



### Designed for Controlled Environments

- Extreme temperatures
- Liquid nitrogen (LN<sub>2</sub>)
- Ovens
- Sterilization chambers

The Vaisala DL1700 series data loggers provide highly accurate temperature data acquisition and are ideal for demanding environments. The DL1700 data loggers can be used with Vaisala software, either viewLinc or vLog, to download, display, and analyze environmental data.

### Applications

- Ideal for extreme temperatures from -240 °C to +1760 °C
- Accepts type J, K, T, E, R and S thermocouples
- No programming or complicated equations required
- Highly accurate replacement for bulky data acquisition systems
- Traceable to SI units through national metrology institutes

The viewLinc monitoring system provides 24/7 multi-stage alarm notification, remote, real-time monitoring and gap-free data. The vLog software is a simple solution for validation/ mapping applications. All reports are customizable and can be exported to spreadsheets and PDF to provide records that meet the requirements of 21 CFR Part 11 and Annex 11.

Easy to use with standard thermocouples, these compact data loggers can offer up to five channels of data in temperatures ranging from -240 °C to +1760 °C.

We offer models for both validated and non-validated applications. Choose the DL1700 VL series for GxP-compliant environments and the DL1700 SP series for non-validated applications. DL1700 series data loggers include calibrations traceable to SI units through national metrology institutes. <sup>1)</sup>

<sup>1)</sup> 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.

# Technical Data

## General

|                |   |
|----------------|---|
| Interfaces     | RS-232 serial, USB, Ethernet, WiFi network interface available  |
| Internal clock | Accuracy: $\pm 1$ min./month at -25 ... +70 °C  |
| Software       | viewLinc for Monitoring, Alarming and Reporting vLogVL for Validation/Mapping GxP environments<br>vLogSP for graphing and reporting non-GxP environments<br>OPC Server to add Vaisala loggers to any OPC-compatible monitoring system |

## Temperature Accuracy

|        | Temperature Measurement Range            | Accuracy at Mid-range         | Resolution at Mid-range |
|--------|--|-------------------------------|-------------------------|
| Type K | -220 ... +1370 °C<br>(-364 ... +2498 °F) | $\pm 1.3$ °C ( $\pm 2.3$ °F)  | 0.37 °C (0.67 °F)       |
| Type J | -130 ... +900 °C<br>(-202 ... +1652 °F)  | $\pm 1.0$ °C ( $\pm 1.8$ °F)  | 0.29 °C (0.52 °F)       |
| Type T | -240 ... +350 °C<br>(-400 ... +662 °F)   | $\pm 1.2$ °C ( $\pm 2.2$ °F)  | 0.34 °C (0.61 °F)       |
| Type E | -110 ... +740 °C<br>(-166 ... +1364 °F)  | $\pm 0.70$ °C ( $\pm 1.3$ °F) | 0.20 °C<br>(0.36 °F)    |
| Type R | -50 ... +1760 °C<br>(-58 ... +3200 °F)   | $\pm 4.4$ °C ( $\pm 7.9$ °F)  | 1.3 °C (2.3 °F)         |
| Type S | -50 ... +1700 °C<br>(-58 ... +3092 °F)   | $\pm 5.1$ °C ( $\pm 9.2$ °F)  | 1.5 °C (2.7 °F)         |

## Operating Environment

|                       |   |
|-----------------------|---|
| Operating temperature | -40 ... +85 °C (-40 ... +185 °F)  |
| Operating humidity    | 0 ... 100 %RH (non-condensing)  |
| EMC compliance        | FCC Part 15 and CE<br>EN 50581:2012<br>EN 55032:2012/AC:2013 Class B<br>EN 61326-1:2013 |
| RoHS compliance       | 2011/65/EU  |

## Mechanical Specifications

|              |   |
|--------------|---|
| Dimensions   | 85 × 59 × 26 mm (3.4 × 2.1 × 1 in)  |
| Weight       | 60 g (2.7 oz)   |
| Mounting     | 3M Dual Lock™ fasteners   |
| Power source | Internal 10-year lithium battery<br>(Battery life specified with sample interval of 1 min. or longer) |

## Cold Junction Temperature Channel

|                   |   |
|-------------------|---|
| Measurement range | -40 ... +85 °C (-40 ... +185 °F)  |
| Accuracy          | $\pm 0.25$ °C over +20 ... +30 °C<br>( $\pm 0.45$ °F over +68 ... +86 °F)<br>$\pm 0.35$ °C over -25 ... +70 °C<br>( $\pm 0.63$ °F over -13 ... +158 °F) |

## Data Logger Inputs

| 1700 Model | Number of Channels Enabled |     |       |
|------------|----------------------------|-----|-------|
|            | Thermocouple               | CJT | Total |
| 170-54T    | 4                          | 1   | 5     |

**Note:** One channel is designated for Cold Junction Temperature (CJT) reference using an on-board precision-tolerance thermistor.

## Thermocouple Input Channels

| Compatible Thermocouple Types: J, K, T, E, R, S |                                   |
|---|-----------------------------------|
| <b>Initial Accuracy</b>                         |                                   |
| Input range                                     | -7.2 ... +55.4 mV                 |
| Resolution                                      | 0.016 mV                          |
| Initial Accuracy                                | $\pm 0.042$ mV at +25 °C (+77 °F) |
| <b>Input Impedance: 10M <math>\Omega</math></b> |                                   |
| Input range                                     | -7.2 ... +55.4 mV                 |
| Resolution                                      | 0.016 mV                          |
| 1-Year Accuracy                                 | $\pm 0.055$ mV at +25 °C (+77 °F) |
| <b>Additional Error</b>                         |                                   |
| At 3 V/m RF field from<br>450 MHz ... 580 MHz   | $\pm 0.350$ mV                    |
| At 3 V conducted RF from<br>3 MHz ... 80 MHz    | $\pm 1.0$ mV                      |

## Memory

|                      |  |
|----------------------|--|
| Memory type          | Non-volatile EEPROM  |
| Data sample capacity | 135,165 12-bit samples   |
| Memory modes         | User-selectable wrap (FIFO) or stop when memory is full. User-selectable start time.   |
| Sampling rates       | User-selectable from once every 10 seconds to once a day.<br>(Battery life specified with sample interval of 1 min. or longer) |
| Recording span       | Recording span depends upon sample interval selected and number of channels enabled.   |

## Spare Parts and Accessories

|                           |                                     |
|---------------------------|-------------------------------------|
| <b>Thermocouple probe</b> | EPT-22T-20T                         |
| Type                      | T                                   |
| Conductors                | Copper/Constantan                   |
| Operating range           | -200 ... +200 °C (-328 ... +392 °F) |
| Length                    | 6.096 m (20 ft)                     |
| Error                     | $\pm 1$ °C ... $\pm 1.5$ %          |



**VAISALA**

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