FIDELS SCIENCE

A UNIT OF FIDELS EYE N SCIENCE PRIVATE LIMITED

CATALOGUE OF PLANT GROWTH CHAMBER FPGC-2000 L1PG4

Model:- FPGC-2000 L1PG4

+91-9319272252,7042040439

fidelsscience2022@gmail.com

www.fidels-scs.com

M-1,Lajpat Nagar-3,New Delhi -110024

MULTI APPLICATION FPGC-2000 L1PG4 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: Manual, Diurnal, multi step program for temp.,RH and light.
- 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.
- Safety alarm audio & visual alarm with auto restart.
- 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

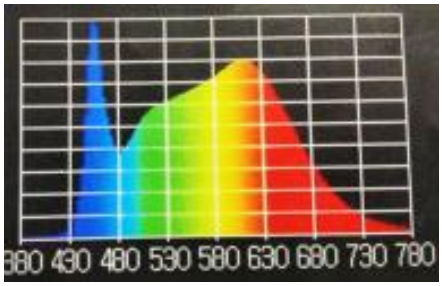
• LEDs horizontally mounted in pairs above each shelf

• Intensity programmable up to 240 µmoles/m2 /s of light irradiance measured @ 6" from LEDs

• Programming and control of the lighting is done via real time controller

•Dimmable between 5-100% output

Maximum Intensity varies according to the chamber model number.



CABINET CONSTRUCTION

- 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.
- Overall wall thickness 2" (5.1cm)
- Foamed in place CFC free insulation (refer to insulation section)
- Contains caster assembly and adjustable leveling legs to compensate for floor uneveness in the lab

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.

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.

INSULATION

Woodless construction using CFC free insulation (overall wall thickness is 2" [5.1 cm], ample insulation for maintenance of stated temperature range).

DOOR

- Two door openings 29.1" x 57.5" (73.9 cm x 146.1 cm) provide full access to the chamber interior (magnetic gasket provides a tight seal to door frame) and Observation window on the door.

FINISH

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

SHELVING

- Four tiers of white epoxy coated steel wire shelving (each shelf is 68 cm x 75 cm) and removable and Adjustable as per research application.

- Shelves are supported by shelf clips allowing ½" vertical adjustments

- Maximum clearance between shelves is 11.25" (28.6 cm) per tier with all shelving installed

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.

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

- 120/1/60 - two grounded cords each with NEMA 5-15P plug provided for standard chamber
- Cord #1 RLA=8.4 & cord #2 RLA=9.5 (combined MCA=22.4)

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

ACCESSORIES

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

DHUMIDIFIER

- Humidity with dehumidifier to enable RH range of 40-85%.

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									
FPGC-1000 L1PG1	680	7-44±0.5	0.8	1	57.5	96.8	84.1	184.3	2
FPGC-1500 L1PG2	800	7-44±0.5	1.1	1.3	57.5	131.5	116.6	205.3	2
FPGC-2500 L1PG3	800	7-44±0.5	2	0.6	123.4	195	170	260.5	1
FPGC-2000 L1PG4	240	2-45±0.5	1.8	4	30.0	170	86	200	4
Algae									
FPGC-1500 L2AL1	405	7-44±0.5	1.1	2.5	26.9	131.5	116.6	205.3	4
FPGC-1800 L2AL2	350	7-44±0.5	0.8	2	26.9	151.1	131.2	215.3	4
Arabidopsis									
FPGC-1500 L3AR1	300	05-45±0.5	1.5	3.5	20.6	131.5	116.6	205.3	5
FPGC-2000 L3AR2	405	7-44±0.5	1.1	1.9	25.7	185	155	230.2	3
FPGC-2500 L3AR3	350	7-44±0.5	0.8	1.5	34.3	195	170	260.5	3
Tissue Culture									
FPGC-1100 L4CU1	200	10-45±0.5	1.1	3.2	17	104.1	85.4	196.1	5
FPGC-1500 L4CU2	200	5-45±0.5	1.1	2.5	25	131.5	116.6	205.3	4
FPGC-1800 L4CU3	400	10-45±0.5	1.1	2.5	24.1	151.1	131.2	215.3	4
Incubator									
FPGC-1000 NL/LV-IN	125	5-45±0.5	0.8	2	28.6	96.8	84.1	184.3	4
FPGC-1500 NLIN	No Light	2-45±0.5	0.8	3	20.3	131.5	116.6	205.3	6
FPGC-1800 VL/GR	140	5-45±0.5	0.8	7.1	6.7	151.1	131.2	215.3	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.

M-1,BASEMENT, LAJPAT NAGAR-III, NEW DELHI-110024
MOBILE: 9319272252 |E-MAIL: fidelsscience2022@gmail.com
|Web : www.fidels-SCS.com