

low temperature

Percival model LT-36VL

Constant Defrost Temperature

applications

- Offers ability to measure cold hardiness, freeze tolerance, heat stress, and exposure to a series of temperatures (spring, summer, fall and winter-like conditions)
- "Constant temperature defrost" allows chamber to operate at low temperature under full lighting without temperature defrost spikes
- Glass side walls give full view of each shelf without disturbing experiment, and glass is evenly heated over its entire surface eliminating condensation

percival's intellus ultra controller

- Controls temperature, lighting, humidity (optional) and CO₂ (optional)
- Single-board electronic solid-state design includes 10 key membrane keypad with LED indicators and vacuum fluorescent display
- Programs can be configured to run in real time or elapsed time
- Ramping and non-ramping program methods available for each programming mode
- Multiple programs can be linked creating complex environmental profiles
- Optional Intellus Web Server allows monitoring and controlling of chamber via web browser (requires Internet Explorer 6.0+) (this option allows for remote monitoring and programming of chamber including alerts and current condition updates for up to five e-mail addresses)

Please refer to www.percival-scientific.com for additional information regarding the control system.

lighting system

- Two externally mounted lampbanks (F32T8/741 fluorescent) reduce interior heat load while eliminating need to open chamber and remove shelves when changing light bulbs
- Externally mounted lamp banks separated from chamber growth space by glass side wall



lighting system (continued)

- Glass is evenly heated over its entire surface eliminating condensation
- Intensity programmable up to 300 $\mu\text{moles}/\text{m}^2/\text{s}$ of light irradiance measured @ 6" from lamps on 2 on/off light events (without drop-off due to low temperature)
- Programming and control of the lighting is done via Intellus real time controller

insulation

- Woodless construction using CFC free insulation (overall wall thickness is 2" [5.1 cm], ample insulation for maintenance of stated temperature range)

door

- One door opening 29.2" x 57.5" (74 cm x 146 cm) provides full access to the chamber interior (magnetic gasket provides a tight seal to door frame)

LT-36VL 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
	°C	ft ³	m ³	ft ²	m ²	in	cm	width		depth		height		
(-10-44±0.5	29.7	0.8	10.8	1	*	*	42.3	107.3	33.6	85.4	77.2	196.1	300	2

*21.5" with 2 shelves or 43.8" with 1 shelf

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cabinet construction

- Interior constructed of 22-gauge electro-zinc plated steel
- Exterior constructed of 18-gauge exterior electro-zinc plated steel
- Welded seams and joints on outer and inner shells
- Inner shell supported by non-compressing/non-thermal conducting material locking inner liner in place without a metal-to-metal bond to outer case
- Each side wall has evenly heated glass with viewing dimensions of 49" x 21.5"
- Externally mounted lamp banks on each side wall (if enough room is allowed on side of chamber, lamp banks swing like a door allowing full view of each shelf without disturbing the experiment [allow clearance when replacing bulbs])

interior space

- 29.7 ft³ (0.8 m³) with work area of 10.8 ft² (1 m²) provided on two tiers

shelving

- Two tiers of white epoxy coated steel wire shelving (shelf is 27"D x 28.8"W [68.6 cm x 73 cm])
- Shelves are vertically adjustable in ½" increments
- Maximum growing height is 43.8" for one shelf and 21.5" for two shelves

finish

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

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 has been utilized in order to maintain a constant low temperature within chamber
- Coils work in tandem with a damper system (as one coil is cooling, the other coil is defrosted via hot gas)
- An air flow damper switches with coils preventing the coil being defrosted from putting its heat into system (coil being defrosted is essentially closed off from rest of the system)
- 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 with out the need of electric heaters)

refrigeration (continued)

- Optional outdoor all weather air-cooled condensing unit or self contained water-cooled condensing unit available upon request
- Refrigerant is CFC free HCFC-22 (R-22) (others available upon request, such as HFC-134a [R-134a])

Note: chamber temperature range may change when selecting other refrigerants.

temperature range

- -10°-44°C (±0.5°C) lights on and -12°-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 and low temperature controls, audible alarms, and visual indicators provided
- Controls shut down all power to the chamber, activating alarms (when the temperature returns to the normal range the system will automatically reset)

options (most popular)

- Intellus Ultra Web Server (C9)
 - Communications Software (C9+)
 - Intellus Ultra with Touchscreen and Internet capabilities (C10)
 - CO₂ enrichment package
 - 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 grounded cords and plug provided, [1] 15 amp cord and [1] 20 amp cord)



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