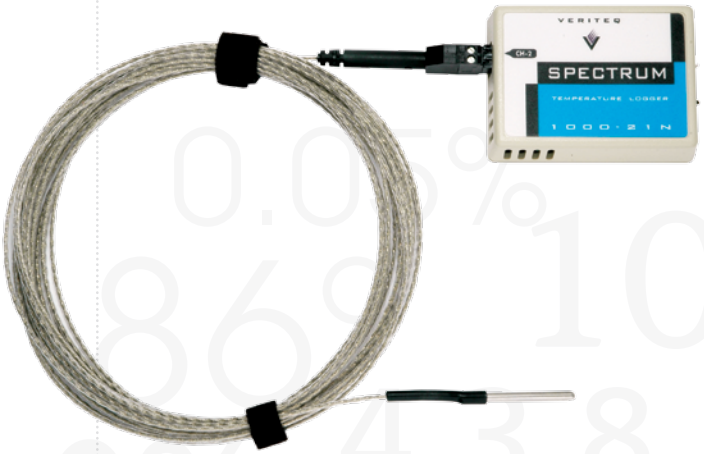
VERITEQ
Superior Temperature & Humidity Monitoring

> The Veriteq 1000/1400 Series Temperature Data Recorders



SP-1000-21N

Veriteq's 1000/1400 series data recorders includes the VL-series for regulated environments and the SP-series for non FDA/GxP industries.

The VL-series of data recorders together with vLog software provides a superior, high accuracy solution for use in FDA/GxP regulated environments by providing tamper-proof files and encrypted electronic records that meet 21 CFR Part 11 requirements.

The SP-series provides a compact, easily-deployable, highly accurate measurement and recording device for use in non FDA/GxP regulated industries. Coupled with Spectrum software for downloading, displaying, analyzing and reporting of recorded environmental data, the SP-series was designed for use in non FDA/GxP regulated environments.

Optional browser-based viewLinc software provides 24/7 multi-stage alarm notification and remote monitoring for both the VL and SP-series of data recorders.

Additional system features include:

- Industry-leading precision and accuracy
- Adjustable time based recording
- Printed reports for any time period
- Extended long-life 10-year battery
- Validation and continuous monitoring with the same tool
- Two year limited warranty
- Superior alternative to chart recorders and hard-wired systems
- NIST-traceable, A2LA accredited calibration available
- Utilization of Steinhart-Hart coefficients stored in each data recorder for high system accuracy

GENERAL

Size	Interfaces	Mounting	PC Software	Internal Clock	Electromagnetic Compatibility	Power Source
71x53x20mm (2.8 x 2.1 x 0.8"), 65g (2.4 oz.)	RS-232 serial, USB, Ethernet, WiFi network interface available	Magnetic strips, 3M Dual Lock™ fasteners	Graphing & Reporting Software Spectrum for SP-series vLog for VL-series viewLinc for continuous monitoring & alarming	Accuracy +/- 1 min./month @ 0°C to +50°C (+32°F to +122°F)	FCC Part 15 and CE	Internal 10-year lithium battery (Battery life specified with sample interval of 1 min. or longer)

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Product Part Number Legend: Guide for reading the product tables and selecting the most appropriate model for your application.

XX - 1000 - XXX

Series Type: VL (Validatable) or SP

Series Number: Series 1000: 2 Channel, Series 1400: 4 Channel

Total Number of Channels: 2/4

Number of External Channels: 1/2/4

External Channel Temperature Range:

Please refer to the Temperature Range and Accuracy table below for external probe options.

TEMPERATURE RANGE & ACCURACY

Series	Sensor	Calibrated Measurement Range	Operating Range	One Year Accuracy*	Resolution
1000-2XX 1400-44X	Internal	-25°C to +70°C (-13°F to +158°F)	-40°C to +85°C (-40°F to +185°F) 0%RH to 100%RH non-condensing	+/-0.15°C over +20°C to +30°C (+/-0.27°F over +68°F to +86°F) +/-0.25°C over -25°C to +70°C (+/-0.45°F over -13°F to +158°F)	0.02°C at +25°C (0.04°F at +77°F)
	"N" Range External Probe	-25°C to +70°C (-13°F to +158°F)	-40°C to +95°C (-40°F to +203°F)	+/-0.25°C over -25°C to +70°C (+/-0.45°F over -13°F to +158°F)	0.02°C at +25°C (0.04°F at +77°F)
	"L" Range External Probe	-50°C to +10°C (-58°F to +50°F)	-60°C to +95°C (-76°F to +203°F)	+/-0.5°C over -50°C to +10°C (+/-0.9°F over -58°F to +50°F)	0.02°C at -20°C (0.04°F at -4°F)
	"V" Range External Probe	-90°C to -40°C (-130°F to -40°F)	-95°C to +95°C (-139°F to +203°F)	+/-0.5°C over -90°C to -40°C (+/-0.9°F over -130°F to -40°F)	0.02°C at -80°C (0.04°F at -112°F)
	"Y" Range External Probe YSI Series 400 probe or equivalent	0°C to +70°C (+32°F to +158°F)	0°C to +70°C (+32°F to +158°F)	+/-0.25°C over 0°C to +70°C (+/-0.45°F over +32°F to +158°F)	0.02°C at +25°C (0.04°F at +77°F)
1000-LT	Internal	-40°C to +40°C (-40°F to +104°F)	-40°C to +85°C (-40°F to +185°F)	+/-0.5°C over -40°C to +40°C (+/-0.9°F over -40°F to -40°F)	0.02°C at 0°C (0.04°F at +32°F)
	"L" Range External Probe	-40°C to +40°C (-40°F to +104°F)	-60°C to +95°C (-76°F to +203°F)	+/-0.5°C over -40°C to +40°C (+/-0.9°F over -40°F to -40°F)	0.02°C at 0°C (0.04°F at +32°F)

*Specification for external channels is for a probe calibrated to the specific channel of the data logger and with the data logger at -25°C to +70°C (-13°F to +122°F)

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VL-1000-21N

VL-1000-22N

VL-1400-44N

INTERNAL TEMPERATURE SENSOR

Series	Sensor Type
1000-21X 1000-LT	Precision-tolerance epoxy-encapsulated NTC thermistor

MEMORY

Series	Data Sample Capacity	Memory Type	Memory Modes	Sampling Rates
1000-2XX 1000-LT	26,900 12-bit samples	Non-volatile EEROM	User-selectable. Wrap (FIFO) or stop when memory is full. User selectable start time. User selectable stop time (VL series only).	User-selectable (in 10 second intervals) from one every 10 seconds to once a day. (Battery life specified with sample interval of 1 min. or longer)
1400-44X	70,300 12-bit samples			

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RECORDING SPAN: 1000 – 2XX

Sample Interval	Number of Channels Enabled	
	1	2
10 Seconds	3.1 Days	1.6 Days
1 Minute	18.7 Days	9.4 Days
5 Minutes	3.1 Months	1.5 Months
15 Minutes	9.3 Months	4.6 Months
1 Hour	3.1 Years	1.5 Years

RECORDING SPAN: 1400 – 44X

Sample Interval	Number of Channels Enabled			
	1	2	3	4
10 Seconds	8.1 Days	4.1 Days	2.7 Days	2.0 Days
1 Minute	1.6 Months	24.4 Days	16.3 Days	12.2 Days
5 Minutes	8.1 Months	4.0 Months	2.7 Months	2.0 Months
15 Minutes	2.0 Years	1 Year	8.1 Months	6.1 Months
1 Hour	8.0 Years	4.0 Years	2.6 Years	2.0 Years

EPT SERIES TEMPERATURE PROBES

Series	Sensor	Operating Range	Connector Color Code	Sensor Tip	Probe Length	Cable Construction
EPT-23N-XXN	"N" Range External Probe	-40°C to +95°C (-40°F to +203°F)	Black	Stainless Steel, Diameter: 3.2mm (1/8") Length: 38mm (1.5")	"XX" denotes the length of the probe in feet. 3m (10') and 7.6m (25') lengths available	2mm (0.07") Diameter, Teflon coated cable
EPT-23N-XXL	"L" Range External Probe	-60°C to +95°C (-76°F to +203°F)	Green			
EPT-23N-XXV	"V" Range External Probe	-95°C to +95°C (-139°F to +203°F)	Blue			

TEMPERATURE PROBE ACCESSORIES:

EPT-TDB: Thermal Dampening Block, for use in refrigerators and freezers. Simulates a glycol bottle to reduce viewLinc alarms generated by opening and closing a door

EPT-YSI-DL: Adapter to connect Standard YSI Series 400 temperature probes to Veriteq Data Loggers for use with data recorders with "Y" range external probe(s)

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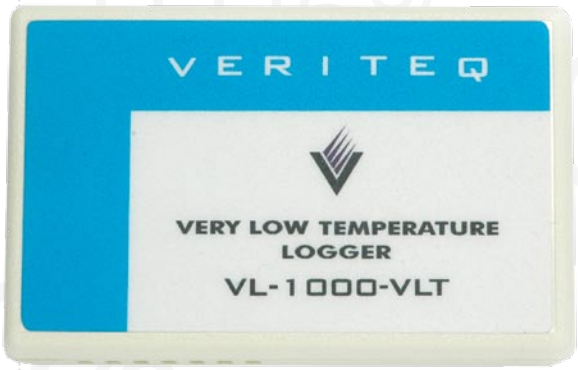
> The Veriteq VL-1000-VLT Temperature Data Recorder



VL-1000-VLT

The Veriteq VL-1000-VLT (Very Low Temperature) was designed for direct placement into cold environments and for dependable, high-accuracy measurement and recording of low temperature environments to -90°C (-130°F).

The unit is simple to use and functions as a completely self-contained system, operating without the need for external probes or wiring.

Typical applications include cold-chain shipping and storage, process validation, ultra-low temperature equipment validation and on-going temperature monitoring to meet 21 CFR Part 11 requirements.

Additional system features include:

- Insitu low temperature operation
- High accuracy measurement and recording of low temperatures
- 5-year long life battery
- NIST-traceable, A2LA accredited calibration available
- High-stability internal thermistor
- Veriteq vLog software meets 21 CFR Part 11 requirements
- Printed validatable reports
- Self-contained, independent monitoring
- Reliable and dependable performance
- Two year limited warranty
- Companion vLog software provides data graphing, reporting and exporting capabilities
- Utilization of Steinhart-Hart coefficients stored in each data recorder for high system accuracy

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PRODUCT SPECIFICATIONS

Size	92x58x28mm (3.63 x 2.27 x 1.1") , 115g. (4.0 oz)
Operating Range	-90°C to +35°C (-130°F to +95°F) and 0 to 100%RH Non-condensing
Measurement Range	-90°C to 0°C (-130°F to +32°F)
Accuracy (1 Year)	+/-1°C over -90°C to 0°C (+/-1.8°F over -130°F to +32°F)
Resolution	0.01°C (0.02°F) at -70°C (-94°F)
Sensor Type	Precision-tolerance epoxy-encapsulated NTC thermistor.
Interfaces	RS-232 serial port, USB
PC Software	Veriteq vLog Validatable software.
Internal Clock	Temperature-compensated over operating range.
Electromagnetic Compatibility	FCC Part 15 and CE.
Power Source	Internal lithium battery with 5-year life. Battery is factory replaceable.
Memory Size	26,900 12-bit samples
Memory Type	Non-volatile EEROM
Memory Modes	User-selectable. Wrap (FIFO) or stop when memory is full. User selectable start/stop time.
Sample Rate	User selectable - Minimum once per minute, selectable in 10-second increments to once per day.
Recording Span	Recording span depends on selected sample interval. Table below provides typical sampling rates and the length of time the data recorder will retain data in memory before wrapping or stopping.

Sample Interval	Recording Span
1 minute	18.7 days
5 minutes	3.1 months
15 minutes	9.3 months
1 hour	3.1 years

Warranty	Two years

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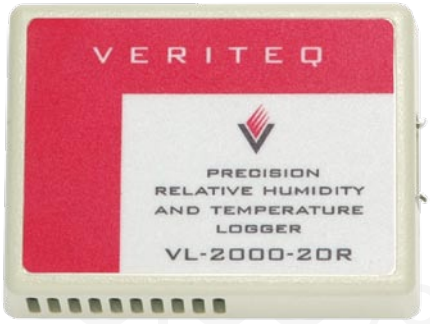
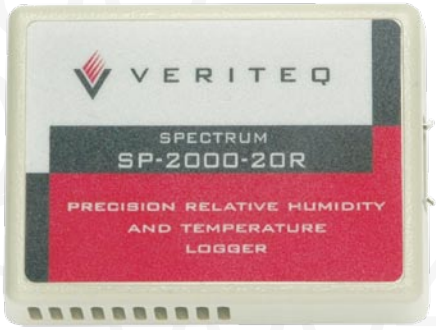
> The Veriteq 2000 Series Temperature & RH Data Recorders



VL-2000-20R



SP-2000-20R

Veriteq's 2000 series data recorders includes the VL-series for regulated environments and the SP-series for non FDA/GxP industries.

The VL-series of data recorders together with vLog software provides a superior, high accuracy solution for use in FDA/GxP regulated environments by providing tamper-proof files and encrypted electronic records that meet 21 CFR Part 11 requirements.

The SP-series provides a compact, easily-deployable, highly accurate measurement and recording device for use in non FDA/GxP regulated industries. Coupled with Spectrum software for downloading, displaying, analyzing and reporting of recorded environmental data, the SP-series was designed for use in non FDA/GxP regulated environments.

Optional browser-based viewLinc software provides 24/7 multi-stage alarm notification and remote monitoring for both the VL and SP-series of data recorders.

Additional system features include:

- Industry-leading temperature and relative humidity measurement precision and accuracy
- High accuracy, adjustable time-based digital recording
- Printed reports for any time period
- Extended 10-year long-life battery
- Ability to perform validation and continuous monitoring with the same tool
- NIST-traceable, A2LA accredited calibration available
- Superior alternative to chart recorders and hard-wired systems
- Utilization of Steinhart- Hart coeffecients stored in each data recorder for high system accuracy
- Integrated high-accuracy capcitive thin-film polymer RH sensor
- Surface calibration of RH sensor across a wide temperature range

GENERAL

Size	Interfaces	Mounting	PC Software	Internal Clock	Electromagnetic Compatibility	Power Source
71x53x20mm (2.8 x 2.1 x 0.8"), 65g (2.4 oz.)	RS-232 serial, USB, Ethernet, WiFi network interface available	Magnetic strips; 3M Dual Lock™ fasteners	Graphing & Reporting Software Spectrum for SP-series vLog for VL-series viewLinc for continuous monitoring & alarming	Accuracy +/- 1 min./month @ 0°C to +50°C (+32°F to +122°F)	FCC Part 15 and CE	Internal 10-year lithium battery (Battery life specified with sample interval of 1 min. or longer)

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INTERNAL SENSORS

Series	Sensor	Calibrated Measurement Range*	Operating Range	One Year Accuracy	Resolution
SP-2000-20R VL-2000-20R	Internal Temperature Sensor	-25°C to +70°C (-13°F to +158°F)	-35°C to +85°C (-31°F to +185°F)	+/-0.15°C over +20°C to +30°C (+/-0.27°F over +68°F to +86°F) +/-0.25°C over -25°C to +70°C (+/-0.45°F over -13°F to +158°F)	0.02°C at +25°C (0.04°F at +77°F)
	Internal RH Sensor	45%RH at +10°C (+50°F) 11%RH to 80%RH at +25°C (+77°F) 45%RH at +45°C (+113°F)	0%RH to 100%RH (non-condensing)	+/-2%RH over 10%RH to 90%RH at +20°C to +30°C (+68°F to +86°F) +/-3%RH over 10%RH to 90%RH at -20°C to +70°C (-4°F to +158°F)	0.05%RH
SP-2000-LRH VL-2000-LRH	Internal Temperature Sensor	-25°C to +70°C (-13°F to +158°F)	-35°C to +85°C (-31°F to +185°F)	+/-0.15°C over +20°C to +30°C (+/-0.27°F over +68°F to +86°F) +/-0.25°C over -25°C to +70°C (+/-0.45°F over -13°F to +158°F)	0.02°C at +25°C (0.04°F at +77°F)
	Internal RH Sensor	0%RH to 20%RH at +25°C (+77°F)	0%RH to 30%RH	+/-2%RH over 0%RH to 20%RH at +25°C (+77°F)	0.05%RH

*Custom calibration points available upon request including full ICH coverage.

MEMORY

Data Sample Capacity	Memory Type	Memory Modes	Sampling Rates
26,900 12-bit samples	Non-volatile EEROM	User-selectable. Wrap (FIFO) or stop when memory is full. User selectable start time. User selectable stop time (VL series only).	User-selectable (in 10 second intervals) from 1 every 10 seconds to once a day. (Battery life specified with sample interval of 1 min. or longer)

RECORDING SPAN

Sample Interval		Recording Span	
10	Seconds	1.6	Days
1	Minute	9.4	Days
5	Minutes	1.6	Months
15	Minutes	4.6	Months
1	Hour	1.5	Years

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