

# MostraLog

Datalogger for temperature and humidity



## Manual

### Description

MostraLog is a thermohygrometer and data logger. The LCD displays the current temperature and humidity. The device records temperature and humidity to an inserted microSD-card.

MostraLog is used to monitor humidity and temperature during the storage and exhibition of climate-sensitive objects, such as art work or food.

MostraLog offers accuracy of  $\pm 2\%$  relative humidity (RH) in the range from 10 to 90% RH, and of  $\pm 0.7^\circ\text{C}$  in the range from 0 to  $60^\circ\text{C}$ . The device's unique calibration function allows readjustment. Readjustment requires an optional remote control and calibration set.

An external humidity/temperature sensor can also be connected. If this is the case, the display shows the external sensor's values. However, the data from both the internal and the external sensor are stored, making MostraLog a four-track data recorder.

The device's alarm output can be connected to an alarm system. It will be activated as soon as the defined adjustable temperature or humidity limit values are reached.

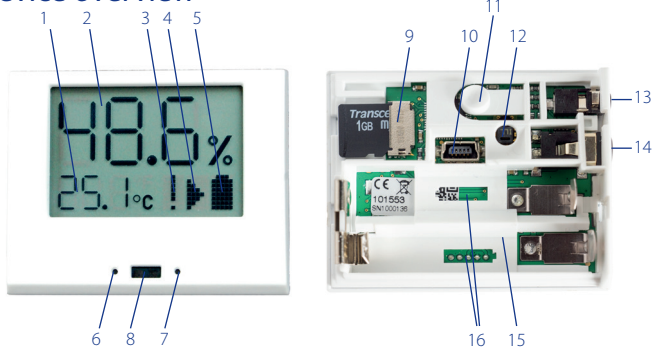
The low power consumption provides a battery life of up to two years (depending on measurement interval and device settings). The data logger can also be powered with a standard USB power supply.

MostraLog can be mounted on a wall with two screws. When the unit is slotted in the wall-mount, the device itself and the microSD-card are protected against theft by a concealed security mechanism.

The device can be read out and configured via a USB cable using the PC software provided. However, settings can also be adjusted directly on the device or via an optional IR remote control.

One can also read out the data by removing the microSD-card and evaluating the data on a computer using the SD card reader.

### Device overview



1	Temperature in $^\circ\text{C}$ or $^\circ\text{F}$	Shows the current measured value	
2	Relative humidity in %	Shows the current measured value	
3	! Alarm	Appears as soon as a limit value has been exceeded	
4	► Recording	Appears as soon as a microSD-card is inserted (recording starts automatically)	
5	Battery capacity	Display	Residual capacity
			70 - 100%
			40 - 70%
			10 - 40%
		Replace batteries	

6	Left paper clip button (▲)	Next menu item, confirmation
7	Right paper clip button (+)	Change submenu settings
8	IR receiver	IR receiver for the remote control
9	SD card slot	Slot for the microSD-card
10	Mini-USB port	Connection to PC or power supply via power supply unit
11	Locking push	Button for opening and locking the back of the housing
12	Sensor opening	Opening for the internal sensor. Do not cover this area!
13	Sensor input	Socket for external humidity/temperature sensor (accessory)
14	Alarm output	Socket for alarm cable (accessory)
15	Battery compartment	Inserting and replacing the batteries
16	Battery position symbol	Shows the correct polarity of the batteries

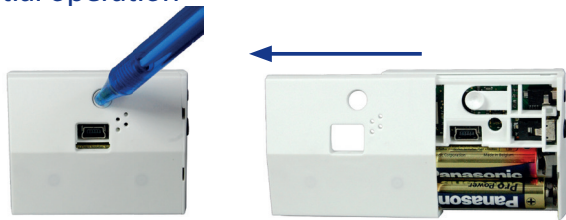
## Scope of supply

MostraLog · Batteries (2 x AAA) · microSD-card · microSD adapter (1 x per shipment) · Software for free download · Paper clip for device buttons

## Accessories

IR remote control · External sensor incl. cable 2m or 5m · Alarm cable 1.8m with open ends · Calibration set incl. boxes and calibration salts

## Initial operation



1. Push the locking button

2. Simultaneously slide the back to the left

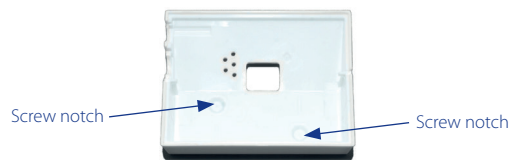
Use a pen (e.g. ballpoint pen) to open the device. Push the round button at the back and simultaneously slide the back of the housing to the left. Putting the thumb into the USB recess may help.

Insert 2 AAA batteries into the battery compartment. Ensure correct battery position according to the battery position symbols.

If you want to use the recording function, insert a microSD-card into the card slot in the direction indicated by the arrow, with the labelled side facing up. Make sure that the card is inserted completely.

Note: Recording of the measured values starts automatically after insertion of the microSD-card. The symbol ► appears on the display. This may take several minutes, depending on the selected measurement interval.

## Wall mounting



To mount the device on the wall, use the notches provided in the lower part of the rear of the device. The notches can easily be perforated, e.g. with a small screwdriver. Use flat head screws to avoid damage to the batteries.

All connectors (alarm, external temperature sensor and mini USB) and the opening for the internal sensor should be freely accessible. Use a pen or crochet hook to remove the device from the wall bracket.

## Setup

Configuration can be carried out using the buttons on the device, with the IR remote control, or via PC software.

## Configuration on the device

Push buttons are located on the front of the device, left and right of the IR sensor. To prevent tampering, the buttons can only be pressed with a paper clip or similar tool. The left button corresponds to the remote control's button arrow up "▲". The right button corresponds to the remote control's "+" button.

After 4 seconds without user input, the menu navigation aborts without saving values and the display shows the current temperature and humidity.

## Configuration with IR remote control



1	Function LED	Illuminates when a key is pressed
2	Contrast	Changes the LCD contrast (See menu "LCD")
3	▲	Move up in menu
4	+	Increase value +
5	-	Decrease value -
6	▼	Move down in menu
7	Calibration	Start calibration (see menu "CAL")

Use the "▲" and "▼" buttons to scroll through the menu. The "+" and "-" buttons change settings.

The IR remote control detection time depends on the value of menu item "IR".

## Setup menu

### MIN / MAX

Shows the measured minimum and maximum values since the last reset or battery change.

### RES - Alarm acknowledge (reset)

Confirms an existing alarm, i.e. the device deactivates the alarm output. The device reactivates the alarm output again as soon as the alarm limits are exceeded. A delay time can be set in the menu item "DLY" to prevent the device immediately triggering an alarm (e.g. when the show case is open).

### CLK - Date and time setting

Date and time adjustment in the order: YR: Year, Mon: Month, Day: Day, HR: Hour in 24h format, MIN: Minutes. Confirm with button "▲", the display shows "OK".

Note: The device has no time zone information. To ensure that the times in the PC software are displayed correctly we recommend entering Coordinated Universal Time (UTC). The PC software automatically sets the device time as UTC. Thus local times can be calculated if the device is used to document international transports across time zones. The PC software automatically displays local times, based on the UTC time of the device.

Coordinated Universal Time (UTC) is Central European Time (CET) minus 1 hour and Central European Summer Time (CEST) minus 2 hours.

### ALM - Alarm

Defines the alarm limits. First set MIN/MAX temperature, then MIN/MAX humidity. Confirm with the "▲" button. The display shows "OK". The active alarm limits are saved on the microSD-card and preserved even during a battery change.

### DLY - Alarm Delay

Delays alarm trigger, e.g. during transport to the device's destination or while a show case adjusts to the desired climate. Select a value in hourly increments and confirm with the "▲" button.

### INT - Measuring interval

Defines the time interval for temperature and humidity measurement in the range of 5 - 120 minutes.

### C- F - Temperature unit

Changes the temperature unit from °C to °F. All settings (e.g. alarm limits) as well as recorded values are displayed according to the selected unit. Data on the microSD-card is also stored in the selected unit.

### IR - Infrared Receiver

Sets MostraLog's remote control response time in the range of 1 - 5 seconds. If, for example, a reaction time of 5 seconds is selected, keys on the remote control must be pressed for at least 5 seconds to be recognized. Short intervals improve reaction time but considerably reduce battery life. If no remote control is used, select "OFF" for maximum battery life (factory setting). When the IR receiver is switched off, you can operate the MostraLog via the device keys or via the PC software.

Note: Some light sources (e.g. energy-saving lamps) generate flicker in the non-visible IR range. This can make MostraLog constantly detect false IR key presses and thus very quickly drain the device's battery. Permanently deactivate the IR receiver if the batteries are completely discharged after only a few days.

### LCD - Display contrast

Adjusts the contrast of the LCD display. Contrast is influenced by the ambient light conditions and the reading angle. Press the "▲", button, the display shows "OK".

Note: The weaker the batteries, the lower the display contrast. If the battery charge level falls below 30%, the display contrast is set to maximum to ensure readability even with weak batteries.

### CAL - Calibration

A calibration set with two saturated calibration solutions (sodium chloride and magnesium dichloride) is available for readjusting the MostraLog. Detailed calibration instructions are enclosed with the calibration set. Select the appropriate calibration point: NA (NaCl) or MG (MgCl<sub>2</sub>) and start the

calibration process with "▲". The display shows "OK" after successful calibration. If an error occurs, the display shows "ERR". Possible causes of errors are, for example, contaminated calibration solutions or wrong media selection (NaCl instead of MgCl<sub>2</sub>).

### DEF - Factory setting (default)

Resets the unit to the factory settings. Note that the IR receiver is turned off by default. Date and time will not be changed.

### VER - Firmware version

Displays the firmware version on the device.

### Configuration with PC software

When the device is connected to a PC by mini-USB cable, data can be read out and the device can be configured with the MostraLog PC software.

Since the device is connected to the PC as a mass storage device, you can also access the data using Windows Explorer. To do so, wait until "MostraLog Device" and a drive letter appear. Then you can access the device like a USB stick and transfer the recorded data to the PC.

Note: If the device is connected to a PC via USB, the display is cleared and only the message "USB" is displayed to indicate PC control.

Note: Depending on the capacity of the microSD-card, it may take several minutes for the drive letter to appear on the PC. Use low-capacity microSD-cards to minimize access times.

## Batteries and power supply

Note: Almost all instrument settings are retained after a battery change. Only the date and time must be readjusted, either by connecting the device to your computer (MostraLog takes the computer's time) or manually via the device menu.

MostraLog can also be powered via a USB power supply. In order to do this, connect MostraLog to a standard USB power supply using a mini-USB cable. Any batteries should be left in the device, but won't discharge when supplied via USB. The display shows "USB" instead of battery charge status.

The USB power supply makes it possible to change batteries without interrupting data recording. USB-power the device before removing the batteries, and leave it connected while you replace the batteries. After you have inserted the new batteries, the USB power supply can be disconnected.

It is also possible to connect the MostraLog permanently via USB to use the batteries as backup batteries, e.g. during a power failure.

## External temperature/humidity sensor

If an external sensor is connected, the display shows values from the external sensor, otherwise the values of the internal sensor are displayed. Values from both sensors are stored on the microSD-card in parallel, resulting in four data tracks (internal/external temperature, internal/external humidity).

## Technical data

Temperature sensor	Measuring range	-18°C to +70°C (0°F to 158°F)
	Accuracy	±0.5°C (5°C to 45°C); ±1°F (41°F to 113°F)
	Resolution	0.1°C (0.2°F)
Humidity sensor	Measuring range	0 to 100% RH
	Accuracy	±2% RH (10 to 90% RH)
	Resolution	0.1% RH
	Operating range	-18°C to +70°C (0°F to 158°F)/ 0% to 100% RH
	Memory	2 GB microSD-card
	Measuring interval	5 - 120 min
	Start options	Immediately
	Alarm	Min-/Max limits, low battery
	Alarm output	low side switch, digital signal
	Data transfer	USB or microSD-card
	Battery	2 x standard AAA, replaceable
	Battery life	Up to 2.5 years at 23°C (73°F)
	Housing	ABS, black or white
	Dimensions	58 x 47 x 21 mm (2,3 x 1,8 x 0,8 inch)
	Weight	57 g (2 oz)
	External sensor	Cable 2m or 5 m; sensor head Ø 8 mm