JKG BIO SCIENCE PVT. LTD.

MULTI APPLICATION CHAMBER MODEL JKG-41

- **Plant Growth Chamber**
- **Tissue Culture Chamber**
- **Arabidopsis Chamber**
- **Seed Germination Chamber**
- **Algae Chamber**
- **Incubator**
- **Mosquito Chamber**
- **Drosophila Chamber**













www.jkgbioscience.com

PRODUCT OVERVIEW

JKG chamber has a unique ability to fit various research applications and is flexible in its design. The Basic 41 series can be fitted with various mix and match upgrades kitsto suita variety of applications.

Some of which are Plant Growth, Entomology, Climate change, C-elegens, Plant Pathology, Seed germination, Drosophila, Mosquito, media storage, conditioning 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) : This chamber is frequently used for Cyanobacteria, insects, simple low-cost Germination, c-elegans, nematodes, yeast/ fungi, insects, bacteria and BOD.

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

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

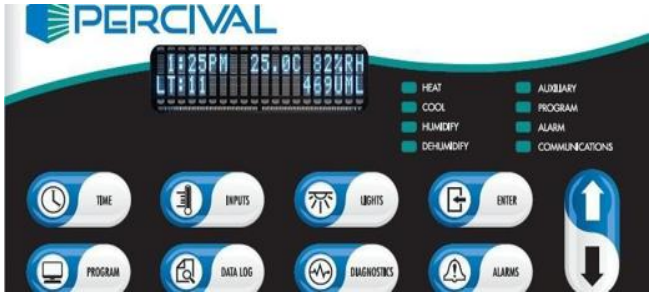
Tissue Culture Chamber: This chamber is frequently used for plant Tissue culture in petri plates/ dished or flask.

Drosophila Chamber (NL & VL): This incubator has a specific combination of features optimized for Drosophila Melanogaster. Coil is phenolic coated to prolong the life of chamber from the acidic environment that can be created by Drosophila.

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

Mosquito Chamber: This incubator has a specific combination of features optimized for mosquito, order custom options, as per your need.

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



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)
- Daily light integral programming Mode.
- 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 addional information, regarding control system.

LIGHTING SYSTEM SciWhite

(Plant Growth, Algae, Arabidopsis & Tissue Culture Chambers) (SciWhite LED Lighting System)

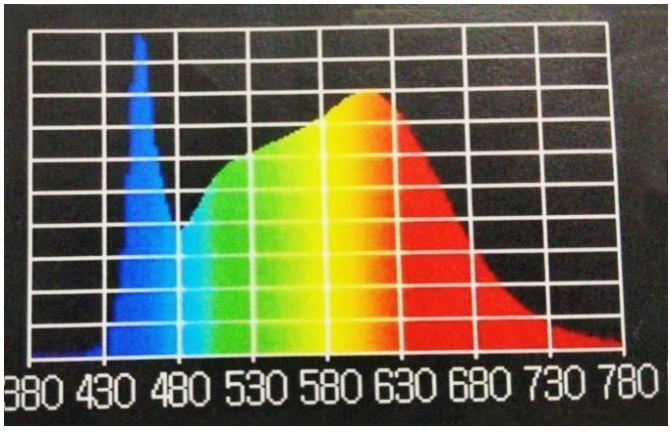
LED Control: System controlled via open loop diming as a percentage of total output in 1% increments

- Programming & Control: Via real time intellus Ultra Controller.
- LED output : PAR white
- Intensity: @ 6" from Lamp Bank & Programmable
- Light Fixture efficacy: 2.5 µmoles/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) (IncuWhite LED Lighting System)

- Linear LEDs
- 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.



CABINET CONSTRUCTION

- Interior -26 gauge smooth galvanized white side walls and top reinforced with 24 gauge backer plates.
- Interior floor constructed of 24 gauge #304-4 stainless steel.
- Exterior -24-gauge smooth white galvanized.
- NSF compliant seam design.
- Overall wall thickness 2" (5.1cm)
- Foamed in place non-CFC insulation (refer to insulation section)
- One 1 1/4" diameter access port on right hand wall.
- Chamber floor equipped with floor drain and hose assembly
- Contains castors, assembly and adjustable leveling legs to compensate for floor unevenness in the lab.
- Interior Volume: 1100 Liter
- Minimal Foot print size, using less space- >120 (ratio of Internal volume (cu cm) to Foot Print area (sqcm- WxD)

AIRFLOW/CIRCULATION

- Air Circulation inside chamber is from a specifically CFC 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 is Horizontal Air Configurable, as per your rest each 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^3.

DOOR

- One door opening provides full access to the chamber.
- Width: 93.5cm
- Height: 146.1cm
- Magnetic Perimeter gasket provides a tight seal to door frame.
- Lock and Key

WORK AREA

- 6.8 ft^2 (0.6 m^2) per shelf
- Total work area depends on model number and number of shelves.
- For models with multiple shelve shall be removable and adjustable such that the work space can be modified by the owner.

FINISH

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

SHELVING

- White epoxy coated steel wire shelving. Each shelf is 92.2cm Width x 68.6 cm Depth.
- Shelving are supported by shelf clips allowing ½" vertical adjustment.
- Number of shelves and maximum clearance between shelves depends 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.
- Heat Rejection to ambident (standard chamber)= 2700-3500 BTU/hr

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
- 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 VAC, Single Phase, 50Hz.
- Power consumption, Basic unit (without any optional/other load): Less than 2000 watts (all models)
- Power varies according to model and options ordered.

OPTIONS (MOST POPULAR)

- Glass Door
- Intellus Ultra Connect
- Intellus Ultra Connect with Android based Touch screen
- Inellus Ultra (standard) and android based Touch screen
- Pan Type Humidifier with Electronic RH sensor
- Ultrasonic Humidifier with Electronic RH sensor
- Ultrasonic Humidifier with Dehumidifier with Electronic RH sensor
- Door with observation Window and cover (12"x12")
- Additional Steel Wire Shelves
- Stainless Steel shelve
- Air Flow Speed Control.
- Individual Dimmable Tiers.
- PAN Type Humdifier (above Ambient to 90%RH)
- Ultrasonic Humdifier (above Ambient to 90%RH)
- Dehumidifier.
- Supplemental White, Red, Blue Far Red LED
- Larger Size fresh airport.
- Two Amp Convenience Outlet

(Consult for optional and accessories for any specific need)

UPGRADE KIT

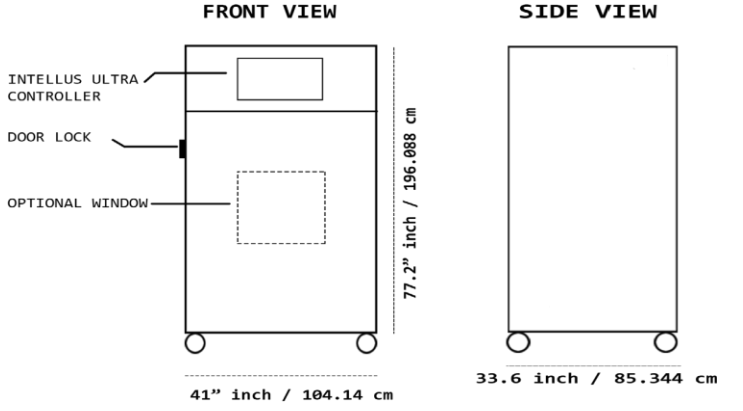
- Single Tier of 600umole Lamp bank
- Single Tier of 300umole Lamp Bank
- Additional upper tier with light upgrade from 800 to 2000 umole, as per order

SPECIFICATION

Model	Light Intensity 6" from Lamps	Temperature Range with all lights on	Interior Space Volume	Total Shelving Floor Area	Maximum Growing Height	Exterior Dimensions			Tiers
						Width	Depth	Height	
	µmoles/m^2/s	°C	m^3	m^2	cm	(cm)	(cm)	(cm)	
Plant Growth Chamber									
JKG-41L1E	800	7-44 ± 0.5	1.1	0.6	123.4	104.1	85.4	196.1	1
JKG-41L2E	800	7-44 ± 0.5	1.1	1.3	57.5	104.1	85.4	196.1	2
JKG-41L3PG	600	10-40 ± 0.5	1.1	1.9	38.3	104.1	85.4	196.1	3
SciBrite LED Plant Growth Chamber									
JKG-41LED1	1850	10-44 ± 0.5	1.1	0.6	121	104.1	85.4	196.1	1
JKG-41LED2	1550	10-44 ± 0.5	1.1	1.3	54.9	104.1	85.4	196.1	2
Algae Chamber									
JKG-41L4AL	405	7-44 ± 0.5	1.1	2.5	26.9	104.1	85.4	196.1	4
JKG-41L3AL	405	7-44 ± 0.5	1.1	1.9	38.3	104.1	85.4	196.1	3
Arabidopsis Chamber									
JKG-41L3AR	405	7-44 ± 0.5	1.1	1.9	38.3	104.1	85.4	196.1	3
JKG-41L2AR	405	7-44 ± 0.5	1.1	1.3	59.9	104.1	85.4	196.1	2
JKG-41L1AR	400	7-44 ± 0.5	1.1	0.6	123.4	104.1	85.4	196.1	1
Tissue Culture Chamber									
JKG-41L4TC	404	5-40 ± 0.5	1.1	2.5	25.7	104.1	85.4	196.1	4
JKG-41L4CU	200	10-44 ± 0.5	1.1	2.5	24.1	104.1	85.4	196.1	4
Incubators, Mosquito, Drosophila & Seed Germinators									
JKG-41LL	100	4-44 ± 0.5	1.1	2.5	28.6	104.1	85.4	196.1	4
JKG-41LL2	200	4-44 ± 0.5	1.1	1.3	59.9	104.1	85.4	196.1	2
JKG-41VL	120	4-44 ± 0.5	1.1	3.2	24.1	104.1	85.4	196.1	5
JKG-41L1AR	200	4-44 ± 0.5	1.1	2.5	28.6	104.1	85.4	196.1	4
JKG-41NL-DR	NO LIGHT	2-44 ± 0.5	1.1	3.8	20.3	104.1	85.4	196.1	6
JKG-41VL-DR	120	5-44 ± 0.5	1.1	3.2	24.1	104.1	85.4	196.1	5
JKG-41L-SG	120	5-44 ± 0.5	1.1	9	6.7	104.1	85.4	196.1	15
JKG-41NL	NOLIGHT	2-40 ± 0.5	1.1	3.2	20.6	104.1	85.4	196.1	5

- Requires 8" clearance right and back side for air circulation and 37" for front door opening.
- **Environment condition:** Room Temp - 24°C, RH – 50%for optimum performance.

WIRE DIAGRAM







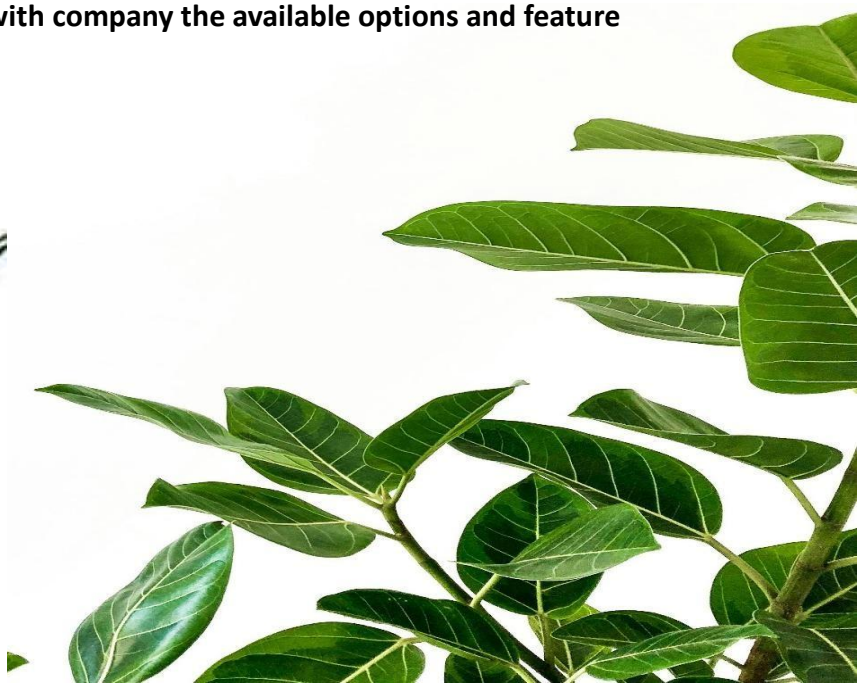
Option Description for JKG41 & Percival Chambers

JC8T	IntellusUltra and Android-based Touchscreen
JC9	IntellusUltraConnect (includes PercivalConnect® software)
JC9T	IntellusUltraConnect and Android-based Touchscreen
JC12	WeatherEze Software (Compatible with Windows Only; Requires C9)
JEXW	Extended Warranty (annually) - Additional 1, 2 or 3 Years
JH1	Pan-type Humidifier and Electronic RH Sensor (Ambient+ to 90%)
JH3	Pan-type Humidifier, Dehumidifier, and Electronic RH Sensor
JH6	Pan-type Humidifier, Dehumidifier, and Advanced RH Sensor
JH11	Ultrasonic Humidifier and Advanced RH Sensor
JH12	Ultrasonic Humidifier, Dehumidifier, and Advanced RH Sensor
JH14	Ultrasonic Humidifier and Electronic RH Sensor (Ambient+ to 90%)
JH15	Ultrasonic Humidifier, Dehumidifier, and Electronic RH Sensor
JH16	RH Sensor only
JH17	Dehumidifier only with Electronic RH sensor
JH17X	Dehumidifier only with reheat Heater
JH24	Carboy H2O reservoir & Mounting Kit for PAN Type humidifer only
JS1	Locking Door, Power Switch and Dry Contacts (one door)
JS2	Locking Door, Power Switch and Dry Contacts (two doors)
JS3	Remote phone auto-dialer
JS4	Dry Contact for Remote Alarm
JQ1	Door with Two Fresh Air Ports
JQ2	Observation Window with Cover (12" x 12") on Door
JQ3	Observation Window with Cover (6" x 36") on Door
JQ4	Door Lock
JQ5	Additional Epoxy Wire Shelf (each)
JQ6	Stainless Steel Wire Shelf (each)
JQ7	Caster Assembly with Levelers for 30 Series
JQ9	Phenolic Coated Coil(s) (required for Drosophila research)
JQ10	Additional Access Ports (1", 2", 3" or 4" increments)
JQ11	Air Filter Assembly (insect screen)
JQ12	Full Size Glass Door
JQ18	Stacking Hardware for 30 Series
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 1000 µmoles light
JL1200	TOP Tier with 1200 µmoles light
JL1500	TOP Tier with 1500 µmoles light
JL2000	TOP Tier with 2000 µmoles light
JIWW	LED Tube White
JSB8	8 colour LED tile (Blue, Red, Warm White, Far Red, Green, Cool White, Photo Red, Violet))
JSW	White LED TIle
JSBC	SciBrite Panel with Controller Kit
JIBC	Incubrite Panel with Controller kit
JDLI	Daily Light integral
JQC1	IQ, OQ
JQC2	IQ, OQ, PQ
JAF	Air Flow Speed Control
JFAF	Fresh Air port with Filter
JFAHF	Fresh Air port with HEPA Filter
JFAHFFan	Fresh Air port with HEPA Filter & Fan
JUPSC	Power back kit for Controller only.
JUPSS	Power back kit for Complete Chamber
JWAC1	Stainless Steel Interior
JWAC2	Water-cooled Condensing Unit
JWAC4	Large Observation Window (12" X 42") on Door
JWAC5	Cover for WAC4
JWAC6	Self-contained, Air-cooled Condensing Unit
JWAC7	Remote, Outdoor, Air-cooled Condensing Unit with All-Weather Housing
JWTM1	Extended Temperature Range to -10°C (for non-lighted units only)
JWTM2	Extended Temperature Range to -10°C lights off/0°C lights on
JWTM3	Extended Temperature Range to +60°C (No refrigeration above 44°C)
JWTM4	Extended Temperature Range to +60°C with Continuous Running Condenser
JST1	Service Voltage Stabilizer
JRO1	RO Water Purifier
JDT1	Delay timer
JVMR1	Voltage cut off Relay
JIK1	Water Storage container, MCB and External Drain Pipe

*** Note: All options are not field upgradable. Verify with company the available options and feature for each model for factory fitting and field upgrade.**





1000+
Installations

4+
Offices

28+
States/UT
Installations

500+
Users

100+
Estabilishments

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