

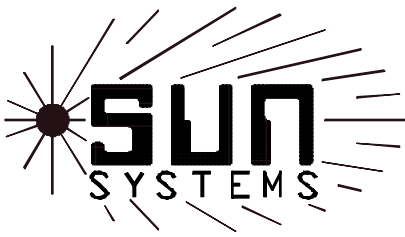
**EC0x Environmental Chamber Summary Table**

**Note: Data Sheet For Reference Only - Actual Chamber May Vary Depending on Model Year, Options, Controllers, and Individual Configuration**

Model		EC0A	EC01	EC02	EC03	
Chamber Volume		0.37 ft <sup>3</sup> (0.010 m <sup>3</sup> )	0.7 ft <sup>3</sup> (0.020 m <sup>3</sup> )	2.2 ft <sup>3</sup> (0.062 m <sup>3</sup> )	3.0 ft <sup>3</sup> (0.085 m <sup>3</sup> )	
Test Chamber Dimensions [Inches(Centimeters)]		10.0 (25.4) W 8.0 (20.3) H 8.0 (20.3) D	12.0 (30.5) W 9.75 (24.75) H 10.25 (26.0) D	20.0 (50.8) W 12.0 (30.5) H 16.0 (40.6) D	20.0 (50.8) W 12.0 (30.5) H 22.0 (55.9) D	
Overall Dimensions [Inches(Centimeters)]		17.5 (44.5) W 13.25 (33.7) H 20.0 (50.8) D	21.0 (53.3) W 16.0 (40.6) H 24.0 (61.0) D	30.0 (76.2) W 19.5 (49.5) H 30.0 (76.2) D	30.0 (76.2) W 19.5 (49.5) H 36.0 (91.4) D	
Heat/Cool Rate of Change		0.5°C/sec (30°C/min)	0.5°C/sec (30°C/min)	0.25°C/sec (15°C/min)	0.25°C/sec (15°C/min)	
Air-Flow (CFM, Vertical)		60 ft <sup>3</sup> /min	60 ft <sup>3</sup> /min	150 ft <sup>3</sup> /min	300 ft <sup>3</sup> /min	
Power Options	100/115 VAC, 50/60 Hz Single Phase	*	*	*		
	208/220 VAC, 50/60 Hz Single Phase, 3/4 Wire	*	*	*	*	
	240 VAC, 50 Hz Single Phase, 3 Wire	*	*	*	*	
Power Requirement		1600 Watts	1800 Watts	2200 Watts	3000 Watts	
Expendable Gas Coolant Usage	LCO <sub>2</sub>	@0°C	1.8 lbs/hr	2 lbs/hr	3.5 lbs/hr	5 lbs/hr
		@-55°C	4 lbs/hr	6 lbs/hr	11 lbs/hr	15 lbs/hr
	LN <sub>2</sub>	@0°C	.7 lbs/hr	1 lb/hr	2 lbs/hr	2.5 lbs/hr
		@-55°C	2.2 lbs/hr	3 lbs/hr	5.5 lbs/hr	7.5 lbs/hr
Weight; Net/Shipping		38/55 lbs	49/68 lbs	80/100 lbs	98/115 lbs	
<b>Controller Section</b> (included in chamber cost)		<b>MODEL TC01</b> (also available for RETROFIT)				
Temperature Setpoint Range		-73°C to +300°C in 0.1° Steps (LN <sub>2</sub> Option; -100°C to +300°C)				
Time at Temperature Range		0.1 to 1800 minutes or Continuous (Optionally, 0.1 to 1800 hours)				
Temperature Ramping Rate Control		Not Controlled Locally				
Programmable Set Temps and Times		10 Programmable Set Temperatures and Times				
Absolute Error (not including probe error)		±0.4°C				
Long Term Stability (per month)		±0.3°C				
Temperature Resolution		0.1°C				
Line Voltage Sensitivity (105-125 VAC)		±0.2°C				
Programmable Temperature Loop Control		1 to 1800 Cycles of Programmable Set Temperatures and Set Times or Continuous				
Temperature Control Technique		PID Algorithm / Pulse Width Modulated, Programmable from Remote Interfaces				
Local Operation		16 Key Keyboard / 4 Digit Display				
Remote Operation		Built-in <b>IEEE-488 / RS232</b> Interfaces				
Additional I/O Capability		IEEE-488 to RS232 Transparent Mode, 2 Auxiliary Outputs, 1 Auxiliary Input				
Safety Features		Open/Short Probe Detection, Adjustable Over Temperature Thermostat, Software Upper Temperature Limit				
Convenience Features		Heat and Cool Enable/Disable Switches				

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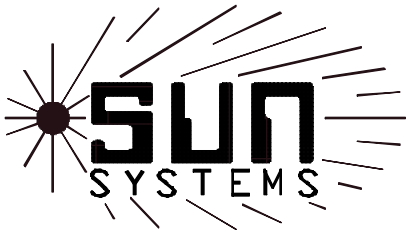


## EC1x Environmental Chamber Summary Table

Model		EC1A	EC11A	EC10	EC11	**EC1.3w
Chamber Volume		0.37 ft <sup>3</sup> (0.010 m <sup>3</sup> )	0.37 ft <sup>3</sup> (0.010 m <sup>3</sup> )	0.7 ft <sup>3</sup> (0.020 m <sup>3</sup> )	0.7 ft <sup>3</sup> (0.020 m <sup>3</sup> )	1.37ft <sup>3</sup> (0.040 m <sup>3</sup> )
Test Chamber Dimensions [Inches(Centimeters)]		10.0 (25.4) W 8.0 (20.3) H 8.0 (20.3) D	10.0 (25.4) W 8.0 (20.3) H 8.0 (20.3) D	12.0 (30.5) W 9.75 (24.75) H 10.25 (26.0) D	12.0 (30.5) W 9.75 (24.75) H 10.25 (26.0) D	14.0 (35.6) W 13.0 (33.0) H 13.0 (33.0) D
Overall Dimensions [Inches(Centimeters)]		17.5 (44.5) W 13.25 (33.7) H 20.0 (50.8) D	17.5 (44.5) W 13.25 (33.7) H 20.0 (50.8) D	21.0 (53.3) W 16.0 (40.6) H 24.0 (61.0) D	21.0 (53.3) W 16.0 (40.6) H 24.0 (61.0) D	26.5 (67.3) W 21.0 (53.3) H 31.0 (78.7) D
Heat/Cool Rate of Change		.5°C/sec 30°C/min	1.0°C/sec (60°C/min)	0.5°C/sec (30°C/min)	.8°C/sec (48°C/min)	0.33°C/sec (20°C/min)
Air-Flow (CFM, Vertical)		60 ft <sup>3</sup> /min	120 ft <sup>3</sup> /min	60 ft <sup>3</sup> /min	120 ft <sup>3</sup> /min	250 ft <sup>3</sup> /min
Power Options	100/115 VAC, 50/60 Hz Single Phase	*		*		
	208/220 VAC, 50/60 Hz Single Phase, 3/4 Wire	*	*	*	*	*
	240 VAC, 50 Hz Single Phase, 3 Wire	*	*	*	*	*
Power Requirement		1600 Watts	4200 Watts	1800 Watts	4200 Watts	3000 Watts
Expendable Gas Coolant Usage	LCO <sub>2</sub>	@0°C	1.3 lbs/hr	1.3 lbs/hr	2 lbs/hr	2 lbs/hr
		@-55°C	4 lbs/hr	4 lbs/hr	6 lbs/hr	6 lbs/hr
	LN <sub>2</sub>	@0°C	.7 lbs/hr	.7 lbs/hr	1 lb/hr	1 lb/hr
		@-55°C	2.2 lbs/hr	2.2 lbs/hr	3 lbs/hr	3 lbs/hr
Weight; Net/Shipping		38/55 lbs	38/55 lbs	49/68 lbs	49/68 lbs	77/94 lbs
<b>Controller Section</b> (included in chamber cost)		<b>MODEL TC10</b> (NOT available for retrofit)				
Temperature Setpoint Range		-73°C to +315°C in 0.1°C Steps (LN <sub>2</sub> Option: -184°C to +315°C) Except for **EC1.3w -73°C to +400°C in 0.1°C Steps (LN <sub>2</sub> Option: -184°C to +400°C)				
Time at Temperature Range		1.0 sec to 99 hr 59 min 59 sec or Continuous				
Temperature Ramping Rate Control		Locally Controlled from 0.01°C/min up to the Specified Heat/Cool Rate of Change				
Programmable Set Temps and Times		Number of Set Temperatures and Set Times Limited Only By Available Program Memory. Typically 100+ Segments				
Absolute Error (not including probe error)		±0.25°C				
Long Term Stability (per month)		±0.2°C				
Temperature Resolution		0.02°C				
Line Voltage Sensitivity (105-125 VAC)		±0.1°C				
Programmable Temperature Loop Control		1 to 65,535 FOR/NEXT Loop Executions for 10 Loops, Nesting Supported				
Temperature Control Technique		PID Algorithm / Pulse Width Modulated, Programmable from Keyboard or Remote Interfaces				
Local Operation		29 Key Keyboard / 2 Line LCD				
Remote Operation		Built-in <b>IEEE-488 / RS232 / RS422</b> Interfaces				
Additional I/O Capability		Electrically Isolated USER Temperature/Voltage Probe, 4 Channels of Analog Input and Analog Output, 16 Bit Address/8Bit Data Parallel Port, 56 KBit Auxiliary High Speed Serial Port, IEEE-488 to RS232/RS422 Transparent Mode, 5 Auxiliary Outputs, 8 Auxiliary Inputs				
Safety Features		Open/Short Probe Detection, Adjustable Over Temperature Thermostat, Software Upper and Lower Temperature Limit				
Convenience Features		Heat/Cool Enable/Disable Switches, Battery-backed Memory for Programs, Setup Menus for Probe CAL, Remote Interrupt Operation and Default Conditions for Alarms and Interfaces, Time of Day Clock				

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## EC1x Environmental Chamber Summary Table cont.

EC12	EC13	EC13HA	EC15HA	EC16	EC16HA
2.2 ft <sup>3</sup> (0.062 m <sup>3</sup> )	3.0 ft <sup>3</sup> (0.085 m <sup>3</sup> )	3.0 ft <sup>3</sup> (0.085 m <sup>3</sup> )	5.0 ft <sup>3</sup> (0.142 m <sup>3</sup> )	6.16 ft <sup>3</sup> (0.174 m <sup>3</sup> )	6.16 ft <sup>3</sup> (0.174 m <sup>3</sup> )
20.0 (50.8) W 12.0 (30.5) H 16.0 (40.6) D	20.0 (50.8) W 12.0 (30.5) H 22.0 (55.9) D	20.0 (50.8) W 12.0 (30.5) H 22.0 (55.9) D	20.0 (50.8) W 12.0 (30.5) H 36.0 (91.4) D	22.0 (55.9) W 22.0 (55.9) H 22.0 (55.9) D	22.0 (55.9) W 22.0 (55.9) H 22.0 (55.9) D
30.0 (76.2) W 19.5 (49.5) H 30.0 (76.2) D	30.0 (76.2) W 19.5 (49.5) H 36.0 (91.4) D	30.0 (76.2) W 19.5 (49.5) H 36.0 (91.4) D	30.0 (76.2) W 19.5 (49.5) H 50.0 (127.0) D	32.0 (81.3) W 29.5 (74.9) H 36.0 (91.4) D	32.0 (81.3) W 29.5 (74.9) H 36.0 (91.4) D
0.25°C/sec (15°C/min)	0.25°C/sec (15°C/min)	0.5°C/sec (30°C/min)	0.4°C/sec (24°C/min)	0.4°C/sec (24°C/min)	.4°C/sec (24°C/min)
150 ft <sup>3</sup> /min	300 ft <sup>3</sup> /min	600 ft <sup>3</sup> /min	600 ft <sup>3</sup> /min	600 ft <sup>3</sup> /min	600 ft <sup>3</sup> /min
*					
*	*	*	*	*	*
*	*	*	*	*	*
2200 Watts	3000 Watts	6000 Watts	6000 Watts	6000 Watts	6000 Watts
3.5 lbs/hr 11 lbs/hr 2 lbs/hr 5.5 lbs/hr	5 lbs/hr 15 lbs/hr 2.5 lbs/hr 7.5 lbs/hr	5 lbs/hr 15 lbs/hr 2.5 lbs/hr 7.5 lbs/hr	5 lbs/hr 15 lbs/hr 2.5 lbs/hr 7.5 lbs/hr	12 lbs/hr 35 lbs/hr 6 lbs/hr 18 lbs/hr	12 lbs/hr 35 lbs/hr 6 lbs/hr 18 lbs/hr
80/100 lbs	98/115 lbs	108/125 lbs	138/175 lbs	139/160 lbs	165/185 lbs
<b>MODEL TC10</b> (NOT available for retrofit)					
-73°C to +315°C in 0.1°C Steps (LN <sub>2</sub> Option: -184°C to +315°C) Except **EC1.3w -73°C to +400°C in 0.1°C Steps (LN <sub>2</sub> Option: -184°C to +400°C)					
1.0 sec to 99 hr 59 min 59 sec or Continuous					
Locally Controlled from 0.01°C/min up to the Specified Heat/Cool Rate of Change					
Number of Set Temperatures and Set Times Limited Only By Available Program Memory. Typically 100+ Segments					
±0.25°C					
±0.2°C					
0.02°C					
±0.1°C					
1 to 65,535 FOR/NEXT Loop Executions for 10 Loops, Nesting Supported					
PID Algorithm / Pulse Width Modulated, Programmable from Keyboard or Remote Interfaces					
29 Key Keyboard / 2 Line LCD					
Built-in <b>IEEE-488 / RS232 / RS422</b> Interfaces					
Electrically Isolated USER Temperature/Voltage Probe, 4 Channels of Analog Input and Analog Output, 16 Bit Address/8Bit Data Parallel Port, 56 KBit Auxiliary High Speed Serial Port, IEEE-488 to RS232/RS422 Transparent Mode, 5 Auxiliary Outputs, 8 Auxiliary Inputs					
Open/Short Probe Detection, Adjustable Over Temperature Thermostat, Software Upper and Lower Temperature Limit					
Heat/Cool Enable/Disable Switches, Battery-backed Memory for Programs, Setup Menus for Probe CAL, Remote Interrupt Operation and Default Conditions for Alarms and Interfaces, Time of Day Clock					

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