

# Laboratory INCUBATORS



**JSR**

[주] 제이에스리서치  
JS Research Inc.

# Laboratroy

## INCUBATOR

## SELECTION GUIDE

### JSGI-Series General Heated Incubator



- ▶ amb. +5 °C ~ 70 °C
- ▶ Constant Temperature
- ▶ Timer On / Off
- ▶ RS-232C or 485 [OPTION]
- ▶ Program Controller
- ▶ 5 PTN 80 SEG [OPTION]



MODEL	CAPACITY	TEMPERATURE	ACCURACY
JSGI-050T	48 L	amb. + 5 °C ~ 70 °C	± 0.2 °C
JSGI-100T	96 L		± 0.2 °C
JSGI-150T	150 L		± 0.2 °C
JSGI-250T	250 L		± 0.3 °C
JSGI-250DT	2 x 250 L		± 0.3 °C

### JSGI-Series Compact Incubator



- ▶ amb. +5 °C ~ 50 °C
- ▶ Constant Temperature
- ▶ Timer On / Off



MODEL	CAPACITY	TEMPERATURE	ACCURACY
JSGI-10T	9.3 L	amb. + 5 °C	± 0.2 °C
JSGI-30T	31.5 L	~ 50 °C	± 0.2 °C

### JSBI-C Series Cooled BOD Incubator



- ▶ +0 °C ~ 70 °C
- ▶ Constant Temperature
- ▶ Timer On / Off
- ▶ RS-232C or 485 [OPTION]



MODEL	CAPACITY	TEMPERATURE	ACCURACY
JSBI-050C	50 L	+ 0 °C ~ 70 °C	± 0.2 °C
JSBI-100C	100 L		
JSBI-150C	150 L		
JSBI-250C	250 L		
JSBI-420C	420 L		
JSBI-840C	840 L		

### JSBI-CP Series Programmable Cooled Incubator



- ▶ +0 °C ~ 70 °C
- ▶ Program Controller
- ▶ 5 PTN 80 SEG
- ▶ RS-232C or 485 [OPTION]



MODEL	CAPACITY	TEMPERATURE	ACCURACY
JSBI-150CP	150 L	+ 0 °C ~ 70 °C	± 0.2 °C
JSBI-250CP	250 L		
JSBI-420CP	420 L		

## JSBI-DCP Series Dual Chamber Cooled Incubator



- ▶ Dual Chamber
- ▶ +0 °C ~ 70 °C
- ▶ Constant Temperature or Program Controller  
5 PTN 80 SEG
- ▶ Timer On / Off
- ▶ RS-232C or 485 [OPTION]



MODEL	CAPACITY	TEMPERATURE	ACCURACY
JSBI-250DC	2 x 250 L	+ 0 °C ~ 70 °C	± 0.2 °C
JSBI-250DCP			

## JSMI-02 Series 2 Chamber Incubator



- ▶ Dual Chamber
- ▶ +0 °C ~ 70 °C
- ▶ Constant Temperature or Program Controller  
5 PTN 80 SEG
- ▶ Timer On / Off
- ▶ Photoperiodic Light Control
- ▶ RS-232C or 485 [OPTION]



MODEL	CAPACITY	TEMPERATURE	FEATURE
JSMI-02C	2 x 125 L	+ 0 °C ~ 70 °C	Constant
JSMI-02CP			Program
JSMI-02CPL			Light

## JSMI-04 Series Multi-Room Incubator



- ▶ Four Chamber
- ▶ +0 °C ~ 70 °C
- ▶ Constant Temperature or Program Controller  
5 PTN 80 SEG
- ▶ Timer On / Off
- ▶ Photoperiodic Light Control
- ▶ RS-232C or 485 [OPTION]



MODEL	CAPACITY	TEMPERATURE	FEATURE
JSMI-04T	4 x 125 L	0 °C ~ 70 °C	Heated
JSMI-04C			Cooled
JSMI-04CP			Program
JSMI-04CPL			Light
JSMI-05C(L)	5 x 44 L	+5 °C ~ 70 °C	Cooled
JSMI-08CP(L)	8 x 26 L	+5 °C ~ 70 °C	Cooled

## JSSC-Series Cold Lab Storage Chamber



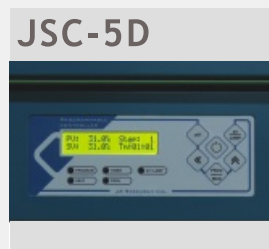
- ▶ 4 °C Refrigerator
- ▶ On/Off Control
- ▶ RS-232C or 485 [OPTION]



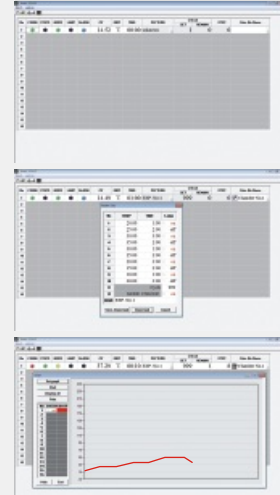
MODEL	CAPACITY	TEMPERATURE	ACCURACY
JSSC-700C	686 L	+ 0 °C ~ 10 °C	± 2.0 °C
JSSC-1200C	1176 L		

## Controller Guide

	JSC-0D Basic Controller	JSC-1D Digital PID Controller	JSC-3D Programmable Controller	JSC-5D Programmable Controller
Type	Digital PID		16-bit Microprocessor	
Display	LED		2-Line Back light LCD	
Operation	Constant Temperature		Constant Temp. Mode Program Mode	
Accuracy	± 0.1 °C		± 0.1 °C	
Timer	Auto START/STOP		Auto STOP	
Timer Scale	Max. 99min 59sec / 99hr 59min / 99 day 23hr selectable		Max. 99min 59sec / 99hr 59min selectable	
Pattern Memory	n/a	n/a	1 Pattern	5 Patterns
Max. Segment			11 Segments	80 Segments
Max. Repeats			999 or unlimited Segment Skip	999 or unlimited Segment Skip Pattern Link
Light Control			On/Off control integrated with programming	
RS-232C or RS-485	n/a	Yes [OPTION]	Yes [OPTION]	Yes [OPTION]
PC Software	n/a	Yes [OPTION]	Yes [OPTION]	n/a
Calibration	Yes	Yes	Yes	Yes
Auto-tuning	Yes	Yes	Yes	Yes



### ▶ PC Software [OPTION]



- ▶ RS-232C Serial Port Communication
- ▶ Turn On and Off control
- ▶ Temperature and Timer Setting
- ▶ Pattern Programming and uploading
- ▶ Current temperature Graph Rendering
- ▶ Temperature Data Logging
- ▶ Alarm Signal
- ▶ RS-232C 시리얼 포트 통신
- ▶ 작동, 정지 제어
- ▶ 온도설정, 타이머 설정 기능
- ▶ 패턴 프로그래밍 기능
- ▶ 작동 중 온도 그래프 표시 기능
- ▶ 온도 데이터 수집 및 저장 기능
- ▶ 알람 현황 표시

#### ASCII Data Collection

Date	Time	Temp	Step	Seg	Cycle
2014:01:08	09:00:00	37.00	00:05	03	001/999
2014:01:08	09:00:10	37.01	00:05	03	001/999
2014:01:08	09:00:20	37.01	00:05	03	001/999
2014:01:08	09:00:30	37.00	00:05	03	001/999

# Performance & Convenience

## Construction



- ▶ Durable epoxy powder coated metallic casing
- ▶ 내구성이 뛰어난 에폭시 분체 도장

## Chamber



- ▶ Corrosion resistant Stainless Steel 304 chamber with seamless round cornered edge allows easy cleaning and prevents leakage
- ▶ 내부식성이 뛰어난 Stainless Steel 304 재질의 챔버 코너는 이음새없이 라운드 처리 되어 있어 세척이 간편

## Inner Glass Door



- ▶ High density silicone packing with air-tight door lock
- ▶ Removable and height adjustable shelf by 25mm spacing
- ▶ 내부 유리 도어와 고밀도 실리콘 패킹, 밀착식 도어락
- ▶ 25mm 간격으로 높이 조절 가능한 선반

## Light Control



- ▶ Programmable Photoperiodic lighting control system
- ▶ 일광조절이 가능한 조도 ON/OFF 프로그램기능

# Safety



- ▶ **DUAL OVER TEMP. CUT-OFF**
  - 1) Digital system cut-off heater and AUDIO VISUAL ALARM in case +2°C above set temperature
  - 2) Analog system cut-off heater 10% above set temp.
- ▶ **MAX TEMP CUT-OFF** heater and AUDIO VISUAL ALARM when +1°C above maximum limit
- ▶ **GLASS DOOR SWITCH**
- ▶ **SENSOR DISCONNECTION ALARM**
- ▶ **OVER CURRENT CUT-OFF** : Electrical Leakage Breaker

### 이중과열방지장치

- 1) 설정 온도 +2 °C 초과 시 히터 차단 및 시청각 알람
- 2) 콘트롤러 오류로 지정 온도 10% 초과 시 히터차단

### 최고온도알람기능 : 작동한계 온도+1°C 초과시 히터 차단

### 도어스위치

### 센서단락알람

### 누전차단기 : 전기누설 시 주전원 차단

## Maintenance



- ▶ Easy to maintain refrigeration system with dust filter
- ▶ 편리한 유지보수 먼지 필터 장착

# 4-Chamber INCUBATOR









5 PATTERN MEMORY  
80 SEGMENTS

Photoperiodic Control



## Programmable Multi-Room Incubator

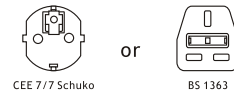
JSMI-CP(L) Series Multi-Room Programmable Refrigerated Incubator equipped with 5 Pattern internal memory, 80 segments and light control for photoperiodic day-night simulation program capability provides various incubation and test condition needs temperature vs time vs light programming.

-  Four Chamber Independent Temperature
-  Cooled +0 °C to 70 °C
-  Program Controller 5 Patterns 80 Segments
-  Timer Off 
-  Photoperiodic Control 
-  [OPTION] 11 Segment Program with RS-485C Multi-Drop

## Specifications

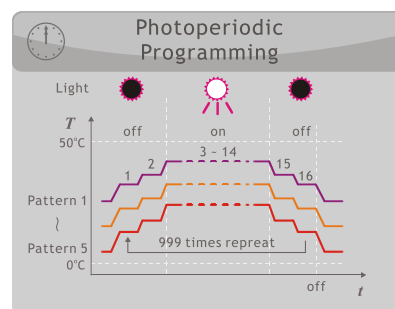
<b>Heating</b>	Forced Air Convection
<b>Cooling</b>	CFC-Free air cooled compressor
<b>Temp. Range</b>	+ 0 °C ~ 70 °C
<b>Accuracy</b>	± 0.2 °C at 20.0°C (JSMI-04CP)
<b>Uniformity</b>	± 0.5 °C at 20.0°C (JSMI-04CPL)
<b>Control</b>	Programmable PID Control 5 Pattern 80 Segments 999 Repeatable Photoperiodic Light Control (JSMI-04CPL)
<b>Sensor</b>	Class A Pt-100 Ω Sensor
<b>Safety</b>	Over-Temperature Cut-Off Over Current Cut-Off
<b>Material</b>	Body : Epoxy Powder Coated Steel Chamber : Stainless Steel 304 Inner Glass Door : Tempered Safety Including PVC Coated Wire Shelf Built-in Caster for easy transport
<b>Electric</b>	220 ± 10% VAC 50/60Hz 1-Phase

Plug config.



## Control Accuracy

- Programmable 16-bit Microprocessor Digital PID control with ±0.1°C resolution
- 5 Patterns memory 80 Segments 999 times repeatable
- Constant Temp. Mode / Program Mode
- Pattern link and Segment skip function
- Automatic STOP timer Max. 99min 59sec / 99hr 59min
- Programmable photoperiodic light control system
- Temperature calibration and auto-tuning function
- Class A Pt-100 Ω sensor



JSMI-04 Outer Door with Glass Window Option

- ▶ 해상도 ±0.1 °C 정밀한 16-bit 프로그램 PID 컨트롤러
- ▶ 5패턴 저장 메모리 80세그먼트, 999회 또는무한 반복운전
- ▶ 정지운전 또는 프로그램운전 기능
- ▶ 작동 중인 패턴 종료 후 다른 패턴으로 링크하여 연속작동
- ▶ 현재 작동 중인 세그먼트 건너 뛰기 기능
- ▶ 타이머 내장 99분59초 / 99시간59분
- ▶ 일광조절이 가능한 조도 ON/OFF 프로그램기능
- ▶ 온도보정, 오토튜닝 기능 내장
- ▶ Class A Pt-100 Ω 온도 센서

## Performance

- ▶ Durable epoxy powder coated metallic casing
- ▶ Corrosion resistant Stainless Steel 304 chamber
- ▶ Durable Stainless Steel 304 Sheath Heater and copper-aluminum finned evaporator
- ▶ Forced circulation for excellent thermal uniformity
- ▶ Separate heating and cooling compartment prevents contamination and maintenance free
- ▶ Cooling system with hermetically sealed compressor

- ▶ 내구성이 뛰어난 에폭시 분체 도장 본체
- ▶ 내부식성이 뛰어난 Stainless Steel 304 재질의 챔버
- ▶ 내구성과 내부식성이 뛰어난 Stainless Steel 304 재질의 히터와 냉각 효율이 뛰어난 냉각기
- ▶ 부드러운 공기 순환식 설계로 균일한 온도 분포
- ▶ 가열챔버가 후면에 위치하여 액체 흘림으로 인한 고장이적음
- ▶ 내구성이 강한 냉각 시스템

## Convenience

- ▶ Outer door with self adhesive magnetic packing
- ▶ Inner glass door with high density silicone packing and air-tight door lock
- ▶ Stainless Steel 304 Chamber with seamless round cornered edge allows easy cleaning and prevents contamination
- ▶ Removable and height adjustable shelf by 25mm spacing
- ▶ Auto-defrost system, user settable interval and time
- ▶ Built-in casters for easy transport

## Ordering Information

	JSMI-04CP	JSMI-04CPL
Chamber Volume (Capacity)	125 L x 4 Chambers	
Dimensions Inner	500 x 500 x 500 / chamber	
W x D x H mm Outer	1365 x 815 x 1885	
Temperature Range	+0 °C to 70 °C	
Accuracy at 20.0°C	± 0.2 °C at 20 °C	
Uniformity at 20.0°C	± 0.5 °C at 20 °C	
Lighting Control	none	2 x 32 Watt FPL Lamp
Number of shelves / Maximum No.	2 / 16 per chamber	
Heater Capacity	4 x 900 W	4 x 900 W
Refrigeration System	CFC-Free Air Cooled Compressor	
Power Rating	2 x 14.8 Amp	2 x 15.4 Amp
Power Plug	CEE 7/7 Schuko Two plug system	

- ▶ 자석 접착방식의 외부 도어 패킹
- ▶ 내부 유리 도어와 고밀도 실리콘 패킹, 밀착식 도어락은 챔버의 기밀성이 뛰어남
- ▶ 챔버의 코너는 이음새 없이 라운드 처리 되어 있어 세척이 간편하고 오염 방지
- ▶ 25mm 간격으로 높이 조절 가능한 선반
- ▶ 제상 간격 및 시간을 조절할 수 있는 자동 제상 시스템
- ▶ 바퀴를 장착하여 설치 및 이동이 편리함

## Safety

- ▶ DUAL OVER TEMP. CUT-OFF
- ▶ MAX TEMP CUT-OFF
- ▶ AUDIBLE VISUAL ALARMS
- ▶ SENSOR DISCONNECTION ALARM
- ▶ OVER CURRENT CUT-OFF : Electric Leakage Breaker

## Options

Art No.	Descriptions
OEC-004	JSC-3D Programmable Controller 1 Pattern 11 Segments /w RS-485C Multi-Drop Interface, PC Software
OEA-001	Power Outlet Consent in Chamber for CEE 7/7 Schuko Plug
OEA-002	Power Outlet Consent in Chamber for BS 1363 Plug
OEC-105	Outer Door with Glass Window

## Accessories

Art No.	Descriptions
	<b>Perforated Shelf, Stainless Steel 304</b>
PHS-A06	for JSMI-04CP(L) W470 x D480 mm
	<b>PVC Coated Wire Shelf</b>
PHS-C05	for JSMI-04CP(L) W470 x D480 mm
PHS-A99	Shelf Support, Set of 4