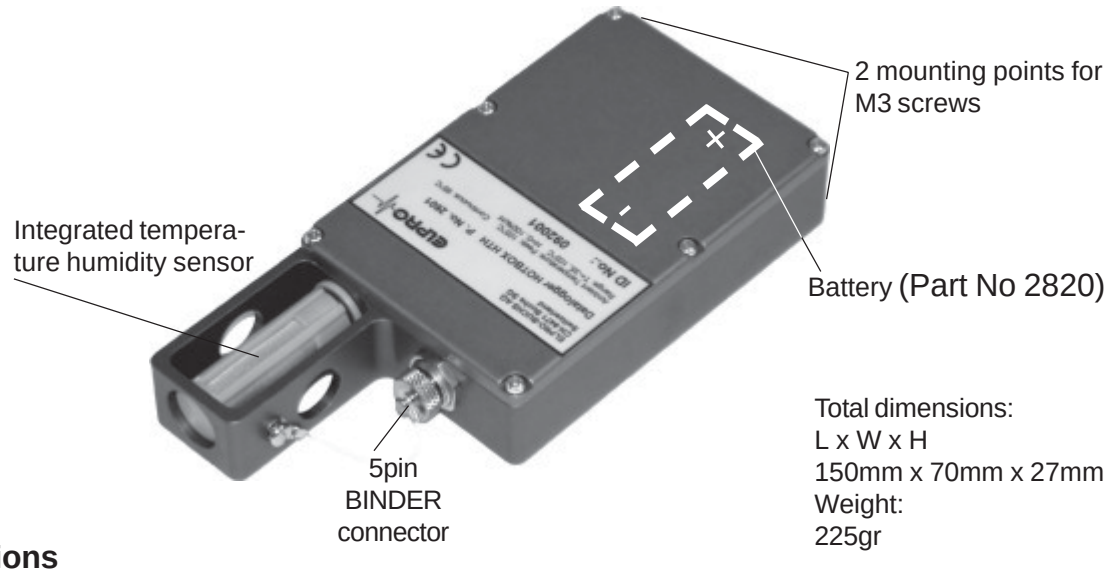
1. Product Description



1.1 Applications

The HOTBOX HTH was developed to record conditions during various foodstuff production procedures: belt drying (pasta production), lyophilisators and drying chambers.
Further applications are drying procedures in the ceramic industry and in brickworks.
The robust and stabile construction of the aluminium housing and the sturdy sensor protection guarantee that the HOTBOX HTH will survive a fall of 1 meter onto a hard surface.

1.2 Function

The HOTBOX HTH datalogger is a battery-operated, self-contained data recording unit.
The integrated sensor logs the ambient temperature (-35°C.. +95/105°C) and the air humidity (0%.. 100% r.H.). An additional external temperature probe (-50°C.. +140°C) can be connected to the HOTBOX HTH using a 5 pin BINDER connector (see chapter 5).
The unit has an internal memory capacity for 64,000 measured values. The mode of measurement (loop or start-stop memory) and the measurement interval (1s to 3h) can be defined with the software.
Data evaluation and datalogger programming is done with the elproLOG PC software.

1.3 Calibration

The HOTBOX HTH is delivered with a calibrated, long-time stable rF/T probe. Depending on the specific mode of application we recommend you return the datalogger to the manufacturing company for calibration / adjustment after 6 to 12 months.

1.4 Battery

3.6V lithium battery with large temperature range. The user can replace the battery himself without any problems.
Refer to chapter 2 Applications and Safety Regulations for more information about the operative range of the battery and the battery replacement procedure.

2. Applications and Safety Regulations

2.1 Operating Temperatures

- The loggers can be used in the temperature range between -40°C and +95°C and peek temperatures up to +105°C.
- Battery self-discharging increases at temperatures exceeding 45°C and continuous operation at temperatures above 45°C can reduce the serviceable life by approx. 1/3.
- Lithium battery passivation, due to long-term use at temperatures above 40°C, can result in temporary read problems (self-discharge protection). This can be rectified by repeated evaluation.
- Long-term use at low temperatures down to -40°C does not present any problems.
- We can not guarantee that the logger will always function properly if it is implemented at temperatures below -40°C. Experience has shown that the battery freezes at approx. -50°C, that it is no longer possible to perform measurements and that the timer tracking function can be temporarily interrupted. To make further operation possible, the logger must be reprogrammed when room temperature is reestablished.

2.2 Exceptional Environmental Conditions

Pay attention to the following when loggers are used under exceptional environmental conditions:

- A vent hole should be drilled at negative pressures of <0.4 bar abs.
- There is a risk that the battery may explode if the logger is used in conjunction with microwaves

2.3 Precautionary Measures for Handling Units with Lithium Batteries

- Do not short-circuit batteries: Danger of explosions
- Do not throw units which contain batteries into fire: Danger of explosions
- Do not subject the batteries to mechanical stress and do not dismantle them. The leaking battery fluid is highly corrosive and lithium can generate severe heat when it comes into contact with moisture or it can ignite fire.
- Do not heat up battery-driven units to temperatures exceeding 110°C: Danger of explosions
- Follow the manufacturer's specifications for battery storage
- Return the batteries to the supplier for correct waste disposal

2.4 Software

HOTBOX HTH data loggers require an evaluation software of version 2.05 or higher.

2.5 Maintenance

To ensure proper functioning of the logger the following steps should be part of a periodical maintenance plan:

- Readout of the data logger and saving the file
- Battery replacement (Part No 2820, set of 2, storage time 5 years; Lithium 3.6V, 1900mAh, AM3/LR6/AA). At room temperature battery life time is appoximately 2 years.
  After the battery has been replaced, the function „Programming of battery change time" in menu item „Extended Setup" has to be executed.

2.6 Error Message - Logger Status in elproLOG Win

RAM IMG-BMP destroyed

This error message is visible in the logger status information, line: Module time. The reason for such an error message might be, a battery replacement where the battery change time has not been set.

2.7 Technical Alterations

In the interest of our customers, we reserve the right to perform alterations resulting from subsequent technical developments without any particular notice. For this reason, diagrams, descriptions and the information concerning the scope of delivery are not binding.

CE

- This product must be certified with CE
- The manufacturer guarantees that this product complies with the relevant recommendations

3. Settings in elproLOG

Those settings should not be change for a proper operation of the datalogger:

- Datenlogger Setup - Sensors - 1 (T + rH)
- Extended Setup - Displaymode / Powersave - on

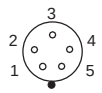
4. Definition of Alarm Parameters

The Hotbox HTN is equipped with limit value supervision. These values are defined in the „Setup of Alarm Parameters“ window.
Any limit value violation is shown in the measurement graphic and table. Also the limit value violations may be printed out as an alarm protocol.

5. Pin Assignment and Connection Diagram

Wire the 5pin BINDER connector for the HOTBOX HTH as shown below:

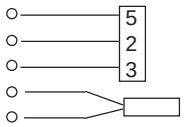
Connector



(soldering side)

1	GND
2	TXD
3	RXD
4	NTC2
5	NTC2

Wiring Diagram



DB9 of RS232 serial port

NTC2 - Sensor

6. Measurement- Operating-Ranges and Accuracy

Temperature Measurement

	Range	Resolution	Accuracy
(Logger with sensor typical;	-50°C.. -25°C	0.1°C	± 0.4°C
logger at room temperature)	-25°C.. 0°C	0.1°C	± 0.3°C
	0°C.. 70°C	0.1°C	± 0.3°C
	70°C.. 100°C	0.1°C	± 0.5°C
	(100°C.. 140°C	0.1°C	± 1.0°C)

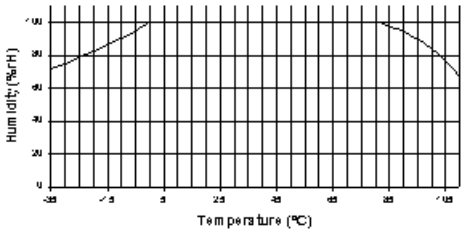
Relative Air Humidity Measurement

Range	Resolution	Accuracy
0%.. 100%rH	0.2%rH	At room temperature, 23°C: ± 1.5%rH Hysteresis 10-90-10%rH: <1%rH

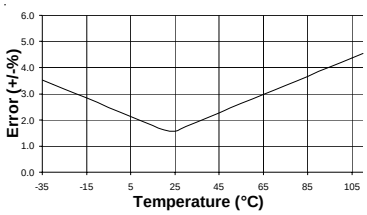
Operating Ranges

rH/T Sensor; Internal

-35°C.. 95°C (permanent operation)
-35°C.. 105°C (temperature peeks)
0%.. 100%rH, with condensation



Save operation area of the rH/T sensor 3087-B for extended temperature application corresponds to the plot shown. 105°C for temperature peeks, permanent operation 95°C only.



Temperature dependence of the measurement error at the time of shipment.

NTC; External

-50°C.. 140°C

7. Accessories / Spare Parts / Service

	Part No
PC evaluation software	2338-CDV
PC data cable	2610
NTC temperature sensors	30xx-Lyy
5pin BINDER connector incl. soldering	2611-B
Calibration service	

Your Distributor:

ELPRO-BUCHS AG
9471 Buchs SG
Switzerland

www.elpro.com