LNDS
LIQUID NITROGEN DATA LOGGING SYSTEM

MADGETECH
WE BUILD DATA LOGGERS

Features
- Measures down to -200 °C
- Equipped with one Internal temperature sensor and one type E thermocouple
- Large, backlit LCD display
- Min./max. & average statistics
- Front keypad w/lock feature
- User replaceable battery and external power
- Provides complete time vs. temperature history
- Thermocouple calibrated at –196 ºC, -80 ºC, and 0 ºC for improved accuracy at lower temperatures

Applications
- Liquid Nitrogen Monitoring
- -200 ºC applications

Includes:
- TCTemp2000 Data Logger
- Type E Thermocouple (36" lead wire and 6" sheath)
- Calibration Certificate

MadgeTech's LNDS, Liquid Nitrogen Data Logging System, is an ultra-low temperature measurement system created specifically for the monitoring of temperature sensitive substances that need to be preserved at cryogenic temperatures.

The LNDS can be mounted to the top or outer of a cryo-shipper or freezer, and the probe sheath can be inserted into the tank. The user can then directly view the internal temperature through the LCD on the logger. Also, a variety of probe sizes are available.

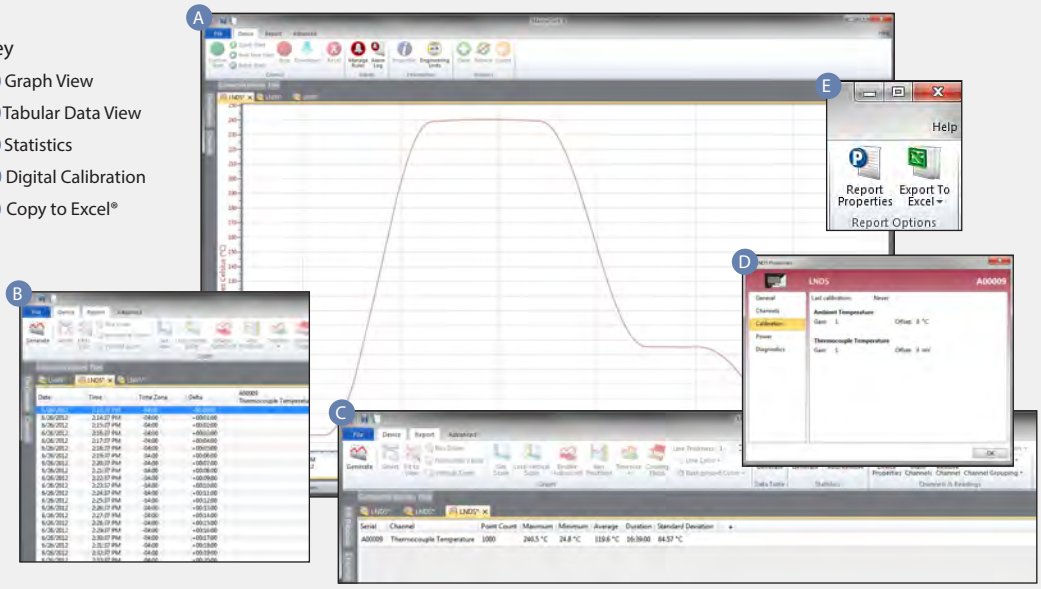
MadgeTech's LNDS is easily user programmable with pre selected sample rates from between 2 seconds to 24 hours, and it features a programmable start time and date, up to six months in advance.

The 8-button membrane keypad and large LCD provides the user with the ability to view the current reading, minimum, maximum, and average statistics, in real-time. The non-volatile memory will retain data even if AC and battery power are lost. Also, the 9-volt battery it runs on is both user-replaceable and cost effective.

The Liquid Nitrogen Monitoring System includes the TCTemp2000 data logger with a calibration certification, thermocouple probe, and 9 volt AC wall mounted power adaptor.

MADGETECH DATA LOGGER SOFTWARE

Key
- A Graph View
- B Tabular Data View
- C Statistics
- D Digital Calibration
- E Copy to Excel®



Software Features:
- Multiple graph overlay
- Statistics
- Digital calibration
- Zoom in/ zoom out
- Lethality equations (F0, PU)
- Mean Kinetic Temperature
- Full time zone support
- Data annotation
- Min./Max./Average lines
- Data table view
- Automatic report generation
- Summary view
- Multilingual

LNDS SPECIFICATIONS*

TEMPERATURE	
Sensor:	Type E Thermocouple
Thermocouple Measurement Range:	-200 ºC to +260 ºC
Thermocouple Resolution:	0.1 ºC
Thermocouple Calibrated Accuracy:	±1.0 ºC
Internal Channel Temperature Range:	-20 ºC to +60 ºC
Internal Temperature Resolution:	0.1 ºC
Internal Calibrated Accuracy:	±0.5 ºC (0 to +50 ºC)
Thermocouple connection:	Female subminiature (SMP)
Cold Junction Compensation:	Automatic, based on internal channel
DOT-MATRIX LCD	
Dimensions:	2.5" x 1.375" (63 mm x 35 mm)
Text:	Configurable channel text size
Indicators:	Power, status, memory
Backlight:	Configurable w/auto shut-off and contrast adjustment
Start/Stop Time:	Software programmable start time and date, up to six months in advance; programmable stop time

Memory:	131,071 readings per channel; 262,143 total readings; software configurable memory wrap
Reading Rate:	1 reading every 2 seconds to 1 every 24 hours
Calibration:	Digital calibration through software
Calibration Date:	Automatically recorded within device
Battery Type:	9V lithium battery included, user replaceable; optional AC adapter
Battery Life:	1 year battery life at 1 min reading rate with display off. 30 days typical with continuous LCD and no backlight usage
Data Format:	Date and time stamped ºC, ºF, K, ºR
Time Accuracy:	±1 minute/month (at 20 ºC to 30 °C)
Computer Interface:	PC serial or USB (interface cable required); 115,200 baud
Software:	XP SP3/Vista/Windows 7/Windows 8
Operating Environment:	-20 ºC to +60 ºC, 0 to 95%RH non-condensing
Dimensions:	4.8" x 3.3" x 1.25" (122 mm x 84 mm x 32 mm)
Thermocouple Dimensions:	36" lead wire, 6" x 3/16" dia. probe
Weight:	16 oz
Enclosure:	Black anodized aluminum

BATTERY WARNING: MAY LEAK AND/OR FLAME IF OPENED, RECHARGED, CONNECTED IMPROPERLY, OR DISPOSED OF IN FIRE.

ORDERING INFORMATION

MODEL	DESCRIPTION
LNDS	Liquid Nitrogen Data Logging System. Includes data logger with a calibration certification, thermocouple probe and 9 volt AC wall mounted power adapter.
IFC200	Software, manual, and USB interface cable (at least one IFC200 is required to communicate with multiple LNDS)
U9VL-J	Replacement battery for LNDS

ASK ABOUT OUR OTHER DATA LOGGERS

Temperature
Humidity
Pressure
pH
Level
Shock
LCD Display
Pulse/Event/State
Current
Voltage
Wireless
Intrinsically Safe
Spectral Vibration
Motion