

# Datalogger Hamster ET1



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## Datalogger for temperature

### Instruction Manual

The datalogger measures and records temperature by 1 built-in probe. Measured values are stored in the internal memory. Programming, settings and evaluation of the datalogger by PC is also possible by password-protection. The datalogger can be used in Loop memory or Start-Stop mode. This means it is possible to start logging at a certain day and time (from one month forward). Additional starting possibility by connector for External Start. The logger display can be switched off for power-saving reasons. The display can be switched on again temporary, by the connector for External Start.

**Alarm Function:** The logger can be set to show an alarm indication by a red LED on the housing, when exceeding preset limits.

**Logging mode:** In Loop mode oldest stored values are overwritten by new ones when the memory is full. In Start-Stop mode the logging stops after filling the memory.

Stored values can be transferred from logger memory to the PC by a data cable. The data cable can be connected to the logger permanently; data logging is not interrupted even if data download appears.

A warning will appear by LED or over the software when the battery is diminishing or the battery voltage is too low.

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## Technical Data:

Measuring parameter: ambient temperature (RTD Pt1000 probe):

Measuring range: -40 to +70 °C

Resolution: 0.2 °C; Accuracy  $\pm 0.5^{\circ}\text{C}$

Logging interval to memory: 10 s to 3 h (15 steps)

Type of compatible probe:

based on RTD Pt1000 with DIN M8 female connector

Memory capacity:

for non Loop mode (Start-Stop) 32 504

Loop mode 28 896

Communication with computer:

via RS232 (serial port) by means of COM adapter or USB port by means of USB adapter; data transfer from logger via communication adapter is optical (not IrDA)

Real time clock: adjustable from computer, integrated calendar including leap years

Error of internal RTC: approx. 8min. / month

Power: Lithium battery 3.6 V size AA; Typical battery life: 2 years

Protection: IP675

Operational conditions:

Operational temp. range: -40 to +70°C / Operational humidity range: 0 to 100 %rH

Operational position: negligible

Logger installation: by self adhesive Dual Lock, applied to clean, flat surface

Limit value: temperature -40 to +70°C

Dimensions: 93 x 64 x 29 mm ; Weight including battery: approximately 120 g

Material of the case: polycarbonate

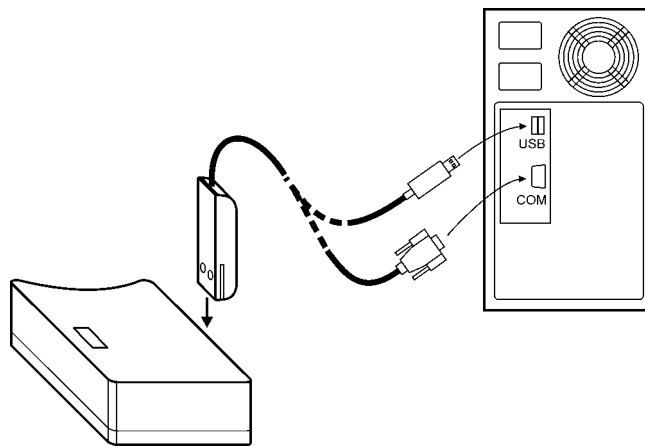
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## Datalogger operation

The datalogger comes complete with installed battery and is ready for use. Before operation it is necessary, by means of installed elproLOG PC software, to set customized logging parameters.

For communication with the PC a data cable is necessary (not included in delivery). For connection via RS232 serial port it is necessary to use COM ADAPTER, for connection via USB port it is necessary to use USB ADAPTER. Connect the adapter connector to the proper computer port and plug the adapter to the guide slots on the side of the datalogger.

*Connecting logger to the computer by means of data cable*



**Notice:** USB connector can be located also at the computer front side.

After connecting the datalogger to the computer, evaluation, programming and setting the datalogger, is possible by the Elpro-LOG-Software. Before start logging, it is necessary to:

- check or optionally set the datalogger real time clock
- select suitable logging interval
- select logging mode (Loop mode or Start/Stop mode)
- switching on the datalogger
- enable or disable the option to start the datalogger by connector for External Start
- set date and time to start logging (Start-Stop mode), or use Loop mode.
- If alarms are about to be applied, set both limits and enable alarm
- reprogram and erase data memory of the datalogger
- enter password, if protection against unauthorized manipulation with the datalogger is necessary

Logging interval is specified by the user. Memorizing of the first value is synchronized with the internal real time clock and the chosen interval is stored. After starting the logging with for example 15 minutes interval, the first value is not stored immediately, but after the

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internal clock gets the status of a quarter, a half or a whole hour. For example starting the logging with the 6 hour interval, the first storing is performed at 6.00,12.00, 18.00 or 00.00 hour; at the hour from the above nearest to the logging start. Please consider this when you are starting the datalogger with the External Start connector.

**Notice:** When the datalogger is permanently connected to the computer via the data cable, it is not possible to use the external start connector.

When you are using the External Start connector, the programmed password has to be eliminated before.

## Possible indications (LED) at switching on or off datalogger

At reprogramming the datalogger via PC, the yellow LED will blink shortly during the data communication.

After switching on the datalogger, the yellow LED will shine for 2 seconds. Afterwards a short blink of the yellow LED in 10 seconds interval will appear and it means that it is in the recording mode (ON). A possible active alarm will be indicated by blinking from the yellow and red LED at the same time. For using this alarm function it is necessary to set the lower and upper limit before. When the measured values are inside of the set limits, the alarm is not active. When the measured value gets outside of the set limit, the red and yellow LED will start to blink at the same time. the alarm is active and it is indicated on the display. When you program "memory alarm mode", the alarm is indicated permanently until the reset by the PC (self-sustaining). The alarm indication on the datalogger will be reset during every reprogramming.

**In Start-Stop mode the logging stops after filling the memory. In this waiting mode the battery consumption is minimal (power saving mode). This status is shown by the blinking of the red LED in 3 seconds interval.**

State	LED	On	10 s	3 s	2 s
Reprogramming	yellow red				●
Datalogger switched ON	yellow red		*		(●)
Alarm active	yellow red				* *
Full memory or Power saving mode	yellow red			*	

Legend :

● : LED switched on in accordance with table

\* : LED is blinking in time interval in accordance with table

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## Possible indications (LED) beyond the normal condition

Automatic initialisation: after discovering battery voltage drop, e.g. also after a battery change, the yellow LED will shine up to 12 seconds. Check date and time and set them if necessary again via PC-software.

When the red LED alternately blinks shortly after the yellow LED (do not mix it up with the alarm indication), the end of the estimated battery life is reached. The datalogger will still function, but the battery should be changed in the near future.

Is **only** the red LED blinking 2 x in 3 seconds interval, the battery voltage is too low and the datalogger can not be switched on (ON). When the datalogger was switched ON before, the recording will stop and the datalogger will be switched off (OFF). Communication with the computer can temporarily work. **Replace battery as soon as possible!**

State	LED	On	10 s	3 s	2 s
Battery voltage too low	yellow red			**	
Low battery voltage	yellow red yellow red				* * * *

Legend :

\*\* : LED blinks 2x in time interval in accordance with table

\*

\* : Red and yellow LED blink alternately in accordance with table

\*

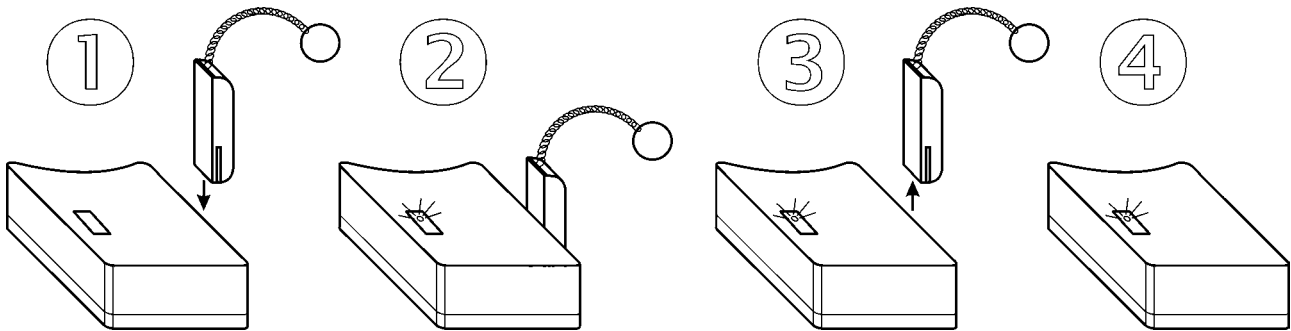
## External Start by connector

This function must be enabled by the PC before.

### **Switching the logger ON (Start Logging) by start connector**

Put the Start connector (not included in delivery) in the optical slot, after approximately 1 second yellow LED will start to shine. Afterwards it is necessary, to remove immediately (during the blinking of the yellow LED) the start connector. The datalogger will switch on (ON) and the yellow LED will blink for about 10 seconds. Is the start connector not removed immediately (for more than 3 seconds connected), the yellow LED will go out and the datalogger will be switched off (OFF).

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### Battery replacement

Low battery is indicated by alternately blinking of the red and yellow LED. The battery should be changed in the near future.

When the battery voltage is too low, it will be indicated by blinking 2x the red LED in 3 seconds interval. Replace the battery immediately for a new one.

Use Lithium battery 3,6 V, size AA. The battery is located under the dataloggers base plate.

**Warning:** near the battery a fragile glass reed contact is located – it must not be damaged. Be careful with the battery replacement! We recommend to use Sonnenschein Lithium batteries because of their special storing mode.

### Procedure battery exchange:

- unscrew the four corner screws and remove the base plate
- remove the old battery by pulling the latch
- insert the new battery **respecting the correct polarity** (see symbols + and – near the battery holder). When you replace the new battery within 30 seconds, all datalogger settings will remain. Otherwise the datalogger has to be programmed again; especially date and time. **Attention, inserted battery with incorrect polarity causes damage to the datalogger!**
- put the base plate back again and screw the four screws onto the datalogger. Be careful to put the rubber sealing right and tighten the screws properly to ensure the water resistance of the datalogger.
- connect the datalogger to the PC and program **battery replacement**. This step is necessary to evaluate properly the remaining battery capacity.

**Old batteries or defective datalogger have to be discharged ecologically!**



- This product must be certified with CE.
- The manufacturer guarantees that this product complies with the relevant recommendations:  
EN 50081-2 : 1992 und EN 50082-2 : 1992

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