BIO

FITOCLIMA WALK-IN PL / PLH

**MULTI-TIER PLANT GROWTH CHAMBERS
CONTROLLED ENVIRONMENT GROWTH ROOMS.**

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aralab

ARALAB is a company specialized in designing, developing, manufacturing and servicing of high quality climatic chambers and controlled environment rooms.

Since 1985 we have been perfecting ways to create and control temperature, humidity, light, air flow and many other environmental conditions.

Only the highest quality components are used to manufacture our chambers so customers can have the best equipment for their research and testing purposes.

Control the Environment. Your Own Climate.

Aralab growth chambers provide the control and flexibility to meet the evolving needs of researchers and research requirements through time.

COMMON APPLICATIONS INCLUDE
- PLANT GROWTH
- TISSUE CULTURE / IN-VITRO
- ARABIDOPSIS
- GERMINATION
- ALGAE RESEARCH
- ENTOMOLOGY
- INSECT REARING
- OTHER LIFE SCIENCES APPLICATIONS

CERTIFIED
ISO 9001
ISO 14001

KEY FEATURES

- Temperature, Humidity, Light intensity and Air Flow controlled with consistent precision through the years.

- Adaptive future proof design with easily removable trays and height adjustable shelves.

- Lighting options to suite multiple research requirements and stages of plant development.

- All environmental conditions easily programmable with the new ClimaPlus® multicolour touchscreen interface.

- Stainless steel shelves for maximum resistance, durability and easy cleaning.

- Research protection features, with configurable high/low temperature and humidity alarms and automatic remote notifications.

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MULTI-TIER PLANT GROWTH CONTROLLED ENVIRONMENT ROOMS

MULTI-TIER PLANT GROWTH ROOMS

CONTROLLED ENVIRONMENT ROOMS WITH MULTI-TIER GROWTH
MODULES SEPERATED BY A CENTER AISLE.
WITH INDEPENDENT LIGHT CONTROL IN EACH GROWTH MODULE AND
PRECISE SIMULATION OF ALL ENVIRONMENTAL CONDITIONS.

TECHNICAL SPECIFICATIONS

● ● ● ● ● **FITOCLIMA MULTI-TIER 'WALK-IN' GROWTH ROOMS**

TEMPERATURE RANGE [1]		Lights On: +5°C to +45°C Lights Off: 0 °C to +45°C
TEMPERATURE UNIFORMITY IN SPACE		± 1,0°C (Lights Off)
HUMIDITY RANGE [1] (PLH Models)		Lights On: 40 to 80% rH Lights Off: 40 to 90% rH
HUMIDITY UNIFORMITY IN SPACE		± 2 % rH (Lights Off)
TIERS / SHELVES / LIGHT BANKS		Flexible interior configuration, allowing from 2 to 3 tiers on each side of the chamber. Number of shelves and light banks dependent on chamber size and tiers. Admissible weight load: 200Kg per shelf.
STANDARD GROWTH AREA [2] FitoClima 5.000 FitoClima 12.000 FitoClima 20.000 Costum dimensions consult Aralab		0,75 m² - 8,1 ft² per shelf (1 500mm x 500mm) 4,5 m² 4,5 m² - 48,4 ft² 9 m² - 96,9 ft² 13,5 m² - 145,3 ft²
GROWTH HEIGHT		Approximately 45cm - 17.7 in per shelf / tier with the 3 tier configuration, and 77cm - 30.3 in with 2 tier configuration. More or less growth height can be configured in 4,5cm -1.77 in increments.
LIGHT TYPE AND INTENSITY [3]		
Light Type [4]		**Approximate intensity per shelf (±10%)**
LED lights in Cool-White. 4 tubes per shelf (Config 1)		+300 µmol/m²/s / +27.9 µmol/ft²/s (+ 21.500 Lux)
LED lights in Cool-White. 8 tubes per shelf (Config 2)		+600 µmol/m²/s / +55.8 µmol/ft²/s (+ 43.000 Lux)
AIRFLOW SPEEED		Between 0,3 to 1 meter per second / 0.98 to 3.28 ft/s . Adjustable by set point % at the touch screen controller.

[1] Temperature and Humidity performances with Lights ON can be affected by the chosen light configuration and light intensity set-point. Due to heat dissipation from the lamps - depending on the chosen type of light solution - high light intensities can affect Temperature and Humidity performances and Uniformity values. Please consult Aralab for specific information regarding the combination of light types, intensities, and how they can affect temperature and humidity performances.
[2] Other shelf dimensions available. Standard configuration assumes 3 tiers of four LED tubes shelf on each sides.
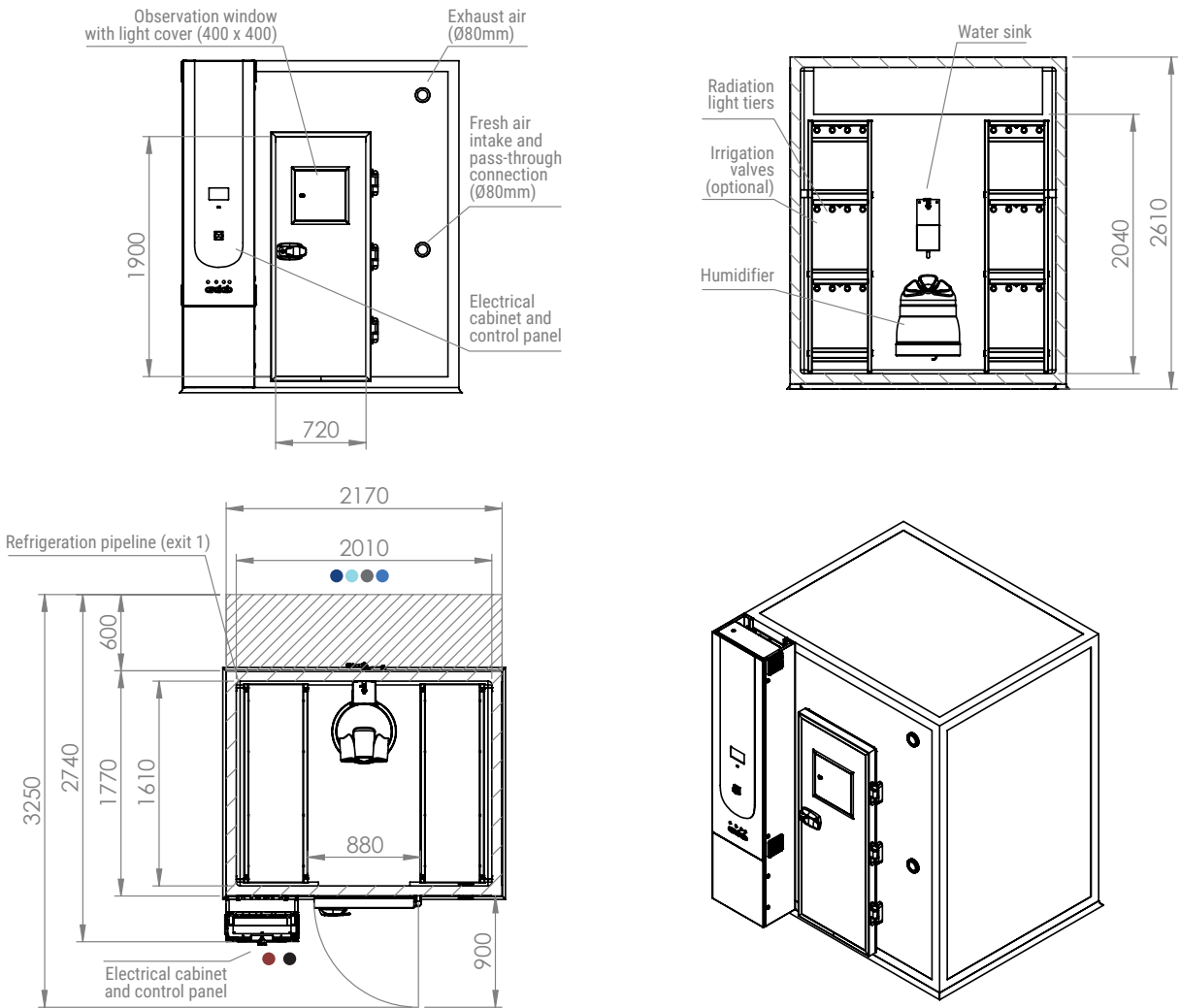[3] Measurements at 150mm from light source at 25°C. Other lighting combinations available.

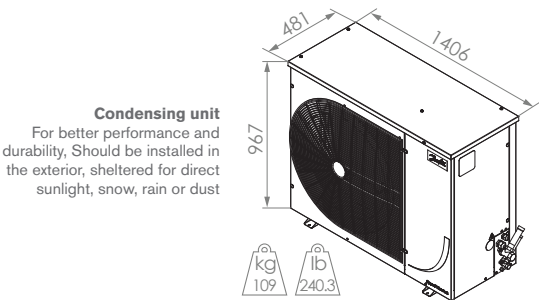● ● ● ● **TEMPERATURE & HUMIDITY WORKING RANGE**

● Lights Off
● Lights On (with standard light solutions)
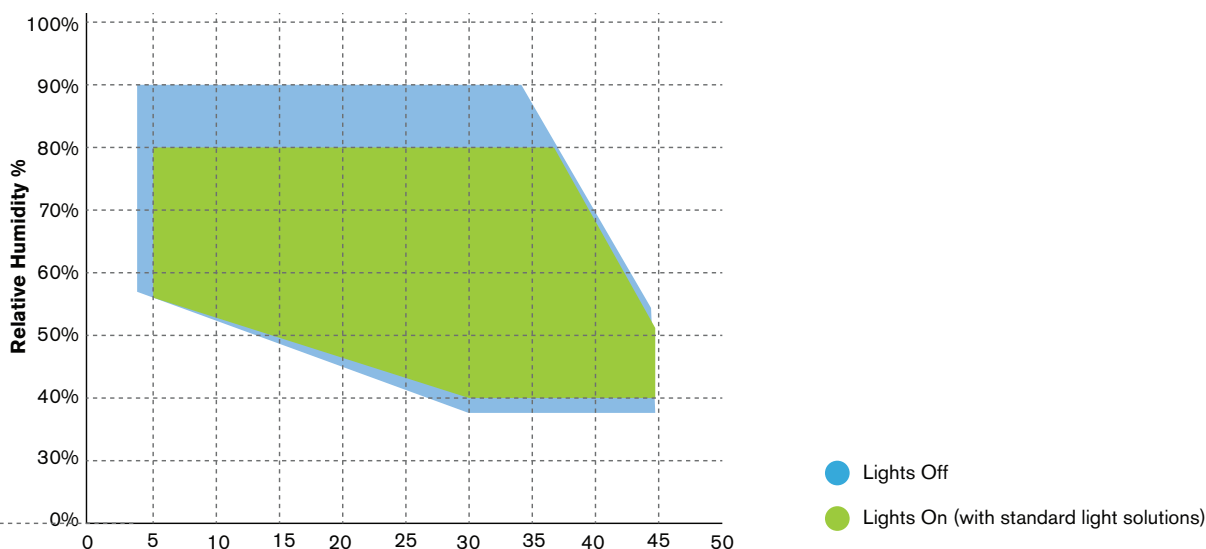
DIMENSIONS AND DRAWINGS

● ● ● ● **FITOCLIMA 5.000**

EXTERNAL DIMENSIONS (HxWxD) (mm) | (inches)		2 610mm x 2 225mm x 2 740mm (3 250mm with open door) 102.8in x 85.4in x 107.9in (128.0in with open door)
INTERNAL DIMENSIONS (HxWxD) (mm) | (inches)		2 040mm x 2 010mm x 1 610mm 80.31in x 79.13in x 63.4in

Observation window with light cover (400 x 400)
Exhaust air (Ø80mm)
Fresh air intake and pass-through connection (Ø80mm)
Electrical cabinet and control panel
1900
720

Water sink
Radiation light tiers
Irrigation valves (optional)
Humidifier
2040
2610

Refrigeration pipeline (exit 1)
2170
2010
● ● ● ●
3250
2740
1770
1610
600
880
900
Electrical cabinet and control panel

Condensing unit
For better performance and durability, Should be installed in the exterior, sheltered for direct sunlight, snow, rain or dust
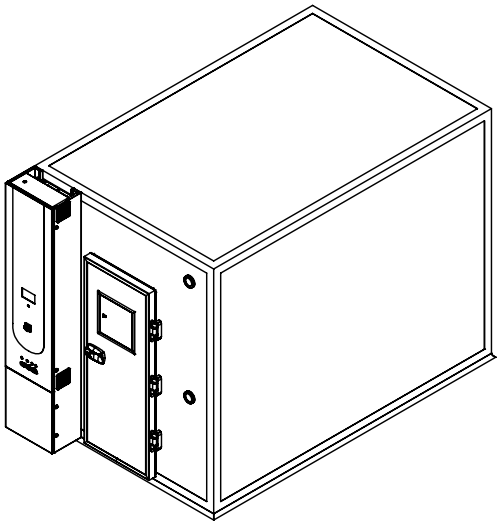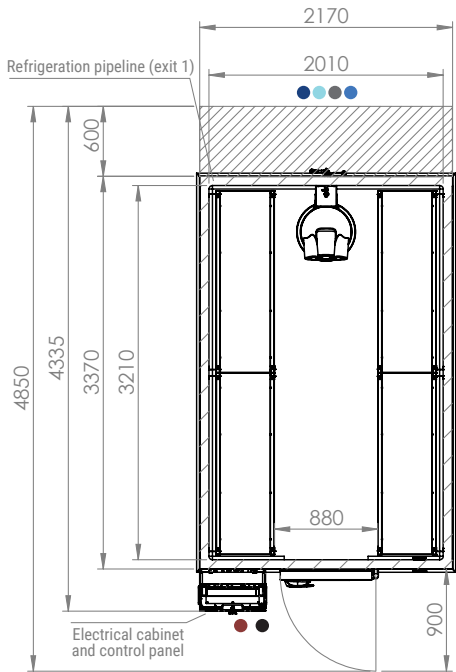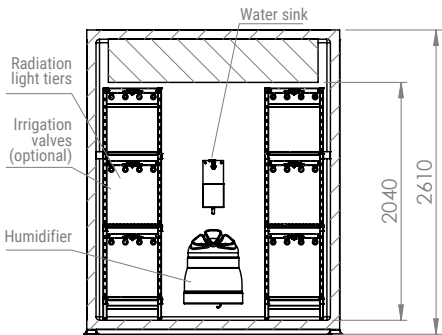481
1406
967
kg 109
lb 240.3

1. Standard refrigeration system is air cooled.

2. Services hub installation needs:
   ● ¾" demineralized water supply.
   Condutivity: <50µS/cm , TDS <35PPM.
   Pressure: 1-5 BAR.
   Maximum theorical water consumption 6,5L/h.
   ● 20mm water drain at floor level, female connection.
   ● ¾" tap water supply.
   ● ¾" irrigation valve system.

3. Electrical cabinet installation needs:
   ● Supply power: 208VAC, 60Hz, 50A / 3-Phase + Neutral + Ground.
   Electrical protection: Circuit breaker 3 x 63A + N with 30mA differential.
   3-Phase electrical cable RV-K 5G4 on the top.
   ● RJ45 Ethernet socket communication port on the top.

4. Equipment Weight (approximate): 715 kg.

DIMENSIONS AND DRAWINGS

● ● ● ● **FITOCLIMA 12.000**

EXTERNAL DIMENSIONS (HxWxD) (mm) | (inches)		2 610mm x 2 170mm x 4 335mm (4 850mm with open door) 102.8in x 85.4in x 170.7in (190.9in with open door)
INTERNAL DIMENSIONS (HxWxD) (mm) | (inches)		2 040mm x 2 010mm x 3 210mm 80.31in × 79.13in × 126.4in

Observation window
with light cover (400 x 400)

Exhaust air
(Ø80mm)

Fresh air
intake and
pass-through
connection
(Ø80mm)

Electrical
cabinet and
control panel

1900

720

Water sink

Radiation
light tiers

Irrigation
valves
(optional)

Humidifier

2040

2610

Refrigeration pipeline (exit 1)

2170

2010

600

4850

4335

3370

3210
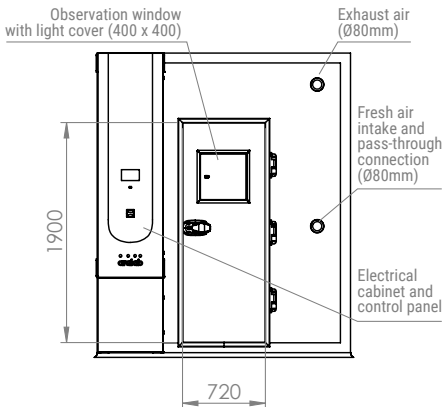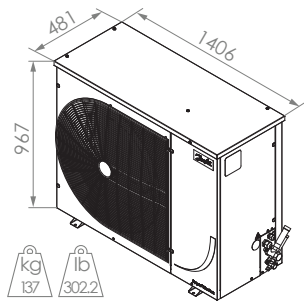
880

900

Electrical cabinet
and control panel

1. Standard refrigeration system is air cooled.

2. Services hub installation needs:
   ● ¾" demineralized water supply.
     Condutivity: <50µS/cm , TDS <35PPM.
     Pressure: 1-5 BAR.
     Maximum theorical water consumption 6,5L/h.
   ● 20mm water drain at floor level, female connection.
   ● ¾" tap water supply.
   ● ¾" irrigation valve system.

3. Electrical cabinet installation needs:
   ● Supply power: 208VAC, 60Hz, 50A / 3-Phase + Neutral + Ground.
     Electrical protection: Circuit breaker 3 x 63A + N with 30mA differential.
     3-Phase electrical cable RV-K 5G4 on the top.
   ● RJ45 Ethernet socket communication port on the top.

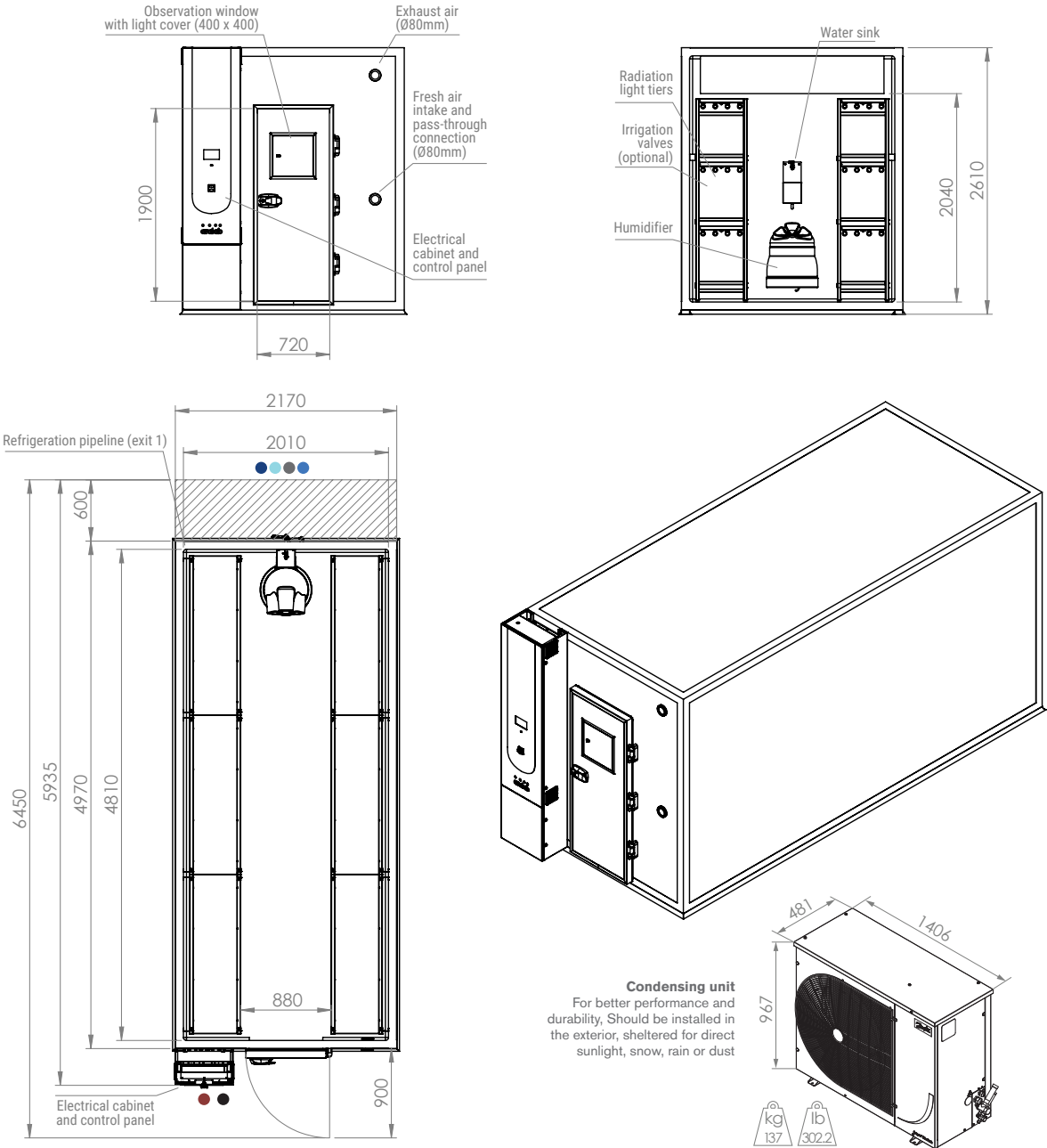4. Equipment Weight (approximate): 1050 kg.

481

1406

967

Condensing unit
For better performance and
durability, Should be installed in
the exterior, sheltered for direct
sunlight, snow, rain or dust

kg
137

lb
302.2

DIMENSIONS AND DRAWINGS

● ● ● ● **FITOCLIMA 20.000**

EXTERNAL DIMENSIONS (HxWxD) (mm)	(inches)		2 610mm x 2 170mm x 5 935mm (6 450mm with open door) 102.8in x 85.4in x 233.7in (253.9in with open door)
INTERNAL DIMENSIONS (HxWxD) (mm)	(inches)		2 040mm x 2 010v x 4 810mm 80.31in x 79.13in x 189.4in

Observation window with light cover (400 x 400)

Exhaust air (Ø80mm)

Fresh air intake and pass-through connection (Ø80mm)

Electrical cabinet and control panel

1900

720

Water sink

Radiation light tiers

Irrigation valves (optional)

Humidifier

2040

2610

Refrigeration pipeline (exit 1)

2170

2010

600

6450

5935

4970

4810

880

900

Electrical cabinet and control panel

Condensing unit
For better performance and durability, Should be installed in the exterior, sheltered for direct sunlight, snow, rain or dust

481

1406

967

kg 137

lb 302.2

1. Standard refrigeration system is air cooled.
2. Services hub installation needs:
   - ● ¾" demineralized water supply.
     Condutivity: <50µS/cm , TDS <35PPM.
     Pressure: 1-5 BAR.
     Maximum theorical water consumption 6,5L/h.
   - ● 20mm water drain at floor level, female connection.
   - ● ¾" tap water supply.
   - ● ¾" irrigation valve system.

3. Electrical cabinet installation needs:
   - ● Supply power: 208VAC, 60Hz, 55A / 3-Phase + Neutral + Ground.
     Electrical protection: Circuit breaker 3 x 63A + N with 30mA differential.
     3-Phase electrical cable RV-K 5G4 on the top.
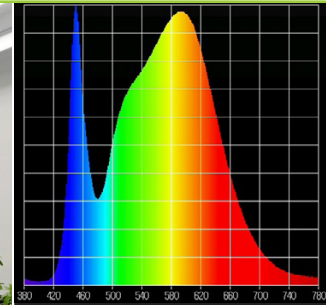   - ● RJ45 Ethernet socket communication port on the top.
4. Equipment Weight (approximate): 1400 kg.

LIGHT TYPES AND INTENSITIES

COOL-WHITE LED 4000K

Shelves with 4 tubes:
300 µmol/m²/s (at 150mm), (at 5.91 in),
27.9 µmol/ft²/s.

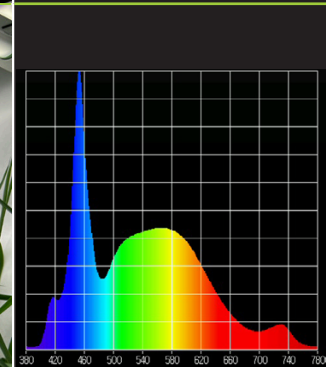Shelves with 8 tubes:
600 µmol/m²/s (at 150mm), (at 5.91 in),
55.8 µmol/ft²/s.

ENHANCED COOL-WHITE LED
(White 4000K LED with UVA and FR compensation)

Shelves with 4 tubes:
300 µmol/m²/s (at 150mm), (at 5.91 in),
55.8 µmol/ft²/s.

Shelves with 8 tubes:
600 µmol/m²/s (at 150mm), (at 5.91 in),
55.8 µmol/ft²/s.

WARM-WHITE LED 3000K

Shelves with 4 tubes:
300 µmol/m²/s (at 150mm), (at 5.91 in),
27.9 µmol/ft²/s.

Shelves with 8 tubes:
600 µmol/m²/s (at 150mm), (at 5.91 in),
55.8 µmol/ft²/s.

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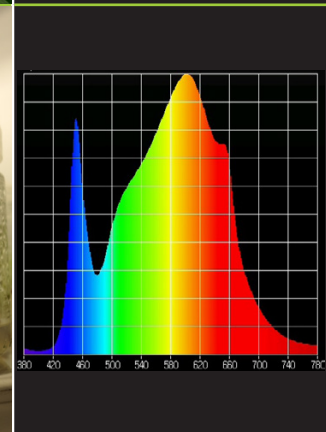
EQUIPMENT DESCRIPTION

CONSTRUCTION

- Exterior: EN 14509 sandwich type high density injected polyurethane foam modular panels, 80mm (3.15in) thick (other thicknesses available for different specific insulation requirements) with galvanized steel in light gray plastic finish.
- Floor: slip resistant AISI 304 stainless steel floor.
- Walls: Galvanized steel with white epoxy paint.
- Shelving and trays: highly resistant, height adjustable, AISI 304 stainless steel
- Entry port Ø80mm (3.15in).
- New generation multi-color touch-screen ClimaPlus© controller.
- Door with sealing gasket, observation window, key lock and safety opening mechanism from the inside.
- Open door alarm with configurable time-out function.
- Free slots for connecting and integrating external devices with the ClimaPlus controller (CO_2, Auto Irrigation, Aeration, Radiometers and other).
- Entomology and Insect rearing rooms have 'flicker-free' ceiling lights and special low-noise blower. In addition to a particulate air filter located on the evaporator inlet, the system is also protected by a phenolic resins coating.

CLIMATIC CONTROL

- Air cooled mechanical refrigeration by sealed condenser group. Optional water cooled.
- Dual heating technology with hot gas by-pass and stainless steel electric heaters.
- Humidification by centrifugal humidifier with very low power consumption and hygienic automatic washing cycles.
- Dehumidification by condensation on the cooling system evaporator.
- PT100 RTD temperature sensor and capacitive humidity sensor.

AIR FLOW

- Dynamic airflow with EC (variable) blower.
- Forced in vertical and downward direction through ceiling plenum (perforated walls upon request).
- Horizontal airflow across the shelves to assure uniformity to all growth area.
- Air renovation through adjustable port-holes.
- Airflow speed adjustable at the ClimaPlus© controller.

RESEARCH PROTECTION AND SECURITY

- Independent thermostats for maximum and minimum temperature limits.
- Automatic cut-off function, in case of excessive heating or cooling.
- Configurable maximum and minimum temperature and humidity limits.
- Visual and audible alarms for temperature and humidity band limits.

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CLIMAPLUS CONTROLLER HMI

- Programmable Logic Controller exclusively developed by Aralab for FitoClima chambers.

- Multi-language, easy-to-use touch-screen interface (EN, FR, DE, IT, PT, ES and other languages on request).

- 90mm x 155mm (3.54in x 6.10in), 7 inch multicolor display.

- Controls every environmental variable available for any specific FitoClima model (Temperature, Humidity, Lights, Airflow, CO2 and connected external devices).

- Friendly program editor, allowing the design of complex and comprehensive climatic simulation programs.

- User access definition (Viewer, User, Admin) with alphanumeric password protection of the controller functions.

- Content and research protection feature, with configurable High, Low and Band Temperature and Humidity alarms and automatic notifications.

- Managing, monitoring and recording of all alarms.

- Non-volatile memory, allowing the automatic restart of previously defined set-points or on-going programs due to power failure, without losing data.

- Real-time monitoring of all the functions and active components of the equipment, allowing for a fast and accurate diagnostic in case of malfunction.

- Possibility to control and program events by external commands and with external devices.

- Secure Remote Access through ClimaPlus VNC Server.

- Ethernet port for connecting logging computer to the chamber controller.

- ClimaPlus controller functions also available at the PC/Laptop with the FitoLog software pack.
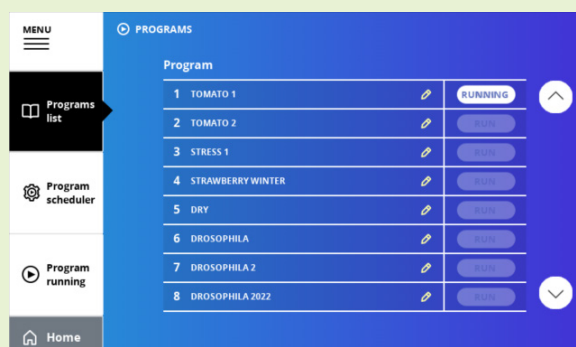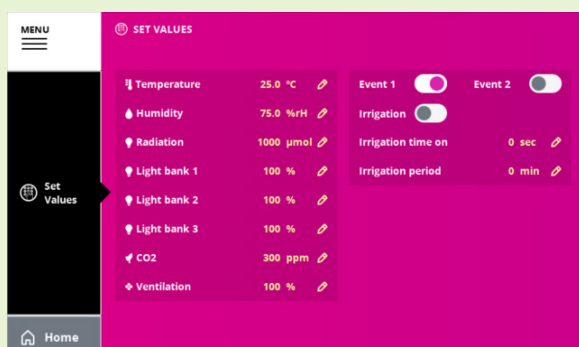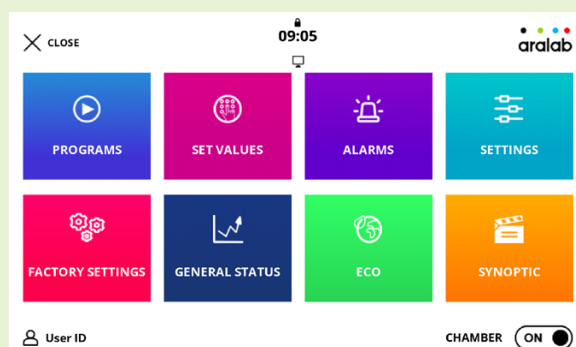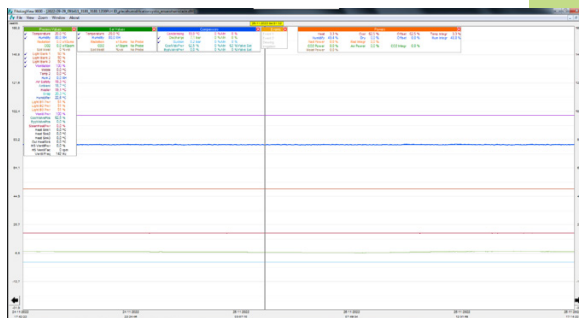
FITOLOG SOFTWARE

The FitoLog software pack is a set of applications designed to facilitate the managing, monitoring and recording of programs and data from the FitoClima chambers. It consists of 3 applications: **FitoLog**, **FitoLogView** and **FitoProgram**.


FITOLOG

Records and displays in real time all data and details related to the set-points, running variables and equipment behaviour. It also retrieves information about the active components of the chamber, running processes, errors, alarms and allows the configuration of periodic or alarm triggered remote notifications (by email or SMS, depending on existing connections and accessories).

FITOLOGVIEW

It is a working tool to process the data recorded by the FitoLog program. One can view, print and export the log contents to other file types, and analyse the data in other data management software (Excel, Star Office, Access or others).
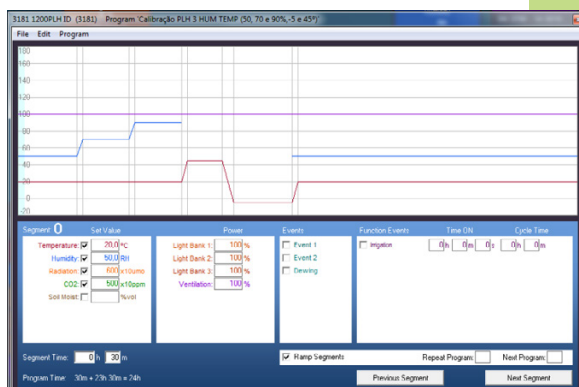
FITOPROGRAM

This application simplifies the creation of programs and its integration on the chamber ClimaPlus controller. Up to 32 programs, each with 24 segments, can be designed and linked to create detailed environmental profiles and simulations.

RESEARCH SECURED WITH ALARMS, NOTIFICATIONS, FAST DIAGNOSTICS AND PROMPT TROUBLESHOOTING

With FitoLog it is possible to gather data from each of the chambers systems, which makes it a very useful tool to diagnose any necessary maintenance. This tool works as the "black box" of the equipment, giving Aralab technicians the necessary data to remotely carry out a fast and efficient diagnostic. All that is needed is a FitoLog file.

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MULTI-TIER PLANT GROWTH CONTROLLED ENVIRONMENT ROOMS

COMMON ACCESSORIES

PLEASE CONSULT ARALAB FOR OTHER ITEMS

FitoLog® software pack for PC/Laptops, enabling data monitoring, logging and managing operations directly on a computer.

CO2 monitor and controlling unit.

Light intensity control in µmol/m²/s with the integration of an internal quantum light meter.

LED modules with fixed spectral distribution.

Additional entry ports.

Additional electrical plugs.

Water-cooled condenser.

Dew and Mist simulation.

Positive/Negative pressures with HEPA filters.

Phenolic coating for Entomology/Insect rearing rooms.

Irrigation function for automated watering and plant nurturing.

Additional internal electrical connection sockets.

Hydroponic system with PH and EC control and monitoring.

Quantum Light Meter

Hydroponic Irrigation (pH and EC control)

CO2 control and monitoring

COMMON APPLICATIONS AND FITOCLIMA MODELS MATRIX

TYPICAL APPLICATIONS	FITOCLIMA CONFIGURATION
Tissue culture	Configuration 1
Small plants (e.g. Arabidopsis)	Configuration 1
Medium plants (e.g. Tomato, Colza, Rice)	Configuration 2

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MULTI-TIER PLANT GROWTH CONTROLLED ENVIRONMENT ROOMS

MULTI-TIER GROWTH ROOMS - CUSTOMER APPLICATIONS

CUSTOMER SPECIFICATIONS AND ACCESSORIES MAY RESULT IN DIFFERENT PRODUCT IMAGES
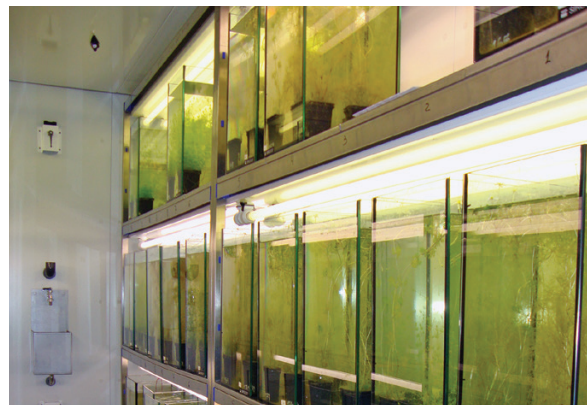

TISSUE CULTURE ROOMS

ARABIDOPSIS RESEARCH GROWTH CHAMBERS

VEGETABLE RESEARCH ROOMS

ALGAE RESEARCH AT MARINE BIOLOGY CENTER

AGTECH VEGETABLE PRODUCTION ROOM

DROSOPHILA REARING AND STOCK ROOM

Features and specifications are subject to change. Aralab continuously studies ways to further develop its products to achieve better performances and overall product quality.
As a result, characteristics and specifications provided in this document may be subject to changes.

MULTI-TIER PLANT GROWTH CONTROLLED ENVIRONMENT ROOMS

Let's meet!

LinkedIn: www.linkedin.com/company/aralab-us/
Product link: www.memmertusa.com/WalkInChambers
Website: www.memmertusa.com

Tel.: + 262-594-3941

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Control the environment
Your own climate