

Smart tissue culture rack

TTCR010124

ThingHz
For Remote Supervision

ThingHz presents IoT-enabled Smart tissue culture rack. This rack comes with temperature, humidity, and light intensity data logger designed for precision monitoring in various agricultural settings. With its advanced sensors and versatile microcontroller, it offers real-time insights to optimize growth conditions for plants.



PHYSICAL SPECIFICATION

Build Type:

- Stainless Steel 204 Grade
- 4 shelves per rack.
- 3mm aluminium coated PVC as shelf base
- Wheels with locks
- Light Intensity sensor connector at each shelf
- LED dimmer at each shelf

Dimension:

- Height: 5ft 6in
- Height (1st to 4th Shelf): 5ft
- Length: 4ft 2in
- Width: 1ft 6in
- Distance between Shelves: 1ft 2 in

ELECTRICAL SPECIFICATION

Voltage and Power:

- Input Voltage: 220-240V.
- Power: 250W



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Light Specification

- Power: 18Watt
- Color temperature: 6500K (cool white).
- Light Intensity: 1800 Lumens.
- Lifecycle: 16000 Hrs.
- LED type: b22d
- 3 tube lights per shelf

TECHNICAL SPECIFICATION

Microprocessor

- Dual-core 32 bit Microprocessor
- RAM: 520 KB
- Filesystem: 4Mb

Cellular Sim Module

- Network Support: LTE-FDD, LTE-TDD, WCDMA
- Bands: Multi-band support
- SIM provided: M2M SIM

Display

- Display Type: TFT- LCD
- Dimension: 240x320px

SOFTWARE SPECIFICATION

- Android mobile application
- QR code provisioning to add a new device
- Real Time data monitoring of Smart tissue culture rack
- Remote automation of lights.
- 2Hr, 12Hr, 24Hr data download
- Report Download: download report of 2 days, week, 15 days and custom date.
- Set escalation condition for temperature and humidity.
- save records of experiment at each shelf.
- multi user management.

Sensor Specifications

Temperature and Humidity Sensor:

- Temperature Range: -40°C to +125°C
- Humidity Range: 0% to 100% RH
- Accuracy: $\pm 0.2^\circ\text{C}$ for temperature, $\pm 1.8\%$ RH for humidity
- Interface: I2C

Light intensity sensor

- Measuring Rang: 1-65535lx
- Spectral Sensitivity: Close to human eye response
- Accuracy: $\pm 20\%$ (50,000 lux), $\pm 30\%$ (100,000 lux)
- Interface: I2C

FEATURES

- 24/7 Real-time Access via Smartphone and Web Dashboard
- Customizable for Specific Requirements
- Real-time Graphs & Report Generation
- Notifications & Alerts for Escalations
- Scalable and Modular Design
- Standalone or Integrated Mesh Network Operation Modes

APPLICATIONS

- Tissue Culture Racks
- Hydroponics & Aeroponics Farms
- Greenhouses
- Mushroom Farms



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