

## CONVIRON MODEL ADAPTIS A1000 CHAMBER

### 1.0 Control System –CMP6010:

- 1.1 Programming & Scheduling:
  - 1.1.1 Real time clock programming of temperature, relative humidity and lighting status.
  - 1.1.2 Maximum 24 time lines at a minimum of one minute intervals.
  - 1.1.3 Maximum 16 programs.
  - 1.1.4 One schedule has a maximum of 8 programs and that can be repeated from 1 to 99 times or be programmed to an infinite loop.
- 1.2 Controller Interface:
  - 1.2.1 Resolution: 132 x 64 pixels
  - 1.2.2 Screen: Monochromatic with white LED back lighting.
  - 1.2.3 Large Font: 8 x 6 pixels.
  - 1.2.4 Six button keyboard interface.
- 1.3 Control Module: Tuned PID control system, with specifically designed Conviron logic for accurate environmental control.
- 1.4 Alarms:
  - 1.4.1 User-set high and low temperature and RH protection alarms.
  - 1.4.2 Factory-Set Visual and Audible: Low / high temperature; door open; low pressure; high pressure, and chamber off.
  - 1.4.3 Alarm History (last 15 alarm events).
- 1.5 Security: 3 levels; Public; User (maximum 3 users); and Factory.

### 2.0 Construction: (Note: All dimensions are nominal.)

- 2.1 Exterior Dimensions: 41" W x 32½" D x 79" H (1040mmW x 825mmD x 2005mmH)
  - 2.1.1 Allows passage through a standard 36" (915mm) door
  - 2.1.2 Units can be placed side-by-side to maximize space utilization. **Note:** PG Kit - A minimum of 4" (100mm) space between cabinets is required to allow canopy fan circulation.
- 2.2 Interior Dimensions: 37" W x 25" D x 54½" H (940mmW x 635mmD x 1385mm),
- 2.3 Growth Volume: 35ft<sup>3</sup> (1000 litres)
- 2.4 Exterior Finish: Powder-coated steel.
- 2.5 Interior Finish: White pre-painted aluminum for corrosion resistance, long life, ease of cleaning and maximum light uniformity.
- 2.6 Cabinet Construction: CFC-free insulation.
- 2.7 Door: Flush, full-width door with keyed lock and magnetic gaskets for positive perimeter seal.
- 2.8 Tiers: Refer to Adaptis Kit section.
- 2.9 Shelves: Refer to Adaptis Kit section.
- 2.10 Control Panel and Instrument Displays: Located above the chamber door.
- 2.11 Casters: Heavy-duty, swivel. Adjustable leveling bolts are provided to secure the unit

### 3.0 Lighting:

- 3.1 Programming and Control: On/Off programming of lamps.
- 3.2 Intensity<sup>1</sup>: Refer to Adaptis Kit section
- 3.3 Lamp Fixtures: Refer to Adaptis Kit section

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1 Light measurement at 6" (150mm), chamber temperature of 25°C. Light intensities are nominal values measured at the rated chamber supply voltage. (Measured by a LI190 Quantum Sensor).

3.4 Lamp Heat: Refer to Adaptis Kit section

**4.0 Temperature Control: (Maximum design ambient temperature is +30°C)**

4.1 Range: +4°C to +40°C lights OFF and +10°C to +45°C lights ON

4.2 Control<sup>2</sup>: ±0.5°C, at control point.

4.3 Temperature Safety Limits:

Primary: A programmable min and max temperature or a limit alarm.

Safety temperature limit factory preset, independent from control system, turns chamber off.

**5.0 Refrigeration System:**

5.1 Condensing unit: Cabinet is supplied with a top mounted, air-cooled condensing unit with hot gas bypass system for continuous compressor operation, extended compressor life and close temperature control.

5.2 Electronic modulating valve that smoothly regulates the heating and cooling functions of the chamber.

5.3 Heat Exchanger Coil(s): Copper-tubed construction.

5.4 Refrigerant: Condensing unit is charged with CFC-free refrigerant.

**6.0 Interior Conditioning:**

6.1 Distribution: Refer to Adaptis Kit section

6.2 Fresh Air: Manually adjustable from inside the unit.

**7.0 Humidity Control: (Based on +21°C and 50% R.H. ambient condition)**

7.1 Range: Resultant to 85% RH lights ON, 90% RH lights OFF, limited by a +25°C dew point. Additive humidity through use of ultrasonic humidifier. Range given in an empty chamber. Chamber may achieve higher levels with plant loading.

7.2 Programming: See Control System.

7.3 Control: ±6% RH. System uses a dry humidity sensor to directly measure humidity in %RH (no wet sock).

**8.0 Carbon Dioxide Additive Control: (Optional)**

8.1 Range: No control on basic unit.

**9.0 Utility Requirements<sup>3</sup>: (Rating increases with some options.)**

9.1 Electrical Services:

60Hz: 120-1Ø-60Hz-2 wire plus ground – 20 Amp overcurrent protection

50Hz: 220-240-1Ø-50Hz-2 wire plus ground – 16 Amp overcurrent protection

9.2 Cord Set: Cord and plug.

9.3 Drain: A ½" NPT(F) for rigid drain connection is provided at the front of the chamber. A 1" (25mm) clear hose (to clamp outside the drain coupling) is also provided for flex-drain connection. Drain should be provided outside footprint of cabinet by the customer or, as an option, an evaporative drain pan can be supplied.

9.4 Humidity System: Water resistivity must be between 0.0002 to 2.0 Meg Ohms. Maximum water usage to maintain specified levels is 1 liters/hr.

2 Measured by Precision Thermistors, measured without test materials or optional accessories.

3 This unit will tolerate ±10% voltage fluctuation from the rated voltage on the serial plate. A voltage stabilizer must be used if the fluctuation is greater than ±10%. Failure to do so can result in serious damage to the compressor and electronic components and will void warranty. Disconnect switch must be sized by a local qualified electrician.

**10.0 Warranty and After Sales Service:**

- 10.1 Warranty and after sales service is handled by our dedicated team of service professionals. They provide a 24-hour manned service phone to facilitate any repair emergency. In addition, the team is available, during regular business hours, to assist with any service or warranty repairs, replacement parts or questions. Conviron also offers a fully trained international network of independent third party service providers who can affect repairs wherever your chamber is located.
- 10.2 To access this free support, please contact the service group at;  
Phone: (204) 786-6451 • Fax: (204) 786-7736 • Toll Free: 1-800-363-6451  
Email [service@conviron.com](mailto:service@conviron.com) / [service@conviron.uk](mailto:service@conviron.uk) • [www.conviron.com](http://www.conviron.com)

**11.0 Installation: (Optional)**

- 11.1 Not included. Installation is available upon request, please consult factory.  
Note: For non-Conviron installations that require factory technical support, additional charges may apply.

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**ADAPTIS KIT VARIATIONS - OPTIONAL ACCESSORIES**

**TISSUE CULTURE CHAMBER KIT – A1000TC**

**2.0 Construction:**

- 2.8 Tiers: Four (4) fixed tiers, providing 22.6ft<sup>2</sup> (2.1m<sup>2</sup>) of culture area.
- 2.9 Shelves: Four (4) powder coated steel wire shelves, measuring 37"W x 22"D (940mm x 560mm) adjustable on ½" (12mm) increments.
- 2.9.1 Growth Height: 6" (152mm) with wire shelf
- 2.9.2 Each shelf supports up to 60 lb (27kg) of distributed load.

**3.0 Lighting: (@ 25°C)**

- 3.1 Programming and Control: Controlled through dimmable switch at each canopy.
- 3.2 Intensity: Approximately 225 micromoles/m<sup>2</sup>/sec intensity over each tier.
- 3.3 Lamp Fixtures: 21W T5/840 fluorescent lamps (4 lamps per shelf)
- 3.4 Lamp Heat: Removed by refrigeration system.

**6.0 Interior Conditioning:**

- 6.1 Distribution: Conditioned air is directed via a rear wall plenum into individually cantilevered air shelves. Air-flow is then discharged upward to remove all lamp heat and ensure temperature uniformity.

**ARABIDOPSIS CHAMBER KIT – A1000AR**

**2.0 Construction:**

- 2.8 Tiers: Two (2) adjustable tiers, providing 11.3ft<sup>2</sup> (1.05m<sup>2</sup>) of growth area (third tier optional).
- 2.9 Shelves: Two (2) powder coated steel wire shelves, measuring 37"W x 22"D (940mm x 560 mm) adjustable on ½" (12mm) increments.
- 2.9.1 Growth Height: 18" (460mm)

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2.9.2 Each shelf supports up to 60 lb (27kg) of distributed load.

**3.0 Lighting: (@25°C)**

3.1 Programming and Control: 3 level programming of lamps.

3.2 Intensity: Approximately 500 micromoles/m<sup>2</sup>/sec intensity over each tier (150µmoles @ 1 level and 320µmoles @ 2 levels)

3.3 Lamp Fixtures: 39W T5HO/840 fluorescent lamps (6 lamps per shelf).

3.4 Lamp Heat: Removed by refrigeration system.

**6.0 Interior Conditioning:**

6.1 Distribution: Air is delivered horizontally from rear wall plenum providing uniform environmental conditions.

**INCUBATOR CHAMBER KIT – A1000IN**

**2.0 Construction:**

2.9 Shelves: Four (4) powder coated steel wire shelves, measuring 37"W x 22"D (940mm x 560mm) adjustable on ½" (12mm) increments.

2.9.1 Growth Height: 10" (250mm)

2.9.2 Each shelf supports up to 60 lb (27kg) of distributed load.

2.9.3 Shelf Area: 22.6ft<sup>2</sup> (2.1m<sup>2</sup>).

**3.0 Lighting:**

3.2 Intensity: 125 micromoles/m<sup>2</sup>/sec intensity over each tier.

3.3 Lamp Fixtures: 39W T5HO/840 fluorescent lamps (one double lamp fixture per shelf).

3.4 Lamp Heat: Removed by refrigeration system.

**6.0 Interior Conditioning:**

6.1 Distribution: Air is delivered horizontally from rear wall plenum providing uniform environmental conditions.

**PLANT GROWTH CHAMBER KIT – A1000PG**

**2.0 Construction:**

2.7 Shelves/Tiers: One (1) tiered design - Unifloor<sup>®</sup>, providing 6.13ft<sup>2</sup> (0.57m<sup>2</sup>) of culture area. Tier measures 37"W x 22"D (940mm x 560mm) adjustable on ½" (12mm) increments.

2.7.1 Growth, 42" (1065mm)

2.7.2 Single adjustable shelf supports up to 60lb (27kg) of distributed load.

**3.0 Lighting: (@25°C)**

3.1 Programming and Control: 3 level programming of lamps.

3.2 Intensity: Approximately 700 micromoles/m<sup>2</sup>/sec intensity (320µmoles @ 1<sup>st</sup> level, 400µmoles @ 2<sup>nd</sup> light level)

3.3 Lamp Fixtures: 39W T5HO/840 fluorescent lamps (14 lamps per shelf).

3.4 Lamp Heat: Rejected to ambient by ventilation.

**6.0 Interior Conditioning:**

6.1 Distribution: Air is delivered uniformly upward through Unifloor<sup>®</sup>.

## OPTIONAL ACCESSORIES:

### CONTROL SYSTEM:

- COMM Communication: Provision for connection to Local Area Network (LAN).  
CAC Central Alarm Contacts: Provision for connection to building management system.

### CONSTRUCTION:

- SS Powder coated stainless steel wire shelf (one supplied with basic unit)  
CPC Phenolic Coated Refrigeration Coil  
DP Condensate Drain Pan  
PUMP Condensate pump to pump water to remote drain.  
OW Observation window, measuring approximately 6" x 35¼" (150mm x 895mm) dual pane with light tight cover.  
IP One (1) instrument port, 2" (50mm) with light tight cap.  
EC Exhaust collar allows connection to central exhaust system, measuring 4" (100mm).  
MAN Additional Operation Manual (1 supplied with basic unit)

### LIGHTING

- TC-HL Increased light intensity to 400 micromoles/m<sup>2</sup>/s (6 lamps per shelf). (Temperature/humidity range subject to change, consult factory) (Available in **Tissue Culture Chamber Kit** only)  
IN-HL Increased light intensity to 200 micromoles/m<sup>2</sup>/s. (one double lamp per fixture; two fixtures per shelf) (Temperature/humidity range subject to change, consult factory) (Available in **Incubator Kit** only)  
PG-HL Increased light intensity to 1,100 micromoles/m<sup>2</sup>/s. (16 fluorescent lamps and 4 incandescant lamps per shelf.) (Available in **Plant Growth Chamber Kit** only)  
XTIER Additional tier with lamp canopy. (Light intensity range subject to change, consult factory). Growth height becomes 11" (280mm). Temperature becomes 15°C ON. Humidity becomes 70% RH lights ON. (Available in **Arabidopsis Chamber Kit** only)  
AR-DIM Lamp control through dimmable switch at each canopy, using 21W T5 fluorescent lamps. Light intensity becomes approximately 400 micromoles/m<sup>2</sup>/s intensity over each shelf.  
IN-DIM Lamp control through dimmable switch at each canopy, using 21W T5 fluorescent lamps. Light intensity becomes approximately 75 micromoles/m<sup>2</sup>/s intensity over each shelf.

### TEMPERATURE

- LT Low temperature operation of 2°C lights ON at 1<sup>st</sup> light level (5°C @ 2<sup>nd</sup> light level, 8°C @ 3<sup>rd</sup> light level in AR and PG configurations). (No fresh air below 4°C.) A defrost cycle will occur resulting in a temperature increase for temperatures set below 10°C lights ON, 4°C lights OFF. Temperature spikes and defrost time are dependant on chamber operating temperature. During this cycle, the lights will be turned off. Specified light intensity will diminish when chamber is operating at low temperatures. Cabinet shall include purge function. (Not available in Tissue Culture Chamber)

### REFRIGERATION

- WC Water cooled condensing unit.

### HUMIDITY

- XDISC Additional humidity disc.

### CARBON DIOXIDE ADDITIVE CONTROL

- CO2-BP Independent portable CO2 control system, additive to 3,000 ppm supply. This portable system is mounted on the side of the chamber as a standalone device complete with its own CO2 process controller. The system controls CO2 in the chamber and can be moved to any other Adaptis unit. Programming of the unit by the user is completed at the portable CO2 process controller itself rather than the chamber controller.