

Plant Growth Chamber FIDELS/66 FL

Applications

This chamber is commonly used for cyanobacteria studies, plant growth, insect research, and simple, low-cost seed germination under controlled environmental conditions.

It is suitable for a wide range of additional research applications.

Users are advised to compare their specific requirements with the specifications provided below.

Cabinet Construction

- Interior construction of 22-gauge electro-zinc plated steel with reflective/baked powder coating.
- Exterior construction of 18-gauge exterior electro-zinc plated steel with high-durability finish.
- Real-time adjustment and programming through the integrated microprocessor controller.
- Ensures uniform, stable, and energy-efficient illumination across all tiers.
- Chamber is completely self-contained.
- Overall wall thickness is 2" (51 mm).
- One 1½" diameter access port on R.H. wall with a light-tight cap for sensors and cables.
- Chamber floor equipped with floor drain and hose assembly.
- Contains caster assembly and adjustable leveling legs to compensate for floor unevenness in the lab.

Insulation

Woodless construction using CFC free insulation (overall wall thickness is 2" (51 cm)), ample insulation for maintenance of stated temperature range.

Interior Space

62.4 ft³ (1.8 m³) with work area of 43.1 ft² (4.0 m²) provided on four tiers.

Shelving

Four tiers (eight shelves) of white epoxy coated steel wire shelving (68.6 cm × 73cm) with powder coated shelves are supported by shelf clips allowing ½" vertical adjustment & removal without tool.

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

Caster Wheels & Leveling

Heavy-duty caster wheels with swivel and front-locking mechanism.

Controllers

The system is equipped with a single-board Microprocessor intelligent controller providing clear indication of process parameters including heating, cooling, humidification, dehumidification, program status, and alarms. The controller allows viewing and setting of process values, program steps, alarm limits, and password-protected access. Integrated audio-visual alarms alert for high and low setpoint deviations. The controller also supports day/night light regulation with flexible scheduling options. All programming and control of temperature, relative humidity, CO₂, lighting, and safety alarms are performed centrally through the controller for reliable and simplified operation.

Finish

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

PAR LED Lighting System

- High-efficiency IncuWhite LED lighting horizontally mounted above each shelf.
- Plant growth supported by PAR-optimized white LED lighting, delivering balanced spectral efficiency across the full light range required for healthy and uniform plant development.
- Provides programmable PPFD intensity of 240 µmol/m²/s, suitable for all plant growth stages.
- 4 tier; top-mounted light canopy covering a total area of 4 m², with light modules configured accordingly.
- Light irradiance measured at 6 inches from the LED source for consistent accuracy.
- Fully dimmable from 5% to 100%, enabling precise control for sensitive applications.

Airflow & Fresh Air Exchange

Adjustable fan speed control.

Internal airflow direction: vertical and horizontal.

Manually adjustable fresh air exchange, controllable from outside the chamber.

Humidity Control

Additive humidity control of higher than ambient to 40-80% (±3%) lights on for set temperatures.

Compatible with pan-type humidifiers & dehumidifier.

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Refrigeration

- Self-contained air-cooled condensing unit with hot gas bypass system for continuous compressor operation, extended
- Life and close temperature control (this continuous running condensing unit ensures precise temperature control by alternately cycling refrigerant and hot gas to coil; this also prolongs life of compressor, and eliminates risk of ice build up in coil).
- Top mounted refrigeration system allows easy access for maintenance.
- As heat is rejected, it rises and is dissipated into room without having any effect on inside temperature of cabinet.
- Solenoid valves have extended stem for quiet and long life operation.
- Ceiling mounted evaporator coil incorporates twin air circulation fans in aluminum housing heat rejection to ambient 3762 BTU/hr.

Temperature Range

Operating temperature ranges from 4°C to 44°C ($\pm 0.5^\circ\text{C}$) with lights ON and 2°C to 44°C ($\pm 0.5^\circ\text{C}$) with lights OFF (without heater).

Temperature Safety Limit Controls

The Safety controller includes adjustable high and low temperature safety limits with dual audio-visual alarms and clear indicators. If abnormal temperature conditions occur, the system automatically shuts down all power to protect the chamber and samples. Separate over-temperature and under-temperature cut-off functions ensure precise safety control, and the controller automatically resets once the temperature returns to the normal programmed range, maintaining stable and reliable operation. Two calibration offsets one for light on and one for light OFF.

Doors

Two door openings (73.9 cm \times 146.1 cm) provide full access to the chamber interior (magnetic gasket provides a tight seal to door frame) with Observation window on one door.

Model	FIDELS/66 FL
Volume	1.8 m ³
Temperature range	4°C to 44°C ($\pm 0.5^\circ\text{C}$) with lights ON 2°C to 44°C ($\pm 0.5^\circ\text{C}$) with lights OFF
Total Shelving	4 m ² (43.1ft ²)
Maximum Growing Height	28.6 cm (11.25 in)
Exterior Dimension (WxDxH)	167.6 \times 85.4 \times 196.1 cm
Interior Dimension (WxDxH)	157.4 \times 75.2 \times 185.9 cm
Light Intensity	240 $\mu\text{mol}/\text{m}^2/\text{s}$,
Tiers	4
Power Voltage	220V (single Phase) 50Hz



Options

- Phenolic Coated Coils
- Android-based Touchscreen
- Pan-type humidifier with Electronic RH Sensor
- Pan-type humidifier and dehumidifier with
- Electronic RH sensor
- Humidifier with advanced RH Sensor
- Humidifier with Electronic RH sensor
- Humidifier and dehumidifier with
- Electronic RH Sensor
- CO₂ enrichment package, Dosing System
- Integrated CO₂ adder and remover system for precise internal CO₂ level control with 2000 ppm sensor.
- Door with observation window on one door and cover
- Door with fresh air ports
- Self-contained water-cooled condensing unit
- Dry alarm contacts
- Dimmable lighting (closed loop with PAR light sensor)
- Extended temperature ranges available
- Convenience receptacles

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

Contact: 7042040439, 9319272252

Mail: fidelsscience2022@gmail.com **Web:** <https://fidelsscs.com/>