INSECT GROWTH CHAMBER

AN ISO 9001 : 2015 / 14001 : 2015 / WHO-GMP CERTIFIED CO. & CE MARK PRODUCT

Model No : IGC/S4-L4

ECO CENTRIC SYSTEM

Controller : [PLC with HMI Touch screen]

PID Action Provides Precise Temperature, Maintain Uniform And Accurate Growth Environment, Timer, Alarm, Auto-Tuning And Auto Start Stop Function. Technical Design and Construction Silent Fan Motor to Maintain Uniform Temperature Over Temp. and Current Protection Capability Ensure User Safety, Adjustable Sliding Rack, Alert Unexpected Interruption Of Electrical Power Or Unauthorized Change.
Stepwise Programmable Controller with 10 programs with Ramp & Soak cycles as per user requirements. Data logger with RS 485/232 port for logging & transfer of data. Auto restart, power failure event logging, memory protection S.M.A.R.T/ SELF diagnostics system. Data collected from each logger shall be transferred to central data storage unit. Shall provide central data storage unit with facility to retrieve the stared data at any time. Multiple programs linked together to simulate natural condition. Control system shall have audio/audiovisual warning/alarm when set temperature/RH is below or above the set values. Ethernet communication port. Ambient temp. Monitoring. Over Temperature and Current Protection Capability Ensure User Safety, Adjustable Sliding Rack, Water Level Sensor Alert Control System.
Total no of output: 23 channels. Alert Unexpected Interruption of Electrical Power or Unauthorized Change.4 digit password lock.

Optional : [US FDA Approved 21 CFR Compliance Software]
PLC with HMI Control system with touch screen display & HMI for data Storage, data logger reading & audit trail, Door access & SMS records, Email alert. Data Logger 1 temp + 1 RH. Data Logger with LCD display window capable to store non volatile data memory up to 5000 readings with audit trail facility USFDA approved 21 CFR Part 11 compliance software. Change over to stand by system automatically as per schedule or on detecting fault with current system Temperature & Humidity overshoot and under shoot protection Mobile Alarm system, Door Access, system setting reset , Graph, SMS, Email alert, etc.

Applications :

This chamber product is frequently used for research application for rearing of mosquitos and other insects.

Ecocentric System :

Chamber runs on the basis of Dewpoint control. Less deviations during short-term door opening & power failure. Less utility area Increased storage area. Low operating cost. Minimum power & water consumption. Reduced deviations. Less breakdowns due to standby refrigeration & humidification system. Due to PLC HMI & controlling through microprocessor based PID Temp. & RH operations the on time of both Temp. & RH system is reduced & efficiency of this system is increased with reduced energy consumption.

Temperature & Humidity Range :

+5^{0}C to +44^{0}C (lights ON Condition) & +2^{0}C to +44^{0}C (lights OFF Condition)

Resolution : 0.1^{0}C, Accuracy : ±0.2^{0}C, Uniformity : ± 2^{0}C

Relative humidity from Ambient to 90%

Resolution : 0.1%, Accuracy : ± 2% , Uniformity : ± 3%.

Salient Features : [Optional]

First time in **India** developed by **SR Lab Instruments**.
Standby Refrigeration, Standby Humidification & Standby safety controller with auto changeover, In case of failure of the main system, To run the system for a longer with uninterrupted operation.
Also USFDA approved 21 CFR compliance software, where in case of temp. & RH fluctuation, SMS & Email alert shall be sent to registered user nos and minute details of operation of the chamber can be downloaded weekly, Monthly or Quarterly.

Capacity :

1001 to 1500

Shelves & Tiers :

Perforated / Bar type stainless steel trays & can be lifted easily for cleaning. Adjustable with increment/decrement.
[No of Tiers : 4 - 6 Nos]

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Cabinet Construction & Insulation :

MOC of the Chamber will be: Double walled Chamber with Inner of stainless steel 304 grade & outer of CRCA duly powder coated, PUF Insulation in between two walls.

(I) Double door, inner door of glass with frame & silicon gasket sealing, outer door metallic with PUF insulation.
(ii) The unit will be made of double walled leak proof metal door with lock, with a provision of opening door from inside.
(iii) Forced air circulation for uniform temperature.
(iv) Lockable & Movable PU wheels for easy movement.
(v) NSF Compliant seam design.
(vi)One 1¼" diameter access port on right hand wall.

Insulation of Walls, ceiling and floor : 75mm thick puff panels with puff in-place density of minimum of 1kg per cubic foot. Exterior metal surface of insulation puff panels or its equivalent shall be of minimum 19 gauge embossed white stainless steel or its equivalent. Interior metal surface of insulation puff panels or its equivalent shall be of minimum 19 gauge stainless steel with baked white enamel finish or its equivalent. Exterior and interior metal surface shall not have metal-to- metal bonding.

Door : Flush type doors of metal surfaces (as per above specification of metal) with proper puff insulation of above mentioned standard or its equivalent. Doors shall have magnetic snap-in perimeter gasket or its equivalent, self-closing cam lift gravity hinges or its equivalent, a posi-seal door closure or its equivalent. Door shall have key lockable latch handle. Doorjambs shall be made fiberglass reinforced plastic or any other suitable material compatible with constructed door

Refrigeration : (Air Cooled)

Emerson /Danfoss/Tecumseh: make compressors, 1 stage cooling system for TEMP. & Relative Humidity. All accessories such as HPCO/LPCO, Oil Separators, Dryers, Relays, OLP etc. of **Danfoss**/Tecumseh Emerson Make.
CFC free refrigerant to be used to comply with the New Environmental Regulation. Will have suitable tonnage compressor for maintain temperature with lights on. Will have hermetically sealed condensing unit compressor coupled with Evaporation coil and condenser, safe guarded by time delay circuit. Cabinet shall be supplied with air-cooled condensing unit with extended compressor life and close temperature control. Cooling system will be split type to place condenser unit in a ventilated area to avoid hot air in growth chamber. Cooled air shall be delivered in such a way to reduce or eliminate condensation within media dishes and to provide maximum uniformity In different research vessels. This may be through silent and durable fan motors or through any kind of advanced air diffusers. Air Cooled Condenser with solenoid & LP to pass hot gas to the chamber for uniformity & long life of compressor for continuous usage. Phenolic coating for cooling & condensing coils (All weather proof).

Heating / Humidification & Dehumidification :

(i)Good quality SS tubular heaters.

(ii)Ultrasonic Humidification System. Water reservoir tank will be connected to the humidifier.

(iii)De-humidification coils are installed below the cooling coils for lower humidity.

(iv)Additive humidity control of higher than ambient to 85% (±10%) lights on for set temperatures between 15°C to 30°C.

(v)Humidity control of higher than ambient to 90% (±10%) lights off for set temperatures between 15°C to 30°C

(vi)Extended humidity ranges available

Lighting System :

(i)Linear LEDs vertically mounted.
(ii)Full spectrum LED lights standard PAR spectrum: 6500K white
(iii)Intensity programmable up to 100 µmoles/m2/s of light irradiance measured @ 6" from LEDs.
(iv)Programming and control of the lighting is done via controller.
Lights are mounted on shelves / side walls of the chamber. Programmable lights for day/night effect. (0-100% Expandable & 100-0% Dimmable).
Lighting shall be dimmable either with open loop or closed loop controls. Programming and control of the lighting is done via PLC with HMI control system.
Lamp heat will be removed by conditioning system. Shelves will be lighted with LED with balanced spectrum for Uniform Light intensity, measured 6 inches from lamps on programmable on/off light events. For more details visit our web https://srlabinstruments.com/growth-lights/

Airflow/Circulation :

Uniform horizontal or vertical airflow shall be provided for maintaining uniform temperature and RH in the room. System for adjustable forced air exchange shall be provided with up to 20 air exchanges per hour of fresh air to the room or its equivalent and an option to shut it down when not required.
Dual discharge refrigeration unit shall be there with uniform re-circulated airflow from the bottom of the side walls. Re-circulation of the air shall be by suction from the cooling coil in the ceiling.
To be provided with air flow regulator adjustable 0.2 m/s operated from PLC & HMI.

Power Supply :

Single phase 230V AC, 50 Hz / Three phase 440V AC, 50 Hz.

Safety Features : [Experiment Protection]

- (Experiment Protection) Adjustable high and low temperature controls, audible alarms, and visual indicators provided.
- Controls shut down all power to the chamber, activating alarms (when the temperature returns to the normal range the system will automatically reset).
- 2 minute compressor “on” delay timer to safeguard the compressor.

Compressors overload relay protector. Electronic low water level cut off device to cut off the supply to boiler heater in case of low water level. Safety Temp. Controller. MCB for mains.
(I) Unit will be provided with safety devices for temperature and humidity overshoot in case of malfunction.
(ii) Built-in temp. Deviation, audio/visual alarms.
Safety thermostat for over shooting of temp. Safety circuit to cut off the whole system.
(iii) OLP (Overload Protector) & Time delay Circuit for safety of compressors.
(iv) HRC fuses for compressors, Heaters & Mains.

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Certification :

- MSME AWARD FOR BEST MANUFACTURING PRACTICES - 2023
- ISO/IEC 17025: 2017 / Electrical Safety IEC 61010.
- ISO 45001:2018 / ISO 14001:2015 & WHO-GMP.
- ISO 9001:2015 certified Co. & CE marked product.
- RoHS 2002/95/EC / UL (QAMS Certification).
- US FDA Certification.
- NSIC & MSME registered.
- D&B registered (Financial Certification).

Documentation :

To comply with the documentation requirements, we provide IQ, OQ & PQ protocols to be executed before taking the chamber in to for regular use, and support the supply with the following documents with the detail operational and service manual.

Standard Operating Procedure (SOP)
Operational Manual for Controller
IQ,PQ,OQ protocols certificate.
Calibration certificate of all controlling modules with traceable to NABL / ERTL accredited labs.
Test Report of chamber prior to supply with mapping certificate.
wiring diagram for ease of service maintenance.

Customizable Options :

- Controller with printer
- Extended Warranty
- Extended RH above 60 degree from 65% to 90% according to the design.
- Extended RH Below 20 degree from 40% to 10% according to the design.
- Observation window with cover (12" x 12")
- Cooling coil humidifier with electronic RH sensor
- RH sensor only for monitoring purpose
- PU wheels assembly movable & fixable.
- Phenolic coated coil (for corrosion resistance)
- Access port 25, 50, 75, 100 [mm]
- HEPA filter (Decontamination for airflow)
- Interior for WEC (SS, GIPP as optional)
- Water cool condensing unit, CFC free refrigerant & bypass system.
- Temp. & RH recorder, Data logging facility with 21 CFR compliance software.
- Glass door / Viewing window of toughened glass organ coated to prevent moisture while viewing.
- Extended Temp. range above 45 degree upto 60 degree C compressor ON & lights ON.
- Extended Temp. range above 45 degree upto 80 degree C compressor ON & lights ON.
- Extended temp. range upto -10 degree with light ON / OFF condition according to the design
- Extended temp. range upto -40 degree with light ON / OFF condition according to the design
- Dehumidifier coil type.
- PAN type Humidifier
- Boiler type Humidifier
- Ultrasonic type Humidifier
- Metal stand (for S1 Series)
- PID controller / PLC with HMI TFT screen controller.
- PAR sensor from 400 to 650 NM
- Spectroradiometer from 400 to 1100 NM
- SS 304 grade flooring & Internal body.
- Dual chamber (for S1 and S2 model only)
- Co2 addition ambient to 2000 PPM
- Co2 addition ambient to 5000 PPM
- Individual Electrical Control Safety via MCB & also with safety controller for temp. & RH.
- We provide green LED lights combination of other spectrum.
- Light shelves can customize as per customer requirement.
- Servo controlled voltage stabilizer.
- Dimmable light control.
- Suitable RO system.
- UPS backup with batteries to run the equipment in case of power failure.

For more details please visit our web http://srlabinstruments.com
If any questions or additional information please contact info@srlabinstruments.com

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LAB INSTRUMENTS

Due to continuos development & improvements in design, we are reserve the right to change the specification & body design without notice.