

# Model SU780XLE

## Upright Ultra-Low Temperature Freezer

Shown with optional inventory racks and five shelving units (standard). Interior dimensions accommodate optional inventory racks up to five standard boxes deep. Removable shelves are adjustable on 1/2" (12.7 mm) centers.



### Making the industry's best-performing ULT freezer even better

- ⦿ Provides a wider ultra-low temperature range from -20°C to -86°C
- ⦿ ± 1°C Steady-state temperature variation over time
- ⦿ 35 minute door opening recovery time to -80°C within +/-1°C of setpoint (when tested using the ENERGY STAR® Final Test Method door opening procedure)
- ⦿ Connectivity available to BMS/BAS or 3rd-party monitoring system
- ⦿ Real-time temperature display
- ⦿ Largest storage capacity per sq. ft. of floor space
- ⦿ Accepts universal power

### The SU780XLE delivers strategic advantages across your entire research organization

#### Protecting your Research Materials

- ⦿ Modulated cooling capacity eliminates on/off cycling
- ⦿ 100% adaptive control - faster temperature pull-down and recovery
- ⦿ Advanced Stirling engine technology with only two moving parts - no compressors to fail!
- ⦿ Freezer warranty - seven year engine and thermosiphon protection, two years parts and labor coverage\*

#### Protecting the Environment

- ⦿ Uses up to 70% less energy than legacy compressor-based units
- ⦿ Uses up to 45% less energy than similar sized ENERGY STAR® rated freezers
- ⦿ Uses EPA SNAP-approved 100% natural refrigerants
- ⦿ Waste reduction processes and environmentally friendly foam insulation blowing agent used in product manufacturing
- ⦿ Significantly smaller operating carbon footprint than legacy compressor-based systems

#### Protecting your Operating Budget

- ⦿ Reduces electric utility costs up to 70% when replacing legacy compressor-based freezers
- ⦿ Significantly reduces heat output and HVAC cost of operations
- ⦿ Reduces floor space, facilities, infrastructure, and backup power cost
- ⦿ Lowest ongoing maintenance requirements and service costs

Use up  
to **70%**  
less energy

# Model SU780XLE Specifications

## Application, Rating and Electric Data

<b>Application</b>	Storage of general (non-flammable) laboratory materials
<b>Storage Volume</b>	780 liters (27.5 cu.ft.)
<b>Storage Capacity</b>	600 standard 2" boxes in optional racks, Optional 700-box system, available separately
<b>Temperature Range</b>	-20°C to -86°C @ 32°C (90°F) ambient, adjustable to 1°C increments
<b>Electric Power†</b>	100-240VAC at 50/60Hz (Japan) 120-240VAC at 50/60Hz (All other regions)
<b>Maximum Power (Current)</b>	1200 watts (10 amps @120V, 5 amps @240V), nominal
<b>Auto-Voltage Capability</b>	120-240VAC at 50/60Hz (automatically adjusts)
<b>Electric Supply Rating</b>	15 amp or greater grounded circuit
<b>Power Plugs Available</b>	NEMA 5-15P plug requires standard NEMA 15R receptacle (120V); Length: 3048 mm (120 in.), or  NEMA 6-15P plug requires standard NEMA 6-15R receptacle (240V); Length: 2997 mm (118 in.) <i>Specify when ordering</i>
<b>Certification/Agency Listing</b>	cULus, CE, and ENERGY STAR®
<b>Noise</b>	<48 dB(A) at 1 meter from front of freezer in steady state operation
<b>Indoor/Outdoor Use</b>	Indoor use only
<b>Application Environment</b>	Non-corrosive, non-flammable, non-explosive
<b>Ambient Operating Temp</b>	5°C to 35°C (41°F to 95°F)
<b>Useful Life</b>	12 years, nominal

## Controller

<b>Interface</b>	Graphic user touchscreen interface
<b>Controller Type</b>	Microprocessor with touchscreen input and display
<b>Security</b>	Lockable door Optional PIN requirement built in
<b>Warm and Cold Alarms</b>	Fully adjustable
<b>Control Sensor</b>	One RTD (PT100 Class A)
<b>Event Log</b>	All alarms, door openings
<b>Dry Contacts</b>	Normally closed, normally open, common; activated by power outage or any alarm condition
<b>Temperature Log</b>	30 days available graphically
<b>Battery Back-up</b>	12 hour control battery back-up for touchscreen
<b>Internet Connectivity</b>	Optional Ethernet connection transmitting in BACnet™ or MQTT protocols  Optional SenseAnywhere wireless temperature monitoring and logging

## Refrigeration System

<b>Cooling Engine</b>	Helium charged free-piston Stirling engine with continuous modulation
<b>Heat Transport System</b>	Gravity driven thermosiphon
<b>Refrigerant</b>	R-170 (Ethane) 90 grams
<b>Evaporator</b>	Cold wall (inner liner)
<b>Heat Rejection</b>	Finned heat exchanger with forced air cooling  Air inlet: Above freezer door, below mechanical compartment  Air outlet: Right side of top cover, upward
<b>Defrost Method</b>	Manual

## Performance Data

<b>Steady State Energy Use (ENERGY STAR® Final Test Method)</b>	6.67 kWh/day at -75°C (Weighted Average)
<b>Pull-Down from 25°C Ambient</b>	6.5 hours at -80°C (Empty Cabinet)
<b>Recovery from Door Opening (ENERGY STAR® Final Test Method)</b>	35 minutes at -80°C
<b>Warm-up Profile</b>	2.5 hours to -60°C at -80°C (Empty Cabinet)  6.5 hours to -40°C at -80°C (Empty Cabinet)
<b>Heat Dissipation</b>	981 BTU/h (load to HVAC) at -80°C (Empty Cabinet)

## Dimensions and Construction

<b>Interior (H x D x W)</b>	1542 x 705 x 740 mm / (60.7 x 27.8 x 29.1 in.)
<b>Exterior (H x D x W)</b>	1994 x 870 x 915 mm / (78.5 x 34.3 x 36 in.)
<b>Net Weight, Five Shelves No Load</b>	297 kg (655 lbs.)
<b>Shipping (H x D x W)</b>	2184 x 1092 x 1118 mm / (86 x 43 x 44 in.)
<b>Shipping Weight</b>	347 kg (765 lbs.)
<b>Insulation</b>	High performance vacuum insulated panels and polyurethane foam using Ecomate® environmentally friendly, SNAP-compliant blowing agent
<b>Gasket Heater</b>	User programmable duty cycle
<b>Shelves</b>	5 stainless steel, adjustable in 12.7 mm (0.5 in.) increments
<b>Inner Doors</b>	3 insulated with magnetic latches
<b>Options</b>	Chart recorder, CO2 and LN2 back-up systems, additional shelves, international plug(s), 4-20mA temperature output



\* Labor warranty coverage available in the U.S. and Canada.  
† There is no need for special wiring or a 20 amp breaker on a 120V line.