



Model SU780XLE
Upright Ultra-Low Temperature Freezer
Use 70-75% Less Energy, with the Industry's-Best
Ultra-Low Cooling Performance



Making the Industry's-Best Performing ULT Freezer Even Better

- ✓ $\pm 1^{\circ}\text{C}$ Steady-State Temperature Variation Over Time
- ✓ Faster Initial Pull-Down, Ambient to -80°C , <6.5 hours
- ✓ Fastest Door Opening Temperature Recovery, 35 minutes to -80°C
(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
- ✓ Plugs into Any Outlet

Shown with optional inventory racks and three additional shelving units (not included). Interior dimensions accommodate optional inventory racks up to five standard boxes deep. Removable shelves are adjustable on 1/2" (12.7 mm) centers.

The SU780XLE delivers strategic advantages across your entire research organization.

Protecting your Sample Integrity

- Modulated cooling capacity eliminates on/off cycling, improves quality of cold
- 100% adaptive control - faster temperature pull-down and recovery
- Superior Stirling engine reliability with only two moving parts - no compressors to fail!
- Industry-best warranty – seven years engine and thermosiphon protection, two years parts and labor coverage*

Protecting the Environment

- Uses 70-75% less energy than standard compressor-based systems
- Uses EPA SNAP-approved 100% natural refrigerants
- Zero Waste process and environmentally-friendly foam insulation blowing agent used in product manufacturing
- Significantly smaller operating carbon footprint than any competing product

Protecting your Operating Budget

- Reduces electric utility costs more than 70% savings in most cases
- 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



Model SU780XLE Specifications

Application, Rating and Electric Data

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|--------------------------------------|---|
| Application | Storage of general (non-flammable) laboratory materials |
| Storage Volume | 780 liters (27.5 cu.ft.) |
| Storage Capacity | 600 standard 2" boxes in optional racks, Optional 700-box system, available separately |
| Temperature Range | -86°C to -20°C @ 32°C (90°F) ambient, adjustable to 1°C increments |
| Electric Power† | 100-240VAC at 50/60Hz (Japan) 120-240VAC at 50/60Hz (All other regions) |
| Maximum Power (Current) | 1200 watts (10 amps @120V, 5 amps @240V), nominal |
| Auto-Voltage Capability | 120-240VAC at 50/60Hz (automatically adjusts) |
| Electric Supply Rating | 15 amp or greater grounded circuit |
| Power Plugs Available | NEMA 5-15P plug requires standard NEMA 5-15R receptacle (120V); Length: 2261 mm (89 in.), or NEMA 5-15P plug requires standard NEMA 5-15R receptacle (120V); Length: 3048 mm (120 in.), or NEMA 6-15P plug requires standard NEMA 6-15R receptacle (240V); Length: 2997 mm (118 in.). Specify when ordering |
| Certification/Agency Listing | cULus, CE, and ENERGY STAR® |
| Noise | Advanced noise abatement, <45 dB(A) at 1 meter |
| Indoor/Outdoor Use | Indoor use only |
| Application Environment | Non-corrosive, non-flammable, non-explosive |
| Ambient Operating Temperature | +5°C to +35°C (41°F to 95°F) |
| Useful Life | 12 years, nominal |

Controller

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

Refrigeration System

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

Performance Data

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

Dimensions and Construction

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|---|---|
| Interior (H x D x W) | 1542 x 705 x 740 mm (60.7 x 27.8 x 29.1 in.) |
| Exterior (H x D x W) | 1994 x 870 x 915 mm (78.5 x 34.3 x 36 in.) |
| Net Weight, Two Shelves, No Load | 284 kg (625 lbs.) |
| Shipping (H x D x W) | 2184 x 1092 x 1118 mm (86 x 43 x 44 in.) |
| Shipping Weight | 352 kg (775 lbs.) |
| Insulation | High performance vacuum insulated panels and polyurethane foam using Ecomate® environmentally friendly, SNAP-compliant blowing agent |
| Gasket heater | User programmable duty cycle |
| Shelves | 2 stainless steel, adjustable in 12.7 mm (0.5 in.) increments |
| Inner Doors | 3 insulated with magnetic latches |
| Options | Chart recorder, CO ₂ and LN ₂ back-up systems, additional shelves, international plug(s), 4-20mA temperature output |



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* 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.

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