MOUSE E MOTION

Mobile infrared activity-data logger with integrated clock

Operating Instructions

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activity monitoring systems

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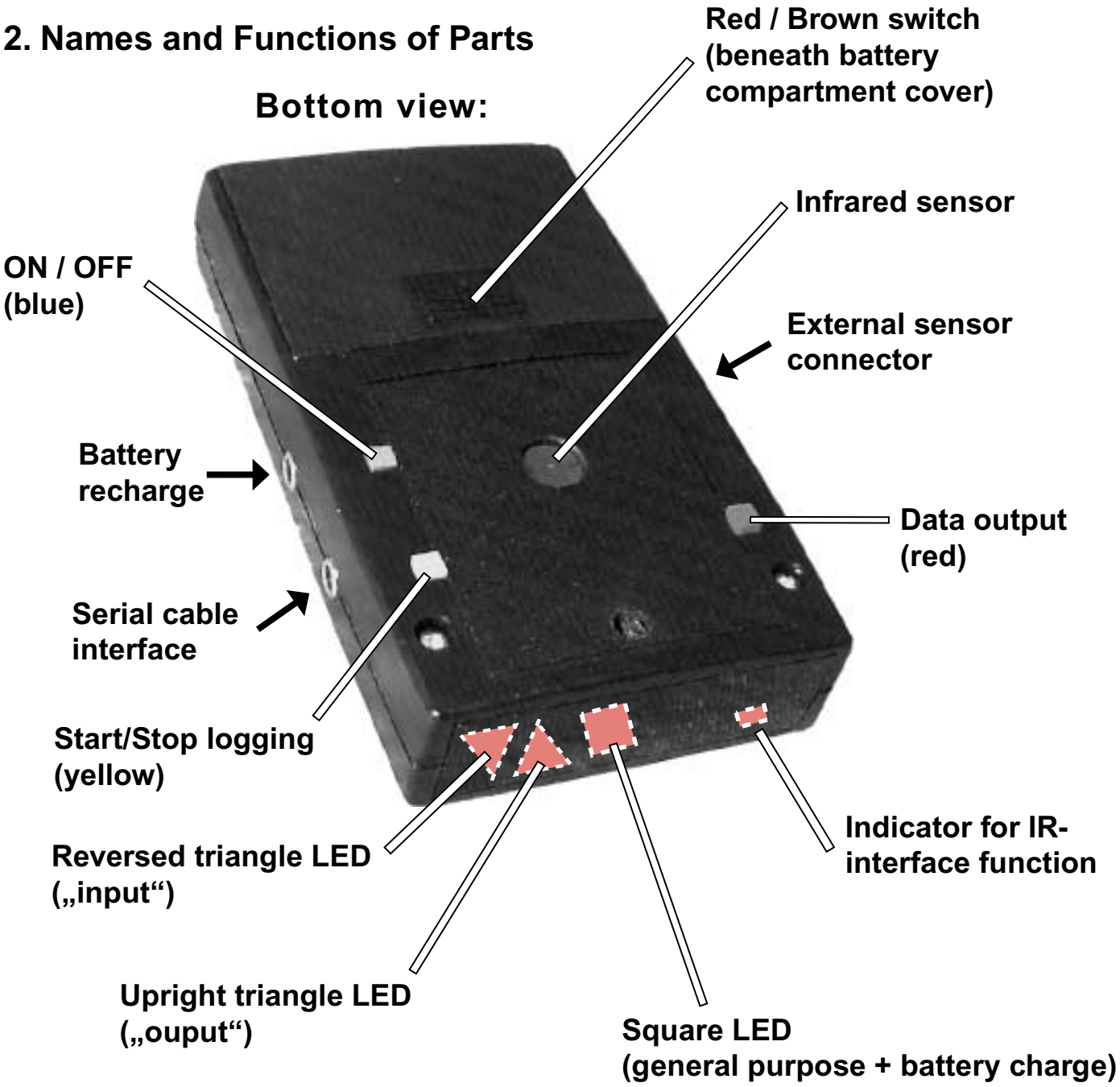
1. Features

MOUSE-E-MOTION is a battery-powered system monitoring the motion of bodies and objects emitting infrared warmth radiation. The collected activity data are recorded to the systems‘s built-in memory. Data are permanently stored, unaffected of the device‘ s power status, so there is no risk of data loss if the system runs out of power. Recordings are possible up to a maximum period of 22 days (battery runtime limit). The recorded data can be easily transferred to a PC via a cordless infrared connection.

2. Names and Functions of Parts

Bottom view:



3. POWER SUPPLY

3.1 Battery Usage

1.5V x 2 (Mignon / AA / IEC R6 or equivalent, 1400mAh, e.g. Varta „AccuPlus Ultra“ No. 5606).
Use rechargeable batteries only. NEVER use normal alkaline batteries!

A T T E N T I O N !
Never try to charge normal alkaline batteries as there is the risk of explosion!

Place the batteries into the compartment in the rear bottom part of the device. Make sure that the polarity of the batteries (+/-) coincides with the respective marks on the bottom of the compartment. The device is ready after a period of 10 seconds and the status-LED starts flashing. Wrong insertion of batteries will cause a failure of the device‘s function and batteries will be totally discharged after about one hour. The device will not be damaged.

3.2 Battery Recharge

To (re-)charge the batteries plug the cord of the AC power adaptor to the device‘s power connector. The device will switch off automatically. The normal charging period is 3.5 hours. The electronic charging system ensures that the batteries are always completely charged and can never be overcharged. Use the supplied power adaptor only, otherwise the internal electronics may be damaged!
The charging process is indicated by blinking of the square-LED on the devices front. The LED will extinguish if charging is completed.
Very deeply discharged batteries cannot be recognized by the electronic charging system and thus will not be recharged. Please remove such batteries and recharge them with a suitable battery charger.

4.0 Operation

4.1 Power

Press the blue button to switch the device ON and OFF.

4.2 Start data logging

Press the yellow button. The reversed triangle LED will light up for 2s:

Data recording will begin after the reversed triangle LED has extinguished or, if the device‘s default settings have been changed via software configuration, after the specified initial delay period. When the initial delay period (if any) has passed the device status changes to logging mode.
It is not possible to start logging if there are currently data stored in the device‘s data storage. If this is the case the reversed triangle LED will be blinking 10 times:

10x

You then have to erase the stored data (see 4.5) prior to be able to start logging.
It is also not possible to start logging if the device‘s memory is not completely erased because an erasing process has not successfully been completed . If this is the case the upright triangle LED will be blinking 10 times:

10x

You then have to erase again the stored data (see 4.5) and make sure that the process is completed successfully prior to be able to start logging.

4.3 Stop data logging

Press the yellow button for at least 2s. The square LED will light up when logging has been terminated:

You can also just switch off the device with the power button. This will not affect the collected data in any way.
(It is not possible to stop logging when the device is waiting for an initial delay to pass. If you want to cancel logging within this period you have to switch off and on the device with the power button.)

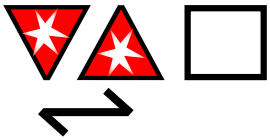
4.4 Data transmission

The device has to be in standby mode to be able to execute the data transmission. If it is currently in logging mode, you have to stop the logging task by pressing the yellow button or switching the device off and on again (see 4.3). Press the red button until the upright LED lights up:

Data transmission will continue as long as the LED is active so ensure that the connection to the PC (via either cable or infrared adaptor) will not be disrupted. After the transmission has been-completed the device returns to standby mode.

4.5 Erase stored data

Press the red and the yellow button simultaneously until the tri-angle LEDs begin to blink alternately:



When the blinking has stopped the device‘s memory is prepared to store new data.
You won‘t be able to erase stored data if not data output has been commited at least once. This will be indicated by blinking of the square LED for 10 times:

10x

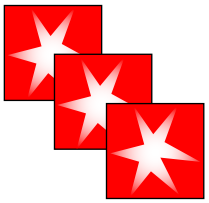
So, if you have collected some data which are of no interest for you and thus shall be erased, it is necessary to press the red button and wait until the data transmission has finished to be able to erase these data. (This has been implemented to reduce the risk of unintended erase of data.)

5. DEVICE STATUS

5.1 Stand-by mode

The device‘s power status is indicated by pulses of the square LED:

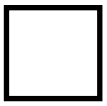
3 pulses:
Battery charge is 75% to 100%



2 pulses:
Battery charge is 50% to 75%

1 pulse:
Battery charge is 25% to 50%

No pulse (but periodic blinking of the IR-interface LED indicating that the device is switched on):
Battery charge is less than 25%



5.2 Logging mode

Each single motion detection is indicated by a flash of the reversed triangle:

This can be turned off if the device‘s default settings are changed via software configuration. Additionally an indication for the device‘s power status can be turned on. If this is the case the square LED flashes each time the waitstate period is passed as long as the battery charge is more than 25%.

6. USAGE

MOUSE-E-MOTION is especially designed to be applied with the commonly used type 2 mouse cages. Usage of the device and the metal holder in connection with this cage type will exclude false detections of movements outside the cage. If you are in doubt with your special location, perform a test in place.

6.1 Usage on top of a cage

For type 2 mouse cages the supplied stainless steel metal holder can be used. Press the rubber feet into the 4 pre-drilled holes of the metal holder. Place the metal holder on top of the cage. The lateral straps fit into the gaps of the cage. Ensure that the side with the screw faces the front side of the cage. Place the device with the sensor directed to the bottom onto the rubber feet of the metal holder. Pay attention to the metal holder‘s screw: to ensure proper positioning of the device above the cage it has to fit exactly into the little hole on the bottom front side of the device.
Objects placed on top of the cage (e.g. food, water bottles) may hinder a correct motion detection and cause false values.

6.2 Stand-alone usage

The device is capable of monitoring all kinds of motion occurances that can be detected by a passive infrared sensor. In general, all living things and nearly all material objects having a temperature different from their surrounding will trigger a detection signal.
The infrared sensor‘s range is about 5m with a detection angle of about 30 degrees (also see 8.0). The area covered has a rectangular shape.
Objects whose temperature is not significantly different from the surrounding, or objecs moving very slowly (e.g. snails), are not suited to be monitored with MOUSE-E-MOTION.

6.3 Usage with external sensor

The device may be applied to detect motion within the detection area of an internal or an additionally applicable external motion sensor. The external motion snesor has to be plugged in at the 9-pin connector at the side of the device. If you want to exclusively use the external sensor you can disable the internal sensor, so that only data of the external sensor will be noticed. For this purpose move the red switch (accessible by opening the battery compartment) to the OFF position. (Do not forget to move it back to the ON position if you want to use the internal sensor again.)
If an external sensor is connected and the internal sensor is not switched off, the signals of both sensors are noticed and it is not possible to differentiate the origin of the resulting data.

7.0 Data transmission to PC

The easiest way to transmit collected data to a personal computer for further analysis is to use the supplied infrared adaptor. Connect the adaptor to an unused serial port of your IBM-compatible PC.

Place the device from which you want to transfer data to your PC with its front panel pointing directly towards the infrared adaptor‘s transceiver face (for best performance distance should be not more than 10cm). Start the MOUSE-E-MOTION software (refer to the MOUSE-E-MOTION software documentation on how to install and use the software). Click on the ‚AutoDownload‘ button to automatically download data with the preset default parameters or click on the ‚Data Download‘ button if you want to manually download data and define certain parameters yourself.

After a successfull data transmission you may delete data in the MOUSE-E-MOTION device.

8.0 Technical Specifications

If the device‘s default settings have not been changed via software configuration the infrared sensor will detect movements once a second. Every 240 seconds (4min), activity data will be summarized and stored to the device‘s memory. MOUSE-E-MOTION is capable of storing 8185 single values (by this covering a period of up to 22 days). Data are permanently stored, unaffected by the device‘ s power status, so there is no risk of data loss if the system runs out of power.
The internal clock can be synchronized with the clock of a PC via the MOUSE-E-MOTION software configuration (refer to the MOUSE-E-MOTION software documentation).

Operating Temperature Range: -10 to +40 °C
StorageTemperature Range: -20 to +50 °C

Batteries:
1.5V x 2, Mignon / AA / IEC R6 or equivalent, 1400-1600mAh, (e.g. Varta „AccuPlus Ultra“, No. 5606)
Charging period: 3,5 hours
Charging current: 0,5A
(Accumulators with higher capacity may be used, but 100% charge is not guaranteed as the electronic charging system terminates charging after 3,5 hours. High-capacity accumulators may not be fully charged after this period.)

Minimum operating time using fully charged batteries: 14 days (Experience shows that new batteries that are freshly charged will last for up to 22 days if the device is running in logging mode).

Precision of internal clock: 10 ppm at 20 °C (5min per year)
Precision of 1-second-interval: 30 ppm at 20 °C (2.6s per day)

Internal clock‘s battery life span: minimum 6 years at 20 °C

Power adaptor:
6V, 500 mAh, DC stabilized

For further information, please visit our website:

www.infra-e-motion.de

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