

BIO

# FITOCLIMA 2.500

**HIGH PERFORMANCE PLANT RESEARCH CHAMBER**

COMBINING HIGH LIGHT INTENSITIES AND LOW TEMPERATURES





**Aralab FitoClima High Performance** chambers were developed for plants requiring great amounts of light intensity as well as a broad light spectrum.

The new **FITOCLIMA 2.500 HP** enhances the family range features by adding the "Auto Defrost" temperature option, allowing the chamber to work in very low temperatures under full lighting whilst preserving an accurate and stable controlled environment.

From freeze and cold resistance to heat stress experiments, recreating extreme conditions has now become easier.



## 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 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.

Aralab. Your own climate.

## KEY FEATURES

- Temperature, Humidity, Light intensity and Air Flow controlled with consistent precision through the years
- Capable of constant low temperatures with lights on
- Light source located at the chamber ceiling with double glass separation and heat extraction system
- Fits through standard doorways. Shipped fully assembled and ready to use
- All conditions easily programmable with the new ClimaPlus® multicolour touchscreen interface
- Stainless steel shelves and floor for maximum resistance, durability and easy cleaning
- Research protection features, with configurable high / low temperature and humidity alarms and automatic remote notifications

## TECHNICAL SPECIFICATIONS

FITOCLIMA 2.500 HP		
<b>TEMPERATURE RANGE</b>	LIGHTS ON LIGHTS OFF	5°C to +45°C -5°C to +45°C
<b>TEMPERATURE RANGE WITH 'AUTO DEFROST' [1]</b>	LIGHTS ON LIGHTS OFF	0°C to +45°C -15°C to +45°C
<b>TEMPERATURE PRECISION</b>		± 0,5°C
<b>TEMPERATURE UNIFORMITY</b>		± 1,0°C
<b>HUMIDITY RANGE [2]</b>	LIGHTS ON LIGHTS OFF	40 to 80% RH 40 to 90% RH
<b>HUMIDITY PRECISION</b>		± 1% RH
<b>HUMIDITY UNIFORMITY</b>		± 2% RH
<b>SHELVES</b>	Two independent height adjustable shelves	
<b>GROWTH HEIGHT</b>	Adjustable from 150mm to 1.400mm (floor level)	
<b>GROWTH AREA</b>	1,43 m <sup>2</sup>	
<b>INTERNAL VOLUME</b>	2.000 liters (2m <sup>3</sup> )	
<b>LIGHTING SYSTEM</b>	Light source is protected by special glass canopy with a heat extraction system to ensure constant stable conditions	
<b>LIGHT INTENSITY [3]</b>	500+ μmoles/m <sup>2</sup> /s (approx. 35.000 Lux) at 1 meter from ceiling 1.000+ μmoles/m <sup>2</sup> /s (approx. 75.000 Lux) at 50 cm from ceiling [Intensities achieved with one lamp per reflector. Higher intensities available with 2 lamps per reflector]	<b>Light Type</b> Last generation 'Full spectrum' CMD 315w lamps with dimming function
<b>AIRFLOW</b>	Airflow velocity is adjustable by set-point % on the controller. Air flow direction is configurable with full vertical laminar air flow; or with vertical and horizontal air flow combination	



[1] Optional temperature range for continuous functioning in negative temperatures. Equipment is upgraded with double refrigeration cooling system and alternating auto-defrost.

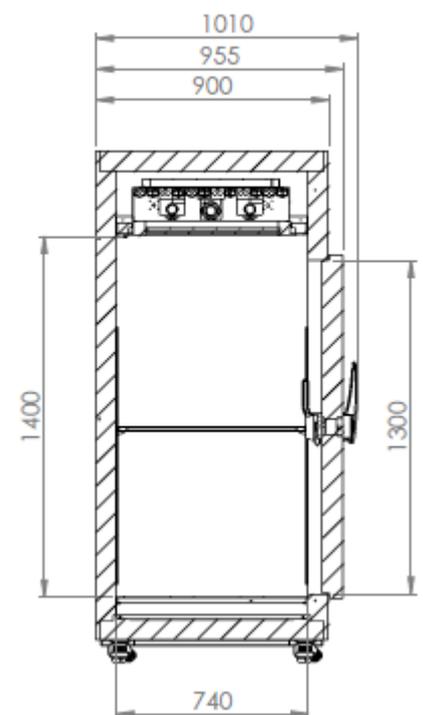
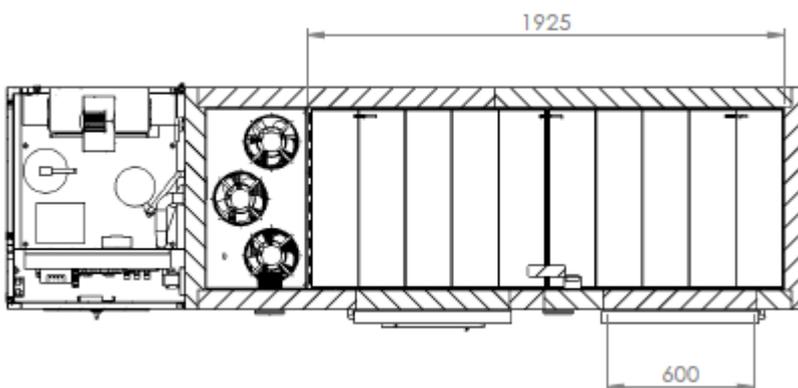
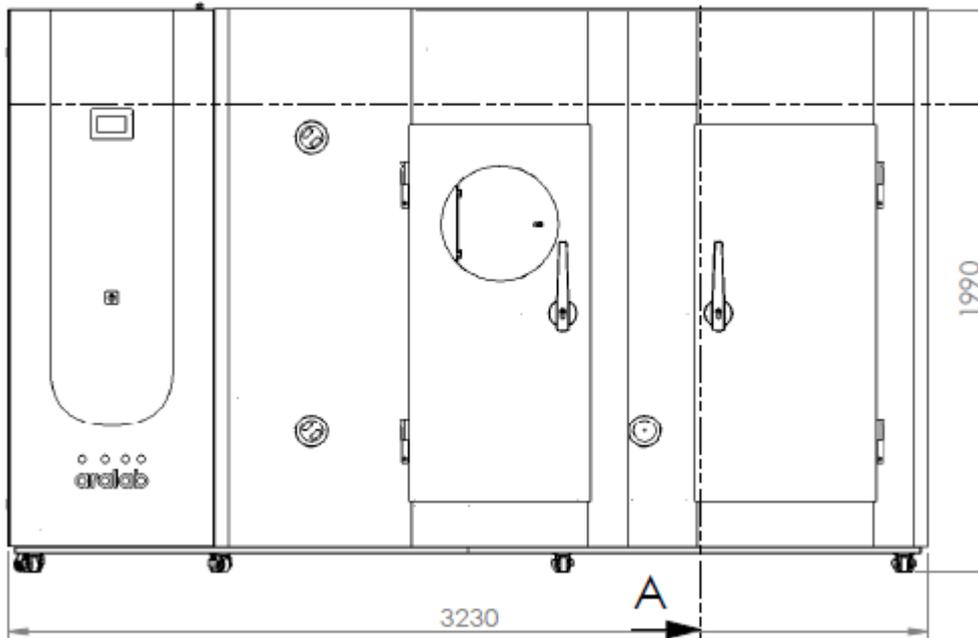
[2] Optional feature. Humidity range can be affected by light intensity and temperature set-point

[3] Approximate measurements at 25°C inside chamber. LED options available with fixed or configurable spectral distribution and different intensity requirements. Intensity upgrade to 1000 μmoles/m<sup>2</sup>/s is possible with double lamp luminaires.

## DIMENSIONS AND DRAWINGS

### FITOCLIMA 2.500 HP

	<b>EXTERNAL DIMENSIONS</b> (H x W x D) (mm)	1.990 x 3.230 x 1.010
	<b>INTERNAL DIMENSIONS</b> (H x W x D) (mm)	1.400 x 1.925 x 740



## EQUIPMENT DESCRIPTION

### CONSTRUCTION

- Exterior: EN 14509 sandwich type high density injected polyurethane foam modular panels, 80 mm thick, with galvanized steel in light gray plastic finish. CFC-free.
- Floor: AISI 304 stainless steel floor
- Walls: Galvanized steel with white epoxy paint
- Shelves: stainless steel with white reflective coating
- 60mm Ø entry port at the front
- New generation multi-color touch-screen controller
- Door with double gasket, observation window with key 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 (CO2 control, Automatic Irrigation, Aeration, Quantum Light sensors and other)



### CLIMATIC CONTROL

- Air based, CFC free, mechanical refrigeration by sealed condenser group
- Dual heating technology with hot gas by-pass and stainless steel electric heaters
- Constant negative temperatures achieved with double refrigeration cooling system and alternating auto defrost
- Humidification by ultrasonic generator with automatic water level control and self-cleaning function
- Dehumidification by condensation on the cooling system evaporator
- PT100 Class A temperature sensor and capacitive humidity sensor

### AIR FLOW

- Dynamic airflow with ecological 'green-power' EC (variable) blower
- Airflow velocity adjustable by set point % at the ClimaPlus® touch-screen controller
- Air flow direction forced in upward direction through perforated floor
- Full vertical laminar air flow; or with horizontal air flow combination
- Air renovation through adjustable frontal port-holes

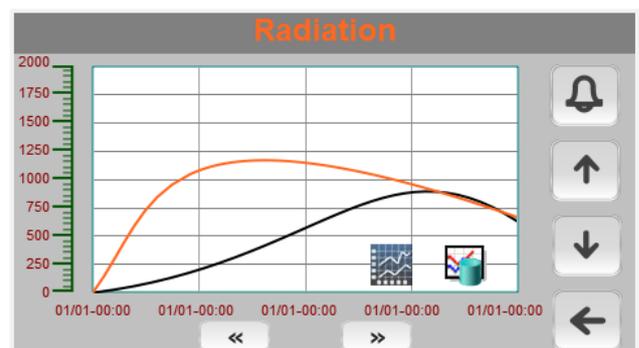
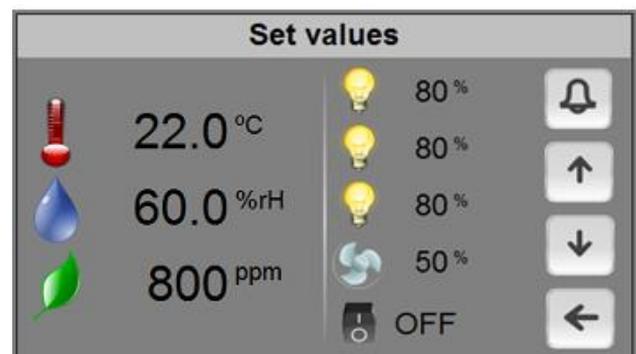


### RESEARCH PROTECTION AND SECURITY

- Independent thermostats for maximum and minimum temperature limits
- Automatic cut-off function, in case of excessive heating or cooling
- Configurable maximum and minimum alarm bands for all controlled variables: temperature, humidity, light intensity, CO2 levels, soil moisture, or other connected sensors
- Visual and audible alarms for temperature and humidity band limits
- Configurable automatic remote notification by email of any triggered alarm
- Password protection of administrative controller functions

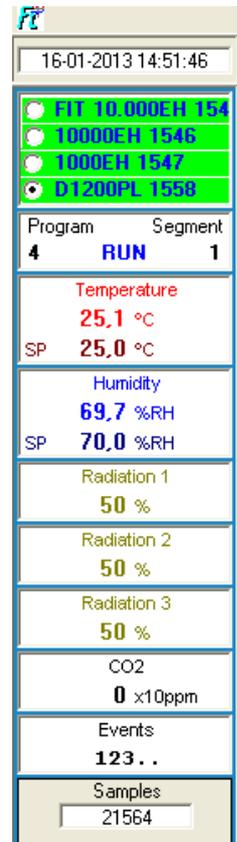
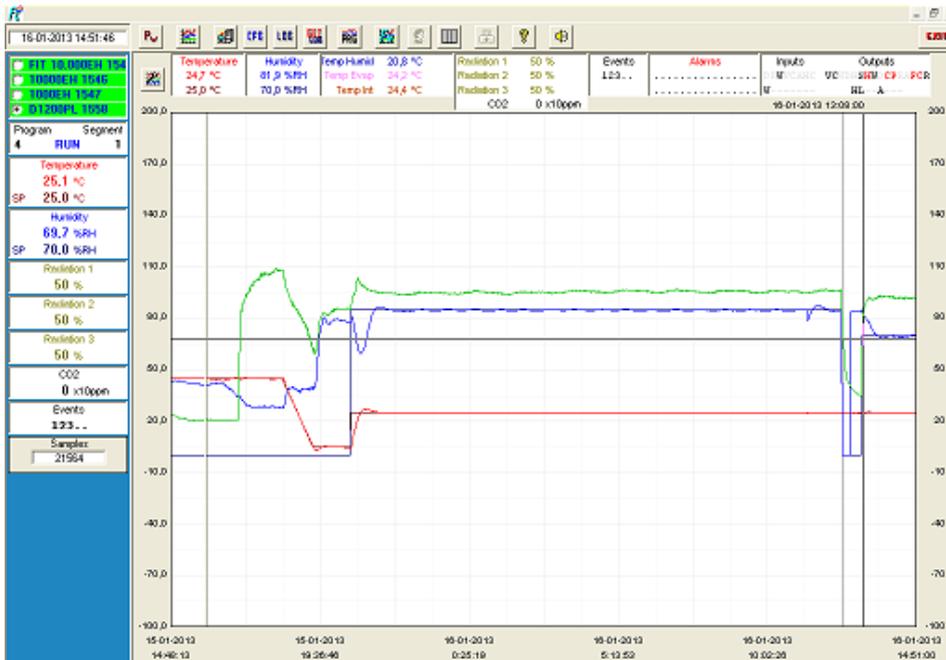
## CLIMAPLUS CONTROLLER

- Programmable Logic Controller exclusively developed by Aralab for FitoClima chambers
- Easy to use touch-screen interface
- Multicolor display
- Controls every environmental variable available for any specific FitoClima model (Temperature, Humidity, Lights, Airflow, CO2, Automatic Watering and nurturing of plants and other 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 and Low 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
- Graphical view of running programs conditions and environmental variables
- USB, Ethernet and Wireless outputs for connecting computers to the controller
- ClimaPlus controller functions also available at the PC/Laptop with the FitoLog software pack

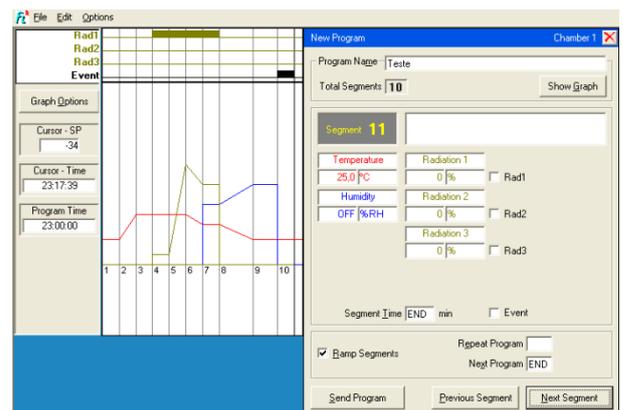
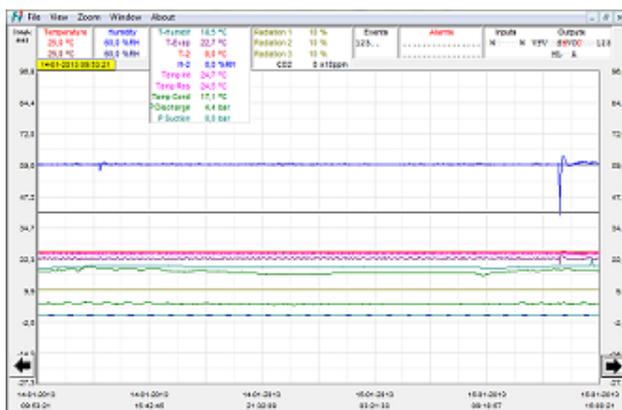


## FITOLOG SOFTWARE

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

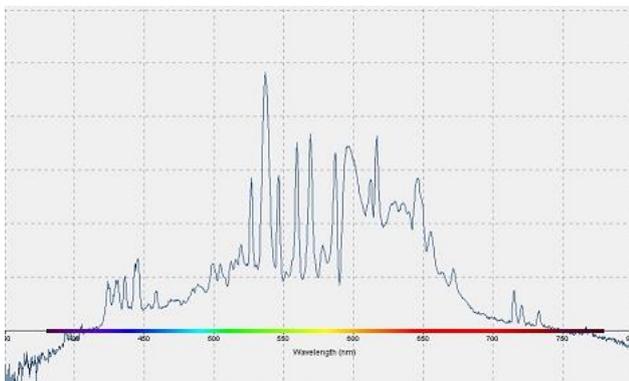
- FitoLog® software pack for PC/Laptops, enabling data monitoring, logging and managing operations directly on a computer
- Humidity control
- Radiation intensity control with internal quantum light sensors for accurate measurements at plant height
- LED lights with fixed or adjustable (configurable) spectral distribution
- Internal electrical sockets
- CO2 (or other gas) analysers with integrated monitoring and controlling units
- 'Auto Defrost' temperature option allowing simultaneous low temperatures and high light intensities without temperature spikes
- Automatic watering / nurturing of plants
- Aeration kit for Algae or Hydroponic cultures
- Integrated water tank with electric pump and security valve
- Wall mounting conductivity meter, for water quality control, with assembling accessories
- 5 stage Reverse Osmosis with pre-decalcification water treatment system



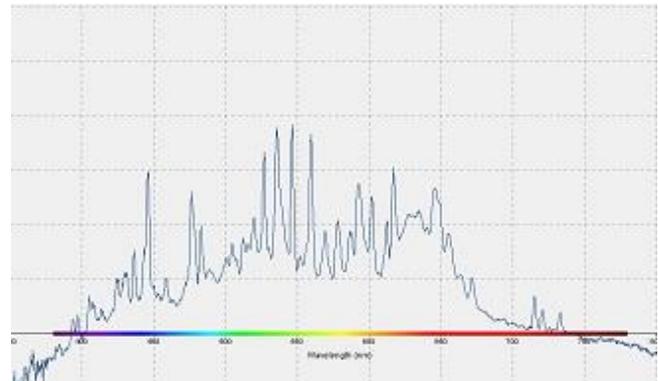
MORE ACCESSORIES AVAILABLE. PLEASE CONSULT ARALAB FOR OTHER ITEMS

## LIGHTING OPTIONS (OTHER LIGHTING OPTIONS AVAILABLE)

STANDARD

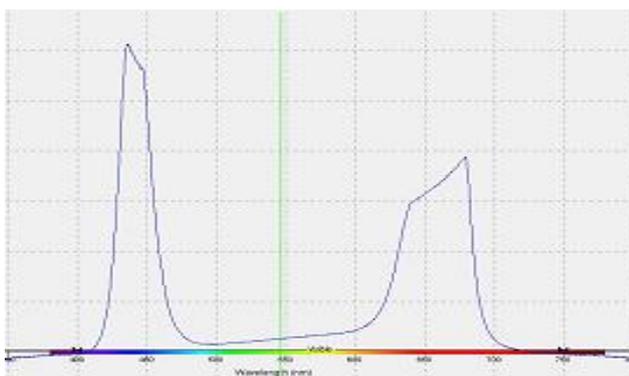


Elite Green-Power CMD 'Full Spectrum' (warm white)

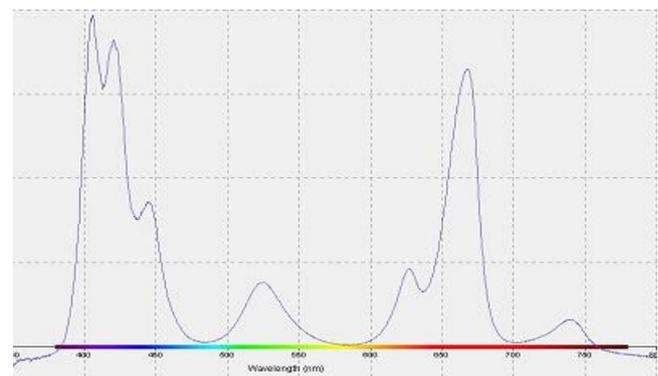


Elite Green-Power CMD 'Full Spectrum' (cool white)

OPTIONAL



LED with 3 channels (BWR) for spectral distribution (400-700nm)



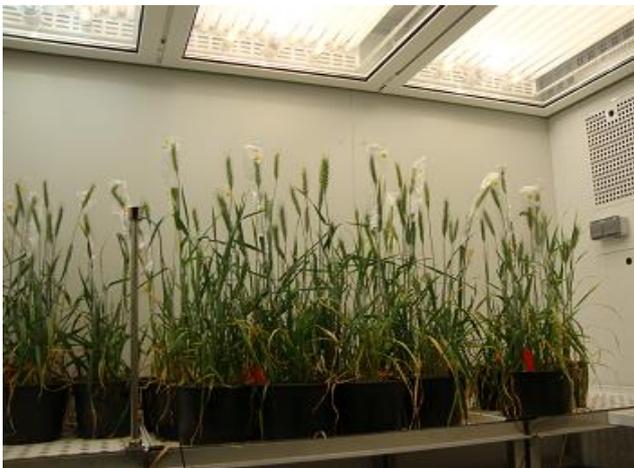
LED with 7 adjustable channels for spectral distribution (380-735nm)

**INSTALLATION REQUIREMENTS**

 <b>WATER (FOR MODELS WITH HUMIDITY CONTROL)</b>	Distilled or demineralized water. 1 to 6 bar pressure and $\leq 10\mu$ siemens conductivity.
 <b>WATER DRAIN</b>	Advisable: located at floor level and near the equipment, with a minimum inclination of 10° from chamber to drain
 <b>ELECTRICAL CONNECTION</b>	3/N/PE AC 400V $\pm$ 10%; 50Hz

**FITOCLIMA HIGH PERFORMANCE APPLICATIONS**

(CUSTOMER SPECIFICATIONS AND ACCESSORIES MAY RESULT IN DIFFERENT PRODUCT IMAGES)



Wheat / Corn research



Mediterranean landscape and exotic plant research



Cork Oak studies



Tree fruit Research

**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.

**YOUR OWN CLIMATE**  
**Our main goal**

**Let's meet!**  
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