  °C which means all the samples are evenly heated.\*



Minimal fluctuation ( $\pm 0.1$  °C) ensures temperature stability.\*

## FAST CO<sub>2</sub>, TEMPERATURE AND HUMIDITY RECOVERY WITHOUT OVERTHOOT

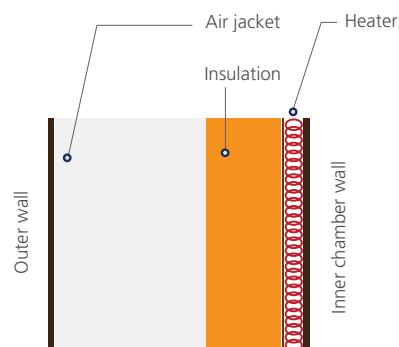
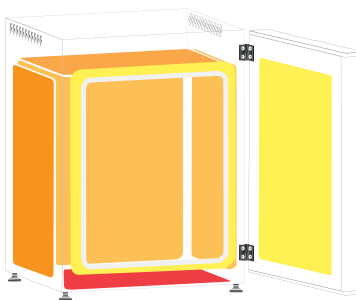


Precisely-tuned sensor and software result in fast recovery of CO<sub>2</sub> without overshoot. This ensures uniform CO<sub>2</sub> levels even with frequent incubator door opening.

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 CelCulture®: fast recovery, no overshoot.

## DIRECT HEAT AND AIR JACKET

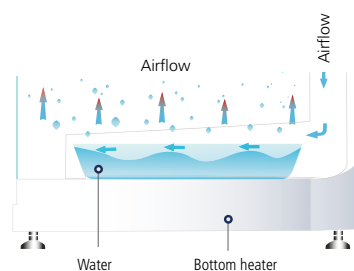
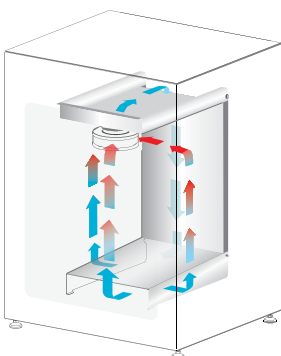


- Direct heating enables rapid temperature recovery while air jacket provides isolation against ambient temperature fluctuations.

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

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

## VENTIFLOW™ FORCED CONVECTION

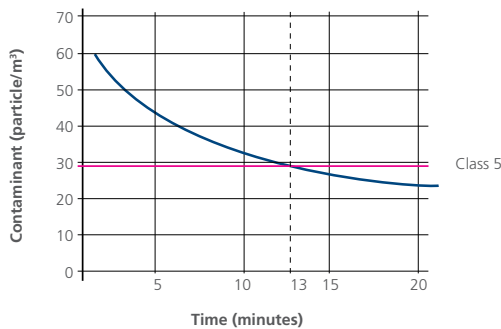


- No disturbance to cell culture.
- Blower automatically stops when door is opened to minimize mixing of chamber and room air.
- Accelerates recovery of chamber air to ISO Class 5 Cleanliness after door closing to prevent contamination.
- Improves CO<sub>2</sub>, humidity and temperature uniformity.
- Filtered air circulates across water pan to accelerate humidifying process.

\* Units were factory-tested under controlled environmental conditions per 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 CCL-170B-8.

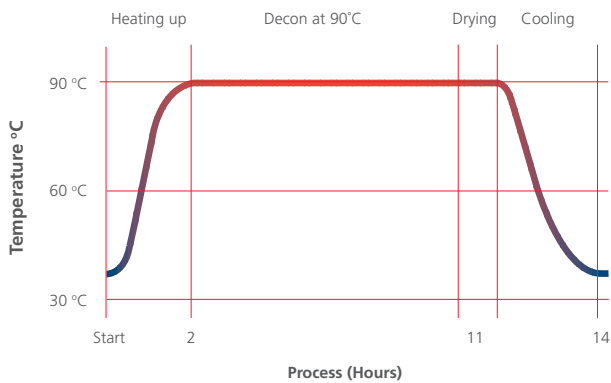
# CELSAFE™ ROBUST CONTAMINATION CONTROL

## STERISAFE™ ULPA FILTRATION SYSTEM



- Chamber air is continuously filtered by ULPA filters to keep the chamber at ISO Class 5 cleanliness. This ensures all contaminants from the room air and chamber air are filtered and 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 condition after 13 minutes following a door closing.\*

### VALIDATED SWIFTCON™ OVERNIGHT DECONTAMINATION CYCLE



Microorganisms	Before Decon	After Decon
<i>Bacillus atrophaeus</i>	1.59 x 10 <sup>6</sup>	0
<i>Aspergillus brasiliensis</i>	1.52 x 10 <sup>4</sup>	0
<i>Pseudomonas aeruginosa</i>	2.38 x 10 <sup>6</sup>	0
<i>Staphylococcus epidermis</i>	2.33 x 10 <sup>6</sup>	0
<i>Escherichia coli</i>	1.57 x 10 <sup>6</sup>	0
<i>Staphylococcus aureus</i>	5.72 x 10 <sup>6</sup>	0
<i>Enterobacter faecalis</i>	2.15 x 10 <sup>6</sup>	0

- The Esco CelCulture® CO<sub>2</sub> incubator 90°C decontamination cycle has been evaluated by the Health Protection Agency (HPA) in UK has been shown to effectively deactivate the normally resistant fungi, bacterial spore and vegetative cell.
- 90 °C moist heat decontamination cycle kills most microorganisms.\*\*
- SwiftCon™ completes within 15 hours.

- Chamber is cool and dry at the end of the cycle. No further wipe down is needed.
- 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.
- For CelMate® models, Swiftcon™ completes within 20 hours.

### GAS INJECTION LINES ARE FILTERED



- All gas injection lines are filtered via 0.2 micron in-line filters to remove impurities and contaminants before being injected into the chamber.
- In-line filters are field-replaceable and are located external to the incubator.

\* Units were factory-tested under controlled environmental conditions per 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 CCL-170B-8.

# ORDERING INFORMATION

## IR SENSOR MODEL WITH STAINLESS STEEL CHAMBER

MODELS	ITEM CODE	DESCRIPTION
CCL-050B-8	2170034	CelCulture® Incubator 50 L, IR Sensor, CO <sub>2</sub> Control, Moist Heat Decon, 230 VAC, 50/60 Hz
CCL-170B-8	2170002	CelCulture® Incubator 170 L, IR Sensor, CO <sub>2</sub> Control ULPA, Moist Heat Decon, 230 VAC, 50/60Hz
CCL-170B-8-NF	2170068	CelCulture® Incubator 170 L IR Sensor, CO <sub>2</sub> Control, Moist Heat Decon, 230 VAC, 50/60 Hz, (No ULPA Filter)
CCL-240B-8	2170058	CelCulture® Incubator 240 L, IR Sensor, CO <sub>2</sub> Control, ULPA, Moist Heat Decon, 230 VAC, 50/60 Hz
CCL-240B-8-NF	2170069	CelCulture® Incubator 240 L, IR Sensor, CO <sub>2</sub> Control, Moist Heat Decon, 230 VAC, 50/60 Hz, (No ULPA Filter)
CCL-050B-9	2170054	CelCulture® Incubator 50 L, IR Sensor, CO <sub>2</sub> Control, Moist Heat Decon, 115 VAC, 50/60 Hz
CCL-170B-9	2170004	CelCulture® Incubator 170 L, IR Sensor, CO <sub>2</sub> Control ULPA, Moist Heat Decon, 115 VAC, 50/60 Hz
CCL-170B-9-NF	2170075	CelCulture® Incubator 170 L IR Sensor, CO <sub>2</sub> Control, Moist Heat Decon, 115 VAC, 50/60 Hz, (No ULPA Filter)
CCL-240B-9	2170060	CelCulture® Incubator 240 L, IR Sensor CO <sub>2</sub> Control, ULPA, Moist Heat Decon, 115 VAC, 50/60 Hz
CCL-240B-9-NF	2170079	CelCulture® Incubator 240 L, IR Sensor CO <sub>2</sub> Control, Moist Heat Decon, 115 VAC, 50/60 Hz, (No ULPA Filter)

## SURPRESSED O<sub>2</sub> MODEL WITH STAINLESS STEEL CHAMBER

MODELS	ITEM CODE	DESCRIPTION
CCL-050T-8	2170055	CelCulture® Incubator 50 L, IR Sensor, CO <sub>2</sub> & O <sub>2</sub> Control, Moist Heat Decon, 230 VAC, 50/60 Hz
CCL-170T-8	2170047	CelCulture® Incubator 170 L, IR Sensor, CO <sub>2</sub> & O <sub>2</sub> Control, ULPA, Moist Heat Decon, 230 VAC, 50/60 Hz
CCL-170T-8-NF	2170070	CelCulture® Incubator 170 L, IR Sensor, CO <sub>2</sub> & O <sub>2</sub> Control ULPA, Moist Heat Decon, 230 VAC, 50/60 Hz (No ULPA Filter)
CCL-240T-8	2170061	CelCulture® Incubator 240 L, IR Sensor, CO <sub>2</sub> & O <sub>2</sub> Control, Moist Heat Decon, 230 VAC, 50/60 Hz
CCL-240T-8-NF	2170071	CelCulture® Incubator 240 L, IR Sensor, CO <sub>2</sub> & O <sub>2</sub> Control ULPA, Moist Heat Decon, 230 VAC, 50/60 Hz (No ULPA Filter)
CCL-050T-9	2170056	CelCulture® Incubator 50 L, IR Sensor, CO <sub>2</sub> & O <sub>2</sub> Control, Moist Heat Decon, 115 VAC, 50/60 Hz
CCL-170T-9	2170048	CelCulture® Incubator 170 L, IR Sensor, CO <sub>2</sub> & O <sub>2</sub> Control, ULPA, Moist Heat Decon, 115 VAC, 50/60 Hz



### IR SENSOR MODEL WITH 100% COPPER CHAMBER

MODELS	ITEM CODE	DESCRIPTION
CCL-050B-8-Cu	2170081	CelCulture® Incubator 50 L, IR Sensor, CO <sub>2</sub> Control, Moist Heat Decon, 230 VAC, 50/60 Hz
CCL-170B-8-Cu	2170083	CelCulture® Incubator 170 L, IR Sensor, CO <sub>2</sub> Control, ULPA, Moist Heat Decon, 230 VAC, 50/60 Hz
CCL-240B-8-Cu	2170085	CelCulture® Incubator 240 L, IR Sensor, CO <sub>2</sub> Control, ULPA, Moist Heat Decon, 230 VAC, 50/60 Hz
CCL-050B-9-Cu	2170082	CelCulture® Incubator 50 L, IR Sensor, CO <sub>2</sub> Control, Moist Heat Decon, 115 VAC, 50/60 Hz
CCL-170B-9-Cu	2170084	CelCulture® Incubator 170 L, IR Sensor, CO <sub>2</sub> Control ULPA, Moist Heat Decon, 115 VAC, 50/60 Hz
CCL-240B-9-Cu	2170086	CelCulture® Incubator 240 L, IR Sensor CO <sub>2</sub> Control, ULPA, Moist Heat Decon, 115 VAC, 50/60 Hz

### SUPPRESSED O<sub>2</sub> MODEL WITH COPPER CHAMBER

MODELS	ITEM CODE	DESCRIPTION
CCL-050T-8-Cu	2170087	CelCulture® Incubator 50 L, IR Sensor, CO <sub>2</sub> & O <sub>2</sub> Control, Moist Heat Decon, 230 VAC, 50/60 Hz
CCL-170T-8-Cu	2170089	CelCulture® Incubator 170 L, IR Sensor, CO <sub>2</sub> & O <sub>2</sub> Control, ULPA, Moist Heat Decon, 230 VAC, 50/60 Hz
CCL-240T-8-Cu	2170091	CelCulture® Incubator 240 L, IR Sensor, CO <sub>2</sub> & O <sub>2</sub> Control, ULPA, Moist Heat Decon, 230 VAC, 50/60 Hz
CCL-050T-9-Cu	2170088	CelCulture® Incubator 50 L, IR Sensor, CO <sub>2</sub> & O <sub>2</sub> Control, Moist Heat Decon, 115 VAC, 50/60 Hz
CCL-170T-9-Cu	2170090	CelCulture® Incubator 170 L, IR Sensor, CO <sub>2</sub> & O <sub>2</sub> Control, ULPA, Moist Heat Decon, 115 VAC, 50/60 Hz
CCL-240T9-Cu	2170092	CelCulture® Incubator 240 L, IR Sensor, CO <sub>2</sub> & O <sub>2</sub> Control, ULPA, Moist Heat Decon, 115 VAC, 50/60 Hz

### IR SENSOR MODEL WITH INTEGRATED COOLING SYSTEM

MODELS	ITEM CODE	DESCRIPTION
CCL-170B-8-P	2170101	CelCulture® Incubator 170 L, IR Sensor, CO <sub>2</sub> Control, Moist Heat Decon, Peltier System, 230 VAC, 50/60 Hz
CCL-170B-9-P	2170115	CelCulture® Incubator 170 L, IR Sensor, CO <sub>2</sub> Control, Moist Heat Decon, Peltier System, 115 VAC, 50/60 Hz

### SUPPRESSED O<sub>2</sub> MODEL WITH INTEGRATED COOLING SYSTEM

MODELS	ITEM CODE	DESCRIPTION
CCL-170T-8-P	2170112	CelCulture® Incubator 170 L, IR Sensor, CO <sub>2</sub> Control, O <sub>2</sub> Control, Moist Heat Decon, Peltier System, 230 VAC, 50/60 Hz
CCL-170T-9-P	2170153	CelCulture® Incubator 170 L, IR Sensor, CO <sub>2</sub> Control, O <sub>2</sub> Control, Moist Heat Decon, Peltier System, 115 VAC, 50/60 Hz

### WATER JACKETED, IR SENSOR MODEL WITH STAINLESS STEEL CHAMBER

MODELS	ITEM CODE	DESCRIPTION
CCL-050B-8-WJ	2170156	CelCulture® Incubator 50 L, IR Sensor, CO <sub>2</sub> Control, Moist Heat Decon, Water Jacketed, 230 VAC, 50/60 Hz
CCL-170B-8-WJ	2170103	CelCulture® Incubator 170 L, IR Sensor, CO <sub>2</sub> Control, ULPA, Moist Heat Decon, Water Jacketed, 230 VAC, 50/60 Hz
CCL-240B-8-WJ	2170143	CelCulture® Incubator 240 L, IR Sensor, CO <sub>2</sub> Control, ULPA, Moist Heat Decon, Water Jacketed, 230 VAC, 50/60 Hz
CCL-050B-9-WJ	2170162	CelCulture® Incubator 50 L, IR Sensor, CO <sub>2</sub> Control, Moist Heat Decon, Water Jacketed, 115 VAC, 50/60 Hz
CCL-170B-9-WJ	2170110	CelCulture® Incubator 170 L, IR Sensor, CO <sub>2</sub> Control, ULPA, Moist Heat Decon, Water Jacketed, 115 VAC, 50/60 Hz
CCL-240B-9-WJ	2170146	CelCulture® Incubator 240 L, IR Sensor CO <sub>2</sub> Control, ULPA, Moist Heat Decon, Water Jacketed, 115 VAC, 50/60 Hz

### WATER JACKETED, SUPPRESSED O<sub>2</sub> MODEL WITH STAINLESS STEEL CHAMBER

MODELS	ITEM CODE	DESCRIPTION
CCL-050T-8-WJ	2170132	CelCulture® Incubator 50 L, IR sensor, CO <sub>2</sub> & O <sub>2</sub> Control, Moist Heat Decon, Water Jacketed, 230 VAC, 50/60 Hz
CCL-170T-8-WJ	2170157	CelCulture® Incubator 170 L, IR Sensor, CO <sub>2</sub> & O <sub>2</sub> Control, ULPA, Moist Heat Decon, Water Jacketed, 230 VAC, 50/60 Hz
CCL-240T-8-WJ	2170144	CelCulture® Incubator 240 L, IR Sensor CO <sub>2</sub> & O <sub>2</sub> Control, ULPA, Moist Heat Decon, Water Jacketed, 230 VAC, 50/60 Hz
CCL-170T-9-WJ	2170164	CelCulture® Incubator 170 L, IR Sensor, CO <sub>2</sub> & O <sub>2</sub> Control, ULPA, Moist Heat Decon, Water Jacketed, 115 VAC, 50/60 Hz
CCL-240T-9-WJ	2170147	CelCulture® Incubator 240 L, IR Sensor CO <sub>2</sub> & O <sub>2</sub> Control, ULPA, Moist Heat Decon, Water Jacketed, 115 VAC, 50/60 Hz

### IR SENSOR MODEL WITH STAINLESS STEEL EXTERIOR CABINET

MODELS	ITEM CODE	DESCRIPTION
CCL-050B-8-SS	2170128	CelCulture® Incubator 50 L, IR Sensor, CO <sub>2</sub> Control, Moist Heat Decon, SS Cabinet, 230 VAC, 50/60 Hz
CCL-170B-8-SS	2170065	CelCulture® Incubator 170 L, IR Sensor, CO <sub>2</sub> Control, ULPA, Moist Heat Decon, SS Cabinet, 230 VAC, 50/60 Hz
CCL-240B-8-SS	2170137	CelCulture® Incubator 240 L, IR Sensor CO <sub>2</sub> Control, ULPA, Moist Heat Decon, SS Cabinet, 230 VAC, 50/60 Hz
CCL-050B-9-SS	2170176	CelCulture® Incubator 50 L, IR sensor, CO <sub>2</sub> Control, Moist Heat Decon, SS Cabinet, 115 VAC, 50/60 Hz
CCL-170B-9-SS	2170177	CelCulture® Incubator 170 L, IR Sensor, CO <sub>2</sub> Control, ULPA, Moist Heat Decon, SS Cabinet, 115 VAC, 50/60 Hz
CCL-240B-9-SS	2170140	CelCulture® Incubator 240 L, IR Sensor CO <sub>2</sub> Control, ULPA, Moist Heat Decon, SS Cabinet, 115 VAC, 50/60 Hz

### SUPPRESSED O<sub>2</sub> MODEL WITH STAINLESS STEEL EXTERIOR CABINET

MODELS	ITEM CODE	DESCRIPTION
CCL-050T-8-SS	2170171	CelCulture® Incubator 50 L, IR Sensor, CO <sub>2</sub> & O <sub>2</sub> Control, Moist Heat Decon, SS Cabinet, 230 VAC, 50/60 Hz
CCL-170T-8-SS	2170129	CelCulture® Incubator 170 L IR Sensor, CO <sub>2</sub> & O <sub>2</sub> Control, ULPA, Moist Heat Decon, SS Cabinet, 230 VAC, 50/60 Hz
CCL-240T-8-SS	2170138	CelCulture® Incubator 240 L, IR Sensor CO <sub>2</sub> & O <sub>2</sub> Control, ULPA, Moist Heat Decon, SS Cabinet, 230 VAC, 50/60 Hz
CCL-050T-9-SS	2170178	CelCulture® Incubator 50 L, IR Sensor, CO <sub>2</sub> & O <sub>2</sub> Control, Moist Heat Decon, SS Cabinet, 115 VAC, 50/60 Hz
CCL-170T-9-SS	2170179	CelCulture® Incubator 170 L, IR Sensor, CO <sub>2</sub> & O <sub>2</sub> Control, ULPA, Moist Heat Decon, SS Cabinet, 115 VAC, 50/60 Hz
CCL-240T-9-SS	2170141	CelCulture® Incubator 240 L, IR Sensor CO <sub>2</sub> & O <sub>2</sub> Control, ULPA, Moist Heat Decon, SS Cabinet, 115 VAC, 50/60 Hz

### IR SENSOR MODEL WITH STAINLESS STEEL CHAMBER WITH FLAT DOOR DESIGN

MODELS	ITEM CODE	DESCRIPTION
CCL-050B-8-FD	2170150	CelCulture® Incubator 50 L, IR Sensor, CO <sub>2</sub> Control, Moist Heat Decon, Flat Door, 230 VAC, 50/60 Hz
CCL-170B-8-FD	2170117	CelCulture® Incubator 170 L, IR Sensor, CO <sub>2</sub> Control, ULPA, Moist Heat Decon, Flat Door, 230 VAC, 50/60 Hz
CCL-170B-8-NF-FD	2170243	CelCulture® Incubator 170 L, IR Sensor, CO <sub>2</sub> Control, Moist Heat Decon, Flat Door, 230 VAC, 50/60 Hz, (No ULPA Filter)
CCL-240B-8-FD	2170123	CelCulture® Incubator 240 L, IR Sensor CO <sub>2</sub> Control, ULPA, Moist Heat Decon, Flat Door, 230 VAC, 50/60 Hz
CCL-240B-8-NF-FD	2170244	CelCulture® Incubator 240 L, IR Sensor CO <sub>2</sub> Control, Moist Heat Decon, Flat Door, 230 VAC, 50/60 Hz, (No ULPA Filter)

### IR SENSOR MODEL WITH STAINLESS STEEL CHAMBER WITH FLAT DOOR DESIGN

MODELS	ITEM CODE	DESCRIPTION
CCL-050B-9-FD	2170191	CelCulture® Incubator 50 L, IR Sensor, CO <sub>2</sub> Control, Moist Heat Decon, Flat Door, 115 VAC, 50/60 Hz
CCL-170B-9-FD	2170120	CelCulture® Incubator 170 L, IR Sensor, CO <sub>2</sub> Control, ULPA, Moist Heat Decon, Flat Door, 115 VAC, 50/60 Hz
CCL-240B-9-FD	2170126	CelCulture® Incubator 240 L, IR Sensor CO <sub>2</sub> Control, ULPA, Moist Heat Decon, Flat Door, 115 VAC, 50/60 Hz

### SUPPRESSED O<sub>2</sub> MODEL WITH STAINLESS STEEL CHAMBER WITH FLAT DOOR DESIGN

MODELS	ITEM CODE	DESCRIPTION
CCL-050T-8-FD	2170149	CelCulture® Incubator 50 L, IR Sensor, CO <sub>2</sub> & O <sub>2</sub> Control, Moist Heat Decon, Flat Door, 230 VAC, 50/60 Hz
CCL-170T-8-FD	2170118	CelCulture® Incubator 170 L, IR Sensor, CO <sub>2</sub> & O <sub>2</sub> Control, ULPA, Moist Heat Decon, Flat Door, 230 VAC, 50/60 Hz
CCL-170T-8-NF-FD	2170247	CelCulture® Incubator 170 L, IR Sensor, CO <sub>2</sub> & O <sub>2</sub> Control, ULPA, Moist Heat Decon, Flat Door, 230 VAC, 50/60 Hz (No ULPA Filter)
CCL-240T-8-FD	2170125	CelCulture® Incubator 240 L, IR Sensor, CO <sub>2</sub> & O <sub>2</sub> Control, ULPA, Moist Heat Decon, Flat Door, 230 VAC, 50/60 Hz
CCL-240T-8-NF-FD	2170249	CelCulture® Incubator 240 L, IR Sensor, CO <sub>2</sub> & O <sub>2</sub> Control, ULPA, Moist Heat Decon, Flat Door, 230 VAC 50/60 Hz (No ULPA Filter)
CCL-050T-9-FD	2170245	CelCulture® Incubator 50 L, IR Sensor, CO <sub>2</sub> & O <sub>2</sub> Control, Moist Heat Decon, Flat Door, 115 VAC, 50/60 Hz
CCL-170T-9-FD	2170148	CelCulture® Incubator 170 L, IR Sensor, CO <sub>2</sub> & O <sub>2</sub> Control ULPA, Moist Heat Decon, Flat Door, 115VAC 50/60Hz
CCL-240T-9-FD	2170127	CelCulture® Incubator 240 L, IR Sensor, CO <sub>2</sub> & O <sub>2</sub> Control, ULPA, Moist Heat Decon, Flat Door, 115 VAC, 50/60 Hz



# CelMate®

CO<sub>2</sub> Incubators

## INTRODUCTION

Esco now offers the new CelMate®, 170-liter and 240-liter, entry-level cell culture CO<sub>2</sub> incubator with superb contamination control.

This is specifically designed for laboratories looking for a cost-effective CO<sub>2</sub> incubator that can provide the best protection for their cell culture.



CelMate® CO<sub>2</sub> Incubators available in 170 L and 240 L.

## CONTAMINATION CONTROL SYSTEMS:

ULPA Filtration System , Validated Swiftcon™ Overnight Decontamination Cycle (20 hours), Filtered Gas Injection Lines , and exterior is coated with Isocide™.

## OPTIONS AND ACCESSORIES:

All options and accessories for CelCulture® CO<sub>2</sub> incubators are also appropriate to use on CelMate® CO<sub>2</sub> incubator.

# ORDERING INFORMATION

MODELS	ITEM CODE	DESCRIPTION
CLM-170-B-8	2170106	CelMate® Incubator 170 L, IR Sensor, CO <sub>2</sub> Control, ULPA, Moist Heat Decon, 230 VAC, 50/60 Hz (Without Decon Pump)
CLM-170-B-9	2170250	CelMate® Incubator 170 L, IR Sensor, CO <sub>2</sub> Control, ULPA, Moist Heat Decon, 115 VAC, 50/60 Hz (Without Decon Pump)
CLM-240-B-8	2170107	CelMate® Incubator 240 L, IR Sensor, CO <sub>2</sub> Control, ULPA, Moist Heat Decon, 230 VAC, 50/60 Hz (Without Decon Pump)
CLM-240-B-9	2170251	CelMate® Incubator 240 L, IR Sensor, CO <sub>2</sub> Control, ULPA, Moist Heat Decon, 115 VAC, 50/60 Hz (Without Decon Pump)



## CelCulture®

### CO<sub>2</sub> Incubators with Copper Interior Chamber

Pure solid copper interior offers additional protection for your precious samples.

# MAXIMUM CONTAMINATION CONTROL

Copper has been known for millennia to have antimicrobial properties. Copper can inhibit the growth of common culture microbial contaminants such as:

- *Escherichia coli*
- *Staphylococcus aureus*
- viruses

Other contamination control methods include:

- ✓ ULPA filter with 99.998% efficiency
- ✓ 90°C Moist Heat Decontamination Cycle (HPA-Validated)
- ✓ 0.2 micron in-line filter for gas inputs
- ✓ ISOCIDE™ antimicrobial powder coating

## ACCESSORIES

### COA-2026-F Extra Shelf (50 L, Solid Copper)

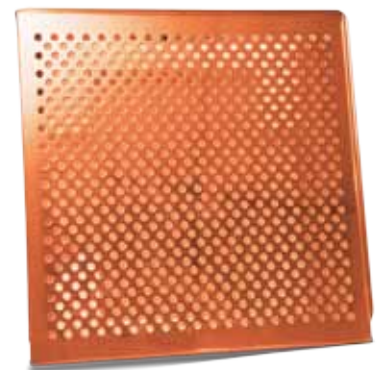
Each CelCulture® CO<sub>2</sub> Incubator comes standard with 3 shelves for 50 L and it can accommodate up to a maximum of 4 shelves for 50 L. Extra shelves are available.

### COA-2027-F Extra Shelf (170 L, Solid Copper)

Each CelCulture® CO<sub>2</sub> Incubator comes standard with 4 shelves for 170 L and it can accommodate up to a maximum of 7 shelves for 170 L. Extra shelves are available.

### COA-2028-F Extra Shelf (240 L, Solid Copper)

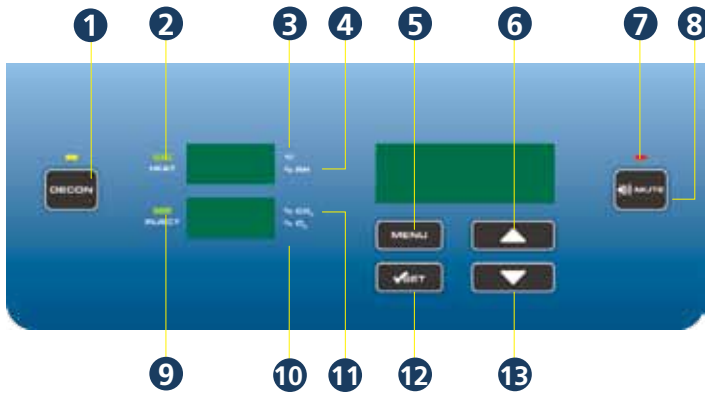
Each CelCulture® CO<sub>2</sub> Incubator comes standard with 4 shelves for 240 L and it can accommodate up to a maximum of 7 shelves for 240 L. Extra shelves are available.



*Other options and accessories for CelCulture® CO<sub>2</sub> incubators except for the shelves are also appropriate to use on CelCulture® CO<sub>2</sub> incubator with Copper Interior Option.*

# 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<sub>2</sub> is lit when displaying the O<sub>2</sub> concentration
- 11. % CO<sub>2</sub> is lit when displaying the CO<sub>2</sub> concentration
- 12. Confirm value / enter a menu
- 13. Scroll down / decrease value

**Comprehensive, user-configurable alarms:**

- Temperature
- CO<sub>2</sub>
- Humidity (if installed)
- O<sub>2</sub> (if installed)

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



CO<sub>2</sub> tank depletion reminder in addition to CO<sub>2</sub> tank low alarm. Automatic calculation of how much CO<sub>2</sub> gas left in the tank alerts the user one week before the gas is depleted. This gives user some buffer time to place order for new tanks.



ULPA reminder will alert user to replace ULPA filter.

**Intelligent data and event logger records all incubator parameters for on-screen recall. A 16Mb built-in flash memory guarantees long-term storage of data.**



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



# 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**

- Lexicon® – Ultra-low Temperature Freezer
- CelCulture® – CO<sub>2</sub> Incubator (CCL)
- CelMate® - CO<sub>2</sub> Incubator (CLM)
- Isotherm® – Forced Convection Oven (OFA)
- Isotherm® – Forced Convection Incubator (IFA)
- Isotherm® – Refrigerated Incubator (IFC)

# REAR PANEL



## 1 Power Supply Inlet

Connects the incubator unit to the power source.



## 2 Cooling Fan

Prevents the electrical panel from overheating.



## 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.



## 4 Analog Port (Optional)

Allows the incubator to output analog signals representing temperature, CO<sub>2</sub>/O<sub>2</sub>\* 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.



## 5 Alarm Contact

A set of relay contacts located on the rear of the unit is provided to monitor temperature, humidity or CO<sub>2</sub> alarms. The alarm contacts can be connected to a remote alarm system.



## 6 N<sub>2</sub> Gas Supply Inlet (for Suppressed O<sub>2</sub> model)

Only applicable for models with N<sub>2</sub>\* control function. Inlet pressure requirement is 15 psi.



## 7 CO<sub>2</sub> Gas Supply Inlet

Connects the CO<sub>2</sub> gas supply to the incubator. Inlet pressure requirement is 15 psi.



## 8 Gas In-line Filter

Provided to remove any contaminants from the gas supply.



## 9 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.

\* O<sub>2</sub> and N<sub>2</sub> functions are applicable only to models with Suppressed O<sub>2</sub>.



# CelCulture® CO<sub>2</sub> INCUBATOR SENSORS



## IR SENSOR

An Infrared (IR) sensor is a versatile instrument for measuring CO<sub>2</sub> level inside the incubator. The CARBOCAP® sensor is silicon-based and its operation is based on the NDIR Single-Beam Dual-Wavelength principle.

IR-based sensors are not affected by water vapor, dust or most chemicals. The single-beam dual-wavelength technology (one reference and one measurement) ensures a drift-free sensor that does not require calibration by the user.

### Operating principle

The light source is positioned to shine at the IR detector so that the light travels a fixed distance to the detector, where the intensity of the light is measured. A Fabry-Perot Interferometer (FPI) is positioned just in front of the IR detector. The FPI is a tunable filter which allows only certain wavelengths of light to pass through to the detector.

Carbon dioxide absorbs certain wavelengths of light and not others, so the FPI is designed to pass light at a CO<sub>2</sub> absorption wavelength (4.26 μm) and a nearby, non-absorbing wavelength.

When the sensor is operating, the FPI is regularly tuned back and forth between the two wavelengths. At the CO<sub>2</sub> absorption wavelength, the intensity of detected light is reduced in proportion to the concentration of CO<sub>2</sub> in the optical path. The light intensity measured at the non-absorbing wavelength serves as a baseline for comparison.

### Operating Conditions:

%CO<sub>2</sub> detection range: 0 to 20% CO<sub>2</sub> Concentration

%RH operating range: Not affected by Humidity

Temperature range: -20°C to +60°C



## O<sub>2</sub> SENSOR

Figaro's O<sub>2</sub> sensor is a unique galvanic cell type oxygen sensor. Its most notable features are long life expectancy, excellent chemical durability, and it is not influenced by CO<sub>2</sub>. The O<sub>2</sub> sensor is ideal to meet the ever-increasing demand for oxygen monitoring in various fields such as combustion gas monitoring, the biochemical field, medical applications, domestic combustion appliances, etc.

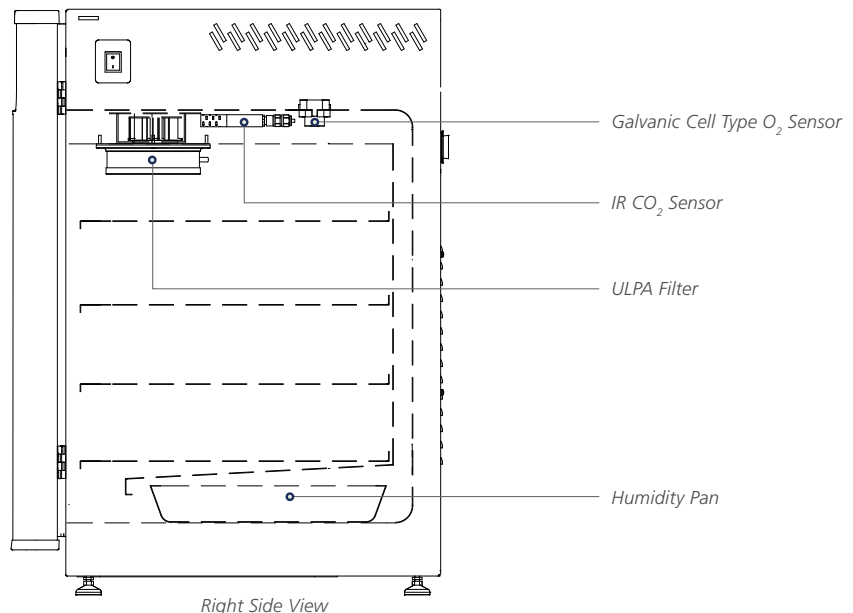
### Operating Conditions:

%O<sub>2</sub> detection range: 1 to 20.7% O<sub>2</sub> Concentration

%RH operating range: 10% to 90% Relative Humidity

Temperature range: 5°C to 40°C

Technical drawing showing the location of the IR sensor and O<sub>2</sub> sensor in relation to the other chamber components of the CelCulture® CO<sub>2</sub> Incubator.



# TESTING & CERTIFICATION



**For IVF applications, Esco CelCulture® CO<sub>2</sub> incubators are certified embryo-safe.**

Rigorously tested with the Mouse Embryo Assay (MEA), the CelCulture® remarkably has 100% embryo survival. The Mouse Embryo Assay (MEA) is the de facto standard test done to demonstrate that a procedure or an article of equipment is safe to use for manipulating human embryos (e.g., *in vitro* fertilization or IVF).



The Esco CelCulture® CO<sub>2</sub> incubators is listed by Underwriters Laboratory (UL)\*, to meet the requirements of both the U.S. and Canada standards for electrical/mechanical integrity.

\*applicable for 170 L



## HPA Validated Decontamination Cycle

The Esco CelCulture® CO<sub>2</sub> Incubator 90°C decontamination cycle has been evaluated and shown to be an effective method for deactivation of the normally resistant fungi and bacterial spores *Aspergillus brasiliensis* and *Bacillus atrophaeus*, and the vegetative cells *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Staphylococcus epidermidis*, *Enterobacter faecalis* and *Escherichia coli*.

# 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<sub>2</sub> Backup

This option allows two tanks of CO<sub>2</sub> 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<sub>2</sub> / O<sub>2</sub> 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-1006 / COA-1006-F Sealed Inner Door Kit (170 L)

CelCulture® CO<sub>2</sub> incubators can be equipped with 4 glass doors, which allows access to defined sections of the incubator without disturbing the inner atmosphere. This minimizes recovery times and contamination risks. The sealed inner door is available as a factory-installed option or field installed retrofit kit.



## COA-1007 / COA-1007-F N<sub>2</sub> Back-up

This option allows two tanks of N<sub>2</sub> 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-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<sub>2</sub>/N<sub>2</sub>

CO<sub>2</sub> and N<sub>2</sub> 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 (Stainless Steel) for Standard Stainless Steel Chamber

Each CelCulture® CO<sub>2</sub> 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-2008-F Stacking Kit

The stacking kit is a provision to stack one incubator on top of another incubator. Four stacking brackets are included as standard inside the Accessories Kit Box with each incubator.



### COA-2010-F Electronic CO<sub>2</sub> Analyzer, For CO<sub>2</sub> / Temp Measurement

### COA-2016-F Electronic CO<sub>2</sub> + O<sub>2</sub> Analyzer, For CO<sub>2</sub> / O<sub>2</sub> / Temp Measurement

### COA-2017-F Electronic CO<sub>2</sub> + O<sub>2</sub> + RH Analyzer, For CO<sub>2</sub> / O<sub>2</sub> / RH / Temp Measurement

The electronic analyzer allows the measurement of CO<sub>2</sub> concentration, O<sub>2</sub> 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.



### COA-2015-F Inner Door Shelving Kit

### (4 Sets With Total 12 Mini-Shelves For One Incubator) (170 L)

These mini-shelves are to be used with the Sealed Inner Door Kit installed. There are 4 sets with a total of 12 mini-shelves on each incubator.



### 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<sub>2</sub> incubators, and ultra-low temperature freezers.

# 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 <sub>2</sub> Backup (Tank Switcher), Factory-installed
COA-1002-F	5170473	CO <sub>2</sub> 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-1006	5170477	Sealed Inner Door Kit for 170 L (4 Glass Doors with Latches), Factory-installed
COA-1006-F	5170488	Sealed Inner Door Kit for 170 L (4 Glass Doors with Latches), Field-installed
COA-1007	5170490	N <sub>2</sub> Back-up (Tank Switcher), Factory-installed
COA-1007-F	5170491	N <sub>2</sub> Back-up (Tank Switcher), 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 <sub>2</sub> / N <sub>2</sub> Choose one of the connectors below: 1080588 - CGA 320 Connector (US standard) 1080589 - BP-B534-#8-NT4 Connector (British standard) 1080590 - G5/8-RH Connector (China standard)
COA-2024-F	5170425	Extra Shelf (50 L, stainless steel)
COA-2007-F	5170327	Extra Shelf (170 L, stainless steel)
COA-2025-F	5170426	Extra Shelf (240 L, stainless steel)
COA-2008-F	5170483	Stacking Kit (one set included with every unit purchased)
COA-2010-F	5170329	Electronic CO <sub>2</sub> Analyzer, For CO <sub>2</sub> / Temp Measurement (with Temperature Probe)
COA-2016-F	5170397	Electronic CO <sub>2</sub> + O <sub>2</sub> Analyzer, For CO <sub>2</sub> / O <sub>2</sub> / Temperature Measurement
COA-2017-F	5170398	Electronic CO <sub>2</sub> + O <sub>2</sub> + RH Analyzer, For CO <sub>2</sub> / O <sub>2</sub> / RH / Temperature Measurement
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
COA-2015-F	5170487	Inner Door Shelving Kit for 170 L (4 sets with total 12 mini-shelves for one incubator)
Voyager®	5250001	Voyager® Software Kit

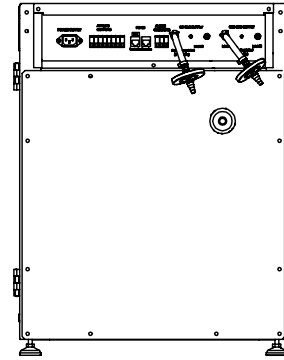
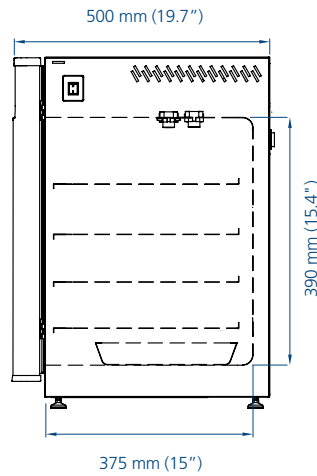
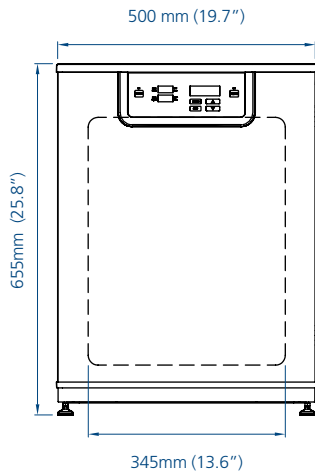
# TECHNICAL SPECIFICATIONS

## Front view

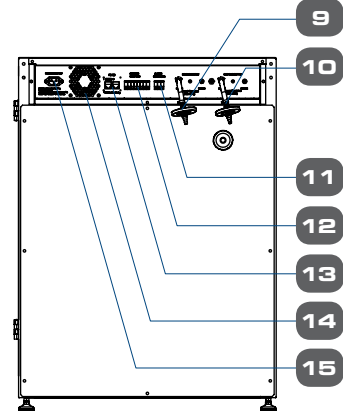
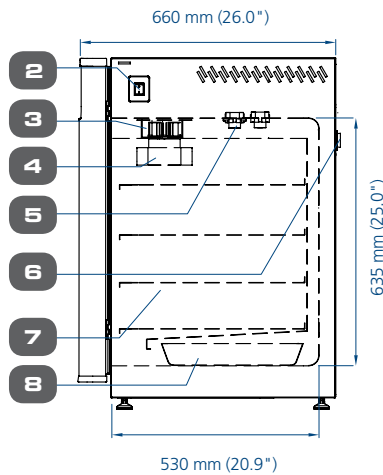
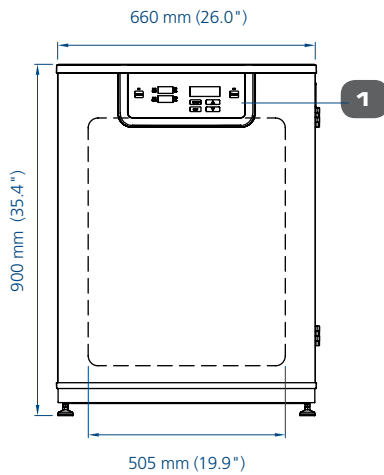
## Side view

## Rear view

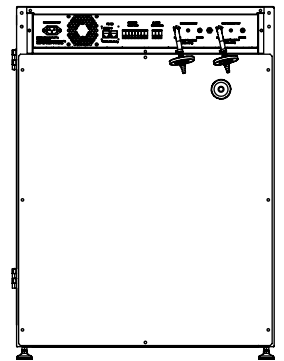
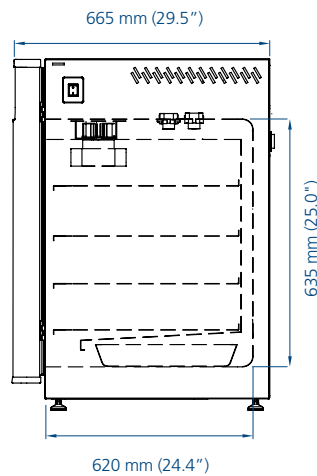
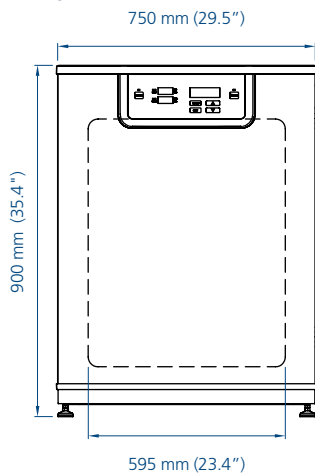
### MODEL 50 L



### MODEL 170 L



### MODEL 240 L



1. Control panel\*
2. On / off switch
3. Blower fan
4. ULPA filter
5. Sensors

6. Access port
7. Adjustable shelves
8. Humidity pan
9. N<sub>2</sub> gas supply
10. CO<sub>2</sub> gas supply

11. Alarm contact
12. Analog output
13. RS485
14. Cooling fan
15. Power supply inlet

\*Control panel position differs for CelMate® CO<sub>2</sub> incubator models.

**GENERAL SPECIFICATIONS**  
CEL CULTURE® CO<sub>2</sub> INCUBATORS

	CCL-050_ _	CCL-170_ _ CLM-170_ _	CCL-240_ _ CLM-240_ _	
<b>TEMPERATURE</b>				
Temperature Control Method	Direct heat & air jacket using Microprocessor PID			
Temperature Range, °C	Amb. +3 to 60			
Temperature Uniformity, °C	<± 0.2*	<± 0.2*	<± 0.3*	
Temperature Accuracy, °C	<± 0.1			
Recovery Time** (after 1 min. door opening, 98% from initial value)	4 mins	6 mins	6 mins	
Ambient Temperature Range	18 to 34°C (64 to 93 °F)			
<b>CO<sub>2</sub></b>				
CO <sub>2</sub> Control System	Microprocessor PID			
CO <sub>2</sub> Range, % CO <sub>2</sub>	0-20			
CO <sub>2</sub> Accuracy, % CO <sub>2</sub>	± 0.1			
CO <sub>2</sub> Sensor	Infrared (IR) Sensor***			
CO <sub>2</sub> Recovery Time*** (after 1 min. door opening, 98% from initial value)	Standard Unit: 8 minutes Suppressed O <sub>2</sub> model: 8 minutes	Standard Unit: 4 minutes Suppressed O <sub>2</sub> model: 5 minutes	Standard Unit: 5 minutes Suppressed O <sub>2</sub> model: 5 minutes	
<b>O<sub>2</sub> SPECS (FOR SUPPRESSED O<sub>2</sub> MODEL )</b>				
O <sub>2</sub> Control System	Microprocessor PID			
O <sub>2</sub> Range, % O <sub>2</sub>	1-20.7%			
O <sub>2</sub> Accuracy, % O <sub>2</sub>	± 0.1			
O <sub>2</sub> Sensor	Galvanic Cell Type			
O <sub>2</sub> Recovery Time (after 1 minute door opening)	At 1.0% O <sub>2</sub> by volume: 10 minutes At 5.0% O <sub>2</sub> by volume: 6 minutes	At 1.0% O <sub>2</sub> by volume: 20 minutes At 5.0% O <sub>2</sub> by volume: 10 minutes	At 1.0% O <sub>2</sub> by volume: 24 minutes At 5.0% O <sub>2</sub> by volume: 12 minutes	
<b>HUMIDITY</b>				
Humidification Method	Humidity pan			
Humidity Range, % RH	Up to 97%			
<b>PHYSICAL CONSTRUCTION</b>				
Interior Volume	50 L (1.8 ft <sup>3</sup> )	170 L (5.7 ft <sup>3</sup> )	240 L (8.5 ft <sup>3</sup> )	
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")	
Chamber Construction	Main Body	Electrogalvanized steel with ISOCIDE™ antimicrobial coating		
	Interior Material	Stainless steel, type 304		
	Number of Shelves	3	4	4
	Maximum Number of Shelves	4	7	7
	Shelves Area	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")
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 220-240 VAC, 50/60 Hz	Nominal Power at 37°C	37 W	80 W	110 W
	Maximum Power Consumption (CCL)	372 W	800 W	1100 W
	Maximum Power Consumption (CLM)	372 W	750 W	1050 W
	Full Load Amps	1.6 A	3.4 A	4.8 A
Electrical 110-130 VAC, 50/60 Hz	Nominal Power at 37°C	37 W	80 W	110 W
	Maximum Power Consumption (CCL)	372 W	800 W	1100 W
	Maximum Power Consumption (CLM)	372 W	750 W	1050 W
	Full Load Amps	3.3 A	7.0 A	8.7 A
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")	
Shipping Volume	0.39 m <sup>3</sup> (13.7 ft <sup>3</sup> )	0.70 m <sup>3</sup> (24.85 ft <sup>3</sup> )	0.79 m <sup>3</sup> (28.03 ft <sup>3</sup> )	
<b>CONTAMINATION CONTROL</b>				
Contamination Control Methods	1) Main body is electrogalvanized steel with ISOCIDE™ antimicrobial coating; 2) Moist 90°C OVERNIGHT decontamination cycle (HPA validated); 3) 0.2 micron in-line filter for gas inputs; 4) ULPA filter****			

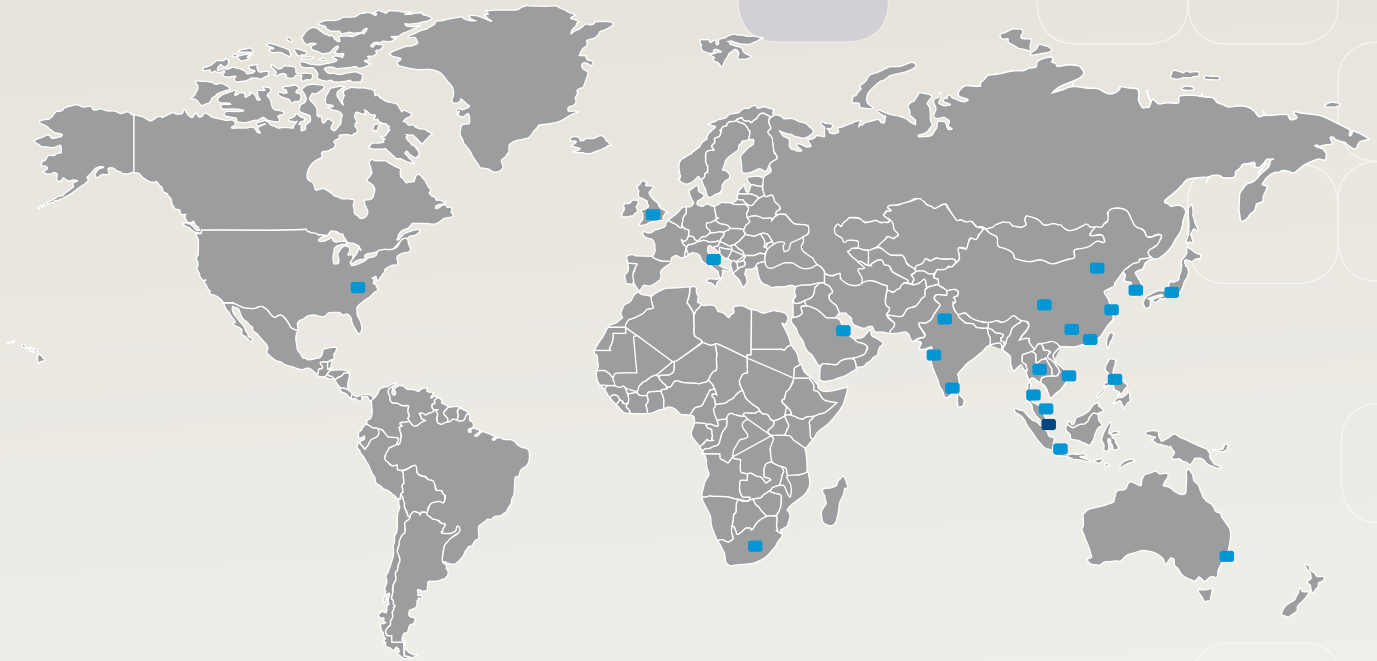
\*Data recorded under optimum factory setting conditions

\*\*For temperature not exceeding 37°C

\*\*\*For CO<sub>2</sub> not exceeding 5.2%.

\*\*\*\*Not available for 50 L

# ESCO GLOBAL NETWORK



- ART Equipment
- Biological Safety Cabinets
- CO<sub>2</sub> Incubators
- Cold Storage
- Compounding Pharmacy Equipment
- Containment / Pharma Products
- Ductless Fume Hoods
- Lab Animal Research Products
- Laboratory Fume Hoods
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- Laboratory Ovens
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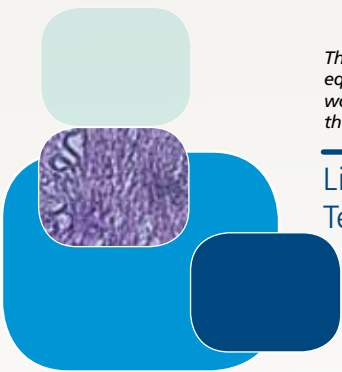
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