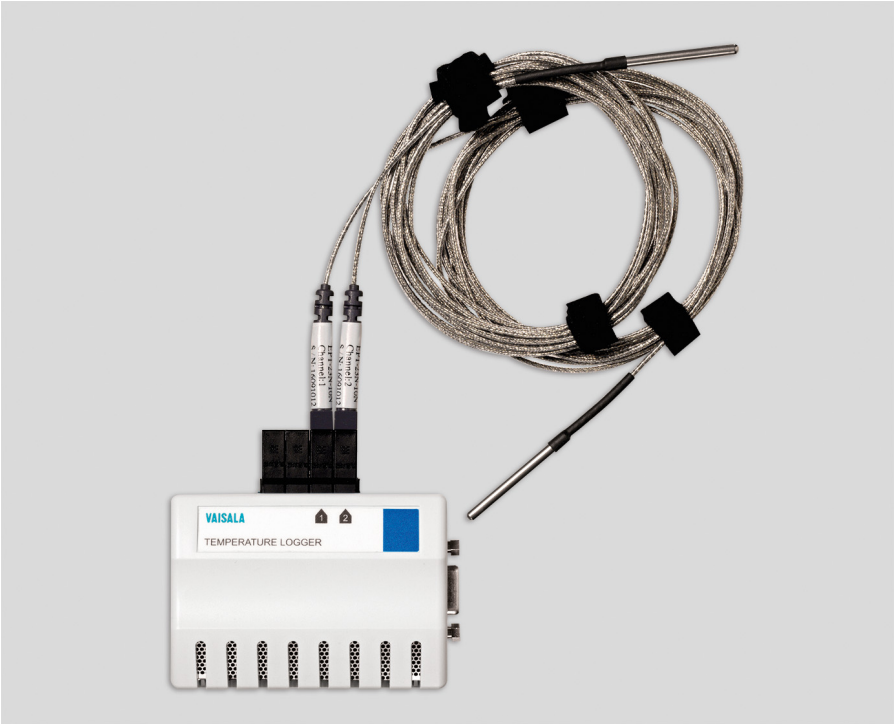
DL1000-1400 Temperature Data Logger



Features

- Industry-leading precision and accuracy
- Printed reports for any time period
- Internal battery with up to 10 years' lifetime
- Validation and continuous monitoring with the same model
- 2-year limited warranty
- Superior alternative to chart recorders and hard-wired systems
- Timebase calibrated over the operating temperature range
- Adjustable time-based recording
- Snap-in logger cradle for easy network connectivity
- Two probe options give high accuracy – from −90 °C to +70 °C (−130 °F to +158 °F)
- Traceable to SI units through national metrology institutes

The DL1000-1400 temperature data loggers include the VL series for regulated environments and the SP series for non FDA/GxP regulated industries.

Suitable for validated and standard precision monitoring

Validatable data loggers, together with Vaisala software solutions, provide a superior, high accuracy solution for use in FDA/GxP regulated environments by ensuring tamperproof files and electronic records that meet 21 CFR Part 11 requirements.

The DL1000-1400 temperature data loggers include calibrations traceable to SI units through national metrology institutes. [1)]

DL data loggers are compatible with the browser-based Vaisala viewLinc continuous monitoring software. viewLinc provides 24/7 multi-stage alarm notification and remote monitoring, and is suitable for regulated environments.

Additional software options include vLog VL for regulated environments and vLog SP for standard precision monitoring. vLog software solutions allow downloading, displaying, analyzing, and reporting of recorded environmental data.

Applications

The DL1000-1400 temperature data loggers are ideal for monitoring and validation of:

- Refrigerators and freezers (to −90 °C (−130 °F))
- Incubators
- Stability chambers
- Warehouses
- Ambient conditions

Autonomous power and recording capacity

Each data logger contains a battery [2)] and onboard memory for recording at the point of measurement. With autonomous power and recording capacity, data is immune to network and power interruptions.

1) *Measurement results are traceable to the international system of units (SI) through national metrology institutes (NIST USA, MIKES Finland, or equivalent) or ISO/IEC 17025 accredited calibration laboratories.*
2) *Expected battery lifetime up to 10 years in typical use.*

Technical data

General specifications

Interfaces	• Internal: RS-232 serial • With additional connectors/devices: USB, Ethernet, Wi-Fi, PoE
PC software	• vLog software for graphing and reporting (vLog SP for SP series and vLog VL for VL series) • viewLinc Enterprise Server software for continuous monitoring and alarming • OPC DA Server to add Vaisala recorders to any OPC-compatible monitoring system
Internal clock	Accuracy ±1 min/month −25 °C ... +70 °C (−13 °F ... +158 °F)
Logger operating/ Storage range	−40 °C ... +85 °C (−40 °F ... +185 °F) 0 ... 100 %RH non-condensing
Power source	Internal lithium battery with typical lifetime of 10 years [1)]

1) Typical battery lifetime specified with sample interval of 1 min or longer.

Mechanical specifications

Size	85 × 59 × 26 mm (3.4 × 2.3 × 1 in)
Weight	76 g (2.7 oz)
Mounting	3M Dual Lock™ fasteners Snap-in connector locks provide secure probe connections

Internal temperature sensor

1000-21x series	Precision-tolerance epoxy-encapsulated NTC thermistor

Memory

1000-2XX series	48 100 12-bit samples
1400-44X series	85 300 12-bit samples
Memory type	Non-volatile EEPROM
Memory modes	User selectable: wrap (FIFO) or stop when memory is full. User selectable start time. User selectable stop time (VL series only).
Sampling rates	User-selectable (in 10-second intervals) from once every 10 seconds to once a day.

Compliance

EU directives	EMC Directive (2014/35/EU) RoHS Directive (2011/65/EU) amended by 2015/863
EMC compatibility	IEC/EN 61326-1, industrial environment
EMC emissions	CISPR 32 / EN 55032, Class B FCC part 15, class B
Compliance marks	CE, China RoHS, RCM

Recording span: 1000-2xx

	Number of channels enabled	
Sample interval	1	2
10 seconds	5.5 days	2.7 days
1 minute	1.1 months	16.7 days
5 minutes	5.5 months	2.7 months
15 minutes	1.3 years	8.3 months
1 hour	5.4 years	2.7 years

Data logger model VL-1000-21x

Data logger model VL-1000-22x

Technical data

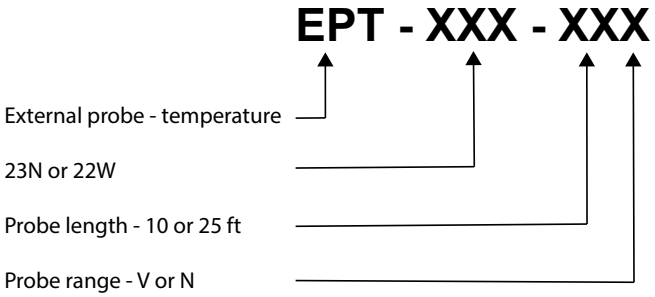
Recording span: 1400-44x

	Number of channels enabled			
Sample interval	1	2	3	4
10 seconds	9.8 days	4.9 days	3.2 days	2.4 days
1 minute	1.9 months	29.6 days	19.7 days	14.8 days
5 minutes	9.8 months	4.9 months	3.2 months	2.4 months
15 minutes	2.4 years	1.2 years	9.8 months	7.4 months
1 hour	9.7 years	4.8 years	3.2 years	2.4 years

Data logger model VL-1400-44x

EPT series temperature probes

Sensor models	
"N" range external probes	EPT-23N-XXN and EPT-22W-XXN
Operating/storage range	−40 °C ... +95 °C (−40 ... +203 °F)
Connector color code	Black
"V" range external probes	EPT-23N-XXV and EPT-22W-XXV
Operating/storage range	−95 °C ... +95 °C (−139 ... +203 °F)
Connector color code	Blue
Sensor tips	
EPT-23N-XXX	Stainless steel Diameter 3.2 mm (0.13 in) Length 38 mm (1.5 in)
EPT-22W-XXX (liquid submersible)	Sealed Teflon® tip Diameter 3 mm (0.12 in) Length 28 mm (1.1 in)
Probe lengths	3 m (10 ft) and 7.6 m (25 ft)
Cable construction	2 mm (0.08 in) diameter Teflon® coated cable



Temperature probe accessories

Thermal dampening block, for use in refrigerators and freezers, simulates a glycol bottle to reduce viewLinc alarms generated by opening and closing a door.

Technical data

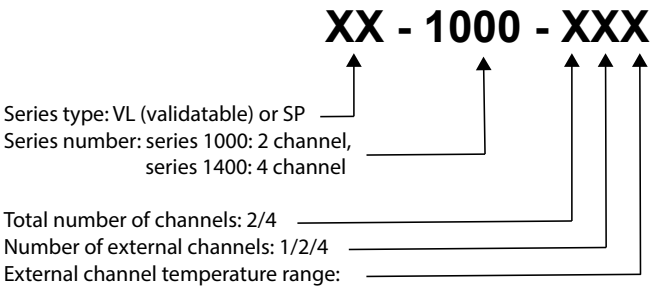
Temperature range and accuracy

Internal sensor	
Calibrated measurement range	−25 ... +70 °C (−13 ... +158 °F)
Operating/storage range	−40 ... +85 °C (−40 ... +185 °F) 0 ... 100 %RH non-condensing
Initial accuracy [1]	±0.10 °C over +20 ... +30 °C (±0.18 °F over +68 ... +86 °F) ±0.20 °C over −25 ... +70 °C (±0.36 °F over −13 ... +158 °F)
1-year accuracy [2]	±0.15 °C over +20 ... +30 °C (±0.27 °F over +68 ... +86 °F) ±0.25 °C over −25 ... +70 °C (±0.45 °F over −13 ... +158 °F)
External probes - all models	
"N" range external probe	
Calibrated measurement range	−25 ... +70 °C (−13 ... +158 °F)
Operating/storage range	−40 ... +95 °C (−40 ... +203 °F)
Initial accuracy [1] [3]	±0.10 °C over +20 ... +30 °C (±0.18 °F over +68 ... +86 °F) ±0.20 °C over −25 ... +70 °C (±0.36 °F over −13 ... +158 °F)
1-year accuracy [2] [3]	±0.20 °C over +20 ... +30 °C (±0.36 °F over +68 ... +86 °F) ±0.25 °C over −25 ... +70 °C (±0.45 °F over −13 ... +158 °F)
Resolution	0.02 °C at +25 °C (0.04 °F at +77 °F)
"V" range external probe	
Operating/storage range	−95 ... +95 °C (−139 ... +203 °F)
Initial accuracy [1] [3]	±0.20 °C over −90 ... −40 °C (±0.36 °F over −130 ... −40 °F)
1-year accuracy [2] [3]	±0.25 °C over −90 ... −40 °C (±0.45 °F over −130 ... −40 °F)
Resolution	0.02 °C at −80 °C (0.04 °F at −112 °F)
Calibrated measurement range	−90 ... −40 °C (−130 ... −40 °F)

1) *Initial accuracy includes all known influence quantities present at the time of calibration including calibration uncertainty, mathematical fit, data logger resolution, hysteresis, and reproducibility.*
2) *1-year accuracy includes all known influence quantities present during the operation of a data logger over the course of 1 year including initial accuracy and long term drift. Not included is any drift related to atypical contamination or misuse.*
3) *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 ... +70 °C (−13 °F ... +158 °F).*

Product part number legend

Guide for reading the product tables and selecting the most appropriate model for your application.



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