

# Low Temperature

## Percival® model LT-105

Constant Defrost Temperature, Standard SciWhite® lighting



### Applications

- This chamber is frequently used to measure cold hardness, freeze tolerance, heat stress and exposure to a series of temperatures

- Many other applications exist for this product

*Please compare your own requirements to the specifications listed below.*

### Percival's IntellusUltra Controller

The IntellusUltra control system (C8) was purpose-built for controlled environments and is standard on all Percival chambers.

- Robust and reliable, industrial-grade integrated hardware design
- Highly flexible architecture facilitates configuration, expansion and customization
- Precise, simultaneous control of up to 7 environmental parameters
- Industry-leading experiment protection and system diagnostics

### IntellusUltra Control Graphical User Interface

A touchscreen user interface is provided as standard on all Percival Scientific plant growth chambers and allows users to interact with their controlled environment in new and intuitive ways.

- 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 refer to [www.percival-scientific.com](http://www.percival-scientific.com) for additional information regarding the control systems.*

### SciWhite LED Lighting System

- One tier of lighted shelving lit by SciWhite LEDs with enhanced red
- Intensity programmable up to 1,450  $\mu\text{moles/m}^2/\text{s}$  of light irradiance measured @ 6" from LEDs
- Programming and control of the lighting is done via IntellusUltra real time controller
- Lamp bank is vertically adjustable
- Dimmable between 10-100% output

### Cabinet Construction

- Interior constructed of 24-gauge galvanized steel
- Interior floor constructed of 22-gauge polished stainless steel
- Exterior constructed of 24-gauge Galvannealed extra-smooth steel
- Overall wall thickness is 2" (5.1 cm)
- Integrated floor drain
- Contains casters assembly and adjustable leveling legs
- Two 1.25" access ports with air-tight plugs
- Highly durable and reflective coating

### LT-105 specifications (subject to change without notice)

| Temp Range<br>with all lights on | Interior Space<br>volume |     | Total Shelving<br>Floor Area |     | Maximum<br>Growing Height |       | Exterior Dimensions |       |       |      |        |     | Light Intensity<br>6" from lamps unless<br>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                       | 122.9                    | 3.5 | 16                           | 1.5 | 56                        | 142.2 | 120                 | 304.8 | 38.8  | 98.6 | 78.8   | 200 | 1,450 @ 25°C                                               | 1     |

# Low Temperature Percival model LT-105

## Airflow/Circulation

- Conditioned air moves in uniform upward direction through entire work bench through perforations in aluminum channels

## Insulation

- Woodless construction using foam-in-place 2" [5.1 cm] thick CFC free urethane insulation foam (this is an environmentally friendly foam with global warming potential [GWP] of 0.0 and ozone depletion potential [ODP] of 0.0)

## Doors

- Two door openings each 25.8" x 48.3" (65.6 cm x 122.7 cm)
- Magnetic gasket provides a tight seal to door frame

## Interior Space

- 122.9 ft<sup>3</sup> (3.5 m<sup>3</sup>) with work area of 16 ft<sup>2</sup> (1.5 m<sup>2</sup>) provided on one tier

## Refrigeration

- Refrigerant: R-449a
- 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 (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 with out the need of electric heaters)
- Heat rejection to ambient (standard chamber) = 6,658 BTU/hr.

## Temperature Range

- -15°-44°C (±0.5°C) lights off and -10°-44°C (±0.5°C) lights on (full fresh air) within work area on horizontal plane with lights on

## 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
- System automatically resets when temperature returns to normal range

## Options (most popular)

- IntellusUltra Connect (C9)
- Additive CO<sub>2</sub> control
- CO<sub>2</sub> 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](mailto:info@percival-scientific.com) with questions or for additional information.

## Electrical Service Requirements

- 120/208/3/60 (4-wire, plus ground) with direct-wire field connection terminals
- RLA=15 (MCA=18.7)

## Regulatory Standards

- Electrical Safety: UL-508A, certified and labelled by Percival Scientific under UL file number E340161
- Quality System: ISO 9001:2015, certified under DQS, Inc. under certification number 10017261

## Helping You Create Better Science

Percival Scientific controlled environment systems are the culmination of over 60 years of design and manufacturing experience. Our high quality products have been developed through direct partnerships with the scientific community and offer platforms that are highly customizable and provide superior performance. We understand that scientific innovation is bred through creativity, passion, technical expertise and attention to detail, and we are proud to help you create better science.



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