

# SPECIAL APPLICATION

## AL-41L4 Algae Growth Chamber



**Applications** This chamber was specifically designed for growth of the Algae in flasks. It provides adequate space for growing the plant to maturity under controlled temperature, humidity and light conditions.

Many other applications exist for this product. Please compare your requirements to the specifications.

**Controller** Percival's Intellus Ultra controller is capable of controlling temperature, humidity, CO<sub>2</sub> and lighting. The Intellus Ultra Control System is a single-board electronic solid-state design which includes a 10 key membrane keypad with LED indicators and a vacuum fluorescent display. Programs may be configured to run in real time or countdown (circadian) mode. Ramping and non-ramping program methods are available for each programming mode. Multiple programs can be linked to create complex environmental profiles. The Intellus Web Server (optional) allows for monitoring and controlling of the chamber via a web browser (requires Internet Explorer 6.0 +). This option allows for remote monitoring and programming of your chamber including alerts and current condition updates for up to five e-mail addresses. Please refer to [www.percival-scientific.com](http://www.percival-scientific.com) for additional information regarding the control system.

**Lighting System** Each tier of shelves is lighted by (6) F25T8/TL741 fluorescent lamps properly spaced for uniform light intensity over the entire shelf. Intensity is adjustable up to 330  $\mu\text{moles}/\text{m}^2/\text{s}$  of light irradiance measured @ 6" from the lamps. Programming and control of the lighting is done via Intellus real time controller. There are two levels of programming of fluorescent lighting and one level of programming of incandescent lighting.

**Air Flow** Uniform air circulates across each shelf via air diffusers on the rear wall.

Temp Range (with all lights on)	Interior Space (volume)		Work Area		Maximum Growing Height		Exterior Dimensions in. (cm)			Light Intensity (6" from lamps unless otherwise noted) $\mu\text{moles}/\text{m}^2/\text{s}$	# of Tiers
	° C	ft <sup>3</sup>	m <sup>3</sup>	ft <sup>2</sup>	m <sup>2</sup>	in.	cm	(W)	(D)		
10-44±0.5	37.6	1.06	27.6	2.56	10.23	26.03	41 (104.1)	34 (86.36)	77(196.58)	330	4

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## Chamber

**Cabinet Construction** 22-gauge interior and 18-gauge exterior electro-zinc plated steel construction. All seams and joints on the outer and inner shells are welded. Inner shell is supported by a non-compressing and non-thermal conducting material to lock the inner liner in place without a metal-to-metal bond to the outer case. The chamber is completely self-contained. Overall wall thickness is 2" (5.1cm). One 1 1/2" diameter access ports are provided on the R.H. wall. Chamber has a stainless steel floor that is equipped with a floor drain and hose assembly. The chamber also contains caster assembly and adjustable leveling legs to compensate for floor unevenness in the lab.

**Insulation** Woodless construction using CFC free insulation. Overall wall thickness is 2" (5.1cm), ample insulation for maintenance of stated temperature range.

**Door** One door opening 37 3/16" x 57 1/2" (94.4 cm x 146 cm) provides full access to the chamber interior. A magnetic gasket provides a tight seal to door frame.

**Interior Space** 37.6 ft<sup>3</sup> (1.06 m<sup>3</sup>) with a work area 27.6 ft<sup>2</sup> (2.56 m<sup>2</sup>) provided on four shelves.

**Shelving** Four tiers of white epoxy coated steel wire shelving. Each shelf is 27" D x 36 1/4" W (68.58 cm x 92.07 cm). Shelves are vertically adjustable in 1/2" increments. The maximum growing height is 10.25" (26.03 cm) per tier with all four shelves installed.

**Finish** Interior and exterior painted with highly reflective, environmentally friendly, high temperature baked white powder coating.

**Refrigeration** Self-contained air-cooled condensing unit with hot gas bypass system for continuous compressor operation, extended life and close temperature control. This continuous running condensing unit ensures precise temperature control by alternately cycling refrigerant and hot gas to the coil; this also prolongs the life of the compressor, and eliminates the risk of ice build up in the coil. Solenoid valves have an extended stem for quiet and long life operation. Evaporator coil is ceiling mounted and incorporates twin air circulation fans in an aluminum housing. Heat rejection to ambient (standard chamber) =4500 BTU/hr.

**Temperature Range** 10° - 44° C lights on ( $\pm 0.5^\circ$  C) and 2° - 44° C lights off ( $\pm 0.5^\circ$  C).

**Temperature Safety Limit Controls** (Experiment Protection) Adjustable high and low temperature controls, audible alarms and visual indicators are provided. The controller shuts down all the power to the chamber, and activates alarms. When the temperature returns to the normal range the system will automatically reset.

**Humidity Control (optional)** Additive humidity control of higher than ambient to 75% ( $\pm 5\%$ ) lights on for set temperatures between 15° to 30° C. Humidity control of higher than ambient to 95% ( $\pm 5\%$ ) lights off for temperatures between 15° to 30° C. Extended humidity ranges available. See other catalog sheets or consult factory for additional information.

**Options (most popular)** Intellus Ultra Web Server (C9), Communications Software (C9+), Intellus Ultra with Touchscreen and Internet capabilities (C10), Ultrasonic Humidifier with advanced RH Sensor (H11), Dehumidification via independent dehumidifying coil with reheat heaters and Ultrasonic Humidifier (H12), Ultrasonic Humidifier with Electronic RH sensor (H14), CO<sub>2</sub> enrichment package (CO<sub>2</sub>), door with observation window and cover (Q2), door with fresh air ports (Q1), self-contained water-cooled condensing unit, dry alarm contacts, dimmable lighting (closed loop with PAR light sensor)(Q22), dimmable lighting (open loop control)(Q23), extended temperature ranges available. See other catalog sheets or consult factory for additional accessories.

**Convenience Receptacles** Two 115/1/60 convenience receptacles provided inside chamber.

**Electrical Service Requirements** 115/1/60 - Two power cords and grounded plugs provided - (1) 8.5-amp cord and (1) 9.5-amp cord. Consult factory for electrical services when adding accessories to the chamber.



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