MARATHON PRODUCTS, INC.
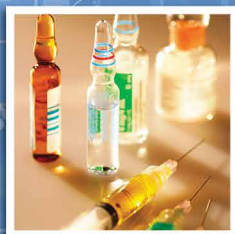
TEMPERATURE MEASUREMENT & CALIBRATION SPECIALISTS

Temperature Monitoring & Control

product catalog 2012
ISO 9001-2008

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Marathon Products, Inc.

Since 1991, Marathon Products has been designing, manufacturing and distributing temperature recording data collectors for monitoring the cold chain. Our growth is due to our commitment to customer service and to continuous product improvement.

Today, our customers are Fortune 500 companies including governmental laboratories, research organizations, pharmaceutical and drug discovery companies, hospitals, blood banks, IVF clinics, chemical manufacturers, the aerospace and semiconductor industries, the transportation industry and many others where obtaining accurate and reliable time-temperature information is critical for validating product and material safety.

Marathon Products' state-of-the-art technology delivers reliable data logging solutions for applications from cryogenics to high temperatures.

Jon Nakagawa
President, CPA, CEO

Quality Management System: ISO 9001-2008

Applications & Industries Served

Marathon Products, Inc. line of temperature data Loggers serve these industries

MARATHON COMPLIES WITH REQUIREMENTS FOR:

- Food Safety-HACCP ▪ FDA ▪ GxPs ▪ ISO 9000 Series
- ISO 14000 Series ▪ ISO Series 13485 ▪ ISO16949 ▪ 21 CFR-Part 1
- CE Marking ▪ NIST Traceability ▪ FCC

INDUSTRY / PRODUCT	EDL-Net	EDL-RF2	EDL-M5	microDL-200C	microDL Series	microDL-80C	EDL-CO2	2ctemp-USB	echo & 2ctemp	3ctemp	2CTEMP-RH	ez logger	ez Logger Hi-Temp	edl & edl-jr	edl-USB	ctemp-USB	ctemp	TempCheck3
Beverages	■	■	■		■			■	■	■				■	■	■	■	■
Cheese & Dairy			■		■			■	■	■				■	■	■	■	■
Confectionary	■	■	■		■			■	■	■	■	■		■	■	■	■	■
Cosmetics	■	■	■		■			■	■	■	■	■		■	■	■	■	■
Flower & Plants			■		■			■	■	■				■	■	■	■	■
Food Processing	■	■	■		■			■	■	■				■	■	■	■	■
Fresh & Frozen Foods	■	■	■		■	■		■	■	■				■	■	■	■	■
Fresh Produce			■		■			■	■	■	■	■		■	■	■	■	■
Fruit & Nuts			■		■			■	■	■	■	■		■	■	■	■	■
Meat, Poultry & Seafood			■		■			■	■	■				■	■	■	■	■
Biotechnology	■	■	■	■	■	■	■	■	■				■	■	■	■	■	
Blood Collection, Storage & Transport	■	■	■		■			■	■					■	■	■	■	
Chemicals	■	■	■	■	■	■	■	■	■	■			■	■	■	■	■	
Drug Stability Studies	■	■	■	■	■	■	■	■	■		■	■				■	■	
IVF Clinics	■	■	■	■	■	■	■	■	■		■	■	■			■	■	
Laboratory Monitoring & Control	■	■	■	■	■	■	■	■	■		■	■				■	■	
Medical-Hospitals, Clinics, & Research	■	■	■	■	■	■	■	■	■		■	■	■	■	■	■	■	
Pharmaceuticals	■	■	■	■	■	■	■	■	■		■	■	■	■		■	■	
Regulatory Compliance	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Semiconductor	■	■	■	■	■	■	■	■	■				■	■	■	■	■	
Stem Cell Research	■	■	■	■	■	■	■	■	■		■			■	■	■	■	
Air, Land & Sea Shipping			■	■	■	■	■	■	■	■	■	■		■	■	■	■	■
Cryogenic Shipping & Storage				■														
Temperature & Humidity Mapping											■	■						
Temperature Validation	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

MARATHON PRODUCTS

The EDL-Net™

Remote temperature data logging via Ethernet connectivity for Hospitals, Laboratories and Research Organizations, with Alarm Notification via cell phone or e-mail.

Use our Ethernet enabled EDL-Net data loggers to enjoy real-time temperature data collection and monitoring at anytime, from anywhere in the world over a local network or via an internet connection. Leverage your existing LAN or WiFi network for monitoring temperature data. Marathon's Ethernet enabled loggers will allow you to monitor multiple floors, rooms, buildings, and locations simultaneously.
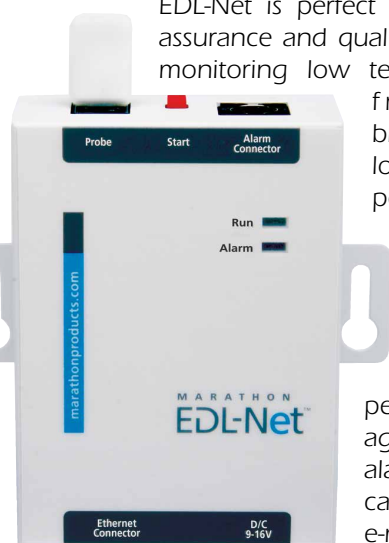
In the lab, our NIST-calibrated and traceable thermistor probes have been tested sterile and can be used in incubators. In hospitals, clinics, pharmacies and blood banks, the EDL-Net is perfect for quality assurance and quality control, monitoring low temperature freezers, blood storage, vaccines and biologics via state-of-the-art high-performance temperature sensors and data logging.

Our advanced MDAS-Pro software can be programmed by the user to detect high and low temperature excursions, power outages, trigger audible and visible alarms as well as send alert notifications via cell phone and/or e-mail. Marathon's 21 CFR: Part 11 compliant software, with secure supervisory controls, will allow database creations for products, part numbers, dates, locations, identification numbers, statistical analysis, and more.

The EDL-Net quickly and reliably collects temperature data, documents standards compliance, and provides proof for certification.

Please visit our web site at http://www.marathonproducts.com for more information.

BENEFITS:

- Alarm notifications via e-mail, phone, pager or SMS
- Multiple Alarm options: local and remote
- Interchangeable sensors: -80°C to 72°C
- Precision temperature data capture
- Powerful software with real time display
- Audit Trails for Regulatory Control
- 8K to 64K EEPROM memory options
- Power outage detection capabilities

EDL-Net SPECIFICATIONS

Temperature Range:	-40°C to 72°C / -40°F to 160°F -80°C to 30°C / -112°F to 70°F
Temperature Accuracy:	0.2°C at center, 0.5°C at extremes
Measurement Intervals:	2 second increments to months
No. of Measurements:	8,000 to 64,000 EEPROM memory options
Start:	Remote start via software or push button
Alarm Programming:	High and low alarm limits set by temperature and time
Alarm Modes:	Continuous or cumulative with LED Indicators:
Alarm Notifications:	Alert notification to e-mail, phone, pager and SMS
Alarm Reset:	Push button—manually or by software
Power Source:	User replaceable internal 3V lithium battery for data logging function. Battery backup—Failsafe prevents data loss.
Accessories:	• Optional flat cable probes • External audible alarm boxes • Phone Dialer

Physical Properties

Width	3.11 in. / 79.0 mm
Height	3.60 in. / 91.4 mm
Depth	1.11 in. / 28.3 mm
Weight:	8 oz. / 230 grams

For FDA, GxP, JCAHO, CAP, HFAP, CARF, CHAP, ACHC, URAC, HQAA, AABB and Regulatory Compliance

CERTIFIED SAFE STORAGE
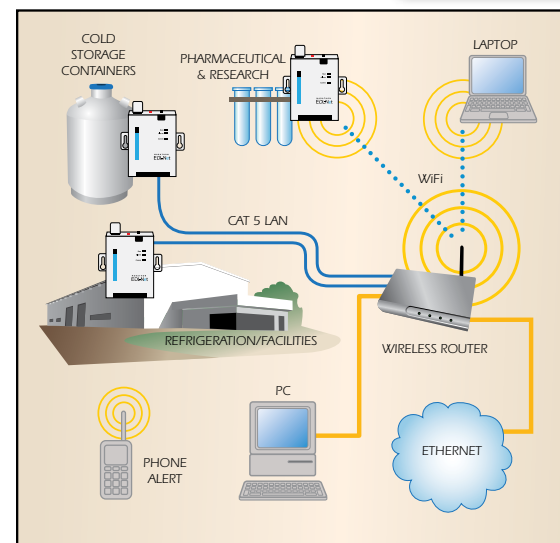
MARATHON PRODUCTS

EDL-RF2™

Remote Temperature Facilities Management for Hospitals, Laboratories and Research Organizations using Wireless Sensor Connectivity.

Using 900 MHz RF (Radio Frequency) connectivity, EDL-RF2 can leverage a wireless RF connection to monitor and document temperature data in real time, from anywhere in the world. Avoid expensive installation costs for managing temperature data. Marathon's Ethernet-enabled base stations will allow you to monitor multiple floors, buildings, and refrigeration rooms simultaneously and provides alarm notification via phone or e-mail.
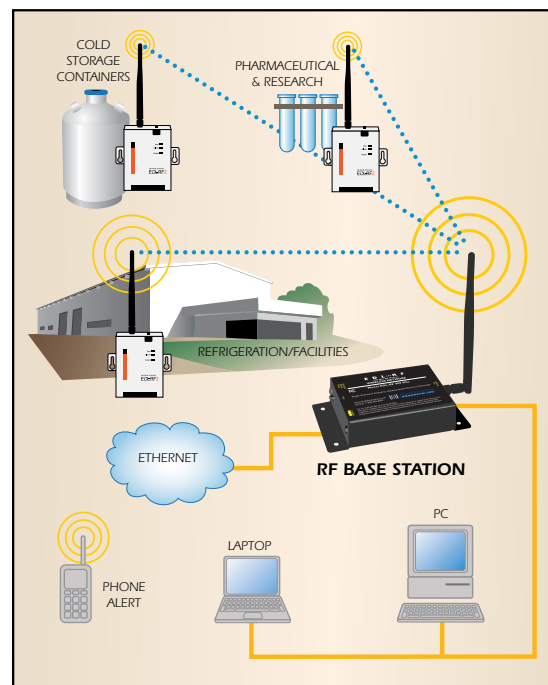
BENEFITS:

- Alarm notifications via e-mail, phone, pager and SMS
- Multiple Alarm options: local and remote
- Interchangeable sensors: -80°C to 72°C
- Precision temperature data capture
- Powerful software with real time display
- Audit Trails for Regulatory Control
- 8K to 64K EEPROM memory options
- Power outage detection capabilities

With 256-bit AES Encryption the EDL-RF-2 is specially suited for hospitals, clinics, laboratories and research organizations. With expanded individual sensor memory and back-up batteries the EDL-RF2 protects against any data loss caused by a network interruption, computer malfunction or other system failure. This makes the EDL-RF2 the most reliable and robust wireless temperature logger on the market today.

In the lab, our NIST-calibrated and traceable thermistor probes have been tested sterile and can be used in incubators. EDL-RF2 is the perfect tool for quality assurance and quality control, for monitoring low temperature freezers, blood storage, vaccines and biologics. The EDL-RF2 is ideal for quickly and reliably collecting temperature data in real time, documenting standards compliance, and proof for certification.

CERTIFIED SAFE STORAGE

EDL-RF2 SPECIFICATIONS

Temperature Range:	-40°C to 72°C / -40°F to 160°F -80°C to 30°C / -112°F to 70°F
Temperature Accuracy:	0.2°C at center, 0.5°C at extremes
Measurement Intervals:	2 second increments to months
No. Measurements:	8,000 to 64,000 EEPROM memory options
Range:	Indoor urban environments 900—2,000 ft. and more with relays. Line of sight 2 miles with high-gain antennas
Start:	Remote start via software or push button
Alarm Programming:	High and low alarm limits set by temperature and time
Alarm Modes:	Continuous or cumulative with LED Indicators:
Alarm Notifications:	Alert notification to e-mail, phone, pager and SMS
Alarm Reset:	Push button—manually or by software
Power Source:	Adaptor to A/C for wireless connectivity and user replaceable internal 3V lithium battery for data logging function. Battery backup—Failsafe prevents data loss.
Base Station:	ISM 900 MHz operating frequency with 256–bit AES Encryption. Powerful transceiver allowing 2-way communication and reliable long-range data integrity
Accessories:	• Optional flat cable probes • External audible alarm boxes • Wireless and Ethernet local Base Stations • Relays for extending wireless communication • Phone Dialer

Physical properties

Width	3.11 in. / 79.0 mm
Height	3.6 in. / 91.4 mm
Depth	0.97 in. / 24.8 mm
Weight:	9 oz. / 250 grams

For FDA, GxP, JCAHO, CAP, HFAP, CARF, CHAP, ACHC, URAC, HQAA, AABB and Regulatory Compliance

COLD STORAGE CONTAINERS

PHARMACEUTICAL & RESEARCH

REFRIGERATION/FACILITIES

ETHERNET

RF BASE STATION

PC

LAPTOP

PHONE ALERT

MARATHON PRODUCTS

# EDL-M5™

Rugged Remote Temperature Management for Facilities, Warehouses, Trucking, and Exterior Sites "Wireless Sensor Connectivity"

The EDL-M5 has a powerful 2-way 900MHz radio for long range wireless connectivity and is ideal for remotely monitoring multiple buildings, trucks, warehouses and sites simultaneously. With expanded individual sensor memory and back-up batteries the EDL-M5 protects against any data loss caused by a network interruption, computer malfunction or other system failure. This makes the EDL-M5 the most durable, reliable, and robust wireless temperature logger on the market today. With 256-bit AES Encryption the EDL-M5 can be securely accessed at anytime from anywhere over a local network or via the internet.
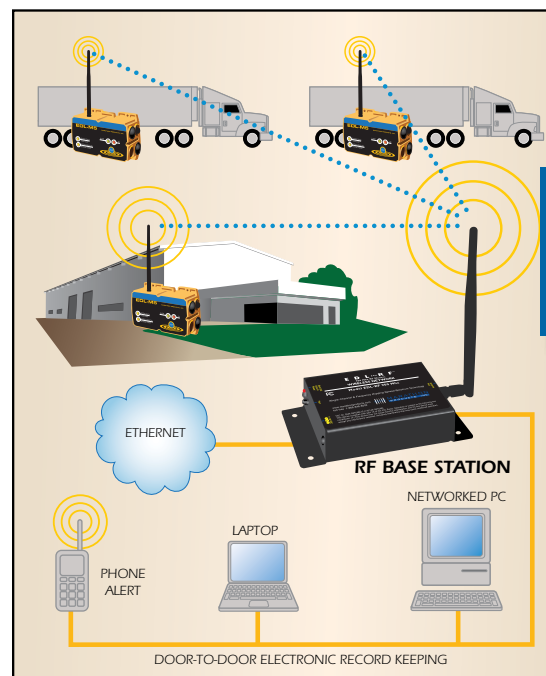
In the lab, our NIST-calibrated and traceable thermistor probes have been tested sterile and can be used in most clean environments. EDL-M5 is perfect for quality assurance and quality control, for monitoring low temperature facilities, storage, warehouses, and trucking via state-of-the-art high performance temperature sensors and data logging.

The EDL-M5 is an ideal tool for reliably collecting, recording and storing temperature measurement data in real time, documenting standards compliance, and as proof for certification.
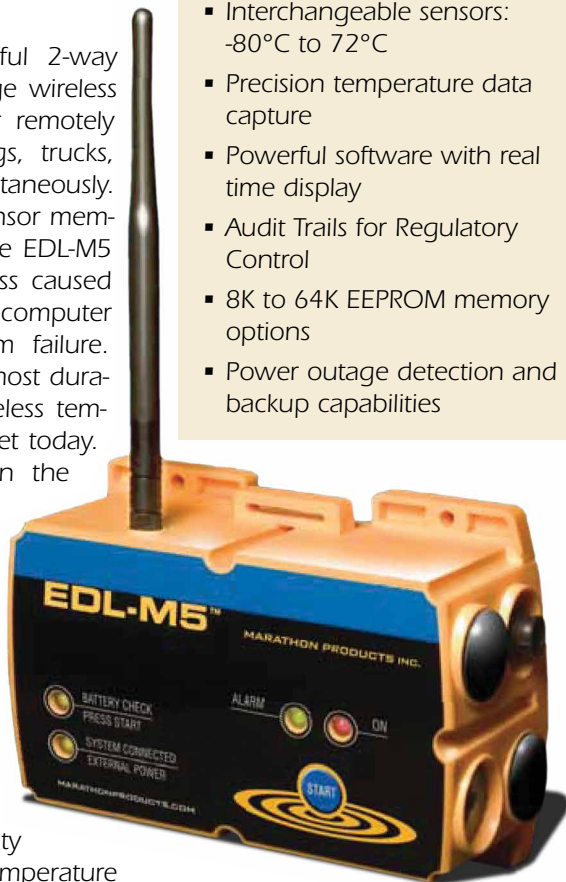
BENEFITS:

- Alarm notifications via cell e-mail, phone, SMS or pager
- Multiple Alarm options: local and remote
- Interchangeable sensors: -80°C to 72°C
- Precision temperature data capture
- Powerful software with real time display
- Audit Trails for Regulatory Control
- 8K to 64K EEPROM memory options
- Power outage detection and backup capabilities

CERTIFIED SAFE STORAGE

EDL-M5 SPECIFICATIONS

Temperature Range	−40°C to 72°C / −40°F to 160°F −80 C to 30 C / −112°F to 86°F)
Temperature Accuracy	0.2°C at center, 0.5°C at extremes
Temperature Sensor	NIST-traceable precision thermistor
Indicators	Battery Check, System Connected, Alarm, On
Range	Up to 2000' indoor/urban range Outdoor RF line of sight range with high gain antenna 20 miles
Start	Push button and remote start via software
Alarm	High/low alarm limits set by temperature and time limits
Alarm Modes	Continuous or cumulative with LED indicators
User notifications	Alarm conditions on screen via e-mail and cell phone
Power Source	Four D cells alkaline. Battery backup—Failsafe prevents data loss.
Accessories	• Optional probes • External battery connectors to outside power supply • Adaptor to AC outlets • External relays for greater distance, • Ethernet connectors.

Physical properties

Width	6.32 in. / 16.05 cm
Height	4.88 in. / 12.40 cm
Depth	2.89 in. / 7.34 cm
Weight:	2 lbs 8.6 oz. / 1.27 kilograms (with 4 D cells)

For FDA, GxP, JCAHO, CAP, HFAP, CARF, CHAP, ACHC, URAC, HQAA, AABB and Regulatory Compliance

ETHERNET

RF BASE STATION

NETWORKED PC

LAPTOP

PHONE ALERT

DOOR-TO-DOOR ELECTRONIC RECORD KEEPING

MARATHON PRODUCTS

microDL-200C™

Cryogenic Temperature Data Logger

SAFE CERTIFIED SHIPPING

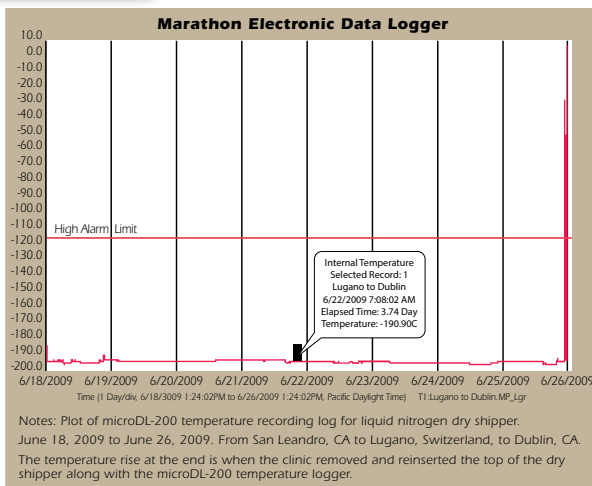THERMAL DATA LOGGER - OPERATING RANGE -200°C to 72°C.

These high-precision laboratory-grade products will operate up to 3 years without a battery change. View current and stored data, prior to downloading to a computer, by scrolling through the screen displays, including high, low, elapsed time, alarm excursions and Mean Kinetic Temperature.

For FDA, GxP, JCAHO, CAP, HFAP, CARF, CHAP, ACHC, URAC, HQAA, AABB and Regulatory Compliance

Monitor and validate your critical stem cells and biologics during transportation and storage with our micro display loggers. In conjunction with our MDAS-Pro or 21CFR compliant software, the microDL-200°C will document your liquid nitrogen stored products for your GxP and FDA regulated environment. 21CFR compliant software is available with full database capabilities

Find out and document what you've been missing!

Marathon Electronic Data Logger

High Alarm Limit

Internal Temperature
Selected Record: 1
Lugano to Dublin
6/22/2009 7:08:02 AM
Elapsed Time: 3.74 Day
Temperature: -190.90C

Time (1 Day/div, 6/18/3009 1:24:02PM to 6/26/2009 1:24:02PM, Pacific Daylight Time)   T1:Lugano to Dublin.MP_Lgr

Notes: Plot of microDL-200 temperature recording log for liquid nitrogen dry shipper. June 18, 2009 to June 26, 2009. From San Leandro, CA to Lugano, Switzerland, to Dublin, CA. The temperature rise at the end is when the clinic removed and reinserted the top of the dry shipper along with the microDL-200 temperature logger.

Standard Stainless Steel Probe
Length: 24 inches / 61.0 cm
Diameter: 3.0 mm

Flexible Teflon Probe with Stainless Steel Tip
Length: 20 inches / 50.8 cm
Diameter: 3.5 mm

Probes are also available in custom lengths.

microDL-200C SPECIFICATIONS

EEPROM Memory	32K and 31,855 samples	
Temperature Range	-200°C to 72°C / -328°F to 162°F	
Temperature Accuracy	At zero	±0.5°C at 20°C
	Extremes	±1.0°C at -200°C
Measurement Intervals	User programmable from 2 seconds to 2 months	
Power Source	Two 3 volt lithium coin cells. 10 year shelf life with approx. 3 year continuous operating mode.	
Alarm Limits	High & Low Alarms (ALR) set by temperature and time	
Features:	Water Resistant - Splash Proof	
Reader Station	USB Port Interface	
Warranty	60 days	

Physical Properties

microDL-200C	Weight	1 oz. / 30g.
	Height	0.75 in. / 1.25 cm
	Diameter	1.25 in. / 25.20 cm
Stainless Steel Probe	Length	24 in. / 61 cm
	Outside Diameter	0.136 in. / 3.49 mm
	Inside Diameter	0.099 in. / 2.5 mm
Flexible Teflon Probe with Stainless Steel Tip		
	Total Length	20 in. / 50.8 cm
	Stainless Steel Tip	6 in. / 15.24 cm
	Outside Diameter	0.136 in. / 3.49 mm
	Inside Diameter	0.099 in. / 2.5 mm
Custom Probe Lengths	Available	

MARATHON PRODUCTS

microDL™

For all your FDA shipments

The microDL is a revolutionary multi-use programmable data logger for displaying and recording temperatures for shipping and storage applications. Now all of your critical biologics, cancer drugs and vaccines can be immediately temperature qualified with our display technologies. Small, yet so powerful, this investigative temperature-collecting device is your answer for regulatory compliance.

With optional memory sizes of 4K, 8K, 32K and 64K, and accuracy and resolution of 0.2C, our digital display technology gives you on-the-spot verification that the internal temperatures of your packaged contents meets specifications prior to shipment. Research laboratories and physicians can now immediately validate temperature information for clinical studies and patient administration.

Alarm conditions can be programmed for start/delay, high/low, continuous or cumulative time over alarm conditions. Push the start button to view critical temperature information upon arrival.

For FDA, GxP, JCAHO, CAP, HFAP, CARF, CHAP, ACHC, URAC, HQAA, AABB and Regulatory Compliance

Pressing the start button will display the following information: current temperature, elapsed time in days, MKT (mean kinetic temperature), high temperature, low temperature, alarm time over high temperature, alarm time below low temperature and alarm conditions.

The microDL is a state-of-the-art, water-resistant data logger with non-volatile memory for data retention. For a complete analytical solution, simply download all of its data to your PC with the proprietary microDL USB Reader and MDAS-Pro software. Marathon's easy-to-use software is available for PCs running Microsoft Windows 2000, XP, Vista and Windows 7. 21CFR compliant software is available with full database capabilities

Red micro-DL™
Plastic or 404 Stainless Steel back.
Memory capacity from 4k to 8k

Silver micro-DL
Increased memory from 32k to 64k. 404 Stainless Steel back.

Micro Probe

Standard Stainless Steel Probe

Polyester Film-Flat Flex Probe

Flexible Teflon Probe with Stainless Steel Tip

Detachable-Flat Flex Probe

microDL SPECIFICATIONS

Measurement Intervals	User programmable from 2 seconds to months
Power Source	Two 3 volt lithium coin cells. 10 year shelf life with approx. 3 year continuous operating mode.
Alarm Limits	High & Low Alarms set by temperature and time
Size: Diameter:	1.25 in. / 25.20 cm
Height:	0.75 in. / 1.25 cm
Water Resistant - Splash Proof	
Reader Station	USB 1.1 Port Interface
Software Compatibility	Windows 2000, XP, Vista, & 7

Standard Stainless Steel Probe
Length 24 in. / 61 cm, or custom lengths
Diameter Outside: 0.136 in. / 3.49 mm
Inside: 0.099 in. / 2.5 mm

Micro Probe
Length 0.278 in. / 7.06 cm, or custom lengths
Diameter 0.07 in. / 1.8 mm

Flat Flex
Length 20 in. / 50.6 cm, or custom lengths
Width 0.3 in. / 0.76 cm

Detachable Flat Flex
Length Custom Lengths
Width 0.3 in. / 0.76 cm

Flexible Teflon Probe with Stainless Steel Tip
Total Length 20 in. / 50.8 cm, or custom lengths
Stainless Steel Tip 6 in. / 15.24 cm
Diameter Outside: 0.136 in. / 3.49 mm
Inside: 0.099 in. / 2.5 mm

SAFE CERTIFIED SHIPPING

Model number	mdl4	mdl8	mdl32	mdl64
EEPROM Memory	4K	8K	32K	64K (var.)
Temperature Range				
Low to High	-10°C to 72°C	-40°C to 72°C	-40°C to 72°C	-40°C to 72°C
Low to High	14°F to 161°F	-40°F to 161°F	-40°F to 161°F	-40°F to 161°F
Temperature Accuracy				
At zero	0.5°C / 1.0°F	0.2°C / 0.4°F	0.2°C / 0.4°F	0.2°C / 0.4°F
Extremes	1.0°C / 2.0°F	0.5°C / 1.0°F	0.5°C / 1.0°F	0.5°C / 1.0°F
Features				
Stainless steel backs	No	Yes	Yes	Yes
Variable memory	No	No	No	Yes
Continuous memory	No	No	Yes	Yes
Weight	8 g / 0.3 oz.	17 g / 0.6 oz.	17 g / 0.6 oz.	17 g / 0.6 oz.
Mean Kinetic Temp.	No	No	Yes	Yes
Warranty	60 days	12 months	12 months	24 months

MARATHON PRODUCTS

microDL-80C™

Record and Log Ultra-low Temperatures in Shipments, Refrigerators or Freezers

Our multi-use microDL-80C digital display technology now operates at ultra-low temperatures of -80C (-112F). The compact, coin-sized unit with the external thermistor probe can now help you verify that internal temperatures of your dry ice packages meet specifications prior to acceptance of your shipment. Simply push the start button to view critical temperature information upon arrivals. With optional memory sizes of 8k, 32k and 64k, accuracy and resolution of 0.2C , and a one meter long flexible ribbon probe this product is the answer for data logging ultra low temperature freezers or dry ice shipments.

Flexible - Pressing the button will display the following visual information: whether or not the logger is Recording, the Current Temperature, Elapsed Time in Days, MKT (Mean Kinetic Temperature), High Temperature, Low Temperature, Alarm Time Over High Temperature, Alarm Time Below Low Temperature and Alarm Conditions. Customizable settings include: Delay to Start, Stop, Elapsed Time as well as customizable sampling time intervals. Also available: User Descriptions for initialization and for downloading the data.

> **For FDA, GxP, JCAHO, CAP, HFAP, CARF, CHAP, ACHC, URAC, HQAA, AABB and Regulatory Compliance**

Visual Alarms - All our data loggers have the ability to program alarm limits. Should the temperature reach levels outside these limits, the digital display will show a notice until reset by the user.

Computer Ready - You can download the recording to your PC and plot the data, at any time. Our proprietary microDL USB Reader is needed to download temperature information to a computer. Marathon's easy-to-use MDAS-Pro software is available for PCs running Microsoft Windows 2000, XP, Vista and Windows 7. 21CFR compliant software is available with full database capabilities

Micro Probe

Standard Stainless Steel Probe

Polyester Film-Flat Flex Probe

Flexible Teflon Probe with Stainless Steel Tip

Detachable-Flat Flex Probe

SAFE CERTIFIED SHIPPING

microDL SPECIFICATIONS

|	
Measurement Intervals	User programmable from 2 seconds to months
Power Source	Two 3 volt lithium coin cells. 10 year shelf life with approx. 3 year continuous operating mode.
Alarm Limits	High & Low Alarms set by temperature and time
Size: Diameter:	1.25 in. / 25.20 cm
Height:	0.75 in. / 1.25 cm
Water Resistant - Splash Proof	
Reader Station	USB 1.1 Port Interface
Software Compatibility	Windows 2000, XP, Vista, & 7
Standard Stainless Steel Probe	
Length	24 in. / 61 cm, or custom lengths
Diameter	Outside: 0.136 in. / 3.49 mm Inside: 0.099 in. / 2.5 mm
Micro Probe	
Length	0.278 in. / 7.06 cm, or custom lengths
Diameter	0.07 in. / 1.8 mm
Flat Flex	
Length	20 in. / 50.6 cm, or custom lengths
Width	0.3 in. / 0.76 cm
Detachable Flat Flex	
Length	Custom Lengths
Width	0.3 in. / 0.76 cm
Flexible Teflon Probe with Stainless Steel Tip	
Total Length	20 in. / 50.8 cm, or custom lengths
Stainless Steel Tip	6 in. / 15.24 cm
Diameter	Outside: 0.136 in. / 3.49 mm Inside: 0.099 in. / 2.5 mm

Model number	mdl8	mdl32	mdl64
EEPROM Memory	8K	32K	64K (variable)
Temperature Range			
Low to High	-80°C to 30°C	-80°C to 30°C	-80°C to 30°C
Low to High	-112°F to 86°F	-112°F to 86°F	-112°F to 86°F
Temperature Accuracy			
At zero	0.2°C / 0.4°F	0.2°C / 0.4°F	0.2°C / 0.4°F
Extremes	0.5°C / 1.0°F	0.5°C / 1.0°F	0.5°C / 1.0°F
Features			
Stainless steel backs	Yes	Yes	Yes
Variable memory	No	No	Yes
Continuous memory	Yes	Yes	Yes
Weight	17 g / 0.6 oz.	17 g / 0.6 oz.	17 g / 0.6 oz.
Mean Kinetic Temperature	Yes	Yes	Yes
Warranty	12 months	12 months	24 months

MARATHON PRODUCTS

edI-CO2™

Extreme low temperature
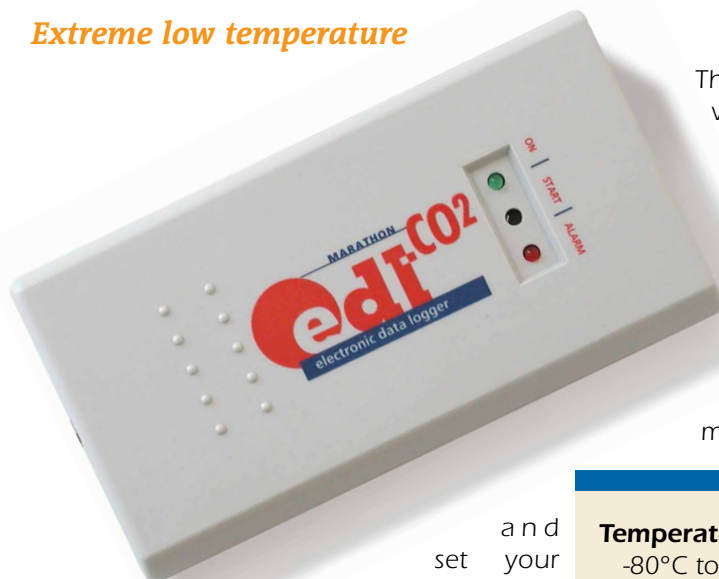
The edI-CO2 is the world's first compact multi-use program-mable data logger capable of oper-ating at -81C while in direct contact with "dry ice" for extended environmental monitoring. Program

SAFE CERTIFIED SHIPPING

a n d set your data logger for up to 6 months and monitor critical applica-tions requiring low temperature environ-ments. Laboratory freezers, blood banks and research laborato-ries can now benefit from our advanced cir-cuits and latest software enabling technologies.

Temperature Range
-80°C to 30°C
(-112°F to 86°F)

Temperature Accuracy
(NIST traceable)
±0.2°C at zero degrees
±2.5°C at extremes

Measurement intervals
2 seconds to months

Number of measurements
7,600 samples

The internal software provides the following features: start time, stop time, intervals, zoom, statistical analysis, descrip-tions for special instructions, measurement data and after the fact report generation options. User selectable features also include language conversions from English to: Japanese, French, German, Spanish, and Portuguese.

To start the recorder, simply press the start button!

edI-CO2 SPECIFICATIONS

Memory EEPROM:	8k
Temperature Range:	-80°C to 30°C / -113°F to 86°F
Temperature Accuracy:	
At zero:	±0.2°C / ±0.4°F
At extremes:	±2.5°C / ±4.6°F
Measurement Interval:	Programmable from 2 seconds to months
Temperature Sensor:	NIST-traceable Precision Thermistor
Alarm Limits:	LED indicator. High and Low Alarm set by temperature and time
Internal Clock Accuracy:	Better than 2 minutes per month
Indicators:	Power and Alarm
Computer Interface:	Serial Port RS232 Cable, USB Converter
Internal Software Provides:	Start time, Interval, User description, Alarm values, Recording status, Measurement data, Software version, Serial number, Model type
Power Source:	Two AA 3.6 Volt Lithium Batteries. 2 Year Shelf Life – Battery is rated at six months, if used continuously at -80°C
Accessories:	• External Probes
Physical properties	
Width	2.65 inch / 6.73 cm
Length	5.06 inch / 12.85 cm
Depth	0.66 inch / 1.69 cm
Weight:	3.7 oz. / 106 grams

For FDA, GxP, JCAHO, CAP, HFAP, CARF, CHAP, ACHC, URAC, HQAA, AABB and Regulatory Compliance

MARATHON PRODUCTS

General Purpose Data Loggers

Get the facts!

These multi-use data loggers are a low-cost and effective solution for temperature monitoring of refrigerated vaccines, biological material, chemicals, pharmaceuticals and documenting the transportation of fruits and vegetables. All units share the same basic palm-sized design. Optional probes are available but not required.

The internal thermistor accurately records time and temperatures for user-selectable readings in Celsius, Fahrenheit and Kelvin. The internal software is user programmable and provides the following features: start time delay, sampling intervals, high and low alarm values, recording status, and measurement data.

All our data loggers have the ability to program alarm limits. Should the temperature reach levels outside these limits, the onboard red LED will light until reset by the user. Operation is as easy as pressing the Start button on the recorder.

The 2c\temp is our entry level data logger that offers the best value against all competition. You won't find a better product with these features.

The echo has the same specifications as the 2c\temp, but includes a built-in audible alarm with a very clear electronic sound which can be heard even under noisy circumstances.

The 3c\temp is a mid-range data logger with a generous 8k memory and increased accuracy over the 2c\temp and echo. An excellent general purpose data logger.

Our proprietary IC-9P serial cable is needed to download temperature information to a computer. We also offer a USB to Serial Port adaptor.

Temperature Range
-29°C to 72°C
(-20°F to 160°F)

Temperature Accuracy
(NIST traceable)
±0.2°C at zero degrees
±2.0°C at extremes

Measurement intervals
2 seconds to months

Memory EEPROM, Storage
4k & 8k memory,

Number of measurements
Up to 7,600 samples

GENERAL PURPOSE DATA LOGGERS SPECIFICATIONS

	2c\temp & echo	3c\temp
Memory EEPROM, Storage:	4k,	8k
Temperature Ranges:	-29°C to 72°C / -20°F to 160°F	-29°C to 72°C / -20°F to 160°F
Temperature Accuracy:	0.5°C at 20°C, 1.0°C at extremes 0.9°F at 68°F, 2.0°F at extremes	0.2°C at 20°C, 0.5°C at extremes 0.4°F at 68°F, 1.0°F at extremes
Temperature Resolution:	0.5°C / 0.9°F	0.2°C / 0.4°F
Warranty:	3 months	12 months
Features:		
Measurement Intervals:	Programmable from 2 seconds to months	
Temperature Sensor:	NIST-traceable Precision Thermistor	
High and Low Alarm Limits:	LED indicator and audible alarm set by temperature and time	
Internal Clock Accuracy:	Better than 2 minutes per month	
Computer Interface:	Serial Port RS232 Cable, USB Converter	
Internal Software Provides:	Start time, Interval, User description, Alarm values, Recording status, Measurement data, Software version, Serial number, Model type	
Power Source:	Two 3.6 Volt Lithium Battery with a 12 month shelf life. Battery is rated at six months, if used continuously at -80C	
CE Certified:	CE Marking File	
Accessories	FLAT-FLEX probe	
Physical properties		
Width	2.65 in. / 6.73 cm	
Length	5.06 in. / 12.85 cm	
Depth	0.66 in. / 1.69 cm	
Weight:	3.7 oz. / 106 grams	

For FDA, GxP, JCAHO, CAP, HFAP, CARF, CHAP, ACHC, URAC, HQAA, AABB and Regulatory Compliance

marathon echo electronic temperature logger
on | start | alarm

3 marathon c\temp electronic temperature logger
on | start | alarm

2 c\temp marathon electronic temperature logger
on | start | alarm

SAFE CERTIFIED SHIPPING

MARATHON PRODUCTS

2c\temp-USB™
Data Loggers

Waterproof Temperature Data logger with USB Connectivity!

The 2c\temp-USB multi-use data logger is a cost-effective solution for temperature monitoring of refrigerated vaccines, biological material, chemicals, pharmaceuticals and documenting the transportation of fruits and vegetables. Its convenient palm-sized design lets it fit into tight quarters.

It is a mid-range data logger with a generous 8k memory and a 3 year battery life. With increased accuracy over the 2c\temp and echo, this is an excellent general purpose data logger.

Functions include: The internal thermistor accurately records time and temperatures for user-selectable readings in Celsius or Fahrenheit. The internal software is user programmable and provides the following features: start time delay, sampling intervals, high and low alarm values, recording status, and measurement data.

Visual alarms: It features the ability to program alarm limits. Should the temperature reach levels outside these limits, the on-board red LED will light until reset by the user. Operation is as easy as pressing the Start button on the recorder.
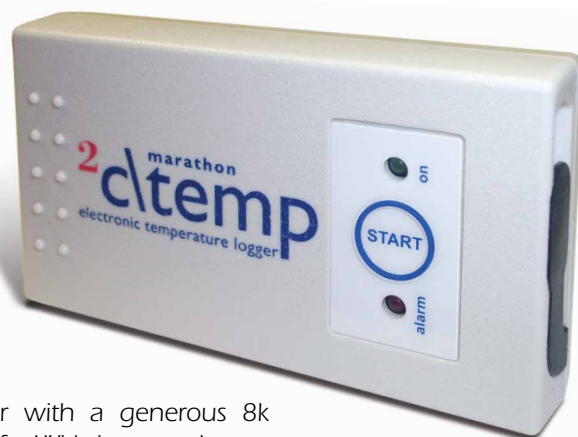
Temperature Range
-29° C to +72° C
-20° F to +160° F

Temperature Accuracy
(NIST traceable)
±0.2°C at zero degrees
±2.0°C at extremes

Measurement intervals
2 seconds to weeks

Memory EEPROM, Storage
8k memory,

Number of measurements
8k memory
(7680 data points)

Computer ready: MaxiThermal software is used to read the logger. It runs on Windows 2000, XP, Vista, & 7. To download recorded information, simply plug the unit into the standard USB port of your PC. The MaxiThermal software and USB cable are available as separate accessory items.

2c\temp-USB DATA LOGGER SPECIFICATIONS

Memory EEPROM, Storage:	8k
Temperature Range:	-29° C to +72° C / -20° F to +160° F
Temperature Accuracy:	0.2°C at 20°C, 0.5°C at extremes / 0.4°F at 68°F, 1.0°F at extremes
Temperature Resolution:	0.2°C / 0.4°F
Measurement Intervals:	Programmable from 2 seconds to weeks. Examples: 4 days = 0 min. 43 sec. 7 days = 1 min. 15 sec. 16 days = 2 min. 50 sec. 30 days = 5 min. 19 sec. 60 days = 10 min. 38 sec. 90 days = 15 min. 57 sec. 365 days = 1 hr. 4 min. 39 sec.
Temperature Sensor:	NIST traceable Precision Thermistor
High and Low Alarm Limits:	LED indicator and audible alarm set by temperature and time
Internal Clock Accuracy:	Better than 2 minutes per month
Computer Interface:	Mini USB Connector
Internal Software Provides:	Start time, Interval, User description, Alarm values, Recording status, Measurement data, Software version, Serial number, Model type
Power Source:	Two 3.6 Volt Lithium Battery with a 3 year battery life and 5 year shelf life. Battery is rated at six months, if used continuously at -29C
Size:	9 cm(l) x 5 cm(w) x 2 cm (h) / 3.5 in.(l) x 2 in (w) x 0.8 in.(h)
Weight:	106 g / 3.7 oz.)
Warranty:	12 months
CE Certified:	CE Marking File

For FDA, GxP, JCAHO, CAP, HFAP, CARF, CHAP, ACHC, URAC, HQAA, AABB and Regulatory Compliance

SAFE SHIPPING CERTIFIED

MARATHON PRODUCTS

2C\TEMP-RH™
Data Loggers

Get Waterproof Temperature & Humidity with Digital Display and USB Connectivity.

The 2C\TEMP-RH multi-use data logger is a cost-effective solution for temperature monitoring of refrigerated vaccines, biological material, chemicals, pharmaceuticals and documenting the transportation of fruits and vegetables.

The 2C\TEMP-RH is our top-of-the-line data logger with dual 8k memory banks for temperature and humidity, 0.2°C midpoint temperature accuracy and resolution, and 3% midpoint humidity accuracy. This is a must have device if you work in a laboratory or metrology department.

Functions include: The convenient palm-sized design has a digital display that provides real-time viewing of all temperature and humidity information including min/max temperature and current humidity values. One quick look provides instant product acceptance or "quarantine" decisions. The internal thermistor accurately records time and temperatures for user-selectable readings in Celsius, or Fahrenheit. The internal software is user programmable and provides the following features: start time delay, sampling intervals, high and low alarm values, recording status, and measurement data.

Visual Alarms: All our data loggers have the ability to program alarm limits. Should the temperature reach levels outside these limits,

the onboard red LED will light until reset by the user.

Computer Ready: Marathon's easy-to-use MaxiThermal software is available for Microsoft Windows 2000, XP, Vista & 7. Simply plug the unit into a standard USB port on your PC. The MaxiThermal software and USB cable are available as separate accessory items.

Temperature Range
-29° C to +72° C
-20° F to +160° F

Temperature Accuracy
(NIST traceable)
±0.2°C from 0° to 10°C
±0.5°C at extremes

Memory EEPROM, Storage
2 banks of 8k memory
(7680 data points)

Humidity Range
0% to 100%

Humidity Accuracy
(NIST tracable)
±3% from 25% to 75%
±5% at extremes

2C\TEMP-RH DATA LOGGER SPECIFICATIONS

Memory EEPROM, Storage:	2 banks of 8k memory
Temperature Range:	-29° C to +72° C / -20° F to +160° F
Temperature Accuracy:	0.2°C from 0° to 10°C, 0.5°C at extremes / 0.4°F from 32° to 50°F, 0.9°F at extremes
Humidity Range:	0% to 100%
Humidity Accuracy:	±3% from 25% to 75%, ±5% at extremes
Temperature Resolution:	0.2°C / 0.4°F
Measurement Intervals:	Programmable from 2 seconds to months. Examples: 4 days = 0 min. 43 sec. 7 days = 1 min. 15 sec. 16 days = 2 min. 50 sec. 30 days = 5 min. 19 sec. 60 days = 10 min. 38 sec. 90 days = 15 min. 57 sec. 365 days = 1 hr. 4 min. 39 sec.
Temperature Sensor:	NIST-traceable Precision Thermistor
High and Low Alarm Limits:	LED indicator and audible alarm set by temperature and time
Internal Clock Accuracy:	Better than 2 minutes per month
Computer Interface:	Mini USB Connector
Internal Software Provides:	Start time, Interval, User description, Alarm values, Recording status, Measurement data, Software version, Serial number, Model type
Power Source: life and	One CR2450 Lithium Battery with a 2 year operating a 5 year shelf life.
Size:	9 cm (l) x 5 cm (w) x 2.8 cm (h) / 3.5 in.(l) x 1.96 in.(w) x .1.1 in.(h)
Weight:	106 g / 3.7 oz.
Warranty:	12 months
CE Certified:	CE Marking File

For FDA, GxP, JCAHO, CAP, HFAP, CARF, CHAP, ACHC, URAC, HQAA, AABB and Regulatory Compliance

MARATHON PRODUCTS

ezLogger™

Temperature & Humidity Data Logger

- USB Connection to PC
- Configuration & Management Software
- User-selectable alarm thresholds
- Measurement intervals from 10 seconds to over 18 hours
- 21CFR: Part 11 software is available
- LEDs indicate logger status
- IP67 protection
- RoHS compliant

This data logger measures and stores up to 16,382 relative humidity and 16,382 temperature readings from 0 to 100%RH and -35°C to 80°C (-31°C to 176°F) measurement ranges. The user can easily set up the logging rate and start time, and download the stored data by plugging the module straight into a PC's USB port and running the MDAS-Pro software under Windows 2000, XP, Vista or Windows 7 (32-bit only). Relative humidity, temperature and dewpoint (the temperature at which water vapor present in the air begins to condense) data can then be graphed, printed and exported to other applications.

The data logger is supplied complete with a long-life lithium battery, which can typically allow logging for a year. Status indication is via flashing red and green LEDs. The logger is protected against ingress from water and dust to IP67 standard when the plastic cap and seal are fitted.

MDAS-Pro is the configuration and graphing software.

For FDA, GxP, JCAHO, CAP, HFAP, CARF, CHAP, ACHC, URAC, HQAA, AABB and Regulatory Compliance

Example: ezLogger Humidity-Temperature Plot

Marathon Electronic EZ Logger
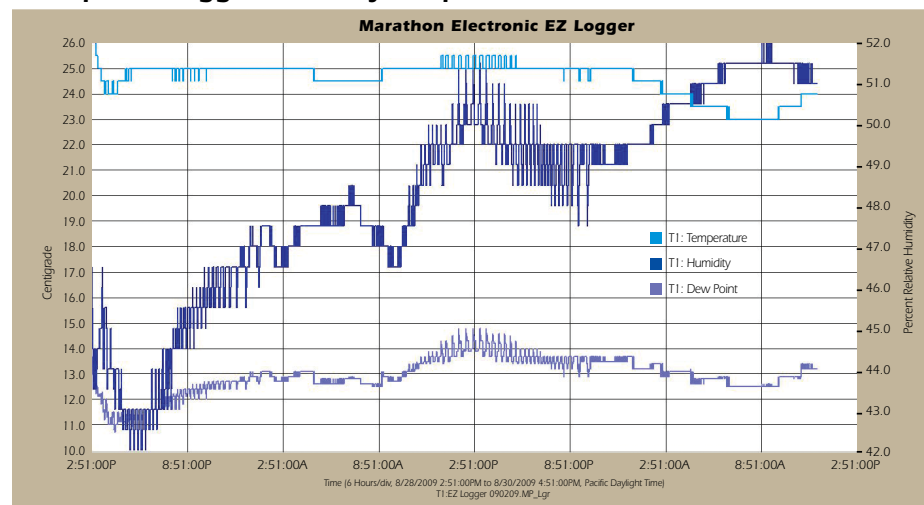
ezLogger SPECIFICATIONS		Min.	Typ.	Max.
Relative Humidity	Measurement range %RH	0		100
	Repeatability (short term) %RH		±0.1	
	Accuracy (overall error) (20-80%RH) %RH		±3.0**	
	Internal resolution %RH		0.5	
	Long term stability %RH		0.5	
Temperature	Measurement range	-35°C / -31°F		80°C / 176°F
	Repeatability		±0.1°C / ±0.2°F	
	Accuracy (overall error) (20-80%RH)		±0.5°C / ±1°F	
	Internal resolution		0.5°C / 1°F	
Dew Point	Accuracy (overall error) (25°C, 40-100%RH)		±1.1°C / ±2°F***	
Logging rate		every 10s		every 12hr
Operating temperature range		-35°C / -31°F		80°C / 176°F
1- 2AA 3.6V Lithium Battery Life			1* year	

Physical properties

Length	4.25 in. / 11.0 cm
Diameter	0.875 in. / 2.5 cm
Weight:	1.4 oz. / 40 grams

ezLogger High Temp™

High Temperature Data Logger

- -40°C to 125°C (-40°F to 257°F) measurement range
- Stainless steel (316 grade) construction
- Environmental protection to IP-67
- USB interface for setup and download
- Supplied with high capacity battery
- Configuration & Management Software
- Measurement intervals from 1 second to 12 hours
- RoHS compliant
- Suitable for Autoclaves

The ezLogger-High Temp data logger measures and stores up to 32,510 temperature readings over the -40°C to 125°C (-40°F to 257°F) measurement ranges. The logger is housed in a stainless steel case to protect the logger from corrosion, impact and moisture (to IP-67). A long life lithium battery is included which allows logging for up to 3 years.

The user can easily set up the logger and view downloaded data by plugging the device into a PC's USB port and using the MDAS-Pro software. Data can then be graphed, printed and exported to other applications. The data logger configuration software is compatible with Windows 2000/XP/Vista/7.

Control Software

Easy to install and use, the control software runs in Windows 2000, XP, Vista & 7 and is used to set-up the data logger as well as download, graph and export data to Excel.

The software allows the following parameters to be configured:

- Logger name
- °C or °F
- Logging interval rate (1s, 10s, 1m, 5m, 30m, 1hr, 6hr, 12hr)
- Data rollover (Allows unlimited logging periods by overwriting the oldest data when the memory is full)
- Start date and start time
- Includes USB Drivers

Example: ezLogger High Temperature Plot

Marathon Electronic EZ Logger

Time (30 Minutes/div, 1/10/2011 11:45:50 AM to 1/10/2011 3:09:50 PM, Pacific Standard Time)
T1:heat&cold_test2.MP_Lgr.
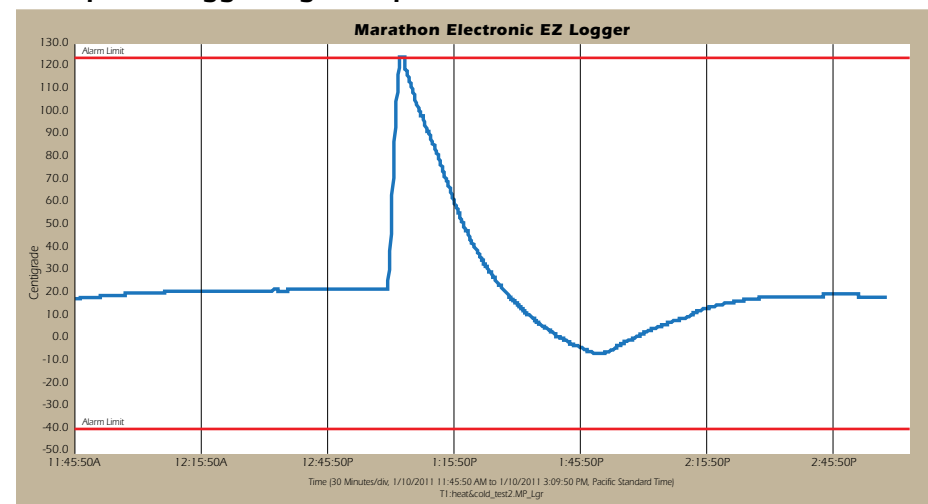
ezLogger High Temp SPECIFICATIONS	Min.	Typ.	Max.
Measurement range °C / °F	-40°C / -40°F		125°C / 257°F
Internal resolution °C / °F		0.1°C / 0.2°F	
Accuracy (overall error) °C / °F		±0.2°C / ±0.4°F*	±0.5°C / ±1°F
Logging interval rate	every 1 sec		every 12 hr
Operating temperature range °C / °F	-40°C / -40°F		125°C / 257°F
Two 3AA 3.6V Lithium Battery Life - Year	1**	2***	3

* Between 0° and 40°C

** 10 second logging rate @ -20°C

*** 10 second logging rate @ 80°C

Physical properties

Length	4.25 in. / 11.0 cm
Diameter	0.75 in. / 1.9 cm
Weight:	2.5 oz. / 70 grams

For FDA, GxP, JCAHO, CAP, HFAP, CARF, CHAP, ACHC, URAC, HQAA, AABB and Regulatory Compliance

MARATHON PRODUCTS
edl™ Data Loggers

Get the facts!

These multi-use data loggers are perfect for monitoring temperatures down to -40C (-40F) without a probe. Both units use thermistor technology and share the same basic palm-sized design so it's perfect where space limitations exist.

The edl is our top of the line data logger with 32k memory, 0.1C accuracy and resolution. This is a must have device if you work in a laboratory or metrology department.

The edl-jr is the work horse of our product line with a full 8k memory and the ability to measure down to -40C. A favorite in the pharmaceutical and transportation industries.

Functions include: start, stop, elapsed time as well as customizable time intervals. Also available: user descriptions for initialization and for downloading the data; high and low alarm values, recording status, real time measurement display and more. View up to sixteen temperature profiles at a time; download data without stopping the original program; attach probes or an audio alarm; all with precision accuracy of +/- 0.1 degree C at center of range and traceable to NIST standards.

Visual Alarms: All our data loggers have the ability to program alarm limits. Should the temperature reach levels outside these limits, the onboard red LED will light until reset by the user.

Computer Ready: Marathon's easy-to-use MDAS-Pro software is available for Microsoft Windows 2000, XP, Vista and Windows 7. Our proprietary IC-9P serial cable is needed to download temperature information to a computer.

Temperature Range
-40°C to 72°C
-40°F to 160°F

Temperature Accuracy
(NIST traceable)
±0.1°C at center of range
±0.3°C at extremes

Measurement intervals
2 seconds to months

Number of measurements
31,600 samples

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edl DATA LOGGER SPECIFICATIONS

Memory EEPROM, Storage: 32k

Temperature Range:	-40°C to 72C°C / -40°F to 162°F
Temperature Accuracy:	
At zero	±0.1°C at center of range,
At Extremes	±0.3°C at extremes
Measurement Interval:	Programmable from 2 seconds to months
Temperature Sensor:	NIST-traceable Precision Thermistor
Alarm Limits:	LED indicator. High and Low alarm set by temperature and time
Internal Clock Accuracy:	Better than 2 minutes per month
Indicators:	Power and Alarm
Computer Interface:	Serial Port RS232 Cable, USB Converter
Internal Software Provides:	Start and End time, Interval, User description, Alarm values, Recording status, Measurement data, Language selection, Temperature scale, Start delay.
Power Source:	One 3.6 Volt Lithium Battery 2 Year Shelf Life
Physical properties	
Width	1.97 inch / 5 cm
Length	3.54 inch / 9 cm
Depth	0.63 inch / 1.6 cm
Weight:	1.85 oz. / 52.5 grams

For FDA, GxP, JCAHO, CAP, HFAP, CARF, CHAP, ACHC, URAC, HQAA, AABB and Regulatory Compliance

SAFE CERTIFIED SHIPPING

MARATHON PRODUCTS

edl-USB™
Data Logger

Low Temperature Waterproof Data Logger with USB Connectivity.

The edl-USB multi-use data logger is perfect for monitoring temperatures down to -40°C (-40°F) without a probe. It uses thermistor technology and has a convenient palm-sized design so it's perfect where space limitations exist.

The edl-USB is our top-of-the-line data logger with 64k memory, 0.1C accuracy and resolution. This is a must have device if you work in a laboratory or metrology department.

Functions include: start, stop, elapsed time as well as customizable time intervals. Also available: user descriptions for initialization and for downloading the data; high and low alarm values, recording status, real time measurement display and more. View up to eight temperature profiles at a time; download data without stopping the original program, all with precision accuracy of ±0.1° C at center of range and traceable to NIST standards.

Visual alarms: All our data loggers have the ability to program alarm limits. Should the temperature reach levels outside these limits, the onboard red LED will light until reset by the user.

Temperature Range
 -40°C to 72°C
 -40°F to 160°F

Temperature Accuracy
 (NIST traceable)
 ±0.1°C at center of range
 ±0.3°C at extremes

Measurement intervals
 2 seconds to months

Number of measurements
 64k memory
 (64,000 samples)

Computer ready: Marathon's easy-to-use MaxiThermal software is available for Microsoft Windows 2000, XP, Vista & 7. Simply plug the unit into a standard USB port on your PC. The MaxiThermal software and USB cable are available as separate accessory items.

edl-USB DATA LOGGER SPECIFICATIONS

Memory EEPROM, Storage:	64k	
Temperature Range:	Low	-40°C / -40°C / 233.2°K
	High	+72C°C / +162°F / 345.2°K
Temperature Accuracy:		
At zero	±0.1°C at center of range,	
At Extremes	±0.3°C at extremes	
Measurement Interval:	Programmable from 2 seconds to months	
	4 Days. . . . . 5 sec	
	7 days. . . . . 9 sec	
	16 days. . . . . 21 sec	
	30 days. . . . . 39 sec	
	60 days. . . . . . . .1 min 9 sec	
	90 days. . . . . . . .2 min 0 sec	
	365 days. . . . . . .8 min 5 sec	
Temperature Sensor:	NIST-traceable Precision Thermistor	
Alarm Limits:	LED indicator set by temperature and time	
Internal Clock Accuracy:	Better than 2 minutes per month	
Indicators:	Power and Alarm	
Computer Interface:	Mini USB Connector	
Internal Software Provides:	Start and End time, Interval, User description, Alarm values, Recording status, Measurement data, Language selection, Temperature scale, Start delay.	
Power Source:	One 3.6 Volt Lithium Battery 2 Year Shelf Life	
Size:	9 cm(l) x 5 cm(w) x 2 cm (h) / 3.5 in.(l) x 2 in (w) x 0.8 in.(h)	
Weight	1.85 oz./52.5 g.	

For FDA, GxP, JCAHO, CAP, HFAP, CARF, CHAP, ACHC, URAC, HQAA, AABB and Regulatory Compliance

MARATHON PRODUCTS

c\temp™ Data Loggers

The Single-use Solution

c\temp is the revolutionary single-use pre-programmed electronic temperature recorder developed by Marathon Products. Designed for measuring temperatures during the transportation of chemicals, pharmaceuticals and vaccines, the internal thermistor accurately records time and temperatures for user selectable readings in Celsius, Fahrenheit and Kelvin. Because of its small size, it is suitable for applications where space limitations exist.

The larger format c\tempAA has an extended battery life and can endure rough handling. It is recommended for citrus, produce and dry ice shipments.

The internal software provides the following features: time mechanism, start time, intervals, end description for special instructions, alarm values, recording status, measurement data, software version, serial and tracking number, model type and after the fact report generation options. User selectable software features also include, language conversion on the fly from English to Spanish, Portuguese, Japanese, French and German.

To start the recorder, simply press the start button!

Temperature Range
-29°C to 72°C / -20°F to 160°F
-40°C to 72°C / -40°F to 160°F
-80°C to 30°C / -113°F to 86°F

Temperature Accuracy
±0.2°C at zero degree
±1.0°C at extremes
±0.4°F at zero degree
±2.0°F at extremes

Measurement Intervals
Pre-programmed from 1 minute to 11 minutes depending on model type (duration)

Operating Models
5, 7, 10 , 30 and 60 days

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c\temp SPECIFICATIONS

Memory EEPROM, Storage: 8k

Temperature Range:

c\temp–Red Case	-29°C to 72°C / -20°F to 160°F
c\temp–Gray Case	-40°C to 72°C / -40°F to 160°F
c\temp–Blue Case	-80°C to 30°C / -113°F to 86°F
c\tempAA–Red Case	-29°C to 72°C / -20°F to 160°F
c\tempAA–Yellow Case	-40°C to 72°C / -40°F to 160°F
c\tempAA–Blue Case	-80°C to 30°C / -113°F to 86°F

Temperature Accuracy:	±0.2°C / ±0.4°F at 0°C, ±1.0C / ±2.0°F at extremes
Measurement Intervals:	Pre-programmed from 1 minute to 11 minutes depending on model type (duration)
Temperature Sensor:	NIST-traceable Precision Thermistor
Indicators:	Start/Stop and Alarm
Alarm Limits:	LED indicator. High and low alarm set by temperature and time
Computer Interface:	Serial Port RS232 Cable, USB Converter
Internal Software Provides:	Times, Start time, Interval, User description, Alarm values, Recording status, Measurement data, Software version, Serial number, Model type.
Power Source:	Lithium Battery (2 Year Shelf Life)

Physical Properties	c\temp	c\tempAA
Length	3.54 in. / 9 cm	5.06 in. / 12.85 cm
Width	1.97 in. / 5 cm	2.65 in. / 6.73 cm
Depth	0.63 in. / 1.6 cm	0.66 in. / 1.69 cm
Weight:	1.85 oz. / 52.5 g	3.7 oz. / 106 g
Quantity:	Minimum 20 units	

For FDA, GxP, JCAHO, CAP, HFAP, CARF, CHAP, ACHC, URAC, HQAA, AABB and Regulatory Compliance

MARATHON PRODUCTS

c\temp-USB™
Data Logger

The Waterproof Single-use Solution with USB Connectivity.

c\temp-USB is the revolutionary single-use pre-programmed electronic temperature recorder developed by Marathon Products. It is specifically designed for measuring temperatures during the transportation of refrigerated vaccines, biological material, chemicals, pharmaceuticals, and documenting the transportation of fruits and vegetables.

Functions include: The internal thermistor accurately records time and temperatures for user selectable readings in Celsius or Fahrenheit. The larger format c\temp-USB has an extended battery life, is waterproof and can endure rough handling. The internal software records the following: time mechanism, start time, intervals, end description for special instructions, alarm values, recording status, measurement data, software version, serial and tracking number, model type and after the fact report generation options.

Visual alarms: All our data loggers can be programmed with alarm limits. Should the temperature reach levels outside these limits, the onboard red LED will light until reset by the user. To start the recorder, simply press the start button!

Temperature Range
-29°C to 72°C / -20°F to 160°F

Temperature Accuracy
±0.2°C (±0.4°F)

from 0° to 10° C

(30° to 50° F);

±0.5°C (±0.9°F)

at extremes

Measurement Intervals
Pre-programmed from 1 minute to hours depending on model type (duration)

Number of Measurements
8K memory (7680 data pts.)

Computer ready: MaxiThermal software is used to read the logger. It runs on Windows 2000, XP, Vista, & 7. To download recorded information, simply plug the unit into the standard USB port of your PC. The MaxiThermal software and USB cable are available as separate accessory items.

SAFE CERTIFIED SHIPPING

c\temp-USB SPECIFICATIONS

Memory EEPROM, Storage: 8k

Temperature Range:	-29°C to 72°C / -20°F to 160°F
Temperature Accuracy:	±0.2°C at 0° to 10°C, ±0.5°C at extremes (±0.4°F at 32° to 50° F, ±0.9°F at extremes)
Measurement Intervals:	Pre-programmed from 1 minute to hours depending on model type (duration)
	4 days = 0 min. 43 sec.
	7 days = 1 min. 15 sec.
	16 days = 2 min. 50 sec.
	30 days = 5 min. 19 sec.
	60 days = 10 min. 38 sec.
	90 days = 15 min. 57 sec.
	365 days = 1 hr. 4 min. 39 sec.
Temperature Sensor:	NIST-traceable Precision Thermistor
Indicators:	Start/Stop and Alarm
Alarm Limits:	LED indicator alarm set by temperature and time.
Computer Interface:	mini USB connector
Internal Software Provides:	Times, Start time, Interval, User description, Alarm values, Recording status, Measurement data, Software version, Serial number, Model type.
Power Source:	Lithium Battery (2 Year Shelf Life)

Size:	Length	Width	Depth
	13.0 cm (5.1 in.)	6.8 cm (2.7 in.)	2.0 cm (0.8 in.)

Weight:	71 g (2.5 oz.)
Quantity:	Minimum 20 units

For FDA, GxP, JCAHO, CAP, HFAP, CARF, CHAP, ACHC, URAC, HQAA, AABB and Regulatory Compliance

MARATHON PRODUCTS

TempCheck3™

Single-use Strip Chart Temperature Recorder

The TempCheck3 is a reliable and cost-effective strip chart temperature recorder for all shipping and transit applications. The TempCheck3 is driven by a high-torque quartz motor and displays the time and temperature on strip chart paper in both Celsius and Fahrenheit.

Full Serialization:
The recorder and the strip chart share the same serial number for positive identification.

Factory Sealed:
A unique feature is the silver polyester tamper evident seal. If any attempt is made to remove the seal, the word VOID appears on the seal and the case.

Verification:
Marathon offers, at no cost to the user, a post-trip verification service. Simply return the instrument for us to check and verify the accuracy against our NIST-traceable standards.
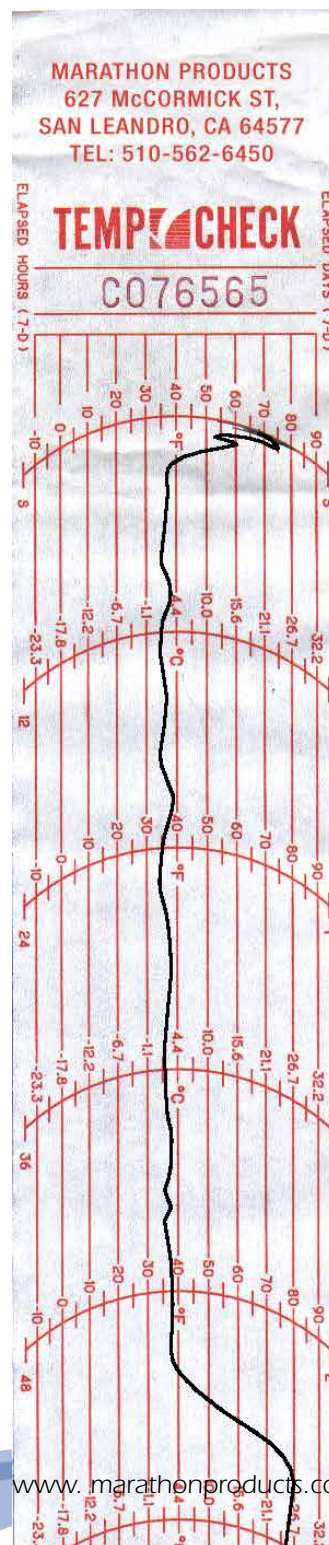
TempCheck3 SPECIFICATIONS

Run Time	7 days; 16 days; 30 days; and 60 days
Operating Range	-25°C to +35°C / -13°F to +95°F
Accuracy	±1°C / ±2°F
Thermal Sensor	Bi-metal coil
Drive Source	Solid state quartz-controlled motor
Power Source	One AA 1.5 volt carbon zinc battery,
mercury free	
Starting Procedure	1. Fill in documentation tag
	2. Peel off top tag
	3. Pull and remove start tab
Wall mounting options	Self-adhesive double foam tape
CE Certified	Yes
Physical Properties	
Size (L x W x H)	4.75 in. x 4.25 in. x 2.5 in.
	12.1 cm x 10.8 cm x 6.4 cm
Weight	4.6 oz / 0.2 kg
Carton	
Quantity	24 units
Weight	13 lbs (5.9 kg)
Size (L x W x H)	15 in. x 11 in. x 10 in.
	38.1 cm x 27.9 cm x 25.4 cm

Note: a minimum order consists of 24 units; product shipment is Same Day if the order is placed before 2pm Pacific Standard Time.

For FDA, GxP, JCAHO, CAP, HFAP, CARF, CHAP, ACHC, URAC, HQAA, AABB and Regulatory Compliance

PLEASE PRESS HARD

MARATHON
627 McCormick St., San Leandro, CA 94577
800-858-6872 • www.marathon products.com

Chart No.   C022380

Date

Shipper

Shipped To

P.O.#   Carrier ID.

Contents   Signature

SHIPPER'S COPY

MARATHON PRODUCTS

Marathon's Data Analysis Software

Get the most from your data loggers

Marathon's Data Analysis Software (MDAS-Pro) allows you to view up to 16 multiple traces at one time, enables you to transfer the information recorded in the logger to your computer, and to view, print and generate a report of the measurement data.

The graphic representations include rotating 3D views, unlimited zooms, view temperature data points on the graph, view the total elapsed time or the exact time when it was recorded. The graph and all data points (date, time and temperature) can be printed, as well as the ability to add a Note to the file for including information pertinent to that graphic trace. Users have the ability to view the numeric data within a screen window, calculate the Mean Kinetic Temperature of the recording as well as export data in a CSV format. A summary report showing the Start and Stop Time, High, Low, Median and Average temperatures as well as the Alarm information is also displayed. The data from the logger is downloaded to your PC via our proprietary RS232 serial interface cable or USB interface. MDAS-Pro offers language support for English, French, German, Portuguese and Spanish. A separate installation program for Chinese and Japanese is also available on the CD-ROM with this version of the software. The software has been designed for the Microsoft operating system platforms and is compatible with Windows 98, 2000, XP, Vista and Windows 7.
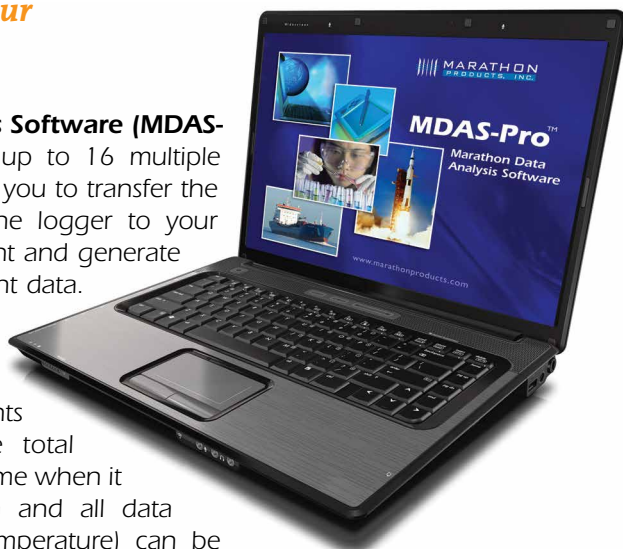
edl-RF Software

The edl-RF software has all of the above features of the MDAS-Pro as well as the following special features:

- Local access or remote ethernet access versions
- Remote programming of logger
- Remote Start and Stop
- Alarm notification appears on-screen and/or via a sound alert
- Alarm messages can also be sent via e-mail, SMS and by telephone
- Manual or automatic alarm reset
- Real time data display
- Logger can be identified with the station ID and managed individually
- Control an unlimited number of loggers at a time
- Pre-programmed automatic read, erase and export
- Mean Kinetic Temperature calculation for controlled room temperature profiling
- The data from the base station is downloaded to your PC through a USB cable (Local Access) or over the LAN (Ethernet Access).

c\temp Software

Our c\temp software is Read Only and it is not for programming. This is used to read data collected from our c\temp single-use data loggers. It has all the features of the MDAS-Pro, but excludes the ability to program the devices.
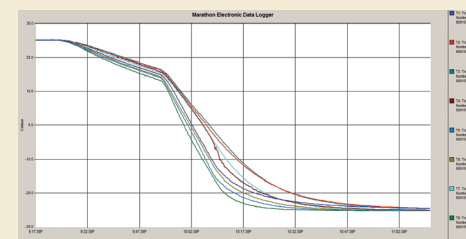
MDAS-Pro Temperature Plots
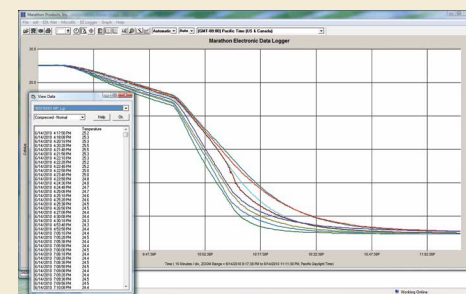
MDAS-Pro Temperature Plots with Recorded Data
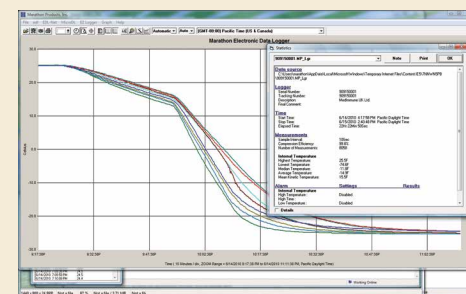
MDAS-Pro Temperature Plots with Logger General Information

MARATHON PRODUCTS

MaxiThermal™ USB Software

Get the most from your USB data loggers

Marathon's MaxiThermal Software allows you to view up to 8 multiple traces at one time, enables you to transfer the recorded information in your loggers to your computer, and to view, print and generate a report of the measurement data. The graphic representations are a simple X – Y plot of time versus temperature with unlimited zoom, view temperature data points on the graph, view total elapsed time, or the exact time when it was recorded. The graph and all data points (date, time and temperature) can be printed, as well as the ability to add a user note to the file for including information pertinent to that particular plot.

Users have the ability to view numeric data in a screen window and Data can be Exported as a CSV file for use in other software. A Summary Information report showing the specific logger information, the Start and Stop Time, Duration of Recording, Measurement Interval, Highest, Lowest, Median and Average Temperatures as well as the High and Low Alarm information.

The data from the logger is easily downloaded to your PC via a standard USB 1.1 interface. MaxiThermal software is compatible with Windows 98. NT, 2000, XP, Vista and Windows 7.
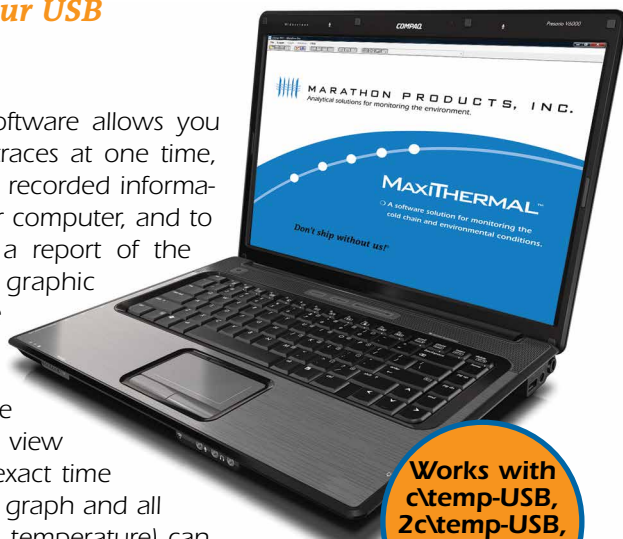
Works with c\temp-USB, 2c\temp-USB, 2c\temp-RH, & edl-USB

MaxiThermal Software Highlights

Open
Save As
Export
Print Preview
Logger Initialization
Read Logger
Change Color
Vertical Grid
Horizontal Grid
Edit Text
Summary Information
View Data
Edit Comment
Copy to Clipboard
Show Value
Elapsed Time
Celsius / Farenheit
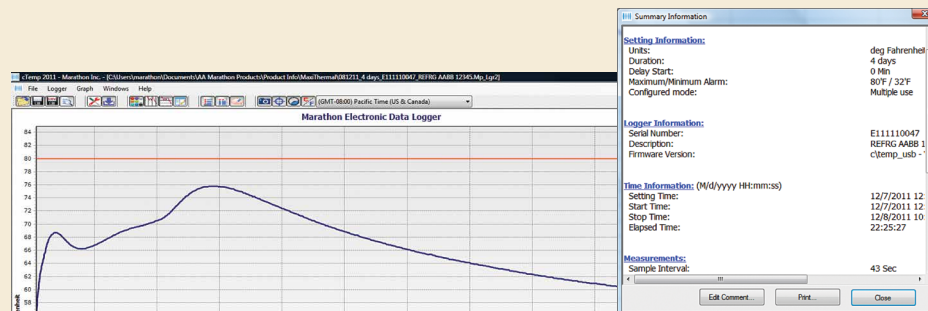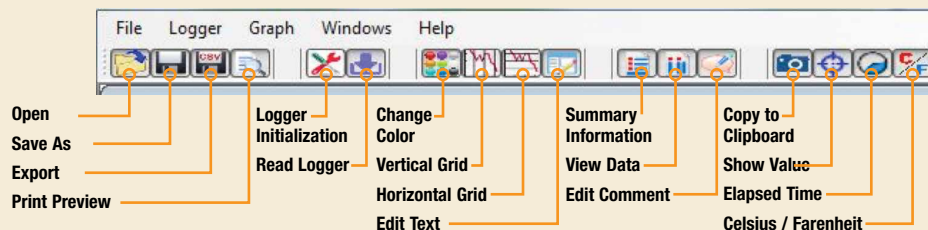
Summary Information Window

Temperature Plot

Plot of 2C\TEMP-RH with temperature & humidity

Recorded Data Window

MARATHON PRODUCTS

MaxiThermal™ Enterprise Software

Safe Server-Based File Storage & Retrieval

Marathon's MaxiThermal Enterprise Software. Stay connected to your files. A simple, scalable and affordable solution to manage logger data, documents, media and all your content online. It can be hosted on a customer's local server, on a server in the cloud, or as a service at Marathon Products.

Save time and money by having all your files in one place and easily accessible to everyone in your company from anywhere. User access is controlled by log-in accounts with different privilege levels.

MaxiThermal Enterprise allows users to upload and download Marathon logger data files, and any other type of file, to a central repository which is accessible by multiple users. Files on MaxiThermal Enterprise servers are always available to registered users via the internet. Double clicking on a file will download and open the file with the associated application program.

In File Management, files can be sorted on Branch Name (where the file originated), File Name, Upload Date, Status (Reviewed, Declined, Approved), Description, and Logger Serial Number. There is an automatic audit trail for deleted files. Once files have been uploaded to the MaxiThermal server, Administrators and Superusers can Review, Decline or Accept individual files.

MaxiThermal Enterprise Software is compatible with Windows 98. NT, 2000, XP Vista and Windows 7.

MaxiThermal Enterprise Software Highlights

Change the status of individual files with Reveiw, Decline, Approve & Delete Buttons.

File Management lists all files currently stored on the server.

Upload file saved on their local machine to the MaxiThermal Enterprise server

Update Profile allows changing user profile information and access privileges.

Double clicking on a logger data file will open it in MaxiThermal.

MARATHON PRODUCTS
LOGGER PULSE™
...an Enterprise Software Solution for Managing The Cold Chain
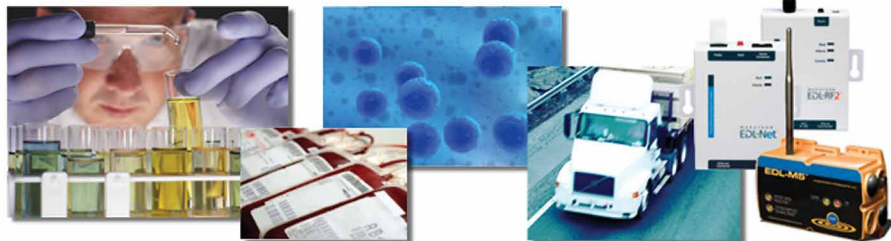
Our enterprise software is the ideal solution for managing and analyzing data from multiple data loggers from multiple locations.

NO LIMITS – Any location. Any time. Any users.

Features:

Location Independence: Data loggers located anywhere can be centrally managed and monitored.

Flexible Hosting Options: From single Windows PC to multiple servers in multiple locations; local in-house servers to cloud-based services.

Web-base Software: Means hassle-free deployment for access by an unlimited number of users with a standard web browser.

Dashboard Control: An intuitive and interactive dashboard makes it easy to view status, manage, and program multiple loggers with ease.

Alarm Notifications: Highly customizable alarm notifications ensure that the right people are alerted when loggers detect a problem. Alarm notifications can be sent as a phone call to land lines and mobile phones, as email to regular email accounts or to mobile phones as text messages.

21CFR COMPLIANT
- Controls for closed and open systems
- Electronic audit trails for regulatory compliance.
- Electronic audit trails for regulatory compliance.

Dashboard Control

Real-time Analytics: Multiple users can concurrently monitor data streamed in real-time from any number of loggers.

Real-time Data: Logger data can be displayed individually or aggregated.

Bulk Administration: Programming, starting and stopping hundreds of loggers can be done effortlessly from a single web page.
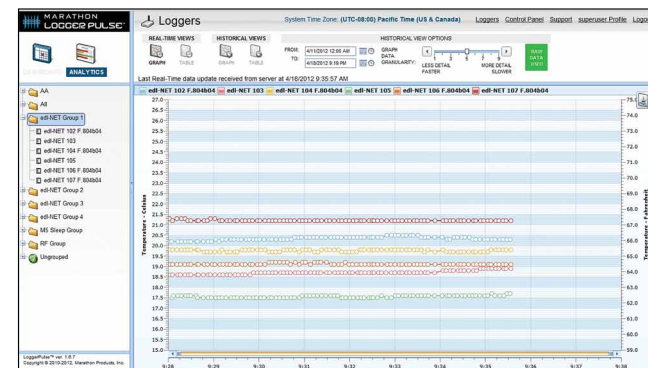
Real-Time Analytics

Concurrent & Secure Access: Enable multiple users to simultaneously perform analytics and administration functions while constraining actions based on permissions.

Audit Trail: Individual actions and exceptions are logged to the database for accountability and traceability. User notes are incorporated for explanation and follow up.

Historical Analytics: View aggregated logger data for any period in the past in graphical or tabular formats. Export to Microsoft Excel for further analysis and reporting.

Attribute Filters: A single click is all it takes to filter for specific status and conditions, e.g. Alarms.

Historical Analyics

Multi-Sensor Inputs: Temperature, Humidity, Vibration Monitoring, Electrical Power Consumption, CO_2, N_2, O_2 (Pending).

Support for all popular browsers: Flexible, intuitive interface ensures that LoggerPulse will work the same way regardless of your business browser standard.

MARATHON PRODUCTS
21CFR DB™ Software for Regulatory Compliance

Marathon CRM Software

Meeting the FDA's requirements for electronic records and electronic signatures used in the pharmaceutical and biotech industries, our database and Customer Relationship Management Software has been designed for the biotech, medical, and pharmaceutical industries to comply with the Code of Federal Regulations Section 21CFR Part 11 as required by the Food and Drug Administration.

Marathon 21CFR DB validates data and works seamlessly with Marathon's intelligent data collection devices. The software provides sophisticated data encryption and storage, administrative and multi-level user security profiles, and tools for manipulating and retrieving data. In conjunction with Marathon's time and temperature data loggers, the software provides a complete analytical solution for quality assurance. Our industry focused approach benefits your operations even if your best practices do not require regulatory compliance.

§ 11.10	Controls for closed systems. . .	Comply
§ 11.30	Controls for open systems. . . .	Comply
§ 11.50	Signature manifestations.	Comply
§ 11.70	Signature/record linking	Comply
§ 11.100	General requirements	Comply
§ 11.200	Electronic signature components and controls	Comply

CONTROLS FOR CLOSED AND OPEN SYSTEMS

- Password protection (up to 10 alpha-numeric characters).
- Unique user names, login names, and alpha-numeric passwords up to 10 characters. Users can never be deleted.
- Multiple levels of security privileges: system access can be customized for each user by the administrator.
- Encrypted Data means no risk of record alteration. Recorded files are encrypted to 128 bits or more in a RC4 variant. Recorded files are in binary, compressed and checksummed format proprietary to Marathon Products, Inc.
- Sort by dates, product codes, tracking numbers, shipper or any user-defined attribute to electronically manage your data.

- Microsoft Access Database: industry-standard format allows exporting to other databases. Complete and accurate electronic copies are available for reviewing the data, copying the raw data, exporting or printing into a "pdf" format.

ELECTRONIC AUDIT TRAILS FOR REGULATORY COMPLIANCE.

- Secure computer generated, time-stamped run-time audit trail of authorship, signatures, detailed configuration changes, imports and exports, administrator activities, etc.
- Audit trails are embedded in the history file guaranteeing retention alongside the records and available for review/copying.

- A separate Audit log monitoring individual logins, is kept outside the Marathon 21CFR DB™ program and can be deleted according to your Standard Operating Procedures.

ELECTRONIC AUDIT TRAILS FOR REGULATORY COMPLIANCE.

- Signed records contain printed name, date, time and meaning. Meaning includes Reviewed and Declined Review, Approved and Declined Approved, Record Created and Record Imported. Signed authorization (authorship) and optional operator entered note. Name, time-stamp and meaning are all embedded in the binary format history file.
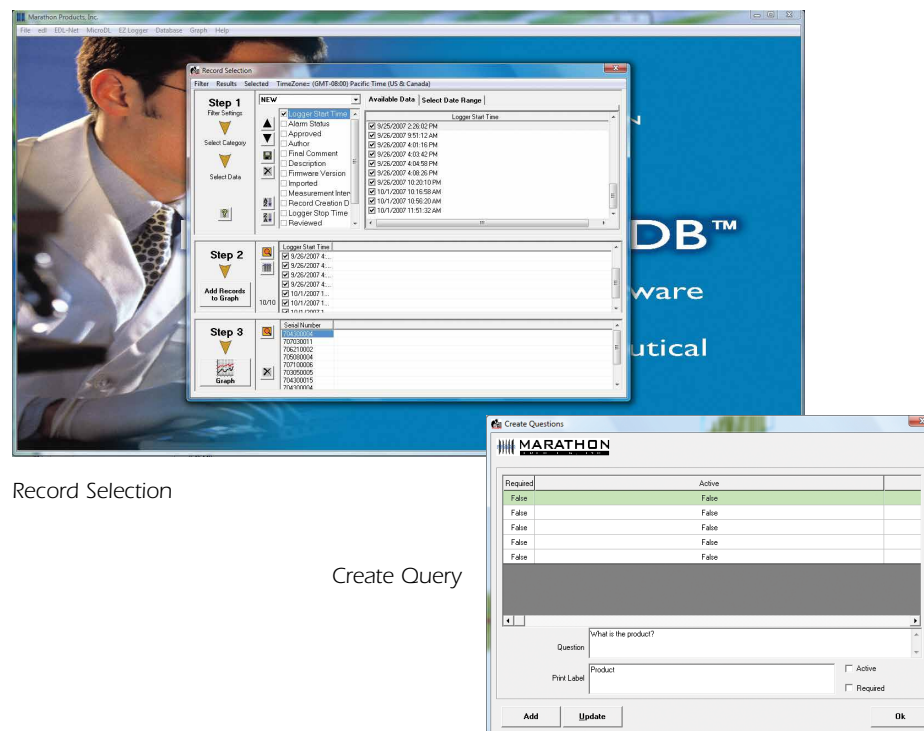
Record Selection

Create Query

SYSTEMS REQUIREMENTS

Microsoft Windows Operating Systems 98, 2000, XP, Vista and Windows 7 for client workstations. We recommend that the database software be installed on a Windows 2000 or 2003 server by your IS or IT department. All Marathon's electronic temperature data loggers are backward compatible with the Marathon 21CFR DB™ program.
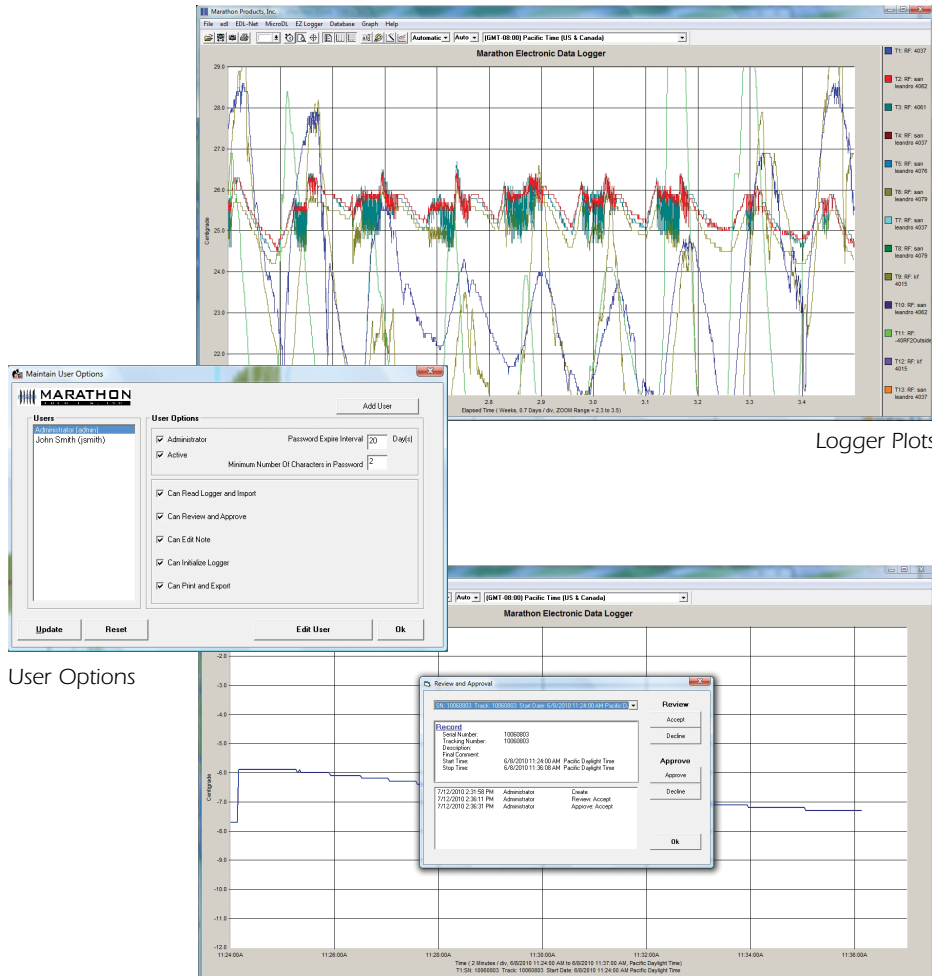
Logger Plots

User Options

Review & Approve

SOFTWARE FEATURES	MARATHON 21CFR DB Full Database	MARATHON 21CFR LE Limited Edition	VIEWER Read Only
• Secure Database	5 users plus administrator	2 users plus administrator	2 users plus administrator
• Electronic Signatures	Up to 120 traces in one graph	1 trace by graph only	1 trace by graph only
• Levels of access permission, privileges, and authorization to customize user actions			
• Audit Trails	One document containing the set of testing procedures and the template to perform the in-house validation	Optional Validation Manual, $250	Optional Validation Manual, $250
• User Names, Login Names & Passwords			
• Password Minimum Number of Characters and Expire Interval	A document reports how the 21CFR DB software addresses the 21 CFR Part 11 Requirements	A document reports how the 21CFR LE software addresses the 21 CFR Part 11 Requirements	A document reports how the 21CFR Viewer software addresses the 21 CFR Part 11 Requirements
• Record Statistics & Details			
• Microsoft Access Database	RECOMMENDED FOR:		
• Intelligent Handling of Time Zones	• Companies with multiple locations	RECOMMENDED FOR:	RECOMMENDED FOR:
• Export Data to other 21CFR Databases	• Manage more than 100 records a year	• Companies with only one location	• Locations that only receive units.
• Read Logger	• Require more than 2 users	• Manage less than 100 records a year	• Read-only version. It cannot program loggers.
• Mean Kinetic Temperature	• Require software validation documents in place for FDA inspections	• Require no more than 2 users	• No Logger Initialization

21CFR DB ADDITIONAL FEATURES:

- Record Search Filter
- Customized Filter Attributes
- Record Summary
- Customized Data Entries & Queries
- Real-time Display
- Import Record

MARATHON 21CFR DB continued:

- Use multi-use & single use units.
- Logger Initialization

2 years of customer support, service packs and version upgrades (including enhancements). 90 day warranted satisfaction or full refund.

MARATHON 21CFR LE continued:

- Write their own validation manual
- Use multi-use & single use units.
- Logger Initialization

1 year of customer support, service packs and version upgrades (including enhancements) 90 day warranted satisfaction or full refund.

VIEWER continued:

1 year of customer support, service packs and version upgrades (including enhancements) 90 day warranted satisfaction or full refund.

MARATHON PRODUCTS

Accessories

Enhance your Temperature Recording Experience

RF BASE STATION MODULE

For use with the edl-RF series loggers.

Interface: DB9 pin serial or USB, Version 1.1. Compliant

• Size: 2.75 in. x 5.50 in. x 1.125 in. / 6.99 cm x 13.97 cm x 2.86 cm

• Weight: 7.1 oz / 200g

• Cable length:

• Power Requirement: 120V AC

• Indoor Range: up to 1500 ft. / 450 m

• Outdoor Range (RF line of sight): 7 miles / 11km

• Certifications: FCC Part 15.247, Industry Canada (IC)

MICRO-DL READER STATION

For use with the microDL Red and microDL Silver series loggers.

• Interface: USB, Version 1.1 Compliant

• Height: 0.96 in. / 24 mm

• Diameter: 1.76 in. / 44.84 mm

• Weight: 0.5 oz. / 16 g

• Cable length: 32 in. / 81.3 cm

IC-9P CABLE

For use with the 2c\temp, 3c\temp, echo, edljr., edl, edlCO2 series loggers.

• Interface: RS232 DB9 pin serial

• Cable length: 3.3 in. / 1.0 m

USB TO SERIAL CONVERTER

For use with the 2c\temp, 3c\temp, echo, edljr., edl, edlCO2 and EDL-RF series loggers.

• USB Version 1.1 Compliant

• Software Driver Supports Windows 98, 2000, XP, Vista & Windows 7

• Interface: Male DB9 pin serial

• Cable length: 13 in. / 33.02 cm

WATERPROOF CONTAINER

For use with the c\temp, 2c\temp, 3c\emp, edljr. and edl series loggers. (shown with a red c\temp inside)

• Watertight up to 100 ft. / 30.48 m

• Crushproof & Dust-proof with high impact polycarbonate

• Stainless Steel pins in hinges (will not rust)

• Size: O.D.: 4.837 in. x 3.682 in. x 1.652 in. / 12.285 cm x 9.347 cm x 4.196 cm

• Size: I.D.: 4.003 in. x 2.488 in. x 1.293 in. / 10.167 cm x 6.319 cm x 3.284 cm

PROBES

For use with all Marathon loggers. (shown with microDL).

• Standard Stainless Steel Probe

Length	24 in. / 61 cm, or custom lengths
Diameter	Outside: 0.136 in. / 3.49 mm
	Inside: 0.099 in. / 2.5 mm

• Micro Probe

Length	0.278 in. / 7.06 cm, or custom lengths
Diameter	0.07 in. / 1.8 mm

• Flat Flex

Length	20 in. / 50.6 cm, or custom lengths
Width	0.3 in. / 0.76 cm

• Detachable Flat Flex

Length	Custom Lengths
Width	0.3 in. / 0.76 cm

• Flexible Teflon Probe with Stainless Steel Tip

Total Length	20 in. / 50.8 cm, or custom lengths
Stainless Steel Tip	6 in. / 15.24 cm
Diameter	Outside: 0.136 in. / 3.49 mm
	Inside: 0.099 in. / 2.5 mm

Micro Probe

Standard Stainless Steel Probe

Polyester Film-Flat Flex Probe

Detachable-Flat Flex Probe

Flexible Teflon Probe with Stainless Steel Tip

MARATHON PRODUCTS

Cryo-Shipper Rental

Who Will You Trust with Your Stem Cells, Medicines, Embryos or Sperm?

Many companies, facilities and individuals do not have the necessary experience or the liquid nitrogen dry shipping dewars to meet the needs of shipping frozen cells, medicines, embryos and sperm. To meet this need, Marathon Products offers its Dry Shipper Rental Service for liquid nitrogen shipping.

Our unique advantages are the microDL-200® temperature data logger and the extended working time of our dry shippers. The microDL-200 and our dry shipper services give peace of mind with continuous, minute-by-minute, temperature monitoring.

We include the microDL-200 data logger with each rental to record the temperature for the duration of each shipment. The compact-sized microDL-200 gives a minute-by-minute record of how your precious cargo was handled and protected during transit. No one else can offer you continuous, detailed temperature data for the entire shipping time. At the end of each shipment, we deliver a

printed plot of the temperature data captured by the microDL-200.

Marathon Products dry shipper rental lets you ship your material that has been originally cryo-preserved at another laboratory or cryobank. Marathon Products is committed to providing the physician and client depositors with quality dry shippers that fully comply with industry and government standards and/or regulations.

Our liquid nitrogen dry shippers are chosen for their ability to hold cryogenic temperatures for extended working time. With proper handling, more working time gives

protection against unplanned events and delays, especially in international shipments. This means your specimens continue to be protected even if unforeseen events such as missed flights or customs holds delay your shipment while in transit. In any event, the micro-DL-200 will document the temperature of your specimen and let you know the status for the entire journey

Dry Shipper Rental Service

Marathon will rent the liquid nitrogen filled dry shipper and microDL-200 to you, and you handle all of the paperwork, shipping and logistics.

Marathon will help explain the necessary forms and shipping process.

Deposits are refundable upon return of dry shipper, shipping case and micro-DL-200 in good condition.

Pictured: microDL-200C cryogenic temperature data logger, Taylor-Wharton shipper and shipping case.

MARATHON PRODUCTS
Cryogenic Shippers

Taylor-Wharton Cryogenic Vapor Shippers

Taylor-Wharton's cryogenic vapor shippers meet your needs for flexibility, efficiency and economy. Our high-performance shippers incorporate durable and lightweight construction with maximum holding times for optimum capacities.

CX & CXR Series

Cryo Express (CX) dry shippers are designed to safely transport a variety of materials at cryogenic temperatures. The unique absorbent material prevents a liquid spill if the unit is tipped over. Storage temperature inside the shipping cavity remains at approximately -190C until the liquid nitrogen evaporates from the absorbent material. The CX Series comply with international regulations applicable to the transport of hazardous goods by road (ADR), rail (RID) and by air (IATA-OACI).

All vessels comply with international regulations applicable to the transport of hazardous goods by road (ADR), rail (RID) and air (IATA-OACI)

CX & CXR SERIES	CX100		CXR100		CXR500	
Static Holding Time[1] days	24		16		14	
Working Time[2] days	17		11		7	
Evaporation Rate[1] liters/day	0.18		0.20		0.60	
Liquid Nitrogen Capacity liters	4.4		3.3		7.7	
Number of Canisters	1		1		N/A	
No. of 1.2 ml & 2.0 vials (5/cane)[4]	85		85		500	
No. of 1.2 ml & 2.0 vials (6/cane)[4]	102		102		500	
No. of 1/2 cc straws (10/cane)	280		280		N/A	
No. of 1/2 cc straws (Bulk 2 levels)	980		980		N/A	
WEIGHT	lb	kg	lb	kg	lb	kg
Empty	11.7	5.3	11.7	5.3	30	13.6
Full[3]	19.5	8.9	18.3	8.3	43.7	19.8
DIMENSIONS	inch	mm	inch	mm	inch	mm
Neck Diameter	2.8	71.0	3.6	91.0	8.5	216.0
Overall height	18.4	467.0	19.4	493.0	26.9	683.0
Overall Diameter	9.2	234.0	9.2	234.0	15.5	391.0
CAPACITY	inch	mm	inch	mm	inch	mm
Canister Dimensions	2.64x11	67x2.79	2.64x11	67x2.79	N/A	N/A
ACCESSORIES						
Padded Carton P/N	3701-9277		N/A		N/A	
5 Shelf Rack P/N	N/A		N/A		RS30-9C44	
Poly Carb 100 Box	N/A		R24K-9C44		R24K-9C44	
Shipping case	CX10-8C00		CX10-8C00		CP19-8C00	

Notes:

1. Evaporation rate and static holding time are nominal. Actual rate may be affected by the nature of the contents, atmospheric conditions, container history, and manufacturing tolerances.

2. Work time is an arbitrary, reference-only value to estimate container performance under the actual operating conditions.

3. Without canisters or racks.

4. CXR500 vials are stored in 100 cell boxes.

MARATHON PRODUCTS
Cryogenic Storage
Taylor-Wharton Cryogenic Dewars, Refrigerators and Freezers

Taylor-Wharton's advanced range of cryogenic refrigerators and dewars meets your needs - flexibility, efficiency and economy. Our comprehensive series of high-performance refrigerators incorporates durable and lightweight construction with maximum holding times for optimum capacities.

XT Series
The Extended Time series (XT) of cryogenic refrigerators are designed for long-term storage of a variety of materials at cryogenic temperatures. This series also offers low profile models (XTL) with 5 inch canisters.

CERTIFIED
SAFE STORAGE

XT SERIES	XTL3		XTL8		XT10		XT20		XT34	
Static Holding Time (1) days	27		80		100		230		340	
Working Time (2) days	17		50		62		140		212	
Evaporation Rate (1) liters/day	0.11		0.10		0.10		0.09		0.10	
Liquid Nitrogen Capacity liters	3.0		8.0		10.0		20.7		34.0	
Number of Canisters	6		6		6		6		6	
No. of 1.2 ml & 2.0 vials (5/cane)	N/A		N/A		150		150		150	
No. of 1.2 ml & 2.0 vials (6/cane)	N/A		N/A		180		180		180	
No. of 1/2 cc straws (10/cane)	N/A		N/A		540		540		540	
No. of 1/2 cc straws (Bulk 1 level)	750		750		N/A		N/A		N/A	
No. of 1/2 cc straws (Bulk 2 levels)	N/A		N/A		1500		1500		1500	
WEIGHT	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg
Empty	7.2	3.3	19.6	8.9	16.5	7.5	26	11.8	34.75	15.8
Full (3)	12.5	5.7	33.8	15.4	34.3	15.6	62.8	28.6	95.3	43.3
DIMENSIONS	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
Neck Diameter	2.0	51.0	2.0	51.0	2.0	51.0	2.0	51.0	2.0	51.0
Overall height	17.2	437.0	19.0	483.0	23.8	597.0	25.8	655.0	26.3	668.0
Overall Diameter	7.6	193.0	15.6	396.0	11.4	290.0	15.6	396.0	18.8	478.0
CAPACITY	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
Canister Dimensions (4)	1.5x5	38x127	1.5x5	38x127	1.5x11	38x279	1.5x11	38x279	1.5x11	38x279
ACCESSORIES										
Roller Base P/N	N/A		R018-8C00		N/A		R018-8C00		R033-8C00	
Low Level Alarm P/N	N/A		N/A		N/A		R033-8C15		R033-8C15	

Notes:

1. Evaporation rate and static holding time are nominal. Actual rate may be affected by the nature of the contents, atmospheric conditions, container history, and manufacturing tolerances.

2. Work time is an arbitrary, reference-only value to estimate container performance under the actual operating conditions.

3. Without canisters.

4. Canisters are also available in 5.0 in. (127 mm) height for XT10, XT20, and XT34.

MARATHON PRODUCTS
Cryogenic Storage
Taylor-Wharton Cryogenic Dewars, Refrigerators and Freezers

Taylor-Wharton's advanced range of cryogenic refrigerators and dewars meets your needs - flexibility, efficiency and economy. Our comprehensive series of high-performance refrigerators incorporates durable and lightweight construction with maximum holding times for optimum capacities.

LS Series

The Laboratory Systems (LS) Series are uniquely designed for large vial capacity in convenient box-type storage racks. They provide maximum holding times. This means lower per vial operating costs and fewer refills. The new LS6000 with the AutoTrend Controller with temperature read-out provides automatic filling and alarm features.

Notes:

1. Evaporation rate and static holding time are nominal. Actual rate may be affected by the nature of the contents, atmospheric conditions, container history, and manufacturing tolerances.

2. Work time is an arbitrary, reference-only value to estimate container performance under the actual operating conditions.

3. Without canisters or racks.

4. 2.0 ml vial size: 12.5 mm OD, internal thread.

5. 81 cell boxes available.

LS SERIES	LS750		LS3000		LS4800		LS6000		LS6000AT	
Static Holding Time days (1)	130		106		153		194		194	
Working Time days (2)	80		66		96		120		120	
Evaporation Rate (1) liters/day	0.27		0.76		0.85		0.84		0.84	
Liquid Nitrogen Capacity - liters	35		81		130		165		165	
N. of Racks	6		6		6		6		6	
No. of Shelves Per Rack	5.0		5.0		8.0		10.0		10.0	
2 ml vial Capacity (4)	750		3000		4800		6000		6000	
WEIGHT	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg
Empty	39.0	17.7	70.0	31.8	90.0	40.9	121.0	55.0	121.0	55.0
Full (3)	101.3	46.0	214.2	97.4	312.4	146.1	410.0	186.4	410.0	186.4
DIMENSIONS	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
Neck Diameter	4.7	119.0	8.5	216.0	8.5	216.0	8.5	216.0	8.5	216.0
Overall height	26.8	681.0	28.8	731.0	35.1	892.0	39.0	991.0	39.0	991.0
Overall Diameter	18.8	478.0	26.9	683.0	26.9	683.0	26.9	683.0	26.9	683.0
ACCESSORIES										
Box Size - Shape	Square		Square		Square		Square		Square	
DIMENSIONS	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
- Size	3.0x3.0	76x76	5.0x5.0	127x127	5.0x5.0	127x127	5.0x5.0	127x127	5.0x5.0	127x12
- Vials per box (5)	25		100		100		100		100	
Roller Base	R033-8C00		R05K-8C00		R05K-8C00		R05K-8C00		R05K-8C00	
Cryo-Sentry Level Alarm	R036-8C30		RS30-8C40		RS5K-8C26		RS60-8C40		N/A	
Auto Tend Controller Kit	N/A		N/A		N/A		RS60-8C86		N/A	

MARATHON PRODUCTS
Cryogenic Storage
Taylor-Wharton Cryogenic Dewars, Refrigerators and Freezers

Taylor-Wharton's advanced range of cryogenic refrigerators and dewars meets your needs - flexibility, efficiency and economy. Our comprehensive series of high-performance refrigerators incorporates durable and lightweight construction with maximum holding times for optimum capacities.

LD Series

The Laboratory Dewar Series (LD) of cryogenic dewars are designed for storing and dispensing small amounts of liquid nitrogen. The series includes a beaker style dewar with a wide mouth (LD5) and pitcher-style model for easy pouring (LD4).

LD SERIES	LD4		LD5		LD10		LD25		Classic 25		LD35		LD50	
Static Holding Time days (1)	10		6		45		109		119		152		122	
Evaporation Rate (1) liters/day	0.40		0.77		0.22		0.23		0.21		0.23		0.41	
Liquid Nitrogen Capacity - liters	4		5		10		25		25		35		50	
WEIGHT	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg
Empty	6.6	3.0	6.9	3.1	14.5	6.6	23.2	10.5	19.0	8.6	35.1	16.0	38.7	17.6
Full (3)	13.7	6.2	15.8	7.2	32.3	14.7	67.7	30.8	63.5	28.9	97.4	44.3	127.7	58.0
DIMENSIONS	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
Neck Diameter	1.2	30.0	5.6	142.0	2.0	51.0	2.5	64.0	2.0	51.0	2.5	64.0	2.5	64.0
Overall height	17.0	432.0	17.5	445.0	23.5	597.0	25.8	655.0	22.9	582.0	26.3	668.0	32.4	823.0
Overall Diameter	7.6	193.0	7.6	193.0	11.4	290.0	15.6	396.0	15.5	394.0	18.8	475.0	18.8	475.0
ACCESSORIES														
Liquid Withdrawal Device P/N	N/A		N/A		N/A		D050-8C00		N/A		D050-8C00		D050-8C00	
Roller Base P/N	N/A		N/A		N/A		R018-8C00		D024-8C02		R033-8C00		R033-8C00	
Tipping Stand P/N	N/A		N/A		N/A		D-25-8C00		N/A		N/A		N/A	
Dipper P/N	N/A		R018-8C50		R018-8C50		R018-8C50		R018-8C50		R018-8C50		R018-8C50	

Notes:

1. Evaporation rate and static holding time are nominal. Actual rate may be affected by the nature of the contents, atmospheric conditions, container history, and manufacturing tolerances.

MARATHON PRODUCTS

Cryogenic Storage

CBS Cryogenic Dewars, Refrigerators and Freezers

Classic and Value Added

The Classic Line (x002), and the Value Added Line (x001), combine the benefits of low nitrogen consumption with midrange vial capacity to meet the versatile needs of today's biotech professionals worldwide. The light-weight and low-space demands of these containers make them the most economical units in their class. With optional add-on or built-in Level Alarms our cryovessels provide the assurance of 24/7 monitoring. Innovation and super insulation vacuum technology make our 200x, 400x and 600x cryostorage vessels performance leaders.

- Durable lightweight aluminum construction
- Long Nitrogen Holding Times
- High strength neck tube reduces liquid nitrogen loss
- Large Neck Opening for easy access to store or retrieve samples
- Lockable Easy maintenance lid design
- Advanced Chemical Vacuum Retention System - designed for superior vacuum performance
- Spider design - for easy retrieval and insertion of product canisters
- The advanced insulation system provides maximum thermal performance
- 3 year vacuum warranty
- Square racks with boxes and dividers
- Multiple sizes - 20 liters to 175 liters
- Vial capacities of 210 to 6,000

	VALUE ADDED			CLASSIC		
	2001	4001	6001	2002	4002	6002
Performance						
Liquid Nitrogen Capacity (Liters)	61	121	175	61	121	175
Static Evaporation Rate (liters/Day)	0.85	0.99	0.99	0.85	0.99	0.99
Working Volume (Liters)	51	111	165	51	111	165
Normal Working Days	38	70	104	38	70	104
Weight Empty (lbs/kg)	58 / 26.3	81 / 36.7	103 / 46.7	58 / 26.3	81 / 36.7	103 / 46.7
Weight Full (lbs/kg)	182 / 82.5	300 / 136	425 / 193	182 / 82.5	300 / 136	425 / 193
Exterior Dimensions						
Neck Opening (in/mm)	8.5 / 216	8.5 / 216	8.5 / 216	8.5 / 216	8.5 / 216	8.5 / 216
Overall Height (in/mm)	28.5 / 723	39.5 / 1003	39.5 / 1003	28.5 / 723	39.5 / 1003	39.5 / 1003
Outside Diameter (in/mm)	22 / 559	22 / 559	26 / 665	22 / 559	22 / 559	26 / 665
Maximum Capacity						
Max Number of Racks	4	4	6	4	4	6
Max Vial Capacity	2000	4000	6000	2000	4000	6000
Max Boxes per Rack	5	10	10	5	10	10
Level Alarm Options						
LA-2B (120V AC-24 V DC Int - 2 watts max)	Built In	Built In	Built In	✔	✔	✔
BAT-1B (9V AC or from level control)	Built In	Built In	Built In	✔	✔	✔

MARATHON PRODUCTS
Cryogenic Storage
CBS Cryogenic Dewars, Refrigerators and Freezers

XC Series

The XC Series is designed for the user who requires large capacity storage and low liquid nitrogen consumption in a convenient, lightweight package. The XC Series tanks have capacities ranging from 700 - 5000 straws and 150 to over 1000 vials. With optional add-on Level Alarms our XC Series provides the assurance of 24/7 monitoring. Manufactured to world class level of excellence and backed by an industry leading 5 year vacuum warranty, these durable, lightweight units can be relied on to perform in the most demanding environments.

- Durable lightweight aluminum construction
- Long Nitrogen Holding Times
- High strength neck tube reduces liquid nitrogen loss
- Large Neck Opening for easy access to store or retrieve samples
- Lockable Easy maintenance lid design
- Advanced Chemical Vacuum Retention System - designed for superior vacuum performance
- Spider design - for easy retrieval and insertion of product canisters
- The advanced insulation system provides maximum thermal performance
- 5 year vacuum warranty
- Canister and cane storage
- Multiple sizes - 20 liters to 175 liters
- Vial capacities of 210 to 6,000

A protective shipping carton is available for all models which protects the container from being placed on its side and helps in withstanding the rigors of transportation. These containers can be used to ship your samples with a "non-hazardous" classification throughout the world.

XC SERIES	20 / 20	33 / 22	34 / 18	47 / 11	32 / 8
Performance					
Liquid Nitrogen Capacity (Liters)	20.5	33.4	34.8	47.4	32
Static Evaporation Rate (liters/Day)	0.09	0.14	0.18	0.39	0.35
Normal Working Days	140	154	123	76	57
Weight Empty (lbs/kg)	26 / 11.8	34 / 15.4	34 / 15.4	36 / 16.4	30 / 13.6
Weight Full (lbs/kg)	62.5 / 28.3	94 / 42.5	96 / 43.5	120.4 / 54.6	87 / 39.5
Exterior Dimensions					
Neck Opening (in/mm)	2.18 / 55.4	2.75 / 70	3.5 / 89	5 / 127	3.81 / 97
Overall Height (in/mm)	25.7 / 652	26 / 660	26.6 / 675	26.5 / 673	21.5 / 546
Outside Diameter (in/mm)	14.5 / 368	18.2 / 464	18.2 / 464	20 / 508	18.2 / 464
Canister Dimensions					
Canister Height (in/mm)	11 / 279	11 / 279	11 / 279	11 / 279	11 / 279
Canister Diameter (in/mm)	1.65 / 41.9	2.22 / 56	2.81 / 71	4 / 102	2.62 / 67
Maximum Capacity					
Max Number of Canisters	6	6	6	6	9
Max Number of 1/2 cc Straws (10/cane)	780	1260	2100	4500	2520
Max Number of 1/2cc Straws (1 level bulk)	1122	1764	3000	6216	3960
Max Number of 1.2 & 2.0 ml Vials (5/cane)	210	360	630	1320	855
Max Number of Racks				6	
Max Vial Capacity				750	
Level Alarm Options					
LA-2B (120V AC-24 V DC Int - 2 watts max)	✔	✔	✔	✔	✔
BAT-1B (9V AC or from level control)	✔	✔	✔	✔	✔

CERTIFIED
SAFE STORAGE

Package Validation Services

Marathon offers package validation services to test, verify and report on package viability for various temperature-sensitive shipping requirements. Our laboratory staff works with you through the testing process and our Environmental Chambers can be programmed for practical temperature control solutions to meet regulatory-compliance standards using industry-standard test methods.

Whether your valuable product demands near-zero, dry ice, or liquid nitrogen temperatures, we can test and give you feedback on whether your packaging will meet all of the cold-chain management requirements for your product to arrive in perfect condition.

Remote Calibration Services

Enjoy the cost savings and convenience of having your Marathon Products' data logging devices calibrated remotely.

Marathon Products' engineers can perform annual or periodic calibration of our wireless and/or Ethernet connected temperature data loggers from our headquarters. Instead of having to disrupt operations and ship everything back to a vendor's lab, customers can schedule calibration to match their operational requirements.

Remote calibration of edl Loggers for Ethernet and RF units can be summarized in four steps;

1) Record measurements at known temperatures,

2) Determine how much recalibration is required,

3) Load new calibration values in the logger,

4) Confirm that the new measurements are correct.
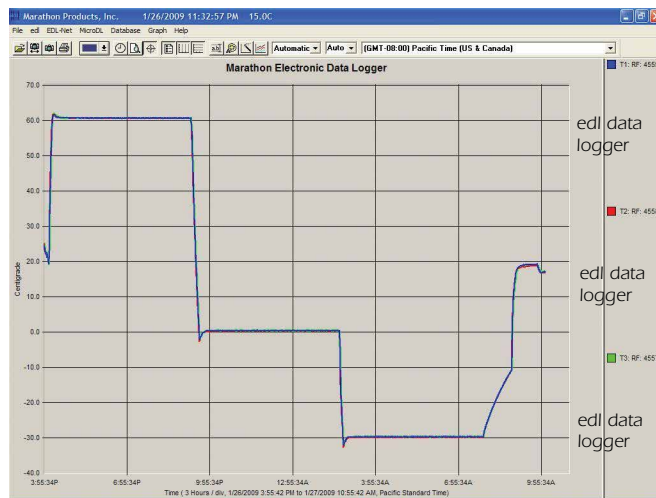
Calibration at 3 temperature points 60°C, 0°C, and -30°C

NOTES

Don't ship without us!®

MARATHON
PRODUCTS, INC.