

- Arabidopsis Chamber
- Seeds Germination Chamber
- Incubator
- Plant Growth Chamber



JKG-66L2AR



JKG-66LL



## PRODUCT OVERVIEW

JKG chamber has a unique ability to fit various research applications and is flexible in its design. The Basic 66 series can be fitted with various mix and match options kits to suit a variety of applications.

Some applications are Plant Growth, Climate change, Plant Pathology, Incubator, Seed germination, application, stability studies and seed storage etc. Many other applications exist. (Consult us for possible options and upgrade for each model).

## APPLICATIONS

**Biological Incubator** (NL, LL & VL & LLVL) : This chamber is frequently used for Cyanobacteria, insects, simple low-cost Germination, c-elegans, nematodes, yeast/ fungi, insects, bacteria and BOD.

**Seed Germinator:** This chamber is designed for seed germination and development

**Arabidopsis Chamber:** This chamber is frequently used for Arabidopsis Thaliana, Tobacco and other plants.

**Plant Growth Chamber:** This chamber is frequently used for soybean, Rice, Tomato, cotton or other short to medium height plants.

Many other applications exist for the chambers. Please compare your own requirement to the specification listed.

## CABINET CONSTRUCTION

- Interior constructed of 22-gauge electro-zinc plated steel
- Exterior constructed of 18-gauge exterior electro-zinc plated steel
- Welded seams and joints on outer and inner shells
- Inner shell supported by non-compressing/non-thermal conducting material locking inner liner in place without a metal-to-metal bond to outer case
- Chamber is completely self-contained
- Overall wall thickness is 2" (5.1 cm)
- One 1¼" diameter access port on R.H. wall
- Chamber floor equipped with floor drain and hose assembly
- Contains caster assembly and adjustable leveling legs to compensate for floor unevenness in the lab
- Interior Volume: 1800 Liter



C8 Intellus Control System, features include

- Industrial Grade, highly reliable, solid state microcontroller architecture.
- Dual Experiment protection via integrated yet independent temperature limit shutdown.
- Ambient temperature monitoring.
- Power fail event logging.
- Automatic Restart
- Single Board Electronic Solid state design.
- Durable 10-key industrial keypad with VFD display and LED indicators.
- Three programming styles: Diurnal, 24 hour, and non-24 hour (elapsed time)
- Programs can be run in ramping or non-ramping modes.
- Programs are created and run in real time.
- Multiple programs can be linked together to simulate natural conditions.
- RTD temperature sensor inputs.
- Three point temperature calibration.
- Two calibrations offset per input channel (one for light ON and one for lights OFF)
- Light lifetime maintenance. The controller maintains the accumulated hours that each light output has been activated. The accumulated hours can be reset for each output.
- Available programmable outputs (23) allow for user specific control requests (i.e. programmable electrical outputs).
- Highly visible alarm display with audible buzzer.
- Controller can be secured with four -level password protection.
- Field upgradable I/O expansion modules.
- Firmware updated easily uploaded via included USB thumb drive.
- Industrial grade membrane key-pad overlay for service.
- Improve troubleshooting with Systems diagnostics menu.
- Scalable analog and digital control outputs.
- Digital addressable lighting interface (DALI) control allows for light remapping without the need for rewiring.
- View current set points and process values, alarm status, alarm settings, program operation mode,
- program steps and controller time.
- Program Storage: 99+
- Date and Time clock.

## CONTROLLER

**Percival Intellus controller:** Percival Scientific USA has built a reputation of providing reliable customized options for research scientists around the world. We have collaborated with Percival to bring their new Intellus Ultra controller integrated in our chamber. Now choose from the level of functionality that meets your research needs.

Please refer to <https://www.percival-scientific.com/> for additional information, regarding control system.

## LIGHTING SYSTEM SciWhite

### (Arabidopsis & Plant growth Chamber) (SciWhite LED Lighting System)

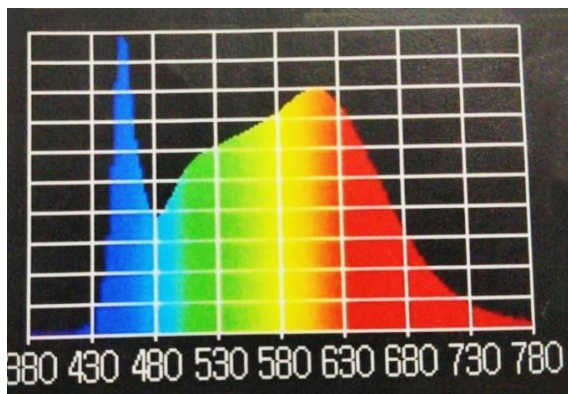
**LED Control:** System controlled via open loop dimming as a percentage of total output in 1% increments

- Programming & Control: Via real time intellus Ultra Controller.
- LED output : PAR white
- Intensity: @ 6" from Lamp Bank & Programmable
- Light Fixture efficacy: 2.5  $\mu\text{moles/J}$
- PAR Light Range: 430-780nm
- Horizontal Fitted light shelf
- Each tier of lighted shelving lit by SciWhite LEDs with enhanced red
- Dimmable between: 10-100% output

### (Incubators & Seeds Germination) (IncuWhite LED Lighting System)

- Linear LEDs vertically mounted
- Intensity programmable , light irradiance measured @ 6" from LEDs
- Programming and control of the lighting is done via IntellusUltra real time controller
- Dimmable between 5-100% output

Maximum Intensity varies according to the chamber model number.



## AIRFLOW/CIRCULATION

- Air Circulation inside chamber is from a specifically CFD designed perforated rear plenum (air is drawn at the TOP mounted unit cooler and discharged uniformly across each shelf). Horizontal Air Flow/ Vertical Air flow, via wire shelves options, as per your research need.

## INSULATION

- Woodless construction using 2" (5.1cm) thick foamed in place non-CFC urethane insulation with 93% closed cell, R-value of 12.5, K-value of 0.16 and density of 2.2lbs/ft<sup>3</sup>.

## DOOR

- Two door opening provides full access to the chamber.
- Width: 73.9cm
- Height: 146.1cm
- Magnetic Perimeter gasket provides a tight seal to door frame.
- Lock and Key

## WORK AREA

- 62.4 ft<sup>3</sup> (1.8 m<sup>3</sup>) with work area of  $\geq 10.5$  ft<sup>2</sup> per tier.
- Total work area depends on model number and number of shelves.
- For models with multiple shelf, they shall be removable and adjustable such that the work space And Height can be modified by the owner.

## FINISH

- Interior and exterior painted with highly reflective, environmentally friendly high temperature baked white powder coating.

## SHELVING

- Incubator : Each Shelves is 68.6cm x73cm
- Chamber : Each shelves is 61cm x77.2cm
- Shelves are supported by shelf clips allowing 1/2" vertical adjustments
- Number of shelves and maximum clearance between shelves depend on model number.





## Refrigeration Overview

- Air cooled condensing unit.
- Continuous running condensing unit with hot gas bypass.
- Ceiling mounted, copper coil, aluminum fin evaporator coil.
- System cycle between heat and cool for precise temperature control around the temperature set point.
- Adjustable expansion valve provided.
- Solenoid valve cycle between hot gas and cooling loops.
- Extended stem-type for long and quiet operation.
- Self contained condensing unit located on top of each chamber for best performance and cleaner operation.
- 1/3 Hp condensing unit./As per Model

## Temperature Control

- **Working Temperature minimum:** 2°C with lights OFF.
- **Setting accuracy:** 0.1°C
- **Temperature stability @ all set temp- (Lights ON/OFF):** 0.5°C
- Dual (redundant) adjustable high and low temperature safety controls, audible alarms and visual indicators are provided. The controls shutdown all power to the chamber, activates alarms and automatically controls the temperature at the safety value. When the temperature returns to the normal range, the system will automatically reset.
- Compressor over temp protection
- Over pressure protection
- Compressor Delay starts (Power ON).
- Temperature Deviation alarm.
- Multiple Day/Night Offset for Temp.

## HUMIDITY CONTROL (OPTIONAL)

- The section outlines the PAN type humidity option having Humidifier and Dehumidifier with Electronic RH sensor.
- Additive humidity control of 40-85% for set temperature between 15-30°C (Light OFF)
- Extended Humidity ranges available. (See other specification sheet or consult for additional information)
- If a humidity option is selected, a de-mineralized water supply is required which terminates to a 1/2" MPT connector.
- The Performance of Humidity control is dependent upon the laws of thermodynamics.

## ACCESSORIES

- One access Port with cover.

## ELECTRICAL REQUIREMENT

- 230- two grounded cords each with NEMA 5-15P plug provided for standard chamber

## OPTIONS (MOST POPULAR)

- Glass Door
- Intellus Ultra Connect
- Intellus Ultra Connect with Android based Touch screen
- Ultrasonic Humidifier with Dehumidifier with Electronic RH sensor
- Door with observation Window and cover (12"x12")
- Additional Steel Wire Shelves
- Stainless Steel shelf
- Air Flow Speed Control.
- Individual Dimmable Tiers.
- PAN Type Humidifier (above Ambient to 90%RH)
- Ultrasonic Humidifier (above Ambient to 90%RH)
- Dehumidifier.
- Supplemental White, Red, Blue Far Red LED
- Larger Size fresh airport.
- Touch Screen Panel
- Two Amp Convenience Outlet
- IQ, OQ, PQ, Services.
- Weather simulation software

(Consult for optional and accessories for any specific need)

## UPGRADE KIT

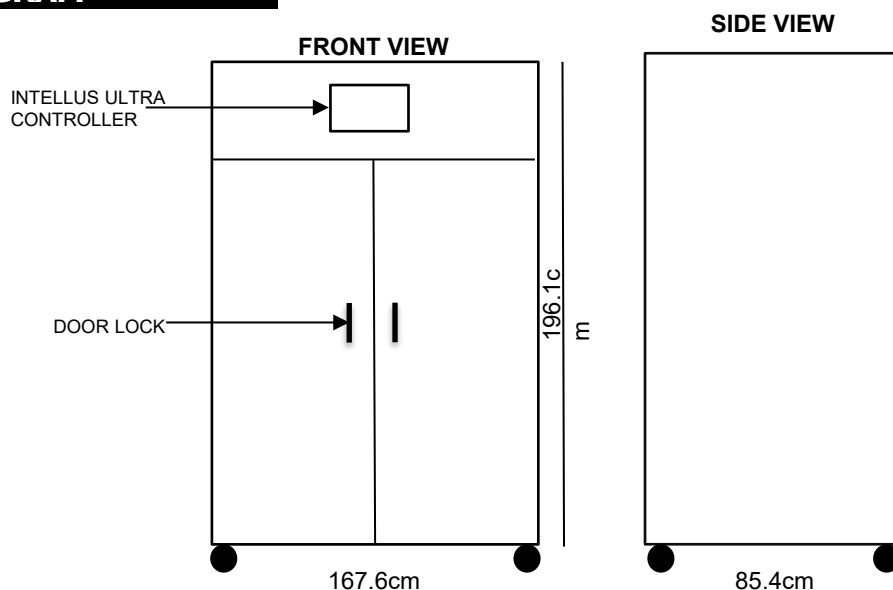
- Additional upper tier with light upgrade from 800 to 2000 umole, as per order
- Light Intensity from 100µmol to 2000µmol ( Consult JKG for details)

## SPECIFICATION

Model	Light Intensity6" from lamps	Temperature Range withall lights on	Interior Space volume	Total Shelving Floor Area	Maximum Growing Height	Exterior Dimensions			Tiers
	μmoles/m²/s	°C	m³	m²	cm	width	depth	height	
Plant Growth Chamber									
JKG-66L1E	1200	10-44±0.5	1.8	0.85	120	167.6	85.4	196.1	1
JKG-66L2E	1200	10-44±0.5	1.8	1.9	58.7	167.6	85.4	196.1	2
JKG-66L3E	600	10-44±0.5	1.8	2.8	35.6	167.6	85.4	196.1	3
Arabidopsis Chamber									
JKG-66L2AR	360	7-44±0.5	1.8	1.9	58.7	167.6	85.4	196.1	2
JKG-66L3AR	360	7-44±0.5	1.8	2.8	35.6	167.6	85.4	196.1	3
Seeds Germination Chamber									
JKG-66LGR	120	5-44±0.5	1.8	14.2	6.7	167.6	85.4	196.1	30*
Incubators									
JKG-66NL	No Light	2-44±0.5	1.8	6	20.4	167.6	85.4	196.1	6
JKG-66LLVL	230	4-44±0.5	1.8	4	28.6	167.6	85.4	196.1	4
JKG-66LL	120	4-44±0.5	1.8	4	28.6	167.6	85.4	196.1	4
JKG-66LL	240	4-44±0.5	1.8	4	28.6	167.6	85.4	196.1	4

- Requires 8" clearance right and back side for air circulation and for front door opening.
- Environment condition:** Room Temp - 24°C, RH – 50%for optimum performance.

## WIREDIAGRAM



# Option Description for JKG66 & Percival Chambers

JC8T	IntellusUltra and Android-based Touchscreen	JL1200	TOP Tier with 1200umole light
JC9	IntellusUltraConnect (includes PercivalConnect® software)	JL1500	TOP Tier with 1500umole light
JC9T	IntellusUltraConnect and Android-based Touchscreen	JL2000	TOP Tier with 2000umole light
JC12	WeatherEze Software (Compatible with Windows Only; Requires C9)	JJWW	LED Tube White
JEXW	Extended Warranty (annually) - Additional 1, 2 or 3 Years	JSB8	8 Colour LED tile (Blue, Red, Warm White, Far Red, Green, Cool White, Photo Red, Violet))
JH1	Pan-type Humidifier and Electronic RH Sensor (Ambient+ to 90%)	JSW	White LED Tile
JH3	Pan-type Humidifier, Dehumidifier, and Electronic RH Sensor	JSBC	SciBrite Panel with Controller Kit
JH6	Pan-type Humidifier, Dehumidifier, and Advanced RH Sensor	JIBC	Incubrite Panel with Controller kit
JH11	Ultrasonic Humidifier and Advanced RH Sensor	JDLI	Daily Light integral
JH12	Ultrasonic Humidifier, Dehumidifier, and Advanced RH Sensor	JQC1	IQ, OQ
JH14	Ultrasonic Humidifier and Electronic RH Sensor (Ambient+ to 90%)	JQC2	IQ, OQ, PQ
JH15	Ultrasonic Humidifier, Dehumidifier, and Electronic RH Sensor	JAF	Air Flow Speed Control
JH16	RH Sensor only	JFAF	Fresh Air port with Filter
JH17	Dehumidifier only with Electronic RH sensor	JFAHF	Fresh Air port with HEPA Filter
JH17X	Dehumidifier only with reheat Heater with Electronic RH Sensor	JFAHFFan	Fresh Air port with HEPA Filter & Fan
JH24	Carboy H2O reservoir & Mounting Kit for PAN Type humidifer only	JUPSC	Power back kit for Controller only.
JS1	Locking Door, Power Switch and Dry Contacts (one door)	JUPSS	Power back kit for Complete Chamber
JS2	Locking Door, Power Switch and Dry Contacts (two doors)	JWAC1	Stainless Steel Interior
JS3	Remote phone auto-dialer	JWAC2	Water-cooled Condensing Unit
JS4	Dry Contact for Remote Alarm	JWAC4	Large Observation Window (12" X 42") on Door
JQ1	Door with Two Fresh Air Ports	JWAC5	Cover for WAC4
JQ2	Observation Window with Cover (12" x 12") on Door	JWAC6	Self-contained, Air-cooled Condensing Unit
JQ3	Observation Window with Cover (6" x 36") on Door	JWAC7	Remote, Outdoor, Air-cooled Condensing Unit with All-Weather Housing
JQ4	Door Lock	JWTM1	Extended Temperature Range to -10°C (for non-lighted units only)
JQ5	Additional Epoxy Wire Shelf (each)	JWTM2	Extended Temperature Range to -10°C lights off/0°C lights on
JQ6	Stainless Steel Wire Shelf (each)	JWTM3	Extended Temperature Range to +60°C (No refrigeration above 44°C)
JQ7	Caster Assembly with Levelers for 30 Series	JWTM4	Extended Temperature Range to +60°C with Continuous Running Condenser
JQ9	Phenolic Coated Coil(s) (required for Drosophila research)	JST1	Service Voltage Stabilizer
JQ10	Additional Access Ports (1", 2", 3" or 4" increments)	JRO1	RO Water Purifier
JQ11	Air Filter Assembly (insect screen)	JDT1	Delay timer
JQ12	Full Size Glass Door	JVMR1	Voltage cut off Relay
JQ18	Stacking Hardware for 30 Series	JIK1	Water Storage container, MCB and External Drain Pipe
JQ19	External Drip Pan		
JQ22	Closed Loop Dimmable Lighting Control with PAR Light Sensor		
JQ23 +	Open Loop Dimmable Lighting Control (each shelf is independently dimmable by percentage)		
JQ24	LED Working Light (energized when door opens)		
JQ29	Left-Hand Door Swing		
JQ30	Additive Carbon Dioxide Control with 2000 ppm Sensor		
JQ31	Additive Carbon Dioxide Control with 5000 ppm Sensor		
JQ32	Additive Carbon Dioxide Control with 10% Sensor		
JQ33	Carbon Dioxide Removal System (Requires Q30, Q31 or Q32 to Operate)		
JQ41	Heavy Duty Door Handle with Latch		
JQ42	1 NEMA 5-15R 1A Convenience Receptacle, Programmable via Intellus Control System		
JQ42X	other convenience receptacle, programmable via controller		
JQ48	Hydroponic Film Technique (HFT) Kit		
JL1000	TOP Tier with 1000umole light		





**1000+**  
Installations



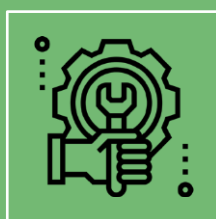
**4+**  
Offices



**28+**  
States/UT  
Installations



**500+**  
Users



**100+**  
Establishments

## Disclaimer:

Specification subject to change without notification.

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