ADAPTIS

INSTALLATION AND START-UP MANUAL

At Conviron we develop and implement innovative and reliable controlled environment solutions.

CONVIRON
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PLEASE READ THESE INSTRUCTIONS CAREFULLY AND COMPLETELY BEFORE PROCEEDING

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1.0 PRECAUTIONS

1.1 General precautions

Hazard Warning

Please Note

Important information

The following symbols are used throughout this manual to draw your attention to important warnings, guidelines and product information. Please take note of their respective meanings

Use Qualified Personnel

Qualified trades-people such as electricians, plumbers, refrigeration mechanics, etc. should perform all work as required by local codes and regulations.

High Voltage Hazard

Working with high voltage will be required when installing this equipment. Do NOT attempt this work unless you have the appropriate knowledge and experience. Take appropriate safety precautions and ensure that the building power supply to the chamber is off prior to installation.

High Voltage & Water Hazard

Water that could come in contact with the electrical components presents a high voltage hazard. Avoid these conditions. If you have any doubt of safe watering practices, contact Conviron.

Water Damage Hazard

Avoid water coming in contact with the electrical components, as it presents the risk of water damage to both high and low voltage electrical components. If you have any doubt of safe watering practices, contact Conviron.

Electrostatic Hazard

Electronic components in the control system can be damaged by electrostatic discharge (ESD). A substantial voltage can be discharged by the human body without necessarily feeling it, which is enough to destroy many electronic components.

Shipping Hazard

Shipping vibration can cause electrical and plumbing connections to loosen. Inspect all connections BEFORE connecting to main building services.

Live Voltage Hazard

The main terminal in the control panel has live voltage unless the external breaker is OFF. Injury can result without use of extreme caution when working in the control panel.

Lights Hazardous Vapours

Adaptis units contain fluorescent lamps. There is no exposure to hazardous vapours while the lamps are operating. However, because they are extremely fragile, when broken the emitted vapours may harm humans. Avoid direct contact with broken fluorescent lamps. Keep the unit doors locked at all times (especially the A350 side doors) to avoid damage to the lamps. If watering plants inside the unit is required, do it with care, avoid contact with the lamps as well as spilling over the lamps and canopies. To dispose lamps, follow the requirements in your area or contact your local authorities for procedures.

Light High Temperatures

Fluorescent lamps operate at high temperatures. Avoid touching the lamps at all times.

Operational Precaution

To ensure no damage was incurred during transportation, operate your CONVIRON equipment for a minimum of 5 days before introducing any research material.

Replacing Lamp

Identify first the lamps to be replaced. Completely disconnect the power supply to the unit by unplugging it from its receptacle before replacing lamps. Unlock the lamp to be replaced by rotating it ¼ turn in its socket and remove with care to avoid breaking it. Install the new lamp. Ensure it is locked in its socket by rotating it ¼ turn. Dispose unused lamps, following the requirements in your area or contact your local authorities for procedures.

Uncrating & Unpacking

1. Using a utility knife, carefully uncrate the chamber.
2. Verify receipt of all components per the packing list. Notify your Dealer or Conviron Sales member iimmediately of any missing components.
3. Ensure all units' doors are locked before moving the chamber to the installation location.
4. Remove kit parts from packaging where necessary.

Environmental Conditions

Conviron guarantees performance of the chamber for ambient temperature conditions between 15°C and 30°C. It is important to ensure that the room in which the chamber is located adheres to these environmental conditions.

Chambers with air-cooled condensing units need a minimum of 1 foot (300mm) of space at the back for proper operation.

Shelving

Adaptis chambers come with wire shelves. These shelves do not slide over their supports. To position the shelves, simply locate the supports according to the required shelf height and gently lower the wire shelf over the supports. Push them completely back into position.

Positioning

Once the chamber is moved into position, ensure that the levelers (4 in total) are unscrewed until making firm contact with the floor. Ideally, the levelers in the front should be adjusted slightly higher than those in the back, to facilitate drainage.

Replacing Kits (only for A1000 models)

When a kit is installed in the cabinet for the first time, all four lamp connectors inside the cabinet are capped. Adaptis cabinets can operate at high temperature and humidity creating a hazard if the connector is exposed to such environment. Keep the caps on the unused connectors at all times. When replacing kits ensure to re-cap all connectors not being used.

1.2 Installation precautions

Preparation

Read these instructions carefully before proceeding. Ensure building power to the chamber is off prior to installation.

The Adaptis A350 reach-in chambers are shipped in a single crate while the A1000 chambers are generally shipped in two crates – one for the cabinet and another for the kit. To avoid damage, keep the chamber crated until it is ready for placement within the facility.

Before moving the chamber to its final location, make sure it clears through doorways, hallways, elevators, etc. You may need to uncrate it before moving it. The door may be removed if absolutely necessary.

Electrical Connections

Before connecting the chamber to building electrical service, verify it matches the service specified on chamber serial plate.

See Chamber Start-up section for details

Ensure a proper ground wire connection from the building panel.

Verify neutral to ground voltage is within tolerance. <3VAC.

If the unit does not contain a suitable plug, install an electrical adapter ensuring the presence of the connection to ground, or replace the provided plug by one that meets the local electrical requirements for your chamber by qualified personnel.

Drain Connections

A male 1/2" NPT (A1000 and A350) or a 1" OD hose (A350) gravity drain is under the rear of the chamber. Connect to either an open drain or a tapped gravity drain.

If your equipment has been ordered with the DP option (drip pan) there is no need to connect the drain

Fresh & Exhaust Air Connections

Adaptis Reach-in chambers are equipped with a damper for fresh and exhaust air exchange. A single lever located inside the chamber cabinet adjusts both the intake and exhaust air simultaneously.

Recommendation: Adjust exhaust air before every experiment.

Adaptis chambers cannot be connected to a building central exhaust or fresh air supply as they are. They require adapters to the mechanical dampers located on the chamber roof.

Additive Humidity

All Adaptis reach-in chambers present added humidity as a standard feature. The mist is generated using ultrasonic humidifiers capable of providing a fine mist without the need for high pressure systems that require maintenance. A connection to a water source is required when additive humidity is to be used. See requirements below.

Maximum & Minimum Water Pressure

Maximum allowable pressure in all Adaptis units is 4 bar (60PSI). Minimum pressure required: 0.3 bar (5 PSI).

See Chamber Start-up section for details

Water Connection Points

Water Connection points are always at the back of the cabinet – no need to open the machine compartment. Connection is made to the water inlet with a compression fitting. The supply line should be M6 (1/4 inch) in diameter.

Water Quality Specifications

pH:	7.0 ± 0.5
Filtration:	<2 microns or 0.00008 inch
Purity:	Resistively 0.5 to 5.0 Meg Ohms or Conductivity 2.0 to 0.2µSiemens

Humidity System Maintenance

When not in use, the humidity box (located inside the machine compartment), must be drained and cleaned. Close the water supply valve while not in use.

Conviron recommends setting a moderate RH value in all programs to keep the USH feature operable without significantly affecting the experiment.

1.3 Maintenance

Unit Clean

Inside the Adaptis cabinets there are sensors and other electrical components. Never water the unit's interior directly using a hose. For interior cleaning please damp a clean towel or rag outside the unit, and carefully wipe the unit down. Do not use abrasive cleaners. Detergents in low proportions are suitable for most cleaning requirements.

Adaptis A350 will require maintenance of the glass windows. Use glass cleaners in both sides (interior and exterior).

Water Reservoir

If the water system is not going to be used for a long period of time, purge the water tank located in the mechanical compartment. To do so:

- SHUT THE CHAMBER OFF (with the switch button located between the door and front panel).
- Lift the top cover, turn the breaker off, and disconnect the ground wire at the back of the top cover.
- Carefully remove the top cover.
- Open the water reservoir lid.
- Clean the water tank.
- Make sure there are not water residues over the ultrasonic discs.
- Place the water reservoir lid back (this is very important otherwise air from the unit will be damped into the ambient at all times, and water may be splashed over electrical components).

Lights

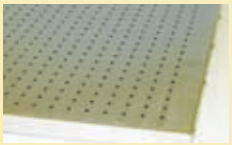
Periodically check to ensure all lamps functioning properly. Replace poorly lit or flickering lamps to ensure optimal unit performance.

2.0 KIT INSTALLATION

2.1 Tissue Culture

Kit parts

The following list comprises the components for the TC kit.

Item	Qty	Description	Picture
A	1	Back plenum bottom	
B	1	Back wall plenum	
C	65	Screw M4 x 6 Pan	
D	4	Air shelf	
E	26	Shelf support	
F	1	Top shelf	
G	4	Lamp fixture with connector	
H	4	Lamp fixture without connector	

I	16	Screw front (M43 X 6 thumb)	
J	8	Lamp fixture support	
K	1	Fresh air flow reducer	
L	4	Wire shelf	

Kit assembly instructions

Open the cabinet door, and visually inspect the cabinet. Ensure the two fan cavities on the right side wall are covered as well as the air inlet on the left hand side (see figure 2.1)

1. **Install the back plenum bottom panel. (Item A)**

   This panel is very important since it closes the back wall plenum directing the airflow to the four shelves at equal pressure. (A loose fit and the airflow will not be evenly distributed.) If the panel is installed upside down, the airflow will not reach the bottom shelf.

   Five (5) screws (item C) are required to install the back plenum bottom. Firmly screw the panel into the back wall (see figure 2.2).

   If required, apply sealant (not provided) to guarantee a tight seal. Notice that there are two holes to collect the drain - Do not plug them.

Figure 2.1: A1000 empty cabinet.

Figure 2.2: A1000 view after installing the back plenum bottom panel.

2. Install the back plenum. (Item B)

The back wall plenum must be installed with the short flanges toward the unit's back wall. The four (4) rows of slots should be located offset toward the bottom of the chamber (see figure 1.3). Loosen the six (6) screws at the back of the fan housing. Install the plenum with the largest flange at the top facing the door, between the fan housing and the coil drip pan. Ensure the grooves in the flange insert around the screws. (For ease of installation use the handle provided at the top). Secure the back wall plenum to the side supports utilizing the eight (8) screws (item C) provided with the kit. Then refasten the six (6) screws at the back of the fan housing (see figure 2.4).

Figure 2.3: A1000 view after installing the back wall plenum.

3. Install the air shelves. (Item D)

The air shelves must be installed from the bottom to the top. The bottom shelf has a shorter, lower flange. Carefully grab the bottom shelf and slide it over the floor of the chamber until the upper flange reaches the back plenum. Lift the bottom shelf from the back so the shelf is tilted down towards the front, and push the shelf towards the back wall until the lower flange rests inside the lower slot.

Figure 2.4: A1000 back plenum mounting detail shown. The plenum top flange sits above the fan housing.

Note: It may be necessary to loosen the five (5) back plenum bottom screws to facilitate the insertion.

Slowly lift the shelf from the front side so that it is tilted down towards the back. Install the shelf supports (item E). To install the shelf supports first insert the top part into the corresponding slot and then press slightly on the bottom side snapping it into place (about 1" / 25 mm below the top one). Install the supports on each side wall, only on the front side, starting from the lowest slot (see figure 2.5)

Once the shelf is seated on the two shelf supports, firmly screw the shelf to the back plenum (item B). Before installing the other three air shelves, the lamp fixtures must be installed.

Figure 2.5: Detail of bottom self support.

4. **Install the lamp fixture supports. (Item J)**
The lamp fixture supports are the same for all lamp fixtures. They must be placed below the air shelves. The lamp fixtures have two different size holes on each flange: two (2) 9/32" diameter (7.2 mm) in one side and two (2) 3/16" (4.7 mm) in the other side (see figure 2.5a).

Figure 2.5a: Notice the larger hole in the back side.

Note: The side with larger holes must be installed toward the back (the opening in the shelf)

Place the shelf upside down. On the side flange of each air shelf there are numbers "2" and "3" stamped beside the holes to indicate the number of fixtures to be installed. If the kit is being installed with two lamp fixtures (basic configuration), slide the lamp fixture support below the air shelf. Using screws (item C), first screw the lamp support closest to the back of the air shelf on a number "2" indicator (see figure 2.6). Repeat for the front fixture support.

Figure 2.6: Notice the number "2" stamped on the side flange.

Repeat this support installation instruction with all the air shelves and the top shelf (item F).

Now, the other three air shelves can be installed into the unit. To install the other three air shelves, carefully insert the shelf in a tilted position (lower in the front), until the lower flange inserts into the corresponding slot. Slowly lift the front of the shelf and install the shelf supports only in the side walls, front side. (See figures 2.7, 2.8 2.9, 2.10.)

Figure 2.7: A1000 after installing the bottom shelf.

Figure 2.8: A1000 view after installing the first shelf.

Figure 2.9: A1000 view after installing the second shelf.

5. **Install the top shelf. (Item F)**
To accommodate the installation of the lamp fixtures for the top shelf, proceed as follows:
Insert five (5) screws (item C) into the back wall holes provided (see figure 2.11).

Note: THE SCREW MUST BE INSERTED BUT NOT TIGHTENED. A 1/8" to 3/16" (3 to 5 mm) gap must be left between the screw Head and the back wall in order for the top shelf to slide in.

Figure 2.10: A1000 view after installing the third shelf.

Support the top shelf (front side tilted down) until the five grooves located in the lower flange insert around the screws. Slowly tilt the top shelf in the other direction (front side tilted up) and insert the two remaining shelf supports. Refasten the five (5) screws in (see figure 2.12).

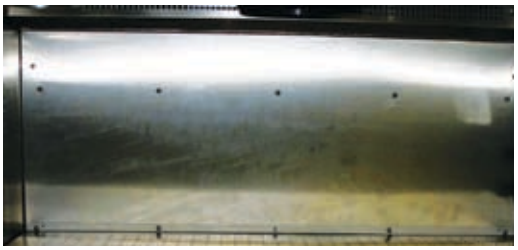


Figure 2.11: 5 screws installed at the back plenum before installing the top shelf.

6. **Install the lamp fixtures. (Item G and H)**
There are two different types of lamp fixtures - four (4) with a connector (item G) and four (4) without (item H). The fixtures with a connector have a female connector and an 8" (200 mm) cord. The lamp fixture without the female connector has only the 8" cord.

Note: The lamp fixtures with the connector must always be installed always closer to the back wall plenum, whereas those without connector must always be installed closer to the door.

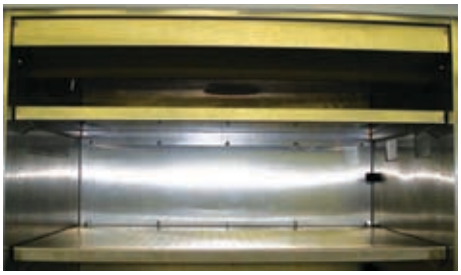


Figure 2.12 : Top shelf installed.

Finish installing the lamp fixture using two (2) thumb screws (item I) at the front side (see figure 2.15).

Remove the plug cover from the side wall. Plug the front fixture into the back fixture and plug the back fixture into the side wall. (See figure 2.16 and 2.17.)

Repeat the same procedure with all the remaining shelves.

The unit is now ready to operate. Please read the Chamber Start-Up Instructions before proceeding with the start up

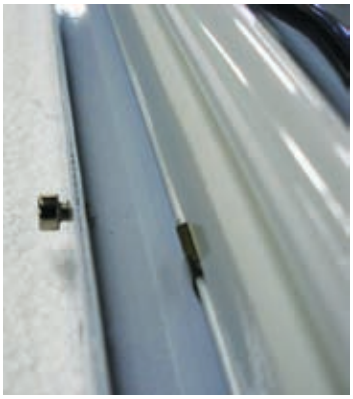


Figure 2.13: Screws (item I) shown with 1/8" (3mm) gap.

Figure 2.14: Lamp fixture assembled showing the socket screws in the back side and the thumb screws at the front.

Figure 2.15: Lamp fixture supports installed.

Figure 2.16: Back lamp fixture installed. (Notice the thumb screw at the front.)

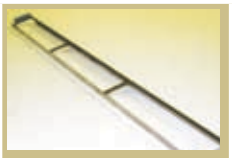
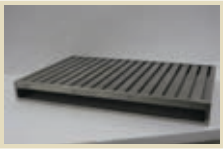
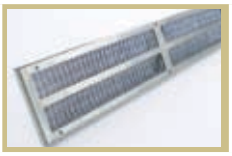
Figure 2.17: Lamp fixtures assembled and plugged.

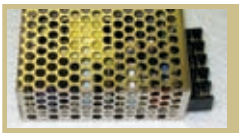
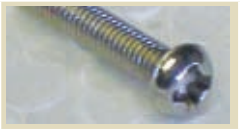
Note: The maximum operating levels of light for this Kit must be set at the Controller. To edit the factory default setting, follow the set up instructions in the CMP 6010 Operator's Manual Section 6: Options -- Setup

2.2 Plant Growth

Kit parts

The following list comprises the components for the PG kit.

Item	Qty	Description	Picture
A	1	Back plenum bottom	
B	1	Back wall plenum	
C	24	Screw M4 x 6 Pan	
D	1	Floor “cassette” plenum	
E	1	Canopy air inlet filter	
F	1	Wire shelf	
G	2	Lamp canopy supports	
H	1	Lamp canopy	

I	2	Canopy cooling fan	
J	8	Screw (M3 x 40)	
K	1	AC DC CONVERTER + WIRE HARNESS	
L	2	Screw (M3x16)	
M	2	Wire connectors	
N	4	Shelf support	

Kit assembly instructions

Open the cabinet door, and visually inspect the cabinet. Remove the insulated fan covers (2) located in the right side wall and the air inlet cover located on the left side wall. Ensure the three (3) cavities are empty. (See figure 2.18a and 2.18b).

1. **Install the canopy fans. (Items I and M)**

   Place four (4) screws (item J) through the fan mounting holes (see figure 2.19) and install the canopy cooling fans, one in each fan compartment

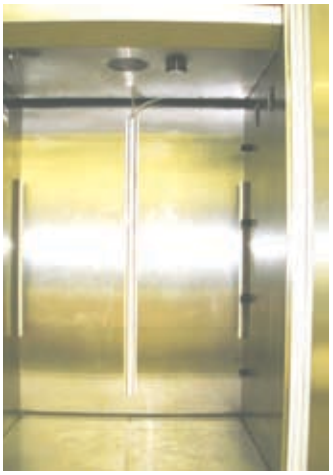


Figure 2.18: A1000 empty cabinet.

Figure 2.18a: Air inlet.

Figure 2.18b: Fan compartments.

Note: This step may require the installer to first pass the fan cables from the top down. The wires can be connected to their power supply on a later step.

Once the fans are mounted into the compartment, connect the wires (Item M) as shown (see figure 2.21).

Note: Install the fans such that the air flows from inside the chamber to the outside and such that the wires are located in the most convenient position. (See figure 2.20)

Figure 2.19: Canopy cooling fan showed with four screws (item J) before installation.

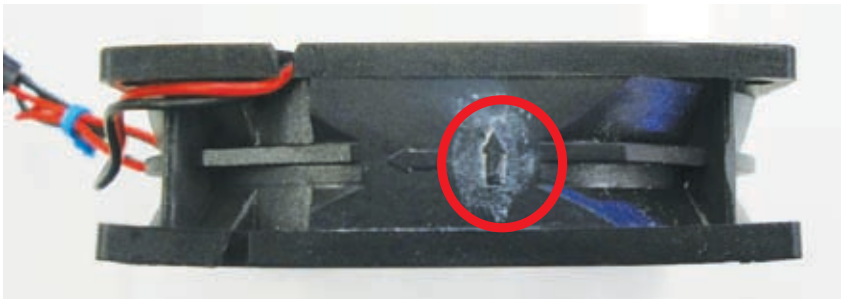


Figure 20: Arrow indicates the airflow direction – ensure it points towards the chamber exterior.

2. **Install the canopy air inlet filter. (Item E)**

   Using the screws (item C), install the air filter such that the filter mesh sits flush with the inside wall. (See figure 2.22.)

3. **Install the back plenum bottom panel.**

   Five (5) screws (item C) are required to install the back plenum bottom. Firmly screw the panel into the back wall (see figure 2.23). Note the four holes in the front of the support where the back plenum will be fastened.

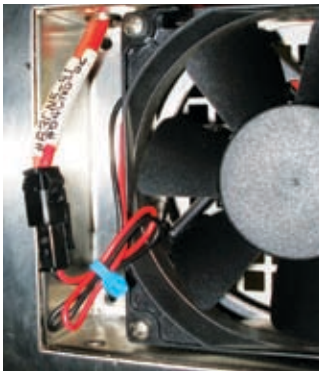


Figure 2.21: The fan wire connector has a single orientation connection – ensure the connections snap together.

Figure 2.22: Canopy air inlet filter is showed.

Figure 2.23: View after Installing the back plenum bottom panel.

4. Install the back wall plenum. (Item B)

   The back wall plenum can be installed. (See figure 2.23 and 2.24) It must be installed with the short flanges toward the unit's back wall. Loosen the six (6) screws at the back of the fan housing. Install the plenum with the largest flange at the top facing the door, between the fan housing and the coil drip pan. Ensure the grooves in the flange insert around the screws. (For ease of installation use the handle provided at the top). Secure the back wall plenum to the side supports utilizing the eight (8) screws (item C) provided with the kit. Then refasten the six (6) screws at the back of the fan housing (see figure 2.25).)

5. Install the lamp canopy supports. (Item G)

   The PG kit uses ambient air to cool the light canopy. As the air circulates through the canopy it absorbs heat which is then expelled back to atmosphere. This enables maximum light output throughout the entire temperature range, since the lamps are cooled by ambient air, while it also helps to ease the heat load on the refrigeration system.

Figure 2.24; Correct position of the back plenum bottom panel.

Figure 2.25: Shows in detail the back plenum installed above the fan housing.

CAUTION: Ensure at least 2" of free space around the side walls of the chamber interior to facilitate proper air circulation whenever possible.

CAUTION: The lamp canopy for the PG Kit is predetermined by the position of the cooling fans on the side wall. The canopy must be installed in such a way that the air fans align with the canopy ports. Failing to do so may result in user injury or improper chamber operation.

Place the lamp canopy support in each side wall directly below the cavities (see figure 2.26). Ensure the clips are secure and firmly locked.

6. Install the canopy. (Item H)

   Carefully slide the canopy in until the screw socket located in the center of each side of the lamp canopy locks into the support center hole. Plug the canopy in. (See figure 2.27 and 2.28.)

Only the top connector must be used with this kit. Keep all unused connectors capped.

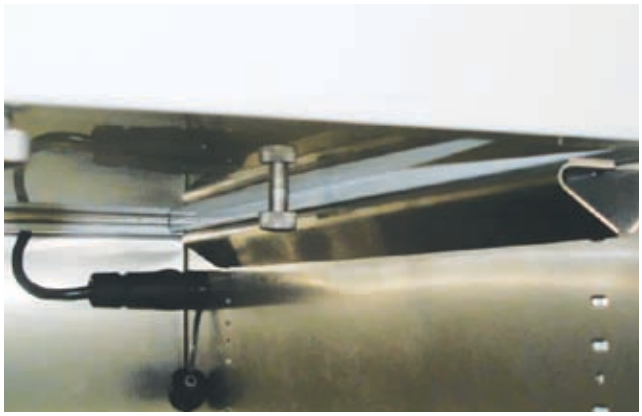


Figure **2.28: Lamp canopy locked into the support and plugged in.**

Figure **2.26: Fans installed and plugged in to their compartments. Notice the position of the lamp canopy support with respect to the fans.**

Figure **2.27: Air filter installed in its compartment. Again, notice the position of the lamp canopy support with respect to the filter.**

7. Install the floor plenum. (Item D)

The floor has multiple "hat" profiles which collectively configure a single piece called a "cassette". The rear of the floor plenum has an opening which facilitates conditioned air to access the floor. Holes throughout the floor plenum provide an evenly distributed upward air stream.

Note: In the back side of the plenum there are four (4) socket head screws (item C), which have to be partially screwed in (leave a gap of 1/8" (3mm), so the floor plenum can snap and lock into the key hole.

To install the floor cassette, simply slide the cassette into position ensuring the opening faces rearward towards the back plenum. Be careful when sliding it in - once it contacts the back plenum (by slightly lifting it up and pushing forward), use the four (4) screws located on the upper edge of the cassette to fit into the slotted keyholes at the bottom of the plenum. Release the floor and lock it into the keyholes. (See figure 2.29 and 2.29a)

Figure 2.29: Floor cassette installed.

8. Connect the canopy fans to the control system.

Unscrew the unit top cover and carefully remove it from the unit (a ground wire connects the cover to the ground main connection. Remove with care). Remove the clear cover from the AC/DC converter. Connect the fan wires, ground, and power wires as shown (see figure 2.30). Reinstall the clear cover.

Note: The converter works with power supply between 110 and 240 VAC automatically.

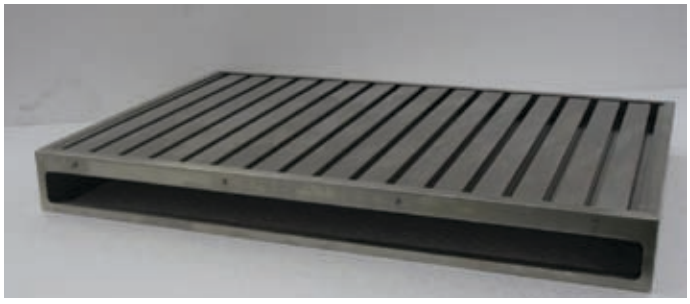


Figure 2.29a: Floor cassette.

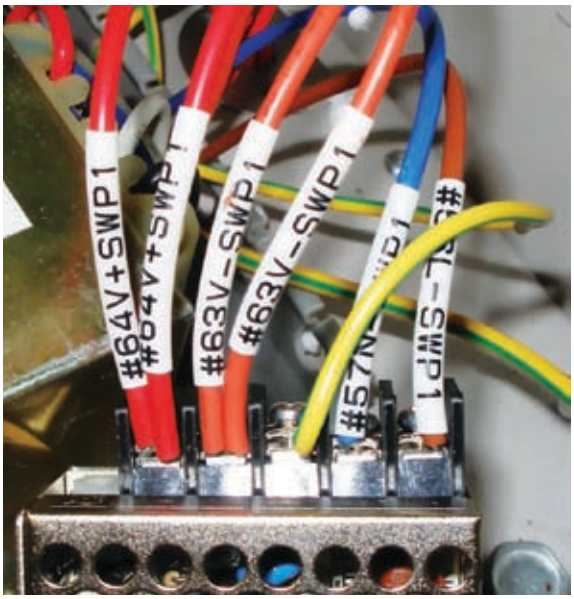


Figure 2.30: Notice the wire labels: from left to right: +VDC; -VDC; ground, neutral, Line.

Install the AC/DC converter in to the RIGHT side wall as shown with the two (2) screws (item L) provided. (See figure 2.31)

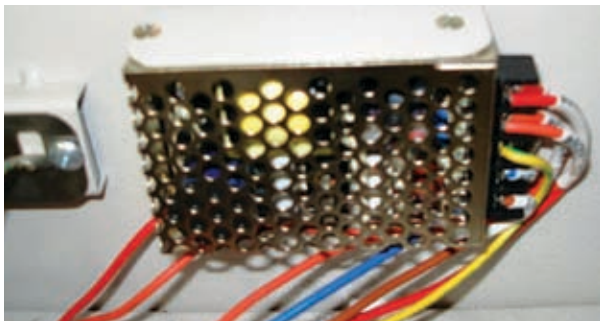


Figure 2.31: AC / DC converter installed.

The chamber is now ready to operate. Please carefully read the Chamber Start-Up Instructions before proceeding with the start-up.

Note: The maximum operating levels of light for this Kit must be set at the controller. To edit the factory default setting, follow the set up instructions in the CMP 6010 Operator's Manual Section 6: Options -- Setup.

2.3 Incubator

Kit parts

The following list comprises the components for the IN kit.

Item	Qty	Description	Picture
A	1	Back plenum bottom	
B	1	Back wall plenum	

C	56	Screw M4 x 6 Pan	
D	20	Self support (clip)	
E	4	Wire shelf (with lamp fixture support)	
F	1	Wire shelf (without lamp fixture support)	
G	8	Lamp fixture support	
H	4	Lamp fixture without connector	

Kit assembly instructions

Open the cabinet door, and visually inspect the cabinet. Ensure the two fan cavities on the right side wall are covered as well as the air inlet on the left hand side (see figure 2.32).

1. **Install the back plenum bottom panel: (Item A)**

   This panel is very important because it directs the airflow through the plenum at equal pressure. A loose installation and the airflow distribution will not be even. Five (5) screws (item C) are required to install the back plenum bottom panel. Ensure that the two drain holes are never plugged. (See Figure 2.33)

Figure 2.32: A1000 **empty cabinet.**

Figure 2.33: A1000 view after Installing the back plenum bottom panel.

Figure 2.34: Shows in detail the back plenum installed above the fan housing.

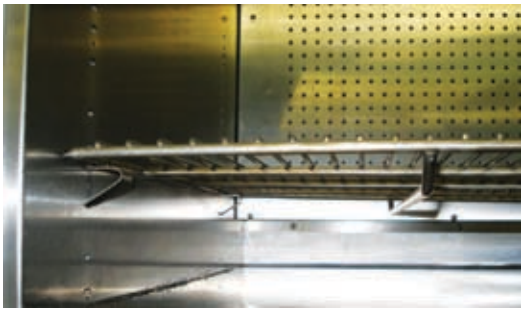


Figure 2.35: Wire shelf supports showed.

2. Install the back wall plenum: (Item B)

   The back wall plenum must be installed with the short flanges toward the unit's back wall. Loosen the six (6) screws at the back of the fan housing. Install the plenum with the largest flange at the top facing the door, between the fan housing and the coil drip pan. Ensure the grooves in the flange insert around the screws. (For ease of installation use the handle provided at the top). Secure the back wall plenum to the side supports utilizing the eight (8) screws (item C) provided with the kit. Then refasten the six (6) screws at the back of the fan housing (see figure 2.34).

3. Install the wire shelves: (Item E and F)

   The shelves must be installed from the bottom to the top. The bottom shelf (item F) has to be placed in the lowest possible position in contact with the back plenum. To install the clips (item D) first insert the top part of it into the desired slot and then press lightly on the bottom to snap it into position. Place the four (4) bottom shelf supports (item D) into the slots in the side wall. (See figure 2.35.)

   Carefully grab a wire shelf and place it over the four lower clips. Install the rest of the supports in each side wall at the desired height. (See figure 2.35.

4. Install the lamp fixtures: (Item G and H)

Note: The IN kit is able to support one, two, or three light fixtures per shelf. The basic kit provides a total of four lamp fixtures. If more lamp fixtures are required, they can be ordered by contacting Conviron (some limitations to minimum temperature and maximum humidity apply). The fixtures provided are referred to as lamps fixtures without connectors whereas those that are additional are referred to as lamp fixtures with connectors. The latter fixtures simply have a female connector to allow daisy chain connecting of all the lamp fixtures in one shelf.

Single lamp fixture per shelf:

Two-lamp fixture supports are required per lamp fixture. Install as shown. (See figure 2.36 & 2.37.)

Install the lamp fixture by hanging it from the shelf. The lamp fixture can be hung at any point along the shelf with the cord plug closer to the female connector located on the right side wall. Remove the plug covers from the side wall and plug each fixture into the connector in the side wall. Repeat with all the remaining shelves. (See figure 2.38 and 2.38a)

Figure 2.36: Lamp fixture and support.

Multiple Lamp fixtures per shelf:

Note: Always install the lamp fixtures with the connector facing the back wall plenum. Those without a connector must always be installed closer to the door.

Figure 2.37: Lamp fixture with supports shown.

Remove the plug cover from the side wall. Plug the front fixture into the back fixture and plug the back fixture into the side wall. Repeat with all the remaining shelves.

The unit is now ready to operate. Read the Chamber Start-Up Instructions carefully before proceeding with the Start up.

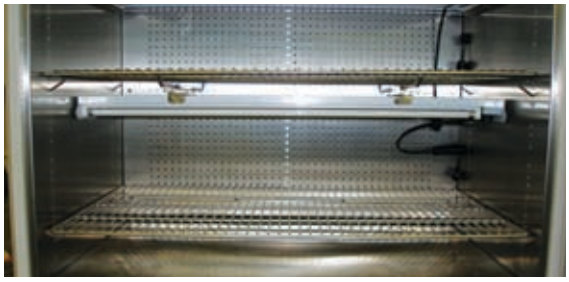


Figure 2.38: Bottom shelf and one light fixture showed.

Figure 2.38a: of unit with lamps installed and program running.

Note: The maximum operating levels of light for this Kit must be set at the controller. To edit the factory default setting, follow the set up instructions in the CMP 6010 Operator's Manual Section 6: Options -- Setup

2.4 Arabidopsis

Kit parts

The following list comprises the components for the AR kit.

Item	Qty	Description	Picture
A	1	Back plenum bottom	
B	1	Back wall plenum	
C	24	Screw M4 x 6 Pan	
D	8	Self support (clip)	

E	2	Wire shelf	
F	2	Lamp canopy	
G	4	Canopy support	

Kit assembly instructions

Open the cabinet door, and visually inspect the cabinet. Ensure the two fan cavities on the right side wall are covered as well as the air inlet on the left hand side (see figure 2.39).

1. **Install the back plenum bottom panel: (Item A)**

   This panel is very important because it directs the airflow through the plenum at equal pressure. A loose installation and the airflow distribution will not be even. Five (5) screws (item C) are required to install the back plenum bottom panel. Firmly screw the panel into the back wall with five (5) screws (see figure 2.40). Ensure that the drain holes are never plugged.

Figure 2.39: A1000 empty cabinet.

2. **Install the back wall plenum. (Item B)**

   Now the back wall plenum can be installed. It must be installed with the short flanges toward the unit's back wall. Loosen the six (6) screws at the back of the fan housing. Install the plenum with the largest flange at the top facing the door, between the fan housing and the coil drip pan. Ensure the grooves in the flange insert around the screws. (For ease of installation use the handle provided at the top). Secure the back wall plenum to the side supports utilizing the eight (8) screws (item C) provided with the kit. Then refasten the six (6) screws at the back of the fan housing (see figure 2.41).

Figure 2.40: A1000 view after Installing the back plenum bottom panel.

3. Install The Lamp Fixtures: (Item F and G)

The AR kit is provided with two (2) lamps canopies (item F). The location of the canopies within the chamber may vary according to the experiment, or specific user requirements. However, there is a limitation determined by the distance from the top canopy to the fan housing. If the canopy is installed too close, the airflow may be significantly reduced, affecting the unit's performance.

Figure 2.41: Shows in detail the back plenum installed above the fan housing.

CAUTION: Do not install the top canopy closer than 3" (75mm) from the fan housing.

The maximum growth height that the A1000 provides when using the AR kit is 18" (450mm). The user can adjust the growth height according to their needs. Another option is to have different growth heights between the two tiers, or to install a single canopy with one large growth height. (See figure 2.42)

To install the lamp canopy supports, first insert the top portion into the desired slot and then press slightly on the bottom portion to snap it into place (about 1" / 25 mm below the upper slot).

Slide the canopy above the supports with the cord plug close to the connectors located on the right side wall. Notice a socket head screw present in the center of the canopy side flanges. The socket must enter into the hole in the center of the supports, preventing the canopy from sliding.

Remove the plug cover from the side wall. Plug the front fixture into the back fixture, and plug the back fixture into the side wall. Repeat with the second lamp canopy.

Figure 2.42: Canopy support showed with 18" (450 mm) between them for maximum growth height.

1. Install the wire shelves (Item D and E)
   The wire shelves must be installed according to the desired growth height. The lowest possible position for the lower shelf is above the bottom row of holes in the back wall plenum. To install the clips, first insert the top portion into the desired slot and then press lightly on the bottom side snapping it into the corresponding slot (about 1" / 25 mm below the top one).

   Place the four (4) shelf supports (clips) into the slots in the side wall (see figure 2.44). Carefully place the wire shelf over the four lower clips. Install the rest of the support clips in each side wall at the desired height (see figure 2.44).|

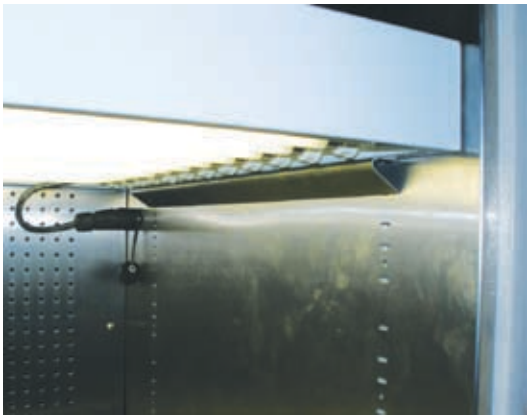


Figure 2.43: AR canopy seated on top of the support and locked into the center hole.

The chamber is now ready to operate. Please read the Chamber Start-Up Instructions carefully before proceeding with the Start up.

Note: The maximum operating levels of light for this Kit must be set at the Controller. To edit the factory default setting, follow the set up instructions in the CMP 6010 Operator's Manual Section 6: Options -- Setup.

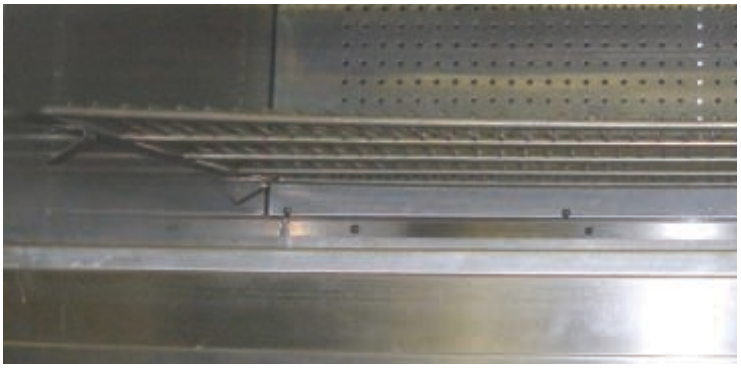


Figure 2.44: Bottom wire shelf. Notice the position with respect to the back wall plenum.

3.0 CHAMBER START-UP

3.1 Installation

Chamber placement

Adaptis units must be placed in ventilated areas. The ideal temperature around the equipment is 21°C. Although Adaptis will perform at higher ambient temperatures (see spec), it is recommended that the product be placed in areas that have circulating air.

Note: Adaptis A1000 products will dissipate up to 2400 W to ambient. Adaptis A350 products will dissipate up to 1400 W to ambient.

Also necessary for product placement are the following:

- Power supply
- Water supply
- Drain connection

If there is no a drain close to the unit a drip pan can be ordered.

Please allow for the following clearances:

- At least 1 ft (300 mm) must be left clear behind the back wall.
- At least 1 ft (300 mm) must be left clear above the unit.
- A1000: At least 2" (50 mm) must be left clear on each side of the A1000 when the PG Kit is installed. Note – if any kit other than the PG Kit is installed, no side clearance is required.
- A350: At least 2" at each side of the unit must be left clear. Two feet (600 mm) are required to obtain full access for service to the side panels

Leveling and locking the unit

Adaptis cabinets are delivered with four (4) levelers in order to prevent the unit from rolling on its casters once installed, and also to compensate for any variance in the floor level. The levelers are 25 x 4" bolts that insert at the four corners at the bottom of the base. The unit must be tilted or lifted in order to thread the bolts in. (The leveling bolts may also come already installed.) The two levelers in the front are very important and and can affect the performance of the unit. (See figure 3.1)

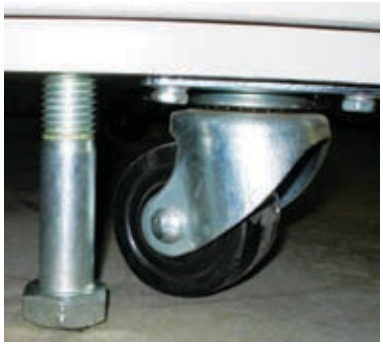


Figure 3.1: Unit raised with level bolt.

The height of the levelers must now be adjusted so the unit rests on the levelers rather than the casters. Do this as follows:

1. Start adjusting the levelers in the back wall until they are slightly higher than the casters.
2. Now adjust the ones on the side walls (see photo). They should be adjusted (unscrewed) until the gap between the caster and the floor is at least 1/8" (3mm) and no more than 1/4" (6 mm)
3. It is important that the two front levelers are perfectly level (side to side) so the door closes easily. An out-of-level condition on the front levelers can cause the door to bind due to misalignment.

Figure 3.2: A1000 rear cabinet view.

Figure 3.3a: A350 rear cabinet view.

120VAC/60 Hz (3 wires + ground). A 20A breaker required
230VAC/50Hz (3 wires + ground). A 16A breaker required

Hooking the unit up

Adaptis A1000 and A350 products are provided with a 10 ft power cord (3 m) with plug and a female "quick" water supply connection (M6 or ¼" for North American market). The connection point is at the back of the cabinet. (See figure 3.2 and 3.3a.)

Power supply

All Adaptis products are single phase and delivered to the market in two options:

Connect the unit to the power supply – verify the voltage shown on the serial plate.

Added humidity

All Adaptis products provide added humidity by using ultrasonic humidifiers in all chambers. This system requires between 5 to 60 PSI (0.3 to 4 bar) pressure of purified supply water.

Water supply requirements

- Flow: Maximum: 0.25 gallons / hour (0.9 Litres / hour)
- Water quality: A connection to a water source is required for chambers
- With additive humidity.
- pH: 7.0 ± 0.5
- Filtration: <2 microns or 0.00008 inch
- Purity: Resistance 0.5 to 5.0 Mega Ohms or Conductivity 2.0 to 0.2µSiemens

Note: It is important to use a water source with the quality stated above, as failure to do so will void the product warranty.

Installing your kit

See previous Section of Operator's Manual.

3.2 Start-up

The unit is now ready to operate. The breaker, located inside the machine compartment, should be in the ON position. The main power switch is located on the left hand side of the unit between the top panel and the door. Open the door slightly and push the button once. The switch is backlit and turns red for power ON. (See figure 3.4.)

In a few seconds the Controller will boot up.

The user now has to configure some parameters in the controller to adequate the controller's response to the specific model being setup.

Find how to adjust these parameters in the Operator's Manual, within the options menu.

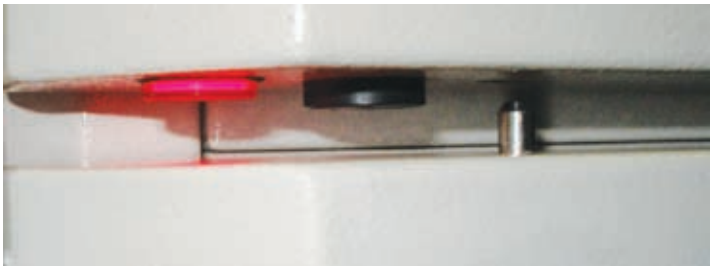


Figure 3.4: Main power switch.

These parameters are:

1. On- delay: Is a function (in seconds) that will delay the chamber start up after a power outage, to avoid all equipment starting simultaneously. Factory default values are random numbers between 00 to 59. This value can be edited to the user's convenience. CONVIRON recommends setting a time delay not lower than 10 to 20 seconds. However, this may vary according to the number of Units installed.
2. Time / date: Allows the user to set the actual date and time according to the time zone where the unit is being installed.
3. Setup: Allows the User to adjust the maximum number of discreet levels of light that are present in the Unit.

Model	Maximum Light Level
A1000IN	1
A1000AR	3
A1000PG	3
A1000TC	1
A350	3

4. Security: The user may enable this function which restricts the access to some of the controller features, such as programming, scheduling, etc. The user can set passwords for up to three users with different passwords. See the CMP6010 Operator's Manual

4.0 DRIP PAN ACCESSORY INSTALLATION

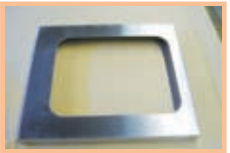
The drip pan is offered as an accessory for the Adaptis family of products for customers who either do not have a drain connection close to the unit, or who simply prefer to avoid using such a connection. The drip pan accessory can hold up to 4 litres of water although it is recommended not to exceed the 2 litre capacity.

Check the drip pan regularly (preferably before and after watering plants) and try to keep it empty and clean.

4.1 Accessory components

The Adaptis A1000 drip pan accessory (P/N 220685) is composed of the following elements:

P/N 220685– Drip pan accessory- A1000

Item	Qty	Description	Picture
A	1	Drip pan	
B	1	Drip pan base	
C	4	Drawer glides	
D	2	Guides (L=762 mm; 30”)	
E	8	M3 x 6 countersunk screws	
F	4	M3 x 16 sheet metal screws	

4.2 Installation instructions

1. Take one (1) of the guides (item D) and join it with the drawer glide (item C - "C" shape) using three (3) of the countersunk screws (item E)

Figure 4.1: : The two "C" shaped glides must be installed with three countersunk screws.

Figure 4.2: The glide's wheel must be installed toward the guide's end.

2. Using the sheet metal screws (item F), screw the guides into the bottom of the Adaptis cabinet below the base. Note that this operation may require tilting the unit slightly to gain access. Exercise caution here and ensure the unit door is locked. (See figure 4.3)

3. The other two drawer glides ("Z" shape) must now be screwed into the bottom flange of the drip pan base (item B). (See figure 4.4)

4. Using the sheet metal screws (item F), screw the guides into the bottom of the Adaptis cabinet below the base. Note that this operation may require tilting the unit slightly to gain access. Exercise caution here and ensure the unit door is locked.

5. The other two drawer glides ("Z" shape) must now be screwed into the bottom flange of the drip pan base (item B).

6. Insert the drip pan (item A) into the base (item B).

7. Slide the drip pan into the glides. (See figure 4.5 for the complete drain pan installation.

For inspection, slide the drip pan toward the outside of the unit and inspect the level and cleanliness of water. If necessary, remove the drip pan (slide all the way to the front, and then tilt it upwards slightly), drain it and clean it using non-abrasive detergents.

Figure 4.3: Two guides attached to the bottom of the Adaptis cabinet.

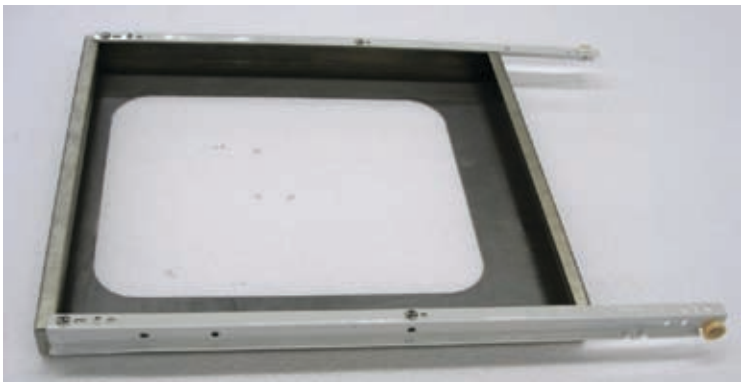


Figure 4.4: The "Z" shaped glides must be screwed at the bottom of the drip pan base as shown.

Figure 4.5: Complete drain pan installation.

5.0 TECHNICAL SPECIFICATIONS

5.1 Power supply		A1000		A350	
Power supply	[Volt]	120	230	120	230
Phase		1	1	1	1
Frequency	[Hz]	60	50	60	50

5.2 Dimensions			
External	[in / mm]	42 x 32.5 x 79/ 1067 x 826 x 2007	31 x 27 x 74/ 787 x 686 x 1880
Internal (G)	[in / mm]	37 x 28 x 57/ 940 x 711 x 1448	23 x 21 x 48/ 584 x 533 x 1219
Internal (N)	[in / mm]	37 x 25 x 47/ 940 x 635 x 1194	23 x 19 x 42/ 584 x 483 x 1067
Capacity (G)	[ft3 / lts]	34.12 /966.2	13.41/379.72
Capacity (N)	[ft3 / lts]	25.16 / 712.45	10.62/300.72

5.3 Refrigeration system					
Refrigerant		R-134a	R-134a	R-134a	R-134a
Charge	[Lbs / Kg]	4.6/2.1	4.6/2.1	4.2/1.9	4.2/1.9

5.4 Main components Amp draw					
Compressor LRA	[AMP]	6.7	3.0	5.34	2.54
Compressor LRA	[AMP]	41.9	14.8	41.9	12.6
Circulating fan nominal power	[AMP]	1.6	0.9	0.9	0.5

5.5 Humidity system			
Water requirements			
Flow (MAX)	Gal/hr/Lts/hr	0.25/0.9	0.25/0.9
Quality	pH: 7.0 ± 0.5 Filtration: <2 microns or 0.00008 inch Purity: Resistively 0.5 to 5.0 Meg Ohms or Conductivity 2.0 to 0.2µSiemens		

5.6 Control system					
Controller		CMP6010	CMP6010	CMP6010	CMP6010
Software version		v 1.05	v 1.05	v 1.05	v 1.05

5.7 Design performance

Humidity max [Lights On/L Off]	[%RH]	60/90	60/90	60/90	60/90
Humidity min	[%RH]	Ambient	Ambient	Ambient	Ambient
Temperature max	[°C]	45	45	40	40
Temperature min [Lights ON]	[°C]	10	10	10	10
Temperature min [Lights Off]	[°C]	4	4	5	5
Temperature control	[°C]	+ / - 0.5	+ / - 0.5	+ / - 0.5	+ / - 0.5
Humidity control	[%RH]	+ / - 6	+ / - 6	+ / - 6	+ / - 6

Adaptis A1000

	Tissue culture	
	230V/50Hz	120V/60Hz
Kit total inputs amp	2.83	5.4
Light average	200	200
Light average with highlight accessory	310	n/a
Number of fixtures	8	8
Cabniet total Input Amps	5.9	10.6
Total input amps	8.7	15.8
Minimum total circuit ampacity	9.4	17.4
Maximum overcurrent protection	15	20
Additional fixture	0.35	n/a

Adaptis A1000

	Plant growth	
	230V/50Hz	120V/60Hz
Kit total inputs amp	2.5	4.6
Light average*	650	650
Light average with highlight accessory*	n/a	n/a
Number of fixtures	1	1
Cabniet total Input Amps	5.9	10.6
Total input amps	8.3	15.1
Minimum total circuit ampacity	9.1	16.8
Maximum overcurrent protection	15	20
Additional fixture	n/a	n/a

Adaptis A1000

	Incubator	
	230V/50Hz	120V/60Hz
Kit total inputs amp	1.42	2.7
Light average*	115	115
Light average with highlight accessory*	200	200
Number of fixtures	4	4
Cabniet total Input Amps	5.9	10.6
Total input amps	7.3	13.3
Minimum total circuit ampacity	8	14.9
Maximum overcurrent protection	15	20
Additional fixture	0.35	0.65

Adaptis A1000

	Arabidopsis	
	230V/50Hz	120V/60Hz
Kit total inputs amp	2.83	5.4
Light average*	300	300
Light average with highlight accessory*	n/a	n/a
Number of fixtures	2	2
Cabniet total Input Amps	5.9	10.6
Total input amps	8.7	15.8
Minimum total circuit ampacity	9.4	17.4
Maximum overcurrent protection	15	20
Additional fixture	1.42	n/a

Adaptis A350

	Arabidopsis	
	230V/50Hz	120V/60Hz
Light average*	280	280
Number of fixtures	3 vertical	3 vertical
CABINET Total Input Amps	8.4	15.1
TOTAL INPUT AMPS	8.4	15.1
Minimum TOTAL circuit ampacity	9.1	16.4
Maximum OVERCURRENT PROTECTION	15	20
Additional fixture	n/a	n/a

*Light measurement at 6" (150mm), chamber and ambient temperature of 25°C.
Light intensities are nominal values measured at the rated chamber supply voltage.

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