HL-1D / TL-1D

SHORT INSTRUCTION MANUAL

Data Loggers for Humidity and Temperature (only for V2.0)

General Description

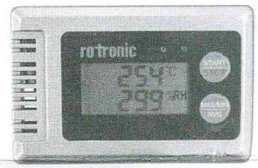
Congratulations on your new ROTRONIC HL-1D (humidity and temperature) / TL-1D (temperature) data logger. Please read these short instructions carefully before using the device. These short instructions are limited to a description of the main functions and installation of the device.

The HL-1D data logger can log up to 32,000 pairs of measured values (relative humidity and temperature) in a range from 0 to 100 %RH and -20 to 70 °C.

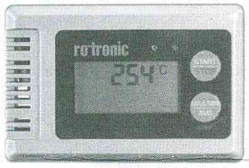
The TL-1D data logger can log up to 64,000 temperature measured values in a range from -20 to 70 °C.

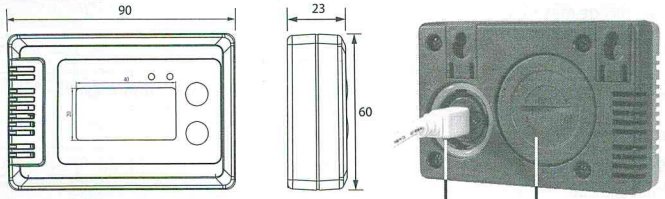
Dimensions / Connections

Type HL-1D



Type TL-1D





Log-Interval	Storage capacity reached after	
	TL-1D	HL-1D
30 sec	22 days 5 hours	11 days 2 hours
5 min	222 days	111 days
30 min	>3 years	1 year 301 days
45 min	>5 years	2 years 270 days
60 min	>6 years	>3 years

Inserting / Replacing the Battery

ROTRONIC HL-1D/TL-1D data loggers are powered by a CR2 battery.
To insert/replace the battery, open the BAT lid with a coin and insert the battery with the right polarity (+/-). When closing the lid, make sure that the O-ring seal is positioned correctly.

Mechanical Installation / General Recommendations

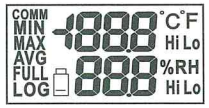
Relative humidity is very temperature-dependent. The installation site can therefore have a significant influence on the performance of the device.
Follow the guidelines below to ensure optimum performance:

a) Select a representative installation site: install the device at a point where the humidity, temperature and pressure conditions are representative of the environment that is to be measured.
b) Ensure there is sufficient air movement at the device: an air velocity of at least 1 meter per second accelerates and facilitates adaptation of the probe to changing temperatures.
c) Avoid: (1) placing the device too close to heating elements, cooling coils, cold or hot walls, in direct sunlight, etc. (2) placing the probe too close to steam injectors, humidifiers, in direct precipitation. (3) unstable pressure conditions with high air turbulence. (4) accumulation of condensation at the contact wires of the sensor.

Mounting the Data Logger

The device can be placed at any point or mounted on a wall. Wall mounting: pull out the two wall holders at the back of the device. Drill two holes and screw in screws. Then hang the device on the screws.

Display



COMM: Appears when the device is connected to a computer
MIN/MAX/AVG: Press button briefly to show MIN/MAX/AVG of the stored measured values (only works in LOG mode)
FULL: Appears when the memory is full
LOG: Appears when the logging function is active
: Appears when the battery is low
°C/°F, %RH: Temperature and humidity unit
Hi, Lo: Appears when the temperature or humidity is above the High Alarm setting or below the Low Alarm setting

On/Off / Data Logging

Press button briefly to switch the device on/off
(the device cannot be switched off when in logging mode).

To start or stop data logging, press the START/STOP button for a few seconds.

rotronic ○ ● The right LED flashes green every five seconds during data logging.

The left LED flashes red every five seconds when values exceed/drop below the alarm settings or when the battery is low.

Settings / Viewing Recorded Data

A PC running the ROTRONIC software HW4 is needed to make settings and download/view the recorded data. The device and PC are connected to each other with a normal USB to USB-Mini cable (AC003). The cover of the USB port on the device can be opened with a coin. More information regarding the setting of the HW4 software can be found in the help-file of the device manager.
CAUTION: Time must be synchronized when first using the logger.

Troubleshooting

Error	Problem	Solution
E02	Measured temperature value is too low	Place the device in a normal environment
E03	Measured temperature value is too high	Place the device in a normal environment
E31	Temperature sensor damaged	Send the device in for repair
E04	Temperature measurement error	Place the device in a normal environment
E11	RH calibration error	Repeat humidity calibration
E33	Circuit damaged	Send the device in for repair

Technical Data

Type of battery	1 x CR2
Battery life	3 years (at logging interval of 1 hour)
Battery charge indicator	Yes (HW4 software and display / LED indicator)
Range of measurement / application	0...100 %RH / -20...70 °C
Accuracy at 23 °C ±5 °C	±3.0 %RH / ±0.3 °C
Storage capacity	HL-1D: 32,000 data points (%RH + °C) TL-1D: 64,000 data points (°C)
Logging interval	30 s to 24 h
Display	LCD, 2 lines, resolution of 1 decimal
LED indicator	2 LEDs Right LED flashes green during data logging Left LED flashes red when limits broken or low battery
Housing protection grade	HL-1D: IP67 (electronics) TL-1D: IP67
Weight	85 g
FDA/GAMP compatibility	Conformity
Dimensions	90 x 60 x 23 mm
Software	HW4 V3.4 or higher
Included	HL-1D / TL-1D CR2 3V lithium battery Short instruction manual Calibration certificate

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