

Low Temperature

Percival® model LT-41VL

Constant defrost temperature
Standard SciWhite® LED lighting for plant growth



Applications

- Designed with a full range of seasonal temperatures to test cold hardiness, freeze tolerance, heat stress and many more applications

IntellusUltra Controller

The IntellusUltra (C8T) control system adapts to nearly any programming style with a large range of options for optimal control over experiments.

- Robust and reliable, industrial-grade integrated hardware design
- Highly flexible programming capabilities for customized configurations and expansion
- Precise, simultaneous control of up to 7 environmental parameters
- Industry-leading experiment protection and system diagnostics

IntellusUltra Touchscreen Interface

This high-resolution touchscreen displays advanced settings and data for fine-tuning experiments, including graphs and charts.

- 10.1" IPS, high resolution display with 10-point multi-touch sensitivity
- Tabular and graphical presentation of chamber programs and parameters
- Highly visible process values and alarm notifications
- Enhanced user feedback menus

Please visit www.percival-scientific.com for more information on our control systems.

SciWhite LED Lighting System

- Externally mounted SciWhite LEDs with enhanced red for plant growth
- Lighting is separated from chamber growth space by glass side wall
- Glass is evenly heated over its entire surface, eliminating condensation
- Intensity programmable up to 515 $\mu\text{moles/m}^2/\text{s}$ of light irradiance measured @ 6" from LEDs
- Programming/real-time control through the IntellusUltra touchscreen
- Dimmable output from 10-100% in one-percent increments

Airflow/Circulation

- Direction: horizontal
- Airspeed fpm (feet per minute): 60

LT-41VL specifications (subject to change without notice)

Temp Range with all lights on	Interior Space volume		Total Shelving Floor Area		Maximum Growing Height		Exterior Dimensions						Light Intensity 6" from lamps unless otherwise noted	Tiers
							width		depth		height			
°C	ft³	m³	ft²	m²	in	cm	in	cm	in	cm	in	cm	µmoles/m²/s	
(-)10-44±0.5	37.2	1.1	13.6	1.3	21.5	54.6	46.3	117.5	33.6	85.4	79.9	202.9	515	2

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Cabinet Construction

- Interior constructed of 18-gauge galvanized steel
- Interior floor constructed of 22-gauge polished stainless steel
- Exterior constructed of 18-gauge Galvannealed extra-smooth steel
- Overall wall thickness is 2" (5.1 cm)
- Integrated floor drain
- Contains casters assembly and adjustable leveling legs
- One 1.25" access port with air-tight plug
- Highly durable and reflective white coating

Insulation

- Construction using 2" high-grade materials, such as closed-cell and non-CFC Urethane insulation

Door

- One door opening 36.8" x 57.5" (93.5 cm x 146.1 cm) provides full access to the chamber interior (magnetic gasket provides a tight seal to door frame)

Interior Space

- 37.2 ft³ (1.1 m³) with shelf area of 13.6 ft² (1.3 m²) provided on two tiers

Shelving

- Two tiers of white epoxy coated steel wire shelving (each shelf is 36.3"W x 27"D [92.1 cm x 68.6 cm])
- Each shelf vertically adjustable in ½" increments
- Maximum growing height is 43.8" for one shelf and 21.5" for two shelves

Refrigeration

- Constant temperature defrost allows chamber to operate at low temperature under full lighting without temperature defrost spikes (typically, low temperature systems are defrosted by the diversion of hot gas through the coil or via electric heaters, causing a significant temperature spike during the defrost period)
- Dual coil system maintains a constant low temperature within the chamber
- Coils work in tandem (as one coil is cooling, the other coil is defrosted via hot gas)
- 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 and provides defrost of cooling coils via hot gas without electric heaters)
- Heat rejection to the ambient (standard refrigeration system) = 3,780 BTU/hr

Temperature Range

- -10°-44°C (±0.5°C) lights on and -15°-44°C (±0.5°C) lights off (chamber gives greater temperature uniformity and allows for lower temperature limit under full lighting)

Temperature Safety Limit Controls

- Experiment protection (adjustable high/low temperature control, audible alarms and visual indicators)
- Controls shut down all power to the chamber, activating alarms
- System automatically resets when temperature returns to normal range

Options (most popular)

- IntellusUltra Connect (C9)
- Additive CO₂ control
- CO₂ removal system
- Self-contained water-cooled condensing unit
- Remote outdoor air-cooled condensing unit with all-weather housing unit
- Dry alarm contacts
- Closed loop dimmable lighting with PAR light sensor (Q22)
- Extended temperature ranges available
- Convenience receptacles

Contact info@percival-scientific.com for additional information.

Electrical Service Requirements

- 120-208/1/60 (4-wire) grounded cord with NEMA L14-20P plug provided for standard chamber
- RLA=12.4A (MCA=15.5A)

Helping You Create Better Science

Percival Scientific controlled environment systems are the culmination of over 60 years of design and manufacturing experience. We developed our high-quality products through direct partnerships within the scientific community. Our controlled environments are known for their customizable designs and superior, long-lasting performance. Creativity, passion, technical expertise and attention to detail drive our scientific innovation, and we are proud to help you create better science.



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