

# Compact Ultra Low Temperature Chamber

MC-711 • 811



# Capable of ultra low temperatures as low as - 85 with our unique instrumentation for program or constant operation.

The Compact Ultra Low Temperature Chamber embodies the high performance, reliability, and durability of a full-size chamber.

The line-up is comprised of a total of four models.

Select either the P-instrumentation for programming temperature cycling or the T-instrumentation for constant operation.

Also choose from two very wide temperature ranges that use environmentally-friendly HFC refrigerants.

Select the best model for your specific application and test objectives.

MC - 811



MC - 711



\* Chambers shown in photo are equipped with options.



- **Four models available with a choice from two temperature ranges and two types of instrumentation**

The MC-series comes in two temperature ranges of - 75 to + 100 / - 85 to + 180 , and two types of instrumentation for constant or program operation. A wide temperature range supports tests from temperature characteristic tests to low temperature preservation tests.

- **P- and T-instrumentation to meet your test objectives**

P-instrumentation with 6.5-inch TFT color LCD enable easy test setting simply by following the displayed instructions. It offers 10 built-in standard programs, and can store up to 20 program patterns (99 steps per pattern), thus capable of diverse program tests. A wide variety of functions such as trend graph display of operation history, timer, and help support are provided for improved operational ease. T-instrumentation with large 7-segment LED offers constant operation.

- **Accurate PID temperature control**

Just by setting the test temperature, PID control automatically controls temperature, with high accuracy.

- **Ozone-friendly HFC refrigerant**

The refrigerator is loaded with R404A/ R508A HFC refrigerant which is zero ozone depletion potential to protect the global environment.

- **Paperless Recording (optional)**

The paperless recorder makes it easy record the temperatures of different components, such as the chamber temperature, on a memory card (Compact Flash).



Operating panel (Programmable type)



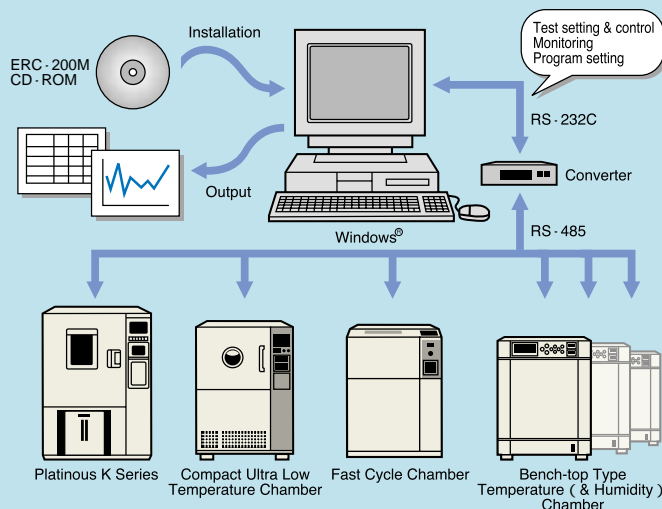
Chamber interior



Paperless recorder (optional) \*Sample photo

# User-friendly

## Environmental Testing Centralized Control Software ERC - 200M (sold separately)



Control, monitoring, programming, and datalogging for up to 16 ESPEC chambers can be performed through a single Windows® PC, enabling remote operation.

### Remote operation

Have full control of test chambers while sitting in your office.

### Easy datalogging

Stores data to a universal CSV (comma separated value) file. This file can then be used immediately by software like Excel.

### Potential savings

Because the ERC-200M allows program operations to be run directly from the PC, test chambers with less-expensive single-setting controllers can be used.

### E-BUS version available

For existing units with E-BUS system, ERC-100M is available.

## Communication network of Environmental test chambers

The MC Series incorporates the communication port RS-485 as standard to cope with the [E-PILOT 21], which is a newly developed centralized control system. [E-PILOT 21] not only serves as a system for centralized control of environmental chambers, but also establishes an open network including specimen measurement function and remote chamber maintenance function.

## Safety measures

Enough precautions are taken to ensure the safety of operators, specimens and the chamber, with various safety measures such as the leakage breaker and control circuit overload & short circuit protection fuse. In case these safety devices activate, power is shut down to halt chamber operation and details of alarm is displayed on the screen.

### SAFETY DEVICES

- Air circulator temperature switch
- Leakage breaker for power supply (for AC200/220V only)
- Control circuit overload & short circuit protection fuse
- Thermal fuse
- Specimen power supply control terminal (with power cord plug)
- Overheat protector
- Reverse prevention relay
- Refrigerator overload relay
- SSR overload & short circuit protecting circuit breaker
- Compressor temperature switch
- Electric parts compartment door switch
- Refrigerator automatic delay circuit
- Upper and lower temperature limit alarms
- Watchdog timer
- Burn-out circuit

## SPECIFICATIONS

Model	MC-711	MC-811
Power Supply	200V AC, 3 220V AC, 3 380V AC, 3	3W, 50/60Hz 3W, 60Hz 4W, 50Hz
Maximum Current	12A (8.3A at 380V AC)	14A (9.2A at 380V AC)
Temperature Control System	Balanced Temperature Control system (BTC system)	
Operating Temperature	0 to + 40 ( + 32 to + 104° F)	
Performance*1	Temperature Range	- 75 to + 100 ( - 103 to + 212° F)
	Temperature Fluctuation	± 0.5 ( ± 0.9° F)
	Temperature Uniformity	± 1.0 ( ± 1.8° F)
	Temperature Heat-up Rate	+ 20 to + 100 ( + 68 to + 212° F) Approx. 20 min.
	Temperature Pull-Down Rate	+ 20 to - 70 ( + 68 to - 94° F) Approx. 60 min.
	Temperature Pull-Down Rate	+ 20 to - 80 ( + 68 to - 112° F) Approx. 70 min.
Construction	Material	Exterior: Painted steel (Melamine baked finish) Interior: 18-8 Cr-Ni stainless steel plate (2B polish) Insulation: Rigid polyurethane foam, glass fiber reinforced plastics and others
	Heater	Nichrome-stripped wire heater 1kW
	Refrigeration system	Mechanical cascade refrigeration system (air-cooled condenser)
Performance*1	Refrigerator	Hermetically sealed compressor (R404A/ R508A)
	Refrigerator capacity	650W + 400W      800W + 650W
	Expansion mechanism	Capillary tube system
	Cooler	Plate-fin cooler
Chamber Air Circulator	Propeller fan ( 154mm, 4 blades)	
Fittings	Viewing window ( 120mm with frost prevention heater), Cable port ( 50mm, 1pc), Integrating hour meter, Power cord, Drain tube	
Inside Dimensions	400W × 400H × 400D mm (15.7W × 15.7H × 15.7D in)	
Outside Dimensions*2	900W × 1200H × 610D mm (35.4W × 47.2H × 24.0D in)	
Inside Capacity	64L (2.2ft³)	
Weight	155kg (342 lbs)	

\*1 At + 23 ( + 73.4° F) ambient temperature , no specimen.

The performance is according to JTM K 01-1998 of Japan Testing Machinery Association.

\*2 Excluding protrusions.

## TEMPERATURE INDICATOR-CONTROLLER

Model	P-instrumentation (SCP-220)	T-instrumentation (ES-102)
Operating mode	Program/ Constant operation	Constant operation
Display	Color TFT LCD display	7-segment LED display
Setting	Analog touch panel method	Mechanical key input method
Program memory capacity	RAM pattern: 20 program patterns ( 99 steps per pattern) ROM pattern: 10 program patterns	————
Setting and indication ranges	Temp.	- 85 to + 110 (MC-711), - 95 to + 190 (MC-811)
	Time	0 to 999hrs. 59min.
Setting and indication resolution	Temp.	0.1
	Time	1 min.
Input	Thermocouple type T ( Copper/ Copper-Nickel)	
Communication function	RS-485	
Auxiliary functions	Input burn-out detection function, Upper and lower temp. limit alarm function, Self-diagnostic function, Alarm indication function, Power cut protection function, Refrigerator capacity automatic control function, Trend graph indication function (SCP-220), Help function (SCP-220)	

\*1 At + 23 ( + 73.4° F) ± 1 ambient temperature.

## ACCESSORIES

Shelf (stainless).....	2
Shelf brackets (stainless).....	2 sets
Cable port rubber plug ( 50mm).....	1
Chamber lamp .....	1
Glass tube fuse .....	2 (200, 220 VAC), 1 (380 VAC)
Thermal fuse.....	1
Plug type fuse (for 380 VAC).....	1
User's manual.....	1
Warranty.....	1

## OPTIONS

Emergency stop switch	Communication function
External alarm terminal	(E-BUS/ GP-IB/ RS-232C)
Temperature recorder	Paperless recorder
Temperature recorder for future installation	
Communication cable	Cable port
Thermocouple	Cable port rubber plug
Power cord (5- 10m except 380V AC)	
Shelf / Shelf bracket	Caster



DANGER

Do not use specimens which are explosive or inflammable, or which contain such substances. To do so could be hazardous, as this may lead to fire or explosion.

Do not place corrosive materials in the chamber. If corrosive substances or humidifying water is used, the life of the unit may be significantly shortened.



CAUTION

Be sure to read the instruction manual before operation.

Some photographs listed in this catalog contain Japanese display.

**ESPEC CORP.** <http://www.espec.co.jp/english>

**Head Office**

3-5-6, Tenjinbashi, Kita-ku, Osaka 530-8550, Japan

Tel: 81-6-6358-4741 Fax: 81-6-6358-5500

**Europe Office**

Tel: 49-6196-77-99980 Fax: 49-6196-77-99985

**ESPEC NORTH AMERICA, INC.**

Tel: 1-616-896-6100 Fax: 1-616-896-6150

**ESPEC EVALUATION & TEST SYSTEMS, INC.**

Tel: 1-408-433-2295 Fax: 1-408-433-2296

**ESPEC ENVIRONMENTAL EQUIPMENT (SHANGHAI) CO., LTD.**

**Head Office**

Tel: 86-21-58303322 Fax: 86-21-58661781

**BEIJING Rep. Office**

Tel: 86-10-64627025 Fax: 86-10-64627036

**GUANGZHOU Rep. Office**

Tel: 86-20-83317826 Fax: 86-20-83317825

**SHENZHEN Rep. Office**

Tel: 86-755-83674422 Fax: 86-755-83674228

**SUZHOU Rep. Office**

Tel: 86-512-68664007 Fax: 86-512-68601994

**ESPEC (MALAYSIA) SDN. BHD.**

Tel: 60-3-89451377 Fax: 60-3-89451287



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R001



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**ISO 14001 (JIS Q 14001)**

**Environmental Management System Assessed and Registered**

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