



EC 160

CO₂ Incubator



Standard Features on the EC 160 CO₂ Incubator



Extra Features for the EC 160 CO₂ Incubator

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Optimized Culture Conditions

Reproducible and reliable cell growth is dependent upon three critical parameters, temperature, CO₂ concentration and relative humidity.

- Control software for continuous optimization of conditions
- Homogeneous thermal conditions to give comparable results in cultures in any position within the chamber
- PID control for stable temperature and CO₂ during the cycle
- Proportional control for fast recovery & no overshoot after a door opening
- Constant 95 % RH throughout the growth cycle; large area heated humidity tray
- Infra-Red CO₂ sensor unaffected by temperature or humidity, even with frequent door openings. Also accurate when set values are changed. Auto-zeros every 12 minutes
- 6 door option with matching shelves preserves set values during door opening, prevents drying out; deal for microplates & small volumes.



Absolute Control



No Overshoot





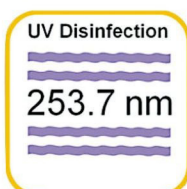
Contamination Resistance

Prevention is better than cure. Should contaminants enter during door opening, then an efficient wet disinfection system killing mycoplasma, fungal spores, molds and bacteria is available for immediate use. Because the smooth chamber contains zero components, the optional UV system upgrades its effectiveness to sterilization level. One more defense for the scientist.

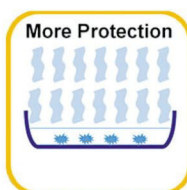
- No vigorous fan-assisted circulation required; no promotion of cross-contamination
- Minimum number of parts in the chamber, only racks, shelves and filter
- Easily cleaned rounded corners in the one-piece chamber; no welds
- Minimized contact of flat shelves & round racking; no contaminant growth sites
- Automated 90°C wet disinfection function is standard,
- Optional fast UV disinfection; can sterilize an empty chamber
- Reagents added to the humidity tray make contamination negligible
- The IR sensor, auto-zero reference air and injection of new CO₂ are protected by 0.22 µm sterilizing filters, elimination potential contamination



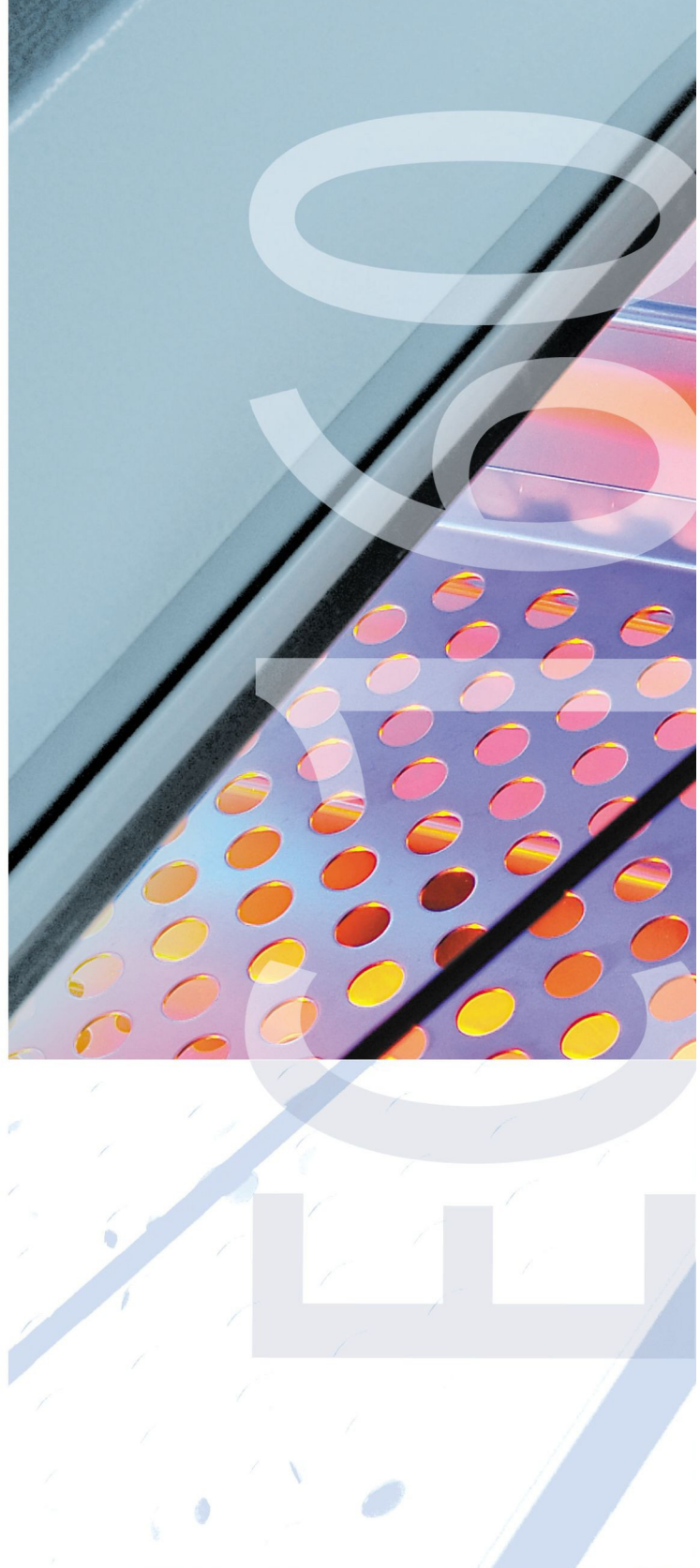
Proven Results



Sterilization



Simple & Efficient





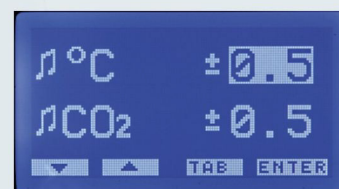
Convenient Operation

Time is a very valuable commodity that no researcher can afford to waste.

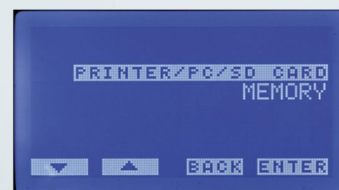
EC 160 offers the ultimate in convenience, eliminating unnecessary actions and delays and simplifying manipulation.

The operator interface makes life simple with the minimum of actions and the maximum of information.

- 6 door option enables each researcher to have a dedicated incubation zone
- Anti-tip shelves simplify introduction, removal and exchange of samples
- Sterilizing 0.22 μm filters outside; no space-wasting, expensive HEPA filters to change
- No probes to be removed for disinfection; just press and go
- The large surface area humidity tray can be removed in seconds for cleaning
- Password protected Menu eliminates any possibility of changing parameters
- Shelf dimensions have been optimized to accept the largest sample capacity
- Shelves and racks can be removed in 10-20 seconds for autoclaving
- Through sanitization of the chamber in no time as there are no chamber fittings
- The user is guided through all steps via the on-screen display
- Easy to understand with the display in various languages
- The information is still visible when the door is open
- Reminder for calibration or servicing, so optimizing culture conditions
- Optional access port permits a hard wired EU mains plug to pass through
- UV operation is controlled by on-board timer
- Reagents are ready to use; no weighing necessary



Parameter Input



Useful Guidance



Protected Functions



Lab ID & Setup

Monitoring, Traceability & Communication

Reassurance that your cultures are being maintained under ideal conditions is an area in which EC 160 excels. The key parameters are perpetually recorded, no action for you to remember, connection to an external device permits all cycle data to be permanently recorded and stored.

There is no need to worry what is happening in your absence. A full set alarms is built in and an optional feature will inform you instantly and wherever you are.

- On-board automatically records conditions of the last 72 hours
- Recall any time, e.g., Monday to check the weekend's conditions
- Data tracking and storage on PC via optional RS 232 port and software
- Optional SD card writer stores substantial data in mobile format
- Collects between 1 months' data (at 1 minute interval recording) and 5 years' data (at 1 hourly recording) stored on a tiny 2 Gb SD card
- Audible alarms and on-screen messages in plain language, no codes
- Remote or central alarm devices can be connected to a relay switch
- Optional remote alarm system
- Optional for the ultimate security will send a text to cell (mobile) phones
- Could call a service engineer for rapid response and expert assistance



Data Tracking



Constant Recording



Full Traceability



Remote Alarm



Alerted Everywhere

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Technical Specifications

Control System	Microprocessor Control System
Temperature Range	Ambient temperature plus 7°C to 50°C
Temperature Set & Display Sensitivity	0,1°C
Temperature Variation / Fluctuation	± 0.3°C at 37°C / ± 0,1°C
Programmable Temperature Alarm Range	+ 0,5°C to 5°C
Temperature Sensor	Pt 100
CO ₂ Range	0 % to 20 %
CO ₂ Set & Display Sensitivity	0,1 %
CO ₂ Variation / Fluctuation	± 0,3 % / ± 0,1 %
Programmable CO ₂ Alarm Range	+ 0,5 % to 5,0 %
CO ₂ Sensor	Infra-Red (IR) with high stability
Calibration	Auto-zero every 12 minutes. Annual check.
Contamination resistance	0.22 µm sterilizing filters on CO ₂ , Air and Gas sampling lines
Relative Humidity Level	95 % RH ± 5 % @ 37°C
Recovery Times after 30 sec. door opening	Temperature to 36,5°C = 10 min. - CO ₂ to 4,9 % = 3 min.
Disinfection	90°C high humidity; password protected and timed
Chamber Volume, Material & Design	160 Liters / Stainless steel • Rounded corners • No fittings
Number of Shelves (standard / maximum)	3 / 8 pieces
Shelf Load Area (WxD) mm	465 x 400 20 x 90 mm / 56 x 55 mm Petri dishes; 15 x 250 ml flasks
Casing / Insulation Materials	Epoxy-polyester powder coated steel / Foil-encapsulated glass wool
Display	Bright white on blue backlit LCD, 128 x 64 pixels
Data Recall	shows Date, Time, T°C and CO ₂ % from last 72 hours
Data Reporting	data tracking software or SD card writer connection with RS 232C
Alarms	Audible (mutable, with callback), Visual message, Relay remote alarm system or central alarm system. Optional text message to cell phone
Internal / External / Packed Dims. (WxDxH) mm	500x460x700 / 862x728x900 / 890x770x1080
Weight (Unpacked / Packed), kg	108 / 158
Power Supply / Power Consumption	230 V, 50 Hz / 900 W

Factory Fitted Options

EC 160C 6 glass door inner panel
 EC 160H Cable port
 EC 160W software and RS 232 port for data monitoring

Options

A 08 142 GSM alarm module*
 K 13 009 remote alarm system with 10 m cable*
 A 08 143 UV sterilization kit
 Y 07 004 1 months' data @ 1 min. / 5 years' data @ 1 hour intervals on 2 Gb SD card
 A 08 144 kit (20 doses) to reduce contamination in humidity tray
 R 01 154 Stainless Steel Shelf (spare)
 A 08 145 Half Shelf Rack with 6 shelves
 A 08 146 Stacking Adapter
 A 08 147 Support Frame
 A 08 148 Roller Base
 F 06 003 0,22 µm biological filter (spare)
 R 11 007 Single Stage Gas Regulator
 A 08 149 Gas Changeover Unit
 Note : A 08 142 and K 13 009 can not be used at the same time



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