DC/AC True RMS Voltage Data Logger Model L261

0-600 VAC/DC measurement range

AC True RMS measurements

Built-in 240,000 sample memory

Built-in date & time clock

Alarm function

Battery-powered (2 AA cells)

EN 61010-1; 600V CAT III, 300V CAT IV

Model L261 is a member of the Simple logger II series of instruments and is designed for stand-alone high voltage DC and TRMS AC measurements. It features a pair of safety banana sockets that accepts a direct connected voltage of up to 600 V with 0.1-volt resolution using the provided test leads and clips without any external signal conditioning. The instrument features a built in 240,000-sample memory, integrated LED indicators to display status, and a built-in USB interface for uploading configurations and downloading recorded data. The L261 is powered from two standard AA cells providing complete portability, and a "use anywhere" design.

The L261's data logging function supports sample intervals ranging from once every 125 milliseconds (eight times per second) to as long as once every day. Each L261 measurement is synchronized with the AC line such that 64 samples over one AC line cycle are taken. Frequency tracking is performed over the range of ±2Hz around the nominal line frequency (50 or 60Hz). An integrated real time clock provides time and date stamping of logged voltage data.

Features

600 V Full Scale Range
Adapts to a wide range of DC and AC voltage measurement requirements with 0.1 V resolution.

Integrated Safety Banana Sockets
Safety banana sockets are built into the L261 data logger, which mate with a pair of color-coded (red and black) 5-ft. test leads and alligator clips.

Programmable Sample Intervals
Program the sample interval of the L261 to sample the applied voltage as frequently as eight times per second, to as long as once every 24 hours across 21 preselected intervals.

True RMS AC Measurements
When measuring AC voltage the L261 maintains measurement accuracy by applying a true rms calculation over one line cycle.

Automatic Harmonic Calculation
Real time harmonic calculations are available while the L261 is tethered to a PC.

Automatic Line Syncing
Measurement repeatability is ensured by the L261's line sync circuitry that ensures 64 samples per 50/60 Hz line cycle.

240,000 Sample Non-volatile Memory
Allows long measurement cycles, and ensures data will not be lost, even in the event of battery failure.

Built-in Real Time Clock
Allows recorded data to be correlated with an actual date and time of acquisition.

Programmable Stop/Start Record Times
Program the instrument to both start and stop recording at specific dates and times.

Selectable Storage Modes
Choose from simple record until full, FIFO where the oldest data is overwritten in a circular fashion, or the Extended Record Mode (XRM) where the logger automatically deletes every other sample and doubles its sample interval upon filling the data memory.

Configurable Alarms
Alarm conditions can be flagged as a function of definable upper and lower limits: Above limit, below limit, inside upper/lower limit window, outside upper/lower limit window.

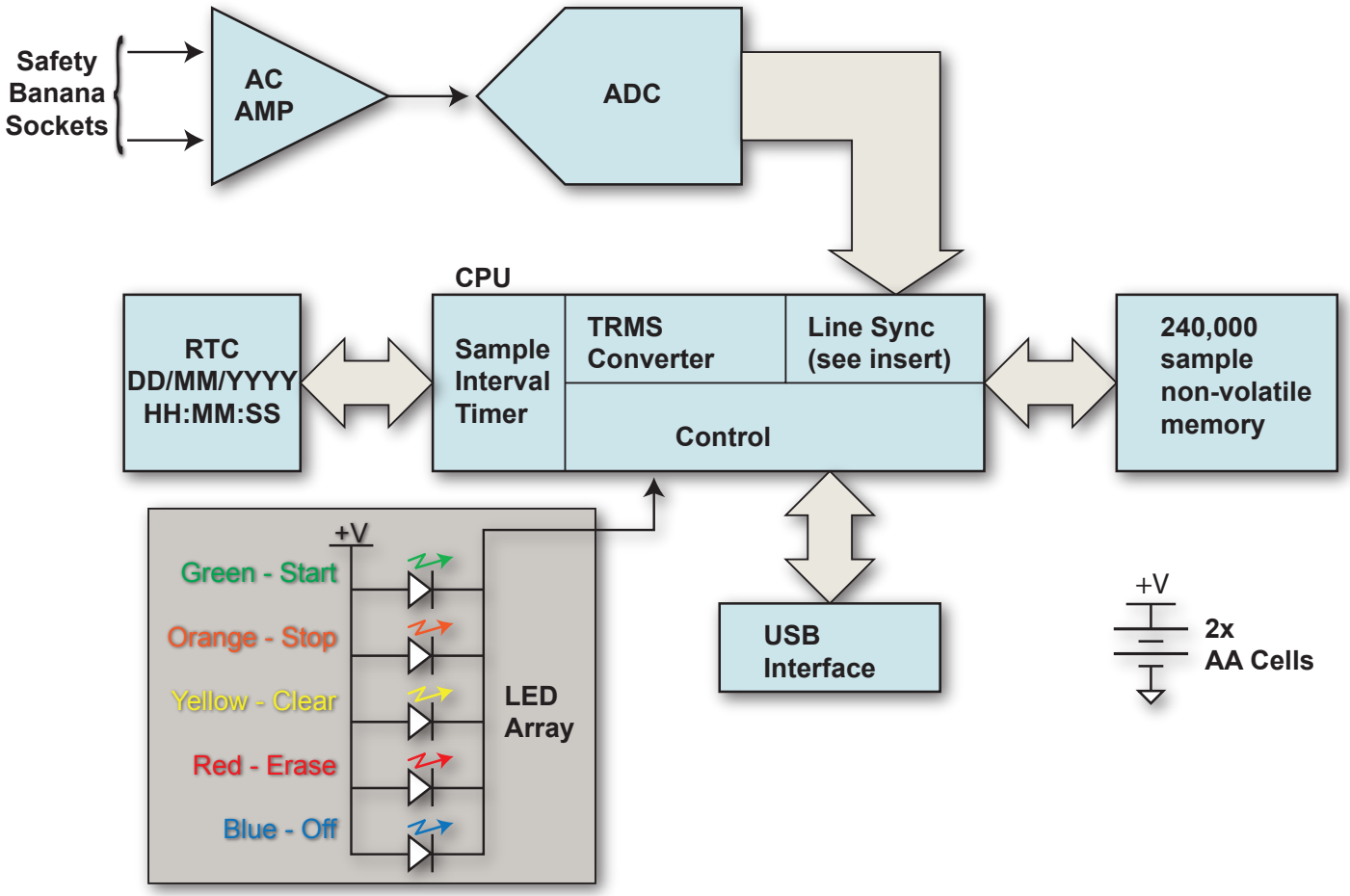
LED Status Array
The instrument's front panel contains multi-colored LEDs to clearly indicate instrument status.

Long Battery Life
The instrument is powered from two AA alkaline cells (included), which can power the instrument for 100 hours to 45 days depending upon sample interval.

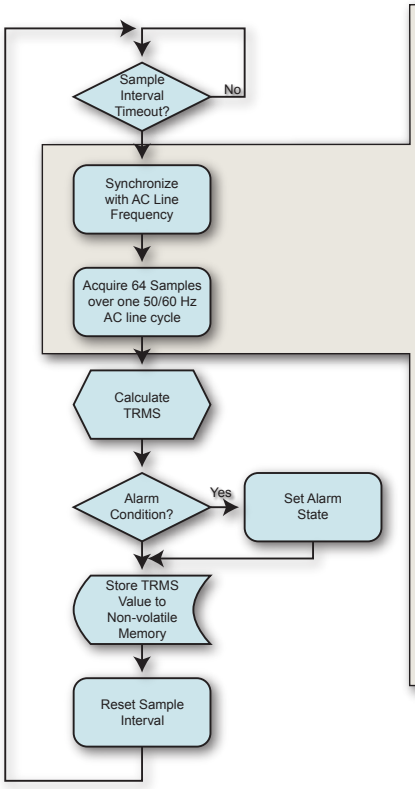
Includes Data Logger Configuration Software
Simple Logger II configuration software is included to allow instrument configuration and data retrieval via the USB port. Real time waveform and harmonic displays are also available.

Includes DataView Software
Allows recorded data to be reviewed, analyzed, printed, and exported to Microsoft Excel.

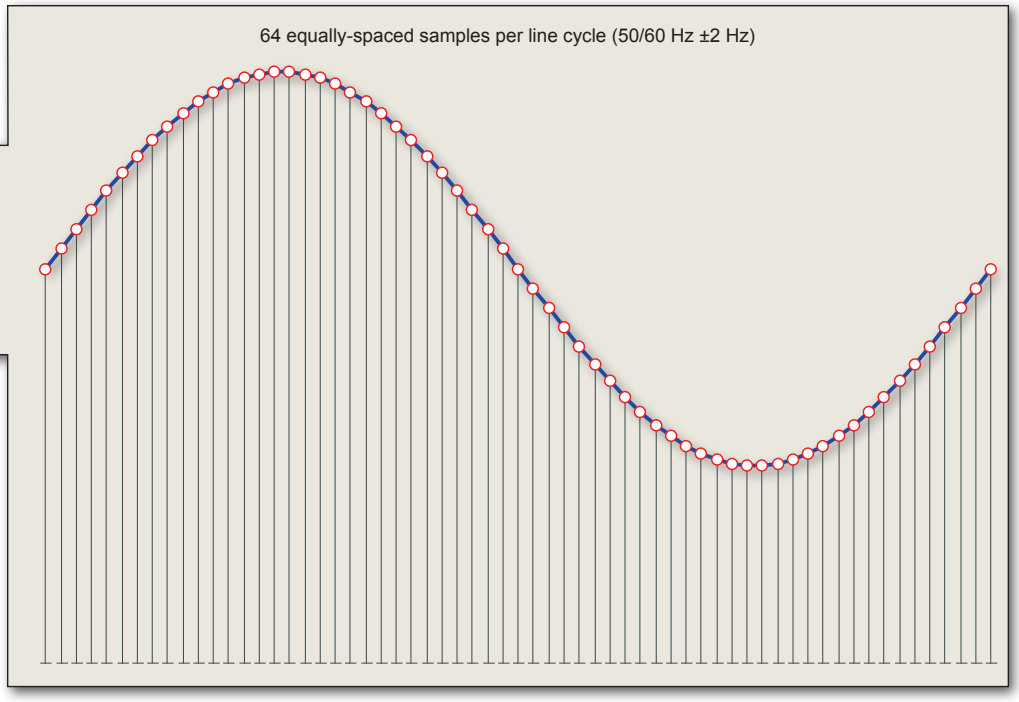
Model L261 Data Logger Block Diagram



Typical Measurement Flow



Line Synchronization



L261 Voltage Data Logger Close-up (Front)

GREEN "START" LED		
CONTROL	Starts a Recording	
STATUS	OFF	Logger is turned OFF or in Low Power Standby state*
	Single-blink	Logger is in Standby Mode (and not recording)
	Double-blink	Logger is in Record Mode

ORANGE "STOP" LED		
CONTROL	Stops a Recording	
STATUS	OFF	Logger is not in an Over-load condition
	Single-blink	One or more inputs are in an Overload condition

YELLOW "CLEAR" LED		
CONTROL	Clears the Alarm State	
STATUS	OFF	No alarm has been seen on any input
	Single-blink	At least one channel has seen an alarm at least once
	Double-blink	At least one channel is currently in an alarm condition
	Fast-blink	Armed to clear alarm indication

RED "ERASE" LED		
CONTROL	Erases the Memory	
STATUS	OFF	No data in memory
	Single-blink	Memory is partially filled
	Double-blink	Memory is full
	Fast-blink	Armed to erase memory

BLUE "TURN OFF" LED		
CONTROL	Turns the Instrument Off	
STATUS	OFF	Battery voltage is above 2.2 volts
	Single-blink	Battery voltage is below 2.2 volts
	Double-blink	Indicates a recording is scheduled

*To determine whether the unit is OFF or in SLEEP mode, press the PRESS button for 0.5 second. If all LEDs light, the logger is not OFF.

L261 Voltage Data Logger Close-up (Back and Bottom)

Bottom Edge

USB Connector

Top Edge

Safety Banana Sockets Inputs

Rear

Battery Compartment

Included Accessories

USB cable
Batteries (2 ea. AA)
Software (CD)
Color-coded cables (5-ft.) and alligator clips (2)

Instrument Configuration Software

Sample Interval

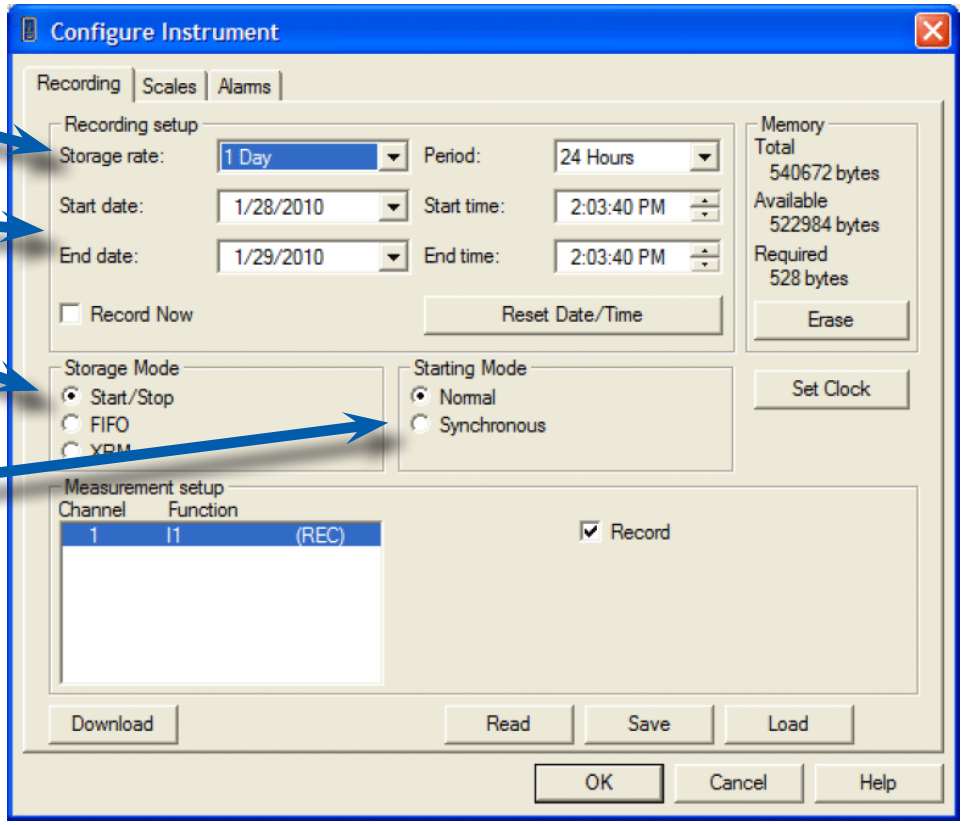
Record start and stop dates and times

Storage Modes:
Stop on Full
Circular
Extended Record Mode (XRM)

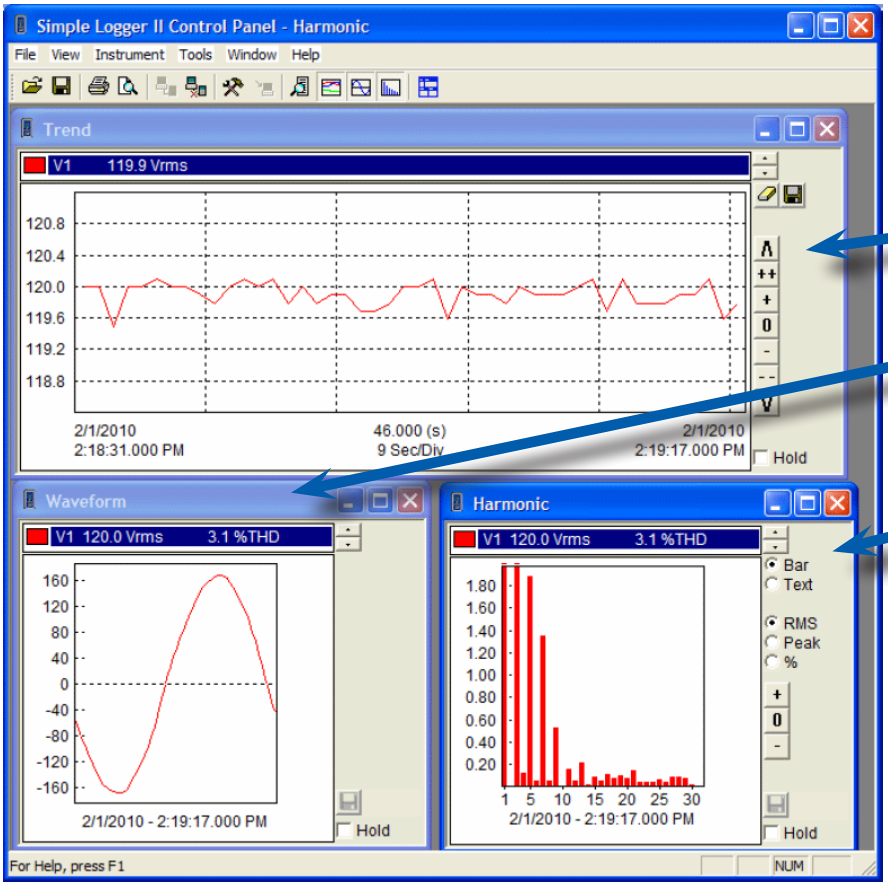
Starting Modes:

Normal causes the recording to start at the specified starting time without regard for storage rate.

Synchronous causes the recording to start synchronized to the storage rate.



Real Time Display Window



The **Trend** Display window shows measurement (sample points) over a time period.

The **Waveform** Display window displays line cycle snapshots. This window displays the actual waveform relative to time.

The **Harmonic** window shows the harmonic content of an associated line cycle using a bar graph or textual table.

DataView Review, Analysis, Report, Export Application

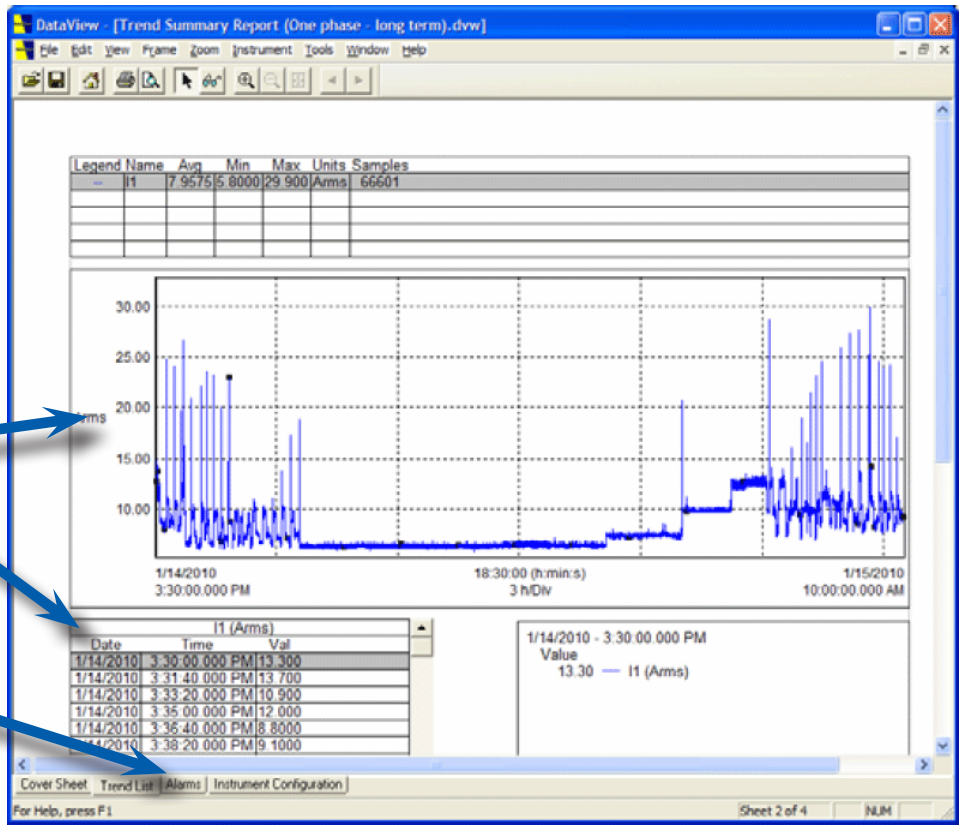
Cursor-based readings along with zoom in and out features.

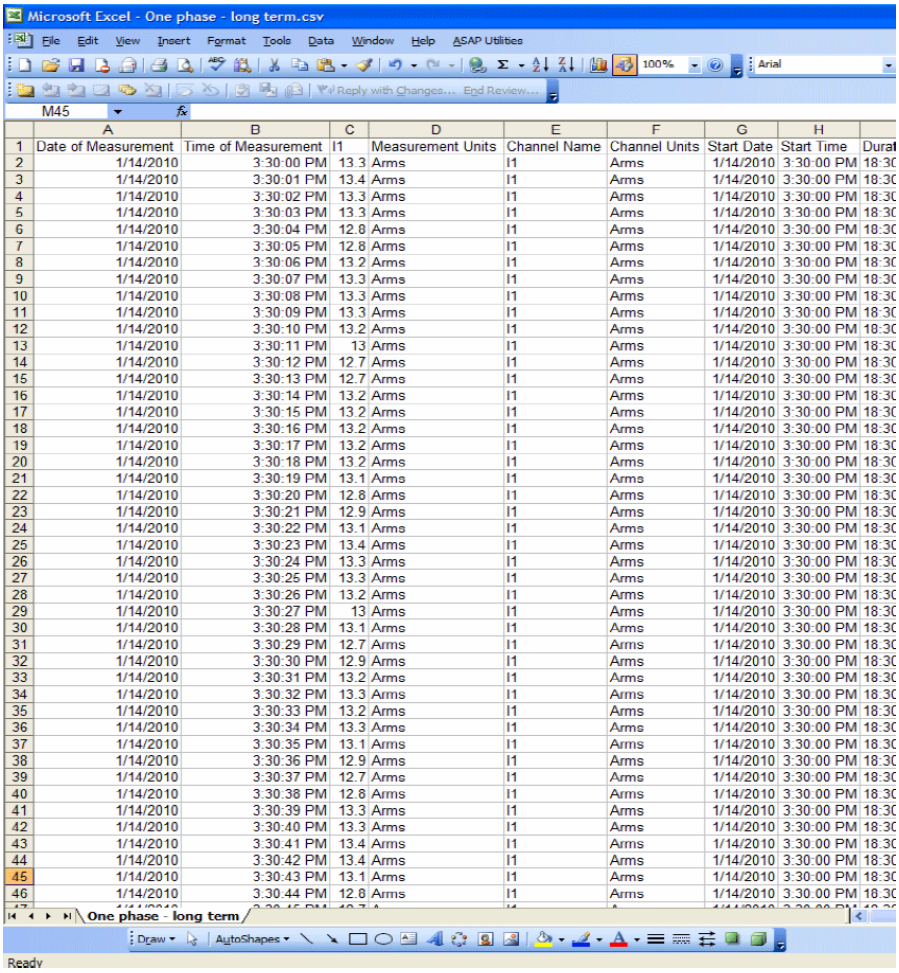
Built-in Report Generator.

Graphical plot of logged data versus date and time.

Text output of logged data versus date and time.

List of alarm conditions, the date and time of occurrence, and duration.





Easily export measured values into Microsoft Excel

Specifications

ELECTRICAL

Number of Channels:	One
Input:	Two recessed 4mm safety banana jacks
Input Level:	0 to 600VAC/DC
Accuracy (50/60Hz):	0 to 5V: unspecified 5 to 50V: ±(0.5% of Reading +1V) 50 to 600V: ±(0.5% of Reading +0.5V)
Resolution:	0.1V
Maximum Input Voltage*:**	1.2 × 600V
Input Impedance:	40MΩ
Sample Rate:	64 samples/cycle
Storage Rate:	Programmable from 125ms to 1 day
Storage Modes:	Start/Stop, FIFO and Extended Recording Mode* (XRM™)
Recording Length:	15 minutes to 8 weeks, programmable using DataView®
Memory:	240,000 measurement (512kB). Recorded data is stored in non-volatile memory and will be retained even if battery is low or removed.
Communication:	USB 2.0 optically isolated
Power Source:**	2×1.5V AA (LR6) alkaline batteries
Battery Life:	100 hours to >45 days (dependent on sample rate/recording length)

MECHANICAL

Dimensions:	4.94 × 2.75 × 1.28” (125 × 70 × 32mm)
Weight (with battery):	6.4 oz (180g)
Case:	Polycarbonate UL94-V0
Vibration:	IEC 68-2-6 (1.5mm, 10 to 55Hz)
Shock:	IEC 68-2-27 (30G)
Drop:	IEC 68-2-32 (1m)

ENVIRONMENTAL

Operating Temperature:	14° to 122°F (-10° to 50°C)
Storage Temperature:	-4° to 140°F (-20° to 60°C)
Relative Humidity:	up to 85% at 95°F (35°C), Non-condensing
Altitude:	2000m

SAFETY & ELECTRO-MAGNETIC COMPATIBILITY

Safety Rating:	EN61010-1; 600V CAT III; 300V CAT IV; Pollution Degree 2
Protection Degree:	IP40
Electro-Magnetic Compatibility:	EN 61326-1; 07/1997 (+A1 10/1998, +A2 09/2001, +A3 05/2004)
CE Approved:	Yes

*This unique recording mode provides the opportunity to continuously record over long periods of time by reducing the storage resolution of the stored data and maintaining matching resolution for the newest data. Each time the memory fills up using XRM™, every other of the oldest stored samples is discarded making room for newer samples. This process continues until the recording is manually stopped.

**A memory backup capacitor provides backup power while the batteries are being changed. This backup capacitor will maintain the instrument for up to 10 seconds without batteries installed. After 10 seconds the date and time will need to be reset (data and configuration will be maintained). If the unit is connected to DataView® via a PC, the battery life is 100 hours regardless of the storage rate.

*** Input level beyond this range may damage the instrument.

Ordering Guide

Description	Order Number
L261 DC and Trms AC voltage data logger including batteries, USB cable, pair of test leads and alligator clips, DataView analysis software, data logger configuration software.	L261
NIST Certificate Must be ordered at the same time as the L261 data logger.	L261-N

DATAQ® INSTRUMENTS

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