



Climatron<sup>®</sup>

By Thermoline Scientific

# CLIMATRON GROWTH CABINETS

(+4°C TO +45°C) (AMBIENT TO 90% RH)

(Image: **CLIMATRON-520-SL-H** and **CLIMATRON-1100-DL**)



## Climatron Growth Cabinet Series

- Proudly designed and manufactured in Australia
- Customize cabinet to your specific requirements
- User friendly 7" colour touch screen
- Easy to operate and program
- Stainless steel internal liner which is corrosive resistant and easy to clean
- Data logging and external communication via PC available
- High output T5 fluorescent lamps with protective lamp covers
- Energy efficient red LED lights
- Castors fitted for ease of mobility
- Adjustable shelves and self closing doors



Shelf light model with red LED lighting



## Product Applications and Design Features

Thermoline has designed the Climatron range of growth cabinets to maintain conditions critical for research applications such as Arabidopsis, plant growth, plant production, plant pathology, seedling germination, seed storage, tissue culture, insect incubation along with many other applications where precise control of temperature and or humidity is required.

Specific focus in the design brief was centered around designing a temperature/humidity cabinet that had an easy to operate touch screen control system, was manufactured to a high standard of quality yet remain very affordable. Most importantly we wanted to design a cabinet that would allow Thermoline customers to have their own input into the design of their cabinet by being able to easily vary the configuration of the cabinet to meet their specific research application by choosing to have their cabinet supplied with door lighting, various shelf lighting options, humidity control and carbon dioxide control.

## Cabinet Construction and Standard Features

Two sizes of Climatron Growth Cabinets are available, a single door upright 520 litre capacity and a double door 1100 litre capacity. Cabinet exterior is manufactured from grey Colorbond, whilst the interior is finished in 304 grade stainless steel which is highly corrosive resistant and easy to clean. Environmental impact and operating costs are reduced with cabinets being well insulated with 100% CFC-free high efficiency injected polyurethane foam insulation.

Accurate internal conditions are maintained by internal fan forced air flow behind a solid rear plenum which discharges conditioned air at the bottom of the internal liner creating upward airflow across product load for superior uniformity.

All cabinets are supplied standard with self closing doors that will also remain open to enable product to be loaded easily when the door is fully opened. Doors are complete with magnetic gaskets and key locks for security.

Product shelves are P.V.C coated for durability and are vertically adjustable in 12mm increments. Cabinets are fitted with a 50mm Ø cable/monitoring port hole to allow easy access for a remote measurement device if required. Both cabinets are fitted with heavy duty lockable castors to allow these large capacity cabinets to be moved easily when the cabinet requires servicing or the area around the cabinet requires cleaning.



USB port for logging



Ultrasonic humidity control box



## Controller

Climatron cabinets are powered by Thermoline's **Select Touch And Run** (STAR 700) touch pad control system. The STAR 700 touch pad control system offers easy to program diurnal control of temperature, lighting, humidity and carbon dioxide.

Standard features of the STAR 700 are a large 154x87mm rugged, touchscreen operator interface terminal which has a full colour TFT LCD display with LED Backlighting. The STAR 700 allows for the operator to synchronize programmed settings to real time.

The STAR 700 has ethernet connectivity which, once connected, will allow the operator to perform all functions via the PC.

The STAR 700 logs the performance of the cabinets to onboard memory. This memory can hold up to 800 days of logged data. For ease of use we have incorporated a live trend screen to allow the operator to quickly check the performance conditions within the cabinet. Alternatively the operator can download the logged data to a USB flash drive for archiving or review via a PC.

No specific software is required to view logged data. A simple spreadsheet program is sufficient (Microsoft Excel or similar).



## Lighting

Light intensities are optimized on the Climatron Growth Cabinet, whether the cabinet has door lighting or shelf lighting the latest technology high output T5 fluorescent lamps, switched by high efficient electronic ballasts are standard across the range. T5 fluorescent lamps produce up to 25% more light output than conventional T8 Fluorescent lamps. Each Climatron also comes complete with high efficiency, long life red LED strip lighting. All lighting is controlled via the diurnal cycle within the STAR 700 touch pad control system which is pre programmed by the operator.

### Door Lighting models

Door lights are protected from being damaged within a door light enclosure which is mounted at the front of the cabinet, outside the controlled environment to minimize the impact of radiated heat from the lights. The door light enclosure is a hinged door with fluorescent lamps mounted vertically on the inside which when closed onto the external of the main glass door, allows light to pass through to the chamber interior. Fluorescent lamps can be easily replaced without disturbing the controlled environment.



### Shelf Lighting models

A selection of stainless steel shelf light trays are available with either four or six fluorescent lamps attached horizontally to the underneath side of the shelf light tray. Cabinets can be operated with up to twelve fluorescent lamps allowing for multiple combinations of shelf light trays. Safety is assured as all fluorescent lamps are attached securely to the shelf light tray using water proof IP66 approved light fittings with polycarbonate protective lamp covers to prevent lamps from being damaged. Shelf light trays can be easily removed and are vertically adjustable in 12mm increments.

### Humidity Control (Optional)

Energy efficient humidification is generated by a state of the art ultrasonic humidifier which generates a fog or mist of water particles that are injected into the supply air. Ultrasonic humidifiers are proven to reduce humidifier energy costs by more than 90% over conventional resistive heating humidifiers. Accurate humidity levels are controlled via the STAR 700 touch pad control system which is pre programmed by the operator. The ultrasonic humidifier comes complete with all the necessary plumbing fittings, water filters and water container that's required to get the cabinet operational on a gravity fed water supply.

# Safety Features

## Alarms

The STAR 700 incorporates a research/experiment safety alarm. In the event that the air temperature exceeds the set values by +/-5.0°C an alarm event is triggered. In the event of an over temperature condition all sources of heating (including Lights) will be isolated. In the event of an under temperature condition the refrigeration system will be isolated. This alarm is auto resetting. An optional volt free BMS connection can be fitted to inform operators of an alarm condition.

All out of tolerance conditions can be viewed in the logged data as the set values are also logged as well as the actual values.

## Safe Operating Values

The STAR 700 has a safe operating (power fail) condition. In the event of a power failure the STAR 700 will reset the diurnal cycle and upon power restore, will control the safe operating values. The safe operating values can be set by the operator.

# Carbon Dioxide Control (Optional)

Climatrons carbon dioxide control has been specifically designed to control CO2 concentration levels often required to obtain accurate results in plant research. Carbon dioxide concentration levels are able to be controlled from ambient to 3000 parts per million with an accuracy of ± 50 parts per million. Accurate carbon dioxide concentration levels are controlled via the STAR 700 touch pad control system which is pre programmed by the operator. The carbon dioxide control option requires connection to a pressure regulated (100kpa) carbon dioxide supply.

## Proudly Australian Made

Thermoline Scientific have been manufacturing and distributing high quality laboratory and scientific testing equipment since 1970. Over this time, Thermoline has grown to be a leading brand in the science industry, with our equipment being used in small and large Hospitals, Universities and Research Laboratories across Australia and the Asia Pacific region.

We're proud to say that we are 100% Australian owned and operated.



Door Lighting & Humidity Control on Climatron-520-DL-H

Order Code	Product Description
CLIMATRON-520-DL	CLIMATRON-520 with door lighting.
CLIMATRON-520-DL-H	CLIMATRON-520 with door lighting and humidity control.
CLIMATRON-520-SL	CLIMATRON-520 with shelf lighting. (Shelf light trays not included/available selection below)
CLIMATRON-520-SL-H	CLIMATRON-520 with shelf lighting and humidity control. (Shelf light trays not included/available selection below)
-CO2 (Add to the end of any order code above)	Above product description with carbon dioxide control.
520-4x24WATT-SLT	Shelf light tray to fit Climatron-520 with 4 x 24 watt T5 fluorescent lamps. (Maximum of 12 lamps per cabinet)
520-6x24WATT-SLT	Shelf light tray to fit Climatron-520 with 6 x 24 watt T5 fluorescent lamps. (Maximum of 12 lamps per cabinet)
1100-4x54WATT-SLT	Shelf light tray to fit Climatron-1100 with 4 x 54 watt T5 fluorescent lamps. (Maximum of 12 lamps per cabinet)
1100-6x54WATT-SLT	Shelf light tray to fit Climatron-1100 with 6 x 54 watt T5 fluorescent lamps. (Maximum of 12 lamps per cabinet)

**For CLIMATRON-1100 model, substitute 1100 for 520 in the above table.**



Model	CLIMATRON-520-(DL/SL)	CLIMATRON-1100-(DL/SL)
Capacity (litres)	520	1100
Internal Dimensions (WxDxH mm)	600x550x1460	1330x550x1460
External Dimensions (WxDxH mm) Shelf Lighting Models	740*x820x2040	1470*x820x2040
External Dimensions (WxDxH mm) Door Lighting Models	760*x900x2040	1500*x900x2040
*External Dimensions With Humidity Control Option	Above width plus 310mm	
Temperature Range	+4°C to 45°C (lights off) +10°C to 45°C (lights on)	
Temperature Tolerance	Control +/- 0.2°C	
	Spatial +/- 2.0°C (unloaded lights off)	
Humidity Range (+5°C to 45°C)	Ambient to 90%RH (lights off) Ambient to 80%RH (lights on)	Ambient to 80% (Lights off) Ambient to 75% (Lights on) Temperature and model dependant Control envelope available on request
Humidity Tolerance	Control +/-2% RH	
	Spatial +/-5% RH (unloaded lights off)	
CO2 Range	Ambient to 3000 PPM	
CO2 Tolerance	+/-50 PPM	
Light Intensity at 20°C Shelf Lighting Models	4x24 watt shelf light tray 200 umols/m <sup>2</sup> /sec (150mm from light source)	4x54 watt shelf light tray 220 umols/m <sup>2</sup> /sec (150mm from light source)
	6x24 watt shelf light tray 250 umols/m <sup>2</sup> /sec (150mm from light source)	6x54 watt shelf light tray 270 umols/m <sup>2</sup> /sec (150mm from light source)
Light Intensity at 20°C Door Lighting Models	6x54 watt door lights 180 umols/m <sup>2</sup> /sec (measured perpendicular to light source at 300mm)	12x54 watt door lights 220 umols/m <sup>2</sup> /sec (measured perpendicular to light source at 300mm)
Shelves Shelf Lighting Models	1 with each shelf light tray	2 with each shelf light tray
Shelves Door Lighting Models	4	8
Electrical	240 Volt / 10 Amp Max	



## Andromeda Series Grow lighting for Climatron Chambers

**Purposely design for greenhouse applications.  
Waterproof, robust luminaires.  
Half the power and less maintenance.**

Empyrean lighting's Andromeda series of luminaires has a reputation of excellence developed in mining, large aquarium and heavy industrial applications worldwide. The success of the series is due to the patented design which allows for unparalleled thermal management, performance and versatility in challenging environments.

The Andromeda grow lights maintains this pedigree, and having been developed through consultation with leading plant biologists, is at the forefront for innovation in growing applications.



### Benefits of Andromeda Grow Lights

Uses 50% to 75% less electricity than fluorescents and high intensity discharge luminaires
Lifespan of +60,000 hours
IP66 waterproof
Robust construction which is perfect for challenging conditions
Versatile and flexible design
Superior thermal management
Ultra high quality diodes
Small lens surface area
High performance drivers
Automatic on/off
Ability to tailor light spectrum
Locally designed and supplied

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For more information on our complete Climatron range or to speak to a sales team member, please call our head office or email us via the details below:

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