FIDELS SCIENCE

A UNIT OF FIDELS EYE N SCIENCE PRIVATE LIMITED

CATALOGUE OF MULTI APPLICATION FPGC-1100 L4PG2

Model- FPGC-1100 L4PG2

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MULTI APPLICATION FPGC-1100 L4PG2 Plant Growth Chamber

PRODUCT OVERVIEW

FIDELS chamber has a unique ability to fit various research applications and is flexible in its design. The Basic 800 series can be fitted with various mix and match upgrades kits to suit a variety of applications.

Some of which are Plant Growth, and other many application

APPLICATIONS

Plant Growth : This chamber is used for soybean, Rice, Tomato, cotton or other height plants.

Arabidopsis : This chamber is used for Arabidopsis plants.

Algae : This is designed for Algae research.

Tissue Culture : This used for Plant Tissue culture

Incubator (with Light): This is used for Cyanobacteria, insects and simple low-cost Seed Germination.

Incubator (without Light): This is used for nematodes, yeast/ fungi, insects and BOD.

CONTROLLER

FIDELS has built a reputation of providing reliable customized options for research
High definition touch screen controller with android facility 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.
- 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 ornon-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.
- 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 userspecific 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 the need for rewiring.

LIGHTING SYSTEM

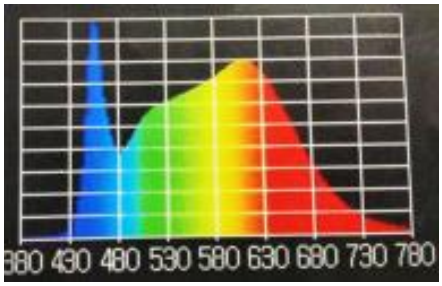
Each Lamp bank shall consist of LED tiles with Photo synthetically active radiation (PAR) spectra.

- **Type:** LED

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

- **Programming:** Via realtime Controller.
- **LED output color:** white
- Light intensity programmable from 10 to 100%
- **Intensity:** @ 6" from source, 25°C (ambient)
- **Light Fixture efficacy:** 2.5 µmoles/J
- **PAR Light Range:** 430-780nm

Maximum Intensity varies according to the chamber model number.



CABINET CONSTRUCTION

- SS-304 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 back equipped with floor drain and hose assembly
- Contains castors, assembly and adjustable leveling legs to compensate for floor unevenness in the lab.
- Interior Volume: 300/800/1100 Liter (Customized)

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 configurable, 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/ft3 .

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

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 cm Width x 68 cm Depth.
- Shelving are supported by shelf clips allowing ½" vertical adjustment.
- Number of shelves and maximum clearance between shelves depends on model number.

WORK AREA

- 7ft2 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.

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.
- Heat rejection to ambient 3500 BTU/h.
- 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.

TEMPERATURE CONTROL

- **Working Temperature maximum:** +45°C
- **Working Temperature minimum:** 2°C with lights OFF.
- **Setting accuracy:** 0.1°C
- **Temperature stability** @ all set temp- (Lights ON/ OFF): 0.5°C
- **Temperature stability:** ± 0.3°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

- The section outlines the H1 PAN type humidity option having Humidifier with Electronic RH sensor.
- The section outlines the H3 PAN type humidity option having Humidifier and Dehumidifier with Electronic RH sensor.
- Additive humidity control of 30-98% for set temperature between 15-30°C.
- 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 ½" MPT connector.
- The Performance of Humidity control is dependent upon the laws of thermodynamics.

ELECTRICAL REQUIREMENT

- 230 VAC, Single Phase, 50Hz.
- Power consumption, Basic unit (without any optional/other load): Less than 1650 watts (all models)
- Power varies according to model and options ordered.

OPTIONS (MOST POPULAR)

- Glass Door
- Connect with Android based Touch screen controller
- 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
- Additional Steel Wire Shelves
- Stainless Steel shelve

(Consult for optional and accessories for any specific need)

UPGRADE KIT

- Single Tier of 600umole Lamp bank
- Single Tier of 300umole Lamp Bank

Disclaimer: Specification subject to change without notification. Date Issued: May 2020 Version: FPGC-1500 Trademarks are property of respective owner.

ACCESSORIES

- One access Port with cover.
- One (2Amps) convenience outlet.

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 width depth height			Tiers
						Width	depth	height	
	µmoles/m^2/s	°C	m^3	m^2	Cm	cm	cm	cm	
Plant Growth									
						41 (in)	33.6 (in)	77.2 (in)	
FPGC-800 L2PG	680	7-44±0.5	0.8	1	57.5	85.1	85.4	196.1	2
FPGC-1100 L2PG	800	7-44±0.5	1.1	1.3	57.5	104.1	85.4	196.1	2
FPGC-1100 L1PG	800	7-44±0.5	1.1	0.6	123.4	104.1	85.4	196.1	1
FPGC-1100 L4PG2	300	10-45±0.5	1.1	2.5	30	106.68	85.4	203.2	4
Algae									
FPGC-1100 L4AL	405	7-44±0.5	1.1	2.5	26.9	104.1	85.4	196.1	4
FPGC-800 L3AL	350	7-44±0.5	0.8	2	26.9	104.1	85.4	196.1	4
Arabidopsis									
FPGC-1500 L5AR	300	05-45±0.5	1.5	3.5	20.6	104.1	85.4	196.1	5
FPGC-1100 L3AR	405	7-44±0.5	1.1	1.9	25.7	104.1	85.4	196.1	3
FPGC-800 L3AR	350	7-44±0.5	0.8	1.5	34.3	85.1	85.4	196.1	3
Tissue Culture									
FPGC-1100 L5CU	200	10-45±0.5	1.1	3.2	17	104.1	85.4	196.1	5
FPGC-1100 L4CU	200	5-45±0.5	1.1	2.5	25	104.1	85.4	196.1	4
FPGC-1100 L3CU	400	10-45±0.5	1.1	2.5	24.1	104.1	85.4	196.1	4
Incubator									
FPGC-800 NL/LV-IN	125	5-45±0.5	0.8	2	28.6	85.1	85.4	196.1	4
FPGC-800 NLIN	No Light	2-45±0.5	0.8	3	20.3	85.1	85.4	196.1	6
FPGC-800VLGR	140	5-45±0.5	0.8	7.1	6.7	85.1	85.4	196.1	15

- 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.

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