

## User Manual




# Dual Probe Logger

Product Code: L200-TC



  
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Compliance with confidence

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## 1. Introduction

Dear Sir or Madam,

Thank you very much for purchasing one of our products. Before operating the data logger please read this manual carefully. You will get useful information for understanding all functions.

## 2. Kindly note / Safety Instructions

- Check if the contents of the package are undamaged and complete.
- Remove the protection foil above the display.
- For cleaning the instrument please do not use an abrasive cleaner only a dry or moist piece of soft cloth. Do not allow any liquid into the interior of the device.
- Please store the measuring instrument in a dry and clean place.
- Avoid any force like shocks or pressure to the instrument.
- No responsibility is taken for irregular or incomplete measuring values and their results, the liability for subsequent damages is excluded!
- Do not use the device in explosive areas. Danger of death!
- Do not use the device in an environment hotter than 85°C!  
The lithium battery may explode!
- Do not expose the unsit to microwave radiantion. The lithium battery may explode!

## 3. Delivery contents

- Data logger
- Wall holder
- Battery 3,6 Volt (already inserted)
- USB protective cap, 2 x thermocouple type K (only TC)
- 2x screws and dowels

## 4. Equipment and usage

LOG200/LOG210/LOG220 series logger are suitable for recording, alarm tracking and displaying of temperature, humidity\*, dew point temperature\*, barometric\*\* and CO<sub>2</sub>\*\*\* (\*only LOG210/220, \*\* only LOG220, \*\*\* only LOG220 E) measurements. LOG200 TC and LOG210 TC feature 2 external inputs for thermocouples. LOG200 E and LOG220 E feature one external input for temperature or CO<sub>2</sub>+Humidity probes (LOG220 E only). Areas of application include the monitoring of storage and transport conditions or other temperature, moisture and / or pressure-sensitive processes. LOG210 TC additionally supports wall mould detection. The logger has a built-in USB port and can be connected without cables to all Windows PCs, Apple computers or tablets (USB adapter might be required). The USB port is protected by a plastic cap. Beside the actual measurement result, the display shows MIN- MAX- and AVG-measurements of each measurement

channel. The bottom status line shows battery capacity, logger mode and alarm status.

The green LED flashes every 30 seconds during recording. The red LED is used to display limit alarms or status messages (battery change ...etc.). The logger also has an internal buzzer that supports the user interface.

This product is exclusively intended for the field of application described above. It should only be used as described within these instructions. Unauthorized repairs, modifications or changes to the product are prohibited and void any warranty!





## 5. How to use device

### 5.1 Device description

**Fig. A** (see page 2)

- |                           |                               |
|---------------------------|-------------------------------|
| 1. USB cover              | (position of the sensor)      |
| 2. USB-connector          | 6. Battery case               |
| 3. LCD display see Fig. B | 7. Mode button,               |
| 4. LED: green/red         | 8. Start / Stop button        |
| 5. Sensor compartment     | 9. lockable wall holder       |
|                           | 10. External probes (TC only) |
|                           | 11. External probe (E only)   |

**Fig. B** (see page 2)

- |  |  |
|--|--|
| 1. Units of measurement line 1   | 6. Line4 status line (from left to right):   |
| 2. Measurement line 1  |  Battery indication,  |
| 3. Units of measurement line 2   |  USB-connection indication,   |
| 4. Measurement line 2  |  Data logger is recording,  |
| 5. Line3 for indication and extrema measurements                           |  Data logger has been configured by LogConnect and is waiting for action, |
| EXT* = external probe (only visible when external probe is connected) *TC* | <input checked="" type="checkbox"/> Data logger has been stopped and <input checked="" type="checkbox"/> OK, (without                                      |
| AVG = average value,   | ▶ Symbol)  |
| Min = minimum value,   | <input checked="" type="checkbox"/> Data logger has been stopped and X NOT OK  |
| Max = maximum value  | (e.g. Alarm level reached  |
| (no symbol) = current measurement value                                    | (without ▶ Symbol)   |

If the display has been deactivated (display off via Software LogConnect), the battery symbol and the symbol for recording (▶) or configuration (||) are still active in Line 4 (status line).

### 5.2 Device start-up

**ATTENTION!** Please observe our battery recommendation strictly. Use only battery type LS 14250 3.6 volt of manufacturer SAFT or DYNAMIS Lithium Batt. LI-110 1/2 AA/S, respectively only batteries authorized by the manufacturer.

For operation take out the instrument from the packaging, remove the display foil. The logger is already preset and ready for start. It can be used immediately without any software!

By pressing any button or moving the instrument before first operation the instrument displays FS (factory setting) for 2 seconds, afterwards measurements are displayed for 2 minutes. Then the instrument display switch off. Repeated key hit or movement reactivates the display.

FS

#### 5.2.1 Factory settings

Note the following default settings of the data logger before first use. By using the LogConnect\* software, the setting parameter can easily be changed:

- |                               |   |
|-------------------------------|---|
| Recording Interval:           | 5 min. LOG210/ LOG220, / LOG200 TC / LOG210 TC / LOG220 E<br>15 min. LOG200 / LOG200 E  |
| Measuring interval:           | During recording the measurement interval and recording interval is the same! If the logger has been not started (NOT RECORDING) the measuring interval is every 6 seconds for 15 minutes, afterwards the measuring interval is every 15 min. for 24 hours, afterwards the measuring interval is once per hour. If you press any button or move the device it will start again to measure each 6 seconds. |
| Start possible by:            | Key press   |
| Stop possible by:             | USB connect   |
| Alarm:                        | off   |
| Alarm delay:                  | 0 s   |
| Show measurements on display: | on  |
| Power-Save mode for display:  | on  |

### 5.2.1.1 Power-Save Mode for Display

The Power-Save Modes is activated as a standard. The display switches off when for 2 minutes no button has been pressed or the instrument has been not moved. The logger is still active, only the display is switched off. The internal clock runs. Moving the logger will reactivate the display.

### 5.2.2 Windows Software for Log200-Series

The instruments of series Log200 are already preset and ready for start. It can be used without any software! However, there is a Windows Application free for downloading. Please note the free-to-use link:

see below 5.2.2.1 Configuration Software Log Connect

#### 5.2.2.1 Configuration Software Log Connect

By this software the user can change configuration parameter like measuring interval, start delay(or other start parameter), creating alarm levels or changing the internal clock time The Software Log Connect contains an online help. Download free LogConnect software:

[www.dostmann-electronic.de/home.html](http://www.dostmann-electronic.de/home.html) ->Downloads ->Software/<your logger>/Software/LogConnect\_XXX.zip (XXX choose latest version)

### 5.3 First start / start recording



Press button for 2 seconds, beeper sounds for 1 second, the actual date and time will be displayed for 2 further seconds.



LED lights green for 2 seconds - logging has started!



LED blinks green every 30 sec.

Display in Auto-Mode (Display shows all measurement channel in a 3 seconds sequence)



LOG 200



LOG 210



LOG 220



Loggers with external inputs only record the sensors that are already attached at start of logging.

By using the Software LogConnect, the presets can easily be changed.

\* Download free LogConnect software:

[www.dostmann-electronic.de/home.html](http://www.dostmann-electronic.de/home.html) ->Downloads ->Software/<your logger>/Software/LogConnect\_XXX.zip (XXX choose latest version)

#### 5.3.1 Restart recording

See 5.3. First start / start recording. The logger is started by default by button and stopped by USB port plug-in. The measured values are plotted automatically to the PDF file.

**NOTE:** When you restart the existing PDF file is overwritten.

**Important!** Always save the generated PDF files to your PC. If LogConnect is open when connecting the loggers and AutoSave is selected in Settings (Default), the log results are copied to a backup location immediately by default.

### 5.3.2 Display used memory (%), date and time



After pressing the start button while the logger is recording, the first line shows MEM and the second line (line 2) displays the used memory percentage(%). Afterwards the logger displays date and time for 2 seconds.

### 5.4 Stop recording / create PDF



Connect logger to an USB port. Beeper sounds for 1 second. LED blinks green until result PDF is created (can take up to 40 seconds).

The symbol ► disappears in the status line. Now the logger is stopped.



The Logger is shown as removable drive LOG200/ LOG210/ LOG220 / LOG200 TC / LOG210 TC / LOG200 E / LOG220 E



View PDF and save. PDF will be overwritten with next log start!

**Note:** With the next recording the Extrema (Max- and Min-value), and the AVG-value will be reset.

#### 5.4.1 Stop recording by button.

To stop the Logger via button it is necessary to change the configuration by Software LogConnect. If this setting is done the start button is also the stop button.

### 5.5 Description of PDF result file (see Fig. C)

Filename: z.B.

LOG220\_16099908\_2016-09-27T103123.PDF

<b>A</b>	LOG220: 16099908: 2016-09-27: T103123:	Device Serial Start of recording (date) time: HHMMSS
<b>B</b>	Description:	Log run info, edit with LogConnect* software
<b>C</b>	Configuration:	preset parameters
<b>D</b>	Summary:	Overview of measurement results
<b>E</b>	Graphics:	Diagram of measured values
<b>F</b>	MOV:	Indicates whether instrument has been moved (with date and time)
<b>G</b>	Signature:	Sign PDF if required.
<b>H</b>	✓ Measurement OK	✗: Measurement failed

\* Download free LogConnect software:

[www.dostmann-electronic.de/home.html](http://www.dostmann-electronic.de/home.html) ->Downloads ->Software/<your logger>/Software/LogConnect\_XXX.zip (XXX choose latest version)

### 5.6 USB-Connection

For configuration the instrument has to be connected to the USB-port of your Computer. For configuration please read the according to chapter and the use the online direct help of the Software LogConnect.

## 5.7 Display Modes and Mode - Button: EXT, AVG, MIN, MAX



The first line always shows the current measurement value of the main meas channel: LOG200: Temperature, LOG210: Humidity, LOG220: Air pressure, LOG200 TC/LOG210 TC: External temperature 1, LOG200 E: Internal temperature,

LOG220 E: Internal air pressure. The second line display depends on the selected mode. There are two display modes:

**1. AUTO mode** (default for LOG200, LOG210, LOG220) – the second line shows alternating values each 3 seconds:

LOG200: Minimum(MIN), maximum(MAX) / average(AVG) of temperature

LOG210: Temperature and dewpoint

LOG220: Humidity, temperature and dewpoint

LOG200 TC: Internal temperature and external temperature 2

LOG210 TC: Internal temperature, internal humidity, internal dewpoint and external temperature 2

LOG200 E: current temperature Minimum (MIN), maximum (MAX) / average (AVG) of temperature (extern) and Minimum (MIN), maximum (MAX) / average (AVG) of temperature (intern)

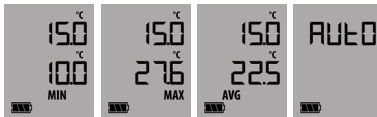
LOG220 E: current measurements of connected external sensors / current measurements of internal humidity, temperature and dewpoint.

The displayed meas channel can be identified by the physical unit ( $^{\circ}\text{C}/^{\circ}\text{F}$  = temperature, Td +  $^{\circ}\text{C}/^{\circ}\text{F}$  = dewpoint, %rH = humidity, hPa = air pressure, ppm=CO<sub>2</sub>) along with the extension symbols <no symbol> = current measurement value, MIN= Minimum, MAX= Maximum, AVG=average.

AUTO mode gives a quick overview on the current measurement values of all channels. Pressing the MODE key (left key) leaves AUTO mode and enters MANUAL mode:

**2. MANUAL mode** (default for LOG200 TC, LOG210 TC) – MODE key flips the second line through all available measurement values, following the sequence current value (no symbol), minimum (MIN), maximum (MAX), average (AVG). LOG200 TC and LOG210 TC show MIN, MAX and AVG with a blinking EXT for external sensor 1 (main measurement channel) and a steady EXT for external sensor 2.

MANUAL mode is handy to view any meas channel along with the main meas channel. Eg. air pressure maximum vs. main channel air pressure. Hit MODE key until display shows Auto to resume AUTO mode.



## 5.7.1 Special function of Mode-Button

### 5.7.1.1. Set marker

To mark special events during the record, markers can be set. Hit MODE key for 2.5 seconds until a short beep sounds (see mark on PDF Fig. C). The marker is stored along with the next measurement (respect record interval!)

### 5.7.1.2 Reset MAX-MIN buffer

The logger has a MIN/MAX function to record extreme values for any period. Hit the MODE key for 5 seconds, until a short melody sounds. This restarts the measurement period. One possible use is the finding of day and night extreme temperatures. The MIN/MAX function runs independent of data recording.

Please note:

- At start of record, the MIN/MAX/AVG buffer is also reset to show MIN/MAX/AVG values that fit the recording
- During recording, resetting the MIN/MAX/AVG buffer will force a marker.

## 5.8 Battery replacement / Battery status indication

**ATTENTION!** Please observe our battery recommendation strictly. Use only the battery type LS 14250 3.6 volt of the manufacturer SAFT or DYNAMIS Lithium Batt. LI-110 1/2 AA/S, respectively only batteries authorized by the manufacturer.



To replace the battery please open the battery cover on the rear side. Therefore you have to turn the battery cover 20° to the left. Use a coin to open/close the battery lid.



Remove empty battery and insert new battery like shown.



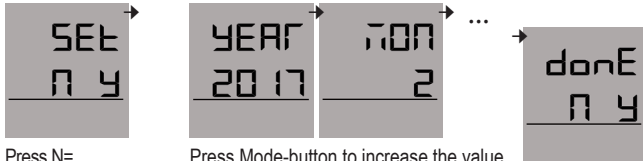
Battery change ok: both LEDs light for 1second, beep sounds.

- The empty battery symbol indicates that the battery needs to be replaced. Device will only work correctly for 10 more hours.
- The battery symbol indicates according to the battery status between 0 and 3 segments.
- If battery symbol is flashing, the battery is empty. The instrument does not operate!

**Note!** After replacing the battery please check the correct time and date of the internal clock. For setting the time see next chapter or 5.2.2.1 Configuration software LogConnect.

### 5.8.1 Set Date and Time after battery replacement via button

After battery replacement or power interrupt the instrument automatically changes into the configuration mode to set date, time and interval. If no button will be pressed for 20 seconds the unit proceeds with the last date and time in memory:



Press N= No changing of date and time, or Press Y=Yes for changing date and time

Press Mode-button to increase the value, press Start-button for jumping to the next value. After date-time-request the Interval (INT) can be changed.

Press N= No to abort changes, or Press Y=Yes to confirm changes

### 5.9 Alerts



Beeper sounds once each 30 seconds for 1 second, red LED blinks each 3 seconds – measured values exceeds selected alarm settings(not with standard settings). Via Software LogConnect alarm levels can be set.

If an alarm level has been occurred a X will be displayed on the display bottom. On the corresponding PDF-report the alarm status will be indicated, too. If the measurement channel is displayed where an alarm occurred the X on the right bottom of the display is blinking.

The X disappears when the instrument has been restarted for recording!



Red LED blinks once each 4 seconds. Replace battery.  
Blinks twice or more each 4 seconds. Hardware fault!

\* Download free LogConnect software: [www.dostmann-electronic.de/home.html](http://www.dostmann-electronic.de/home.html) ->Downloads ->Software/<your logger>/Software/LogConnect\_XXX.zip (XXX choose latest version)

## 6. Technical data

### Temperature

Measuring range: -40..+70°C  
Resolution: 0.1°C

**Pressure** only LOG220 /LOG220 E  
Measuring range: 300-1100hPa  
Resolution: 0.1 hPa

### Memory:

LOG200: 150.000 measurements (Temp.+ motion)  
LOG210: 100.000 data set (Temp., Humidity, dewpoint and motion)  
LOG220: 60.000 data set (Temp., Humidity, pressure, dewpoint and motion)

LOG200 TC:

60.000 measurements (Temp.+ 2 external thermocouples T1, T2 + motion)

LOG210 TC:

60.000 measurements (Temp., Humidity, dewpoint, + 2 external thermocouples T1, T2 and motion)

LOG200 E:

LOG220 E:

100.000 measurements (Temp.+ motion)  
60.000 measurements (Temp., Humidity, pressure, CO<sub>2</sub> dew point and motion)

### Interface:

### Dimensions:

### Weight:

### Battery:

USB (integr.)  
91.5 x 42 x 20 mm  
Approx. 83 g, Incl. Wall holder  
1 x 3,6 Volt Lithium ½ AA

### Rel. Humidity



only LOG210/LOG220/LOG210 TC/  
LOG220 E  
Measuring range: 0..100%rF  
Resolution: 0.1%rF

**CO<sub>2</sub>** only LOG220 E  
Measuring range: 400-10000 ppm  
Resolution: 1 ppm

### 6.1 Risk of injury:

- Keep these devices and the batteries out of reach of children.
- Batteries contain harmful acids and may be hazardous if swallowed. If a battery is swallowed, this can lead to serious internal burns and death within two hours. If you suspect a battery could have been swallowed or otherwise caught in the body, seek medical help immediately.
- Batteries must not be thrown into a fire, short-circuited, taken apart or recharged. Risk of explosion!
- Low batteries should be changed as soon as possible to prevent damage caused by leaking. Never use a combination of old and new batteries together, nor batteries of different types.
- Wear chemical-resistant protective gloves and safety glasses when handling leaking batteries.

## 7. Explanation of symbols

  This sign certifies that the product meets the requirements of the EEC directive and has been tested according to the specified test methods.

## 8. Waste disposal

This product and its packaging have been manufactured using high-grade materials and components which can be recycled and reused. This reduces waste and protects the environment. Dispose of the packaging in an environmentally friendly manner using the collection systems that have been set up.

**Disposal of the electrical device:** Remove non-permanently installed batteries and rechargeable batteries from the device and dispose of them separately. This product is labelled in accordance with the EU Waste Electrical and Electronic Equipment Directive (WEEE). This product must not be disposed of in ordinary household waste. As a consumer, you are required to take end-of-life devices to a designated collection point for the disposal of electrical and electronic equipment, in order to

ensure environmentally-compatible disposal. The return service is free of charge. Observe the current regulations in place!

**Disposal of the batteries:** Batteries and rechargeable batteries must never be disposed of with household waste. They contain pollutants such as heavy metals, which can be harmful to the environment and human health if disposed of improperly, and valuable raw materials such as iron, zinc, manganese or nickel that can be recovered from waste. As a consumer, you are legally obliged to hand in used batteries and

rechargeable batteries for environmentally friendly disposal at retailers or appropriate collection points in accordance with national or local regulations. The return service is free of charge. You can obtain addresses of suitable collection points from your city council or local authority.

The names for the heavy metals contained are: Cd=cadmium, Hg=mercury, Pb=lead. Reduce the generation of waste from batteries by using batteries with a longer lifespan or suitable rechargeable batteries. Avoid littering the environment and do not leave batteries or battery-containing electrical and electronic devices lying around carelessly. The separate collection and recycling of batteries and rechargeable batteries make an important contribution to relieving the impact on the environment and avoiding health risks.

**WARNING!** Damage to the environment and health through incorrect disposal of the batteries!

**WARNING!** Batteries containing lithium can explode  
Batteries and rechargeable batteries containing lithium (Li=lithium) present a high risk of fire and explosion due to heat or mechanical damage with potentially serious consequences for people and the environment. Pay particular attention to correct disposal.

## 9. Marking only LOG200

CE-conformity, EN 12830, EN 13485, Suitability for storage (S) and transportation (T) for food storage and distribution (C), Accuracy classification 1 (-30..+70°C), according to EN 13486 we recommend a recalibration once per year.

## 10. Storage and cleaning

It should be stored at room temperature. For cleaning, use only a soft cotton cloth with water or medical alcohol. Do not submerge any part of the thermometer.

## Quick Start with default settings



1.

Start Recording:  
Press until beep sounds



2.

LED lit green for 2 seconds  
- recording started.  
RUN icon appears



3.

Insert logger into  
USB port



4.

wait



5.

View and  
save PDF