# Thermonics


## $LN_2$ Cooled Portable Process Chiller

### Industrial sized cooling capacity at cryogenic temperatures in a laboratory footprint.

The portable, $LN_2$-cooled chiller controls and delivers the cooling power of liquid nitrogen for fast, precise, ultra-low temperature process fluid control.

Cryo Chillers are used in an assortment of industrial and commercial applications including Defense, Aerospace, Chemical, Semiconductor, Pharmaceutical, Automotive, and Cannabis Extraction. In many applications, a Cryo Chiller is a simpler and more cost effective cooling solution, delivering a high ratio of capacity to system footprint.

## Advantages of $LN_2$ Cooled Chillers

### Increased Cooling Capabilities

- $LN_2$ chillers deliver lower temperatures and more cooling capacity in smaller footprint systems
- $LN_2$ usage is automatically adjusted to meet needs of dynamic heat loads

### Reduced Costs

- Lower capital investment costs than low temperature mechanical chillers.
- Energy efficient, significantly less electricity consumption

### Improved Reliability

- Fewer mechanical components, $LN_2$ chillers are more reliable and easier to maintain.

### Powerful Chiller Controller

- Color touch screen HMI
- Graphing, data logging and system diagnostics
- Ethernet and RS-232 remote communications
- Dynamic Remote Temperature Control

**Description: $LN_2$ cooled, liquid chiller to provide 20 kW of cooling @ -90°C @ 8 GPM @ 30 psi**

| General Specifications | |
|---|---|
| Heat Rejection | $LN_2$ Cooled |
| $LN_2$ Consumption | $LN_2$ Consumption automatically adjusts to meet cooling demands |
| $GN_2$ Exhaust Port | 6" ID Duct |
| Power | 220V, 3 Phase, 50Hz, 15A Service |
| Process Fluid | 3M Novec 7100 |
| Wetted Materials | Hard plumbed copper/stainless |
| Flow Rate | 8 GPM @ 30 PSI |
| System Dimensions | 64"H x 22"W x 28"D |
| Reservoir Size/Type | Sealed Stainless Steel |
| Ambient Temperature Range | 18°C to 27°C (23°C Nominal) |

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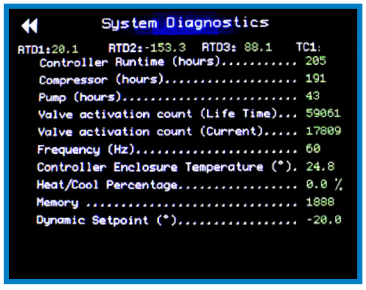


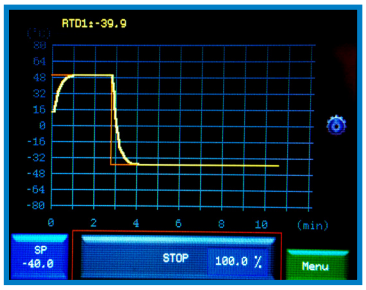


## Chiller Controller

The chiller controller provides precision temperature control with touch-screen operation, easy-to-read information, remote operation, and data logging.

Developed by our in-house engineering team, this controller provides flexible setup and customization not readily achievable with PLCs.

### FEATURES:

- Displays critical parameters such as fluid supply and return temperature and pressure (based on chiller options selected)
- Alarms for out-of-temperature range, low process flow, low reservoir level, and more
- Built-in diagnostics – valve counts, ambient temp, equipment runtimes
- Displays temperature graphs
- Communicates via Ethernet, USB, HTML Web server, RS-232 (optional)
- Logs system data and performance
- CE and RoHs compliant

| CONTROLLER SPECIFICATIONS | |
|---|---|
| Temperature Measurement | Range: -210 to +680°C, Resolution: 0.1°C full scale |
| User Interface | 5.7” color touch-screen with temperature graphing and charting |
| Control Safety | High and low temperature limits, Independent fail-safe modules (IFM, optional) |
| Diagnostics | Runtime hours (controller, chiller, compressor, pump), system performance log, valve activation counts, enclosure temperature |
| Operating Environment | Temperature: 10 to 50°C, Humidity: 0 to 50% |
| Temperature Sensors | Remote RTD (500 Ohm), thermocouple (type K) |
| Control Algorithms | Primary loop PID, Dual loop multiple RTD control mode |
| Communication Interfaces | Ethernet 10/100, Telnet, HTML web server, USB 2.0. RS232 (optional) |
| Alarms | Low Flow, Low Reservoir, Out-of-Temp Range. *Optional*: Drip Tray |
| Controller Compliance | CE / RoHS / UL61010 |

ISO REGISTERED ITAR

The inTEST Thermal family includes three temperature-related corporations: Temptronic, Sigma Systems, and Thermonics.