BIO

FITOCLIMA 600 & 1200 BIO

PLANT GROWTH RESEARCH 'REACH-IN' ENVIRONMENTAL CHAMBERS

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.

FitoClima Bio 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

ISO 9001 BUREAU VERITAS Certification

Certified ISO:9001 for its Quality Management System
Certified ISO:14001 for its Environmental Management System

KEY FEATURES

- Ready to use. No assembly needed
- Minimal footprint for efficient use of laboratory space
- Adaptive future proof design, with easily removable and height adjustable shelves and changeable light canopies with multiple intensities
- Wide temperature and humidity working ranges
- Research protection, with configurable high / low temperature and humidity alarms and automatic remote notifications
- Stainless steel interior for maximum durability and easiness of cleaning
- Multiple lighting options to suite any research requirements and stages of plant development
- ECO mode function for energy savings

Photo example of a FitoClima 1200 HP LED

TECHNICAL SPECIFICATIONS

TECHNICAL DATA FOR FITOCLIMA 600 & 1200 BIO CHAMBERS

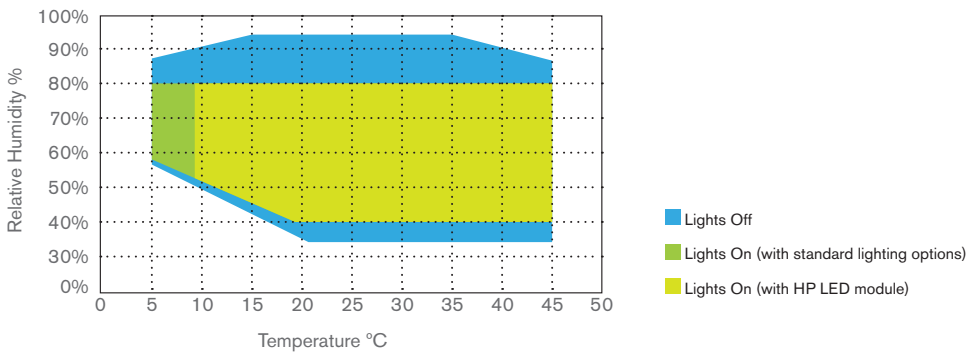
TEMPERATURE RANGE [1]		Lights On: +5°C to +45°C Lights Off: -5 °C to +45°C
EXTENDEND TEMPERATURE RANGE (OPTIONAL)		Lights On: -10°C Lights Off: -25°C (only for FitoClima 1.200 model)
TEMPERATURE UNIFORMITY (in space) [1]		± 1,0°C (Lights Off)
TEMPERATURE UNIFORMITY (in time)		± 0,5°C
HUMIDITY RANGE [1]		Lights On: 40 to 80% rH Lights Off: 40 to 95 % rH
HUMIDITY UNIFORMITY (in space) [1]		± 2% rH (Lights Off)
HUMIDITY UNIFORMITY (in time)		± 1% rH
SHELVES / LIGHT BANKS [2]		FitoClima 600: 1 to 4 shelves with controlled lighting FitoClima 1.200: 2 to 8 shelves with controlled lighting
GROWTH HEIGHT		Adjustable from 150mm to 1.330mm with 4 tiers of shelves: approx. 200mm with 3 tiers of shelves: approx. 300mm with 2 tiers of shelves: approx. 550mm with 1 tier or shelves: approx. 1300mm
GROWTH AREA AND LOAD		0,33m² per shelf (515mm x 645mm) 18kg maximum weight load per shelf, evenly distributed (40Kg with 'reinforced shelf' option)
LIGHT TYPES AND INTENSITIES [2a]		Maximum number of light shelves by light type

Light Type [3]	**Maximum intensity per shelf (+/-10%)** [2a]	**Tiers of shelves included**	**Additional tiers of shelves allowed**
Config 1 LED	400 µmol/m²/s	3	1
Config 2 LED	650 µmol/m²/s	2	1
High Performance LED	3.000 µmol/m²/s	1	1 [1]
Vertical LED on the side walls	300 µmol/m²/s	5	10
8IIA LED module with configurable spectra	Spectra dependent	1	1

AIRFLOW		Uniform 0,2 m/s across the shelves Adjustable by setpoint % at the controller interface
INTERNAL VOLUMES		FitoClima 600: 543 liters FitoClima 1.200: 1.194 liters

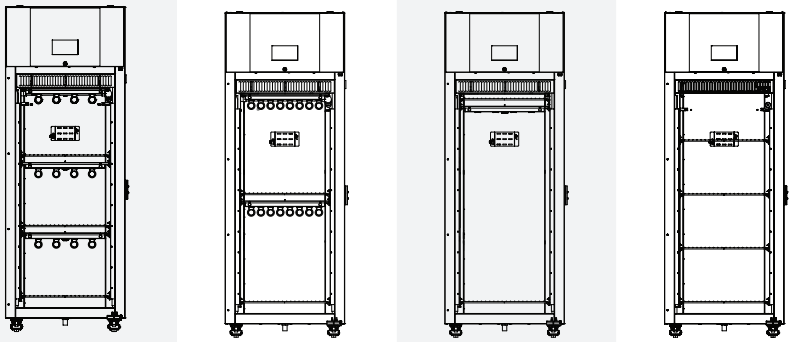
[1] Temperature and Humidity performances with Lights ON can be affected by the chosen light configuration (LEDs, Fluorescent, Other types) and light intensity set-point. Due to heat dissipation from the lamps - depending on the chosen type of light solution - high light intensities can affect Temperature 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] Standard included light configuration: 4 fluorescent or LED tubes in each shelf. 3 light shelves on the FitoClima 600 and 6 on the FitoClima 1.200. FitoClima 600 with Vertical LED Lights option has 5 wire shelves (1,65m²) included as standard, and up to 10 can be fitted optionally.
[2a] Measurements at 150mm from lamps at 25°C. At lower temperatures light intensities will decrease, except with LED lighting options. All Aralab lighting solution have dimming function.
[3] Fluorescent tubes are still available on request

TEMPERATURE & HUMIDITY WORKING RANGE

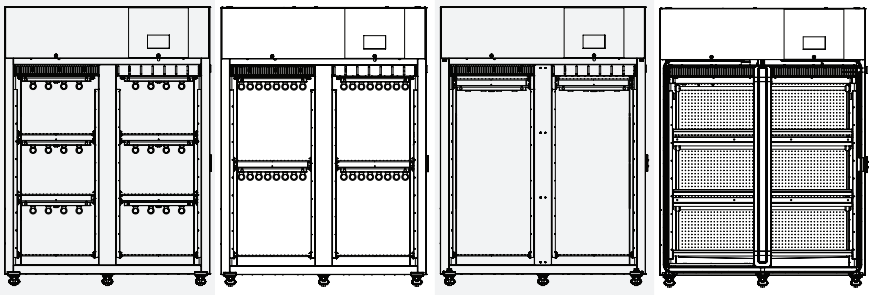


FITOCLIMA 600 & 1200 DESIGN CONFIGURATIONS

	FITOCLIMA 600 CONFIG 1	FITOCLIMA 600 CONFIG 2	FITOCLIMA 600 HP	FITOCLIMA 600 VERTICAL
NUMBER OF LIGHT SHELVES INCLUDED	3	2	1	5
GROWTH HEIGHT BETWEEN SHELVES (APPROXIMATELY)	290mm	550mm	1300mm	200mm (up to 10 wire shelves can be included)
GROWTH AREA	0,99m²	0,66m²	0,33m²	1,32m²
GROWTH AREA WITH OPTIONAL ADDITIONAL TIER (LED ONLY)	1,32 m²	0,99m²	N/A	Up to 3,3 m² (with 10 wire shelves)
LIGHT INTENSITY (AT 150MM FROM LIGHT SOURCE)	400 µmol/m²/s (LED)	600 µmol/m²/s (LED)	3.000 µmol/m²/s	300 µmol/m²/s (LED)



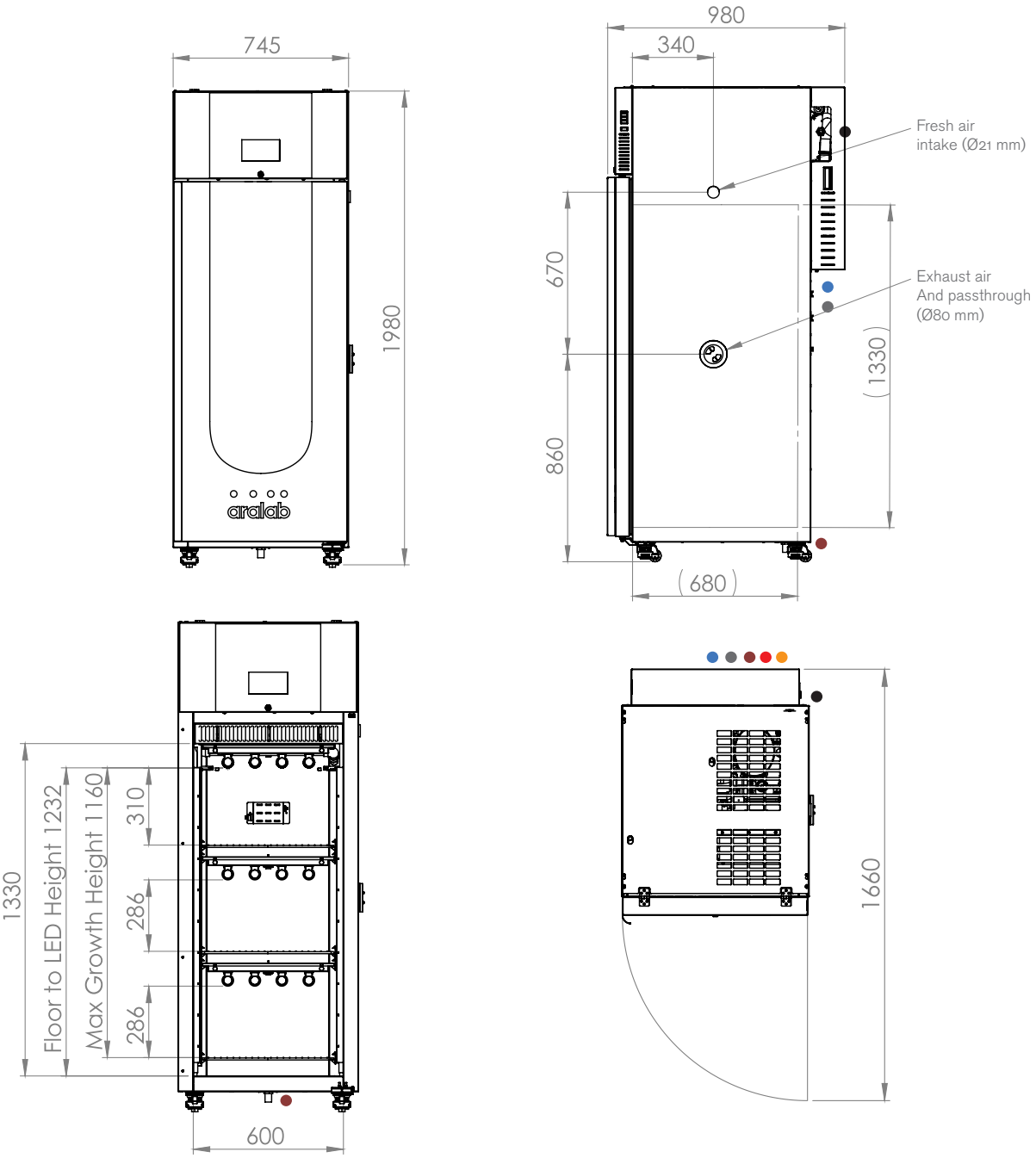
	FITOCLIMA 1200 PL/PLH CONFIG 1	FITOCLIMA 1200 PL/PLH CONFIG 2	FITOCLIMA 1200 HP	FITOCLIMA 1200 PLUS
NUMBER OF LIGHT SHELVES	6	4	2	3
GROWTH HEIGHT BETWEEN SHELVES AND LIGHTS	290mm	550mm	1300mm	290mm
GROWTH AREA	1,98m²	1,32m²	0,66m²	2,34 m²
GROWTH AREA WITH OPTIONAL ADDITIONAL TIER (LED ONLY)	2,64m²	1,98m²	N/A	3,12 m²
LIGHT INTENSITY (AT 150MM FROM LIGHT SOURCE)	400 µmol/m²/s (LED)	600 µmol/m²/s (LED)	3.000 µmol/m²/s	500 µmol/m²/s (LED)



DIMENSIONS AND DRAWINGS

FITOCLIMA 600

EXTERNAL DIMENSIONS (HxWxD) (mm)		1.980 x 745 x 980
INTERNAL DIMENSIONS (HxWxD) (mm)		1.330 x 600 x 680

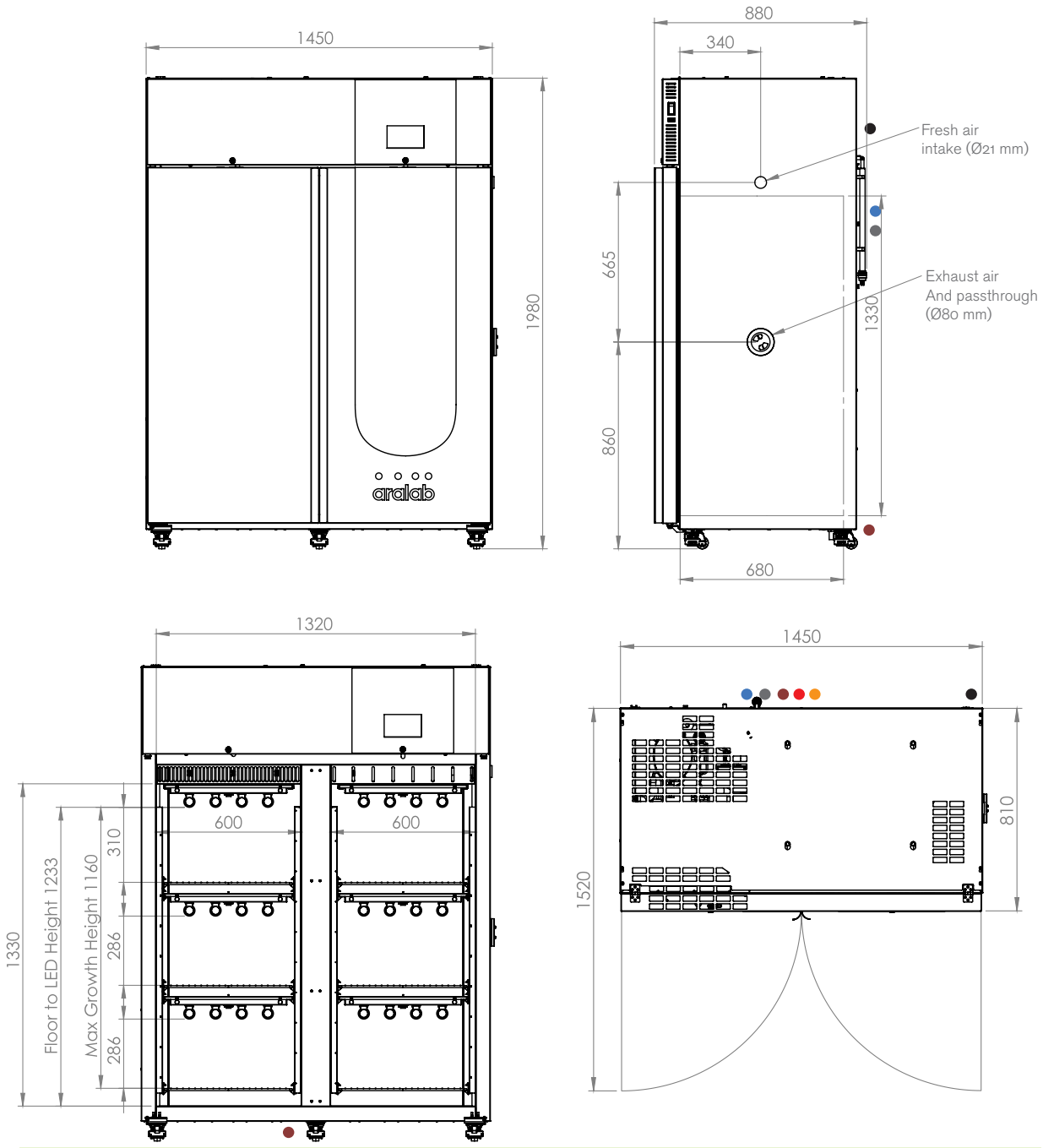


1. Standard refrigeration system is air cooled
2. Services hub installation needs:
   - ¾" male demineralized water supply valve
     Condutivity: <50µS/cm , TDS <35PPM
     Pressure: 1-5 Bar
     In case of reverse osmosis/cylinder (optional):
     ¾" male tap water valve connection
     Pressure: 1-5 Bar
   - 50mm water drain at floor level
3. Electrical cabinet installation needs:
   Supply power: 230VAC, 50Hz, 10A / Single Phase + Neutral + Ground
   Electrical protection: Circuit breaker 16A + N with 30mA differential
   Heat dissipation to room: Approx. 0,3kW
   - RJ45 communication port
4. Weight: 170Kg (depending on final configuration)
5. Power Supply for Reverse Osmosis - 230VAC, 50Hz, 4A

DIMENSIONS AND DRAWINGS

FITOCLIMA 1.200

EXTERNAL DIMENSIONS (HxWxD) (mm)		1.980 x 1.450 x 880
INTERNAL DIMENSIONS (HxWxD) (mm)		1.330 x 1.320 x 680

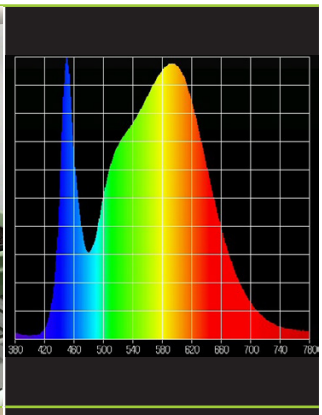


1. Standard refrigeration system is air cooled (-20°C model is water cooled. See point 5.)
2. Services hub installation needs:
   - ¾" male demineralized water supply valve
     Condutivity: <50µS/cm , TDS <35PPM
     Pressure: 1-5 Bar
     In case of reverse osmosis/cylinder (optional):
     ¾" male tap water valve connection
     Pressure: 1-5 Bar
   - 50mm water drain at floor level
3. Electrical cabinet installation needs:
   Supply power: 230VAC, 50Hz, 12,5A / Single Phase + Neutral + Ground
   Electrical protection: Circuit breaker 16A + N with 30mA differential
   Heat dissipation to room: Approx. 0,5kW
   - RJ45 communication port
4. Weight: 250Kg (depending on final configuration)
5. Requirements for water cooled condenser for -20C model: Inlet: 15°C to 25°C and 3 to 5 Bar; Hardness < 8 °dH (200 mgCaCO3/l); Free Chlorine < 1.0 ppm; PH between 7.5 and 9
6. Power Supply for Reverse Osmosis - 230VAC, 50Hz, 4A

LIGHT TYPES AND INTENSITIES

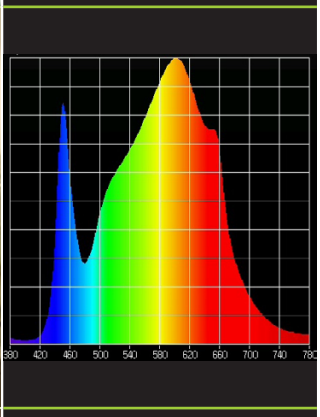
COOL-WHITE LED 4000K

Shelves with 4 tubes: 400 µmol/m²/s (at 150mm)
Shelves with 8 tubes: 600 µmol/m²/s (at 150mm)



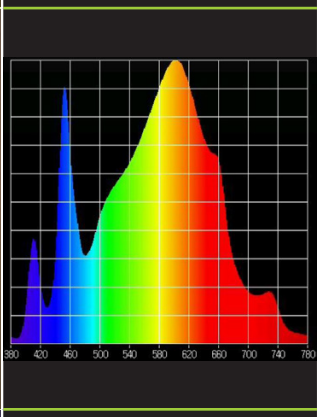
WARM-WHITE LED 3000K

Shelves with 4 tubes: 400 µmol/m²/s (at 150mm)
Shelves with 8 tubes: 600 µmol/m²/s (at 150mm)



HP LED 3500K

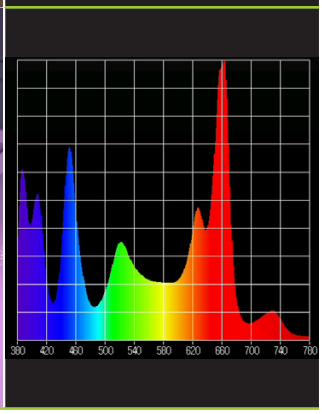
Per shelf: 1.400 µmol/m²/s (at 500mm) and 3.000 µmol/m²/s (at 150mm)



8IIA SPECTRUM LED MODULE

Per shelf: 660 µmol/m²/s (at 500mm) and 1.300 µmol/m²/s (at 150mm)

Note: Variable spectrum LED module. Intensity will be spectra dependent. Above measurements are with all channels turned ON



FITOCLIMA 600 AND 1200 MODELS

FITOCLIMA MODELS REFERENCE – STANDARD CONTROLLED ENVIRONMENT VARIABLES

FITOCLIMA 600/1200 PLH		Temperature, Light and Humidity
FITOCLIMA 600/1200 PL		Temperature and Light
FITOCLIMA 600 PL-V/PLH-V		Vertical Lights with or without humidity control
FITOCLIMA 600/1200 PH		Temperature and Humidity
FITOCLIMA 600 PDH		Temperature and Low Humidity (ambient down to 5% rH)

MULTI-TIER - PL AND PLH MODELS

- Multiple tiers of shelves inside, with easy height adjustement
- Suitable for small and medium plants, insect rearing or tissue culture

VERTICAL LIGHTS - PL-V AND PLH-V MODELS

- Lights installed on the side walls of the chamber
- Allows increased storage and growth area
- Suitable for insectaries, tissue culture and plant growth

SINGLE-TIER - HP MODELS

- High performance lighting, allowing +1.000 µmoles intensity
- Suitable for medium to tall plants

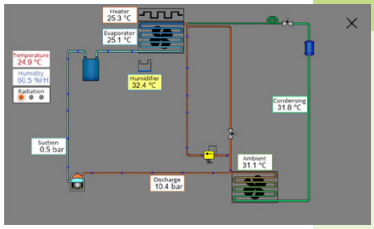
EQUIPMENT DESCRIPTION

CONSTRUCTION & CONTROL

- Multi-color 7-inch touch-screen ClimaPlus© controller
- Open door alarm with configurable time-out function
- Highly resistant stainless-steel interior with white reflective coating
- Polyurethane insulation
- Exterior zinc plated steel and gray epoxy paint
- Pivoting door(s) with spring lock, magnetic gasket and safety lock(s)
- 4 and 5 built-in casters
- 80mm Ø side entry port

ENVIRONMENTAL CONTROL

- Air-cooled, CFC free, mechanical refrigeration by hermetic compressor
- Dual heating technology with hot gas by-pass and stainless steel electric heaters
- Humidification by ultrasonic generator with water level control and automatic self-pasteurization function, preventing damages or malfunctions due to poor water quality and biofilm accumulation
- Dehumidification by condensation on the cooling system evaporator
- Models with 'Temperature and Humidity control' are equipped with Vaisala capacitive sensors; models with 'Temperature control only' are equipped with Resistive NTC sensor
- Air renovation through adjustable lateral port-holes
- Uniform air flow of approximately 0.2m/s across all shelves
- Airflow speed adjustable on the ClimaPlus© controller

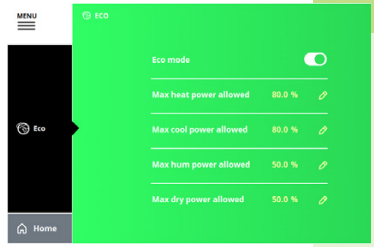


RESEARCH PROTECTION AND AUTOMATIC DIAGNOSTICS

- 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 limits
- Synoptic: a self-diagnostics tool that checks all active components of the system allowing for faster procedures and minimizing any possible downtimes

BUILT-IN DECONTAMINATION

- Heat Decontamination sets temperature to 60°C and all environmental control functions are disabled during decontamination period. Duration can be set manually as different contaminations can require custom durations.
- Hydrogen Peroxide bio-decontamination capable: FitoClima 600 / 1200 are resistant to H_2O_2 and now have a bio-decontamination function (only available through Aralab Service Teams) allowing the connection of a H_2O_2 atomizer system developed by Aralab.

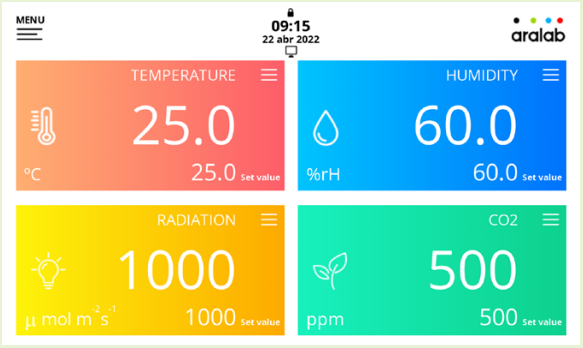


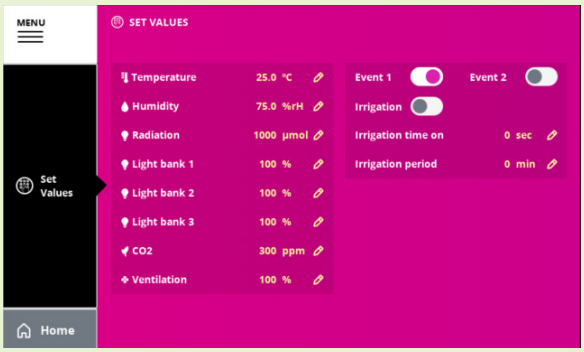
ECO MODE

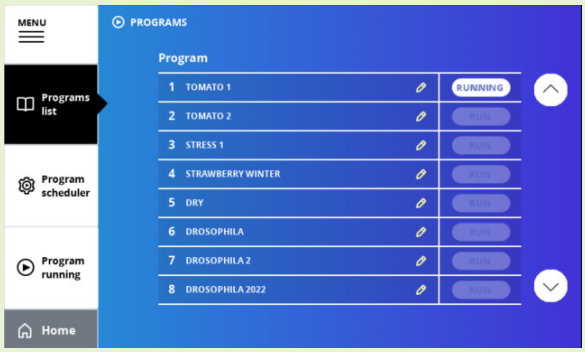
- The ECO Mode button turns on new power saving features
- By decreasing some power related activities (depending on set-point conditions), the energy consumption can decrease, translating in cost savings

CLIMAPLUS CONTROLLER HMI

- Programmable Logic Controller exclusively developed by Aralab for FitoClima chambers
- Easy to use touch-screen interface
- 90mm x 155mm (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 for creating 32 programs of 24 segments each, allowing the design of complex and comprehensive climatic simulation programs
- 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





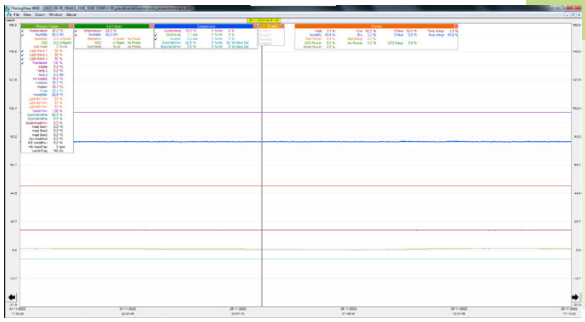


FITOLOG SOFTWARE

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**.

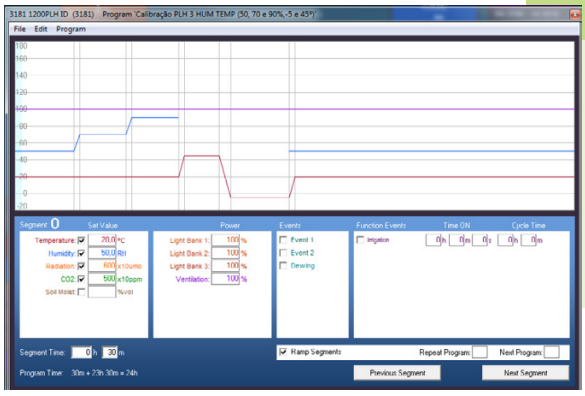
FITOLOG

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

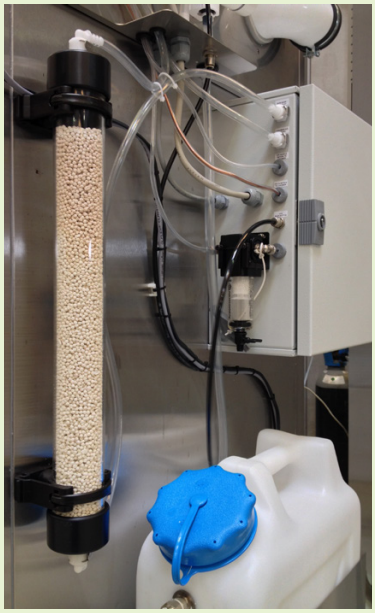
With FitoLog it is possible to gather data from each of the chambers systems, which makes it a very useful tool to diagnose any necessary maintenance. This tool works as the “black box” of the equipment, giving Aralab technicians the necessary data to remotely carry out a fast and efficient diagnostic.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

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
Quantum light meter integrated with the controller for managing light intensities in µmol/m²/s
Negative Temperatures (down to -20C)
Additional drying capacity with compressed air dryer
Additional entry ports
Internal electrical plugs
Water-cooled condensing unit
CO_2 monitor and controlling units
CO_2 scrubber for lowering carbon dioxide below ambient levels
Mist simulation
Automatic irrigation valve
Aeration kit for Algae Research and Hydroponic cultures
External 20 litre water tank with electric pump and security valve
Double glazed glass doors with or without cover lid
Phenolic resins coating for Entomology/Insects rearing applications

Quantum light meter



CO_2 scrubber and integrated water tank

FitoLog Software pack

Special LED solutions

Double glazed doors with lid

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.

Let's meet!
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Configure your FitoClima chamber

See it on the Showroom

/AralabChambers
/company/aralab
/user/AralabChambers
/Aralab_
/aralabchambers

aralab

Control the environment

Your own climate