EN

OPERATING MANUAL
CLIMATE DATA LOGGER

> TROTEC

TROTEC

Table of contents

Notes regarding the operating manual

Symbols

Warning of electrical voltage
This symbol indicates dangers to the life and health of persons due to electrical voltage.

Warning
This signal word indicates a hazard with an average risk level which, if not avoided, can result in serious injury or death.

Caution
This signal word indicates a hazard with a low risk level which, if not avoided, can result in minor or moderate injury.

Note
This signal word indicates important information (e.g. material damage), but does not indicate hazards.

Info
Information marked with this symbol helps you to carry out your tasks quickly and safely.

Follow the manual
Information marked with this symbol indicates that the operating manual must be observed.

Safety

Read this manual carefully before starting or using the device. Always store the manual in the immediate vicinity of the device or its site of use.

Warning
Read all safety warnings and all instructions. Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury.
Save all warnings and instructions for future reference.

- Do not use the device in potentially explosive rooms or areas and do not install it there.
- Do not use the device in aggressive atmosphere.
- Do not immerse the device in water. Do not allow liquids to penetrate into the device.
- The device may only be used in dry surroundings and must not be used in the rain or at a relative humidity exceeding the operating conditions.
- Protect the device from permanent direct sunlight.
- Do not remove any safety signs, stickers or labels from the device. Keep all safety signs, stickers and labels in legible condition.
- Do not open the device.
- Never charge batteries that cannot be recharged.
- Different types of batteries and new and used batteries must not be used together.
- Insert the batteries into the battery compartment according to the correct polarity.
- Remove discharged batteries from the device. Batteries contain materials hazardous to the environment. Dispose of the batteries according to the national regulations.
- Remove the batteries from the device if you will not be using the device for a longer period of time.
- Never short-circuit the supply terminal in the battery compartment!
- Do not swallow batteries! If a battery is swallowed, it can cause severe internal burns within 2 hours! These burns can lead to death!

- If you think batteries might have been swallowed or otherwise entered the body, seek medical attention immediately!
- Keep new and used batteries and an open battery compartment away from children.
- Observe the storage and operating conditions (see Technical data).

Intended use

Only use the device to measure and record the indoor air temperature and humidity. Observe and comply with the technical data.

To use the device for its intended use, only use accessories and spare parts which have been approved by Trotec.

Foreseeable misuse

Do not use the device in unsheltered outdoors areas, in potentially explosive atmospheres or for measurements in liquids.

Any unauthorised changes, modifications or alterations to the device are forbidden.

Personnel qualifications

People who use this device must:
- have read and understood the operating manual, especially the Safety chapter.

Residual risks

Warning of electrical voltage
There is a risk of a short-circuit due to liquids penetrating the housing!
Do not immerse the device and the accessories in water. Make sure that no water or other liquids can enter the housing.

Warning of electrical voltage
Work on the electrical components must only be carried out by an authorised specialist company!

Warning
Risk of suffocation!
Do not leave the packaging lying around. Children may use it as a dangerous toy.

Warning
The device is not a toy and does not belong in the hands of children.

Warning
Dangers can occur at the device when it is used by untrained people in an unprofessional or improper way! Observe the personnel qualifications!

Caution
Lithium metal batteries might catch fire in case of overheating or damage. Ensure a sufficient distance to heat sources, do not subject lithium metal batteries to direct sunlight and make sure not to damage the casing.

Caution
Keep a sufficient distance from heat sources.

Note
To prevent damages to the device, do not expose it to extreme temperatures, extreme humidity or moisture.

Note
Do not use abrasive cleaners or solvents to clean the device.

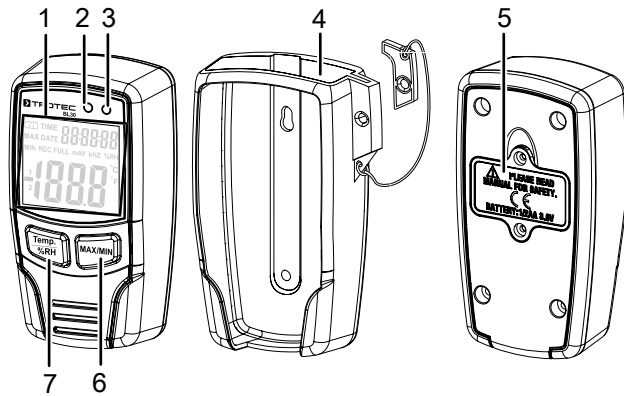## Information about the device

Device description

The climate data logger is a battery-powered measuring device for the long-term recording and display of temperature and relative humidity.

It comes with the following functional properties and equipment features:
- Simultaneous indication of room temperature (°C / °F), humidity and date or time
- Indication of minimum and maximum values of air temperature and humidity
- Alarm function with logging for freely definable upper and lower limit values
- Autonomous long-term recording of room temperature and humidity
- Memory capacity for max. 32,000 measured values (16,000 each for temperature and humidity)
- Freely definable saving interval from 1 second to 24 hours
- USB interface for measuring data transfer
- PC analysis software

TROTEC

Device depiction
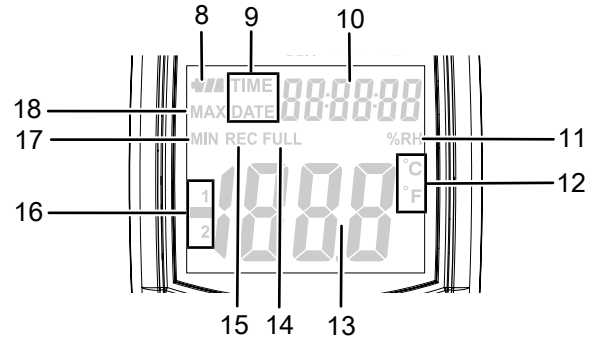
No.	Designation	Function
1	Display	For more detailed information see below
2	*ALARM* LED	-Flashes red if temperature limit values are exceeded or fallen below - Flashes yellow if relative humidity level is exceeded or fallen below
3	*REC* LED	Is illuminated throughout the measuring process, if adjusted in software settings
4	Lockable wall holder	Protects the device
5	Battery compartment	1 x 3.6 V Li-SOCL 2, 14.250
6	*MAX/MIN* button	Indicates minimum and maximum values on the display
7	*Temp/%RH* button	Display switches between temperature and relative humidity

Display

No.	Designation	Function
8	Battery status indication	Indicates whether battery needs to be replaced
9	*TIME/DATE* indication	Switches after 10 seconds each
10	Date/time indication	Switches between date and time indication after 10 seconds each
11	*%RH* indication	Is illuminated if relative humidity is displayed
12	°C / °F indication	Indicates the temperature unit
13	Measurement value indication	Indicates the temperature value or relative humidity
14	*FULL* indication	Is illuminated when data memory is full. No additional data could be saved
15	*REC* indication	Is illuminated throughout the measuring process
16	1/2 indication	1: Temperature indication 2: Relative humidity indication
17	*MIN* indication	Minimal values are indicated in the measurement value indication (13)
18	*MAX* indication	Maximum values are indicated in the measurement value indication (13)

Technical data

Parameter	Value
Model	BL30
Article number	3,510,205,520
Weight (packaging excluded)	approx. 91 g
Dimensions (length x width x height)	94 mm x 32 mm x 50 mm
Display	LCD (monochrome)
Relative humidity	
Measuring range	0 % RH to 100 % RH
Accuracy	± 3.5 % RH
Resolution	0.1 %
Air temperature	
Measuring range	-40 °C to 70 °C or -40 °F to 158 °F
Accuracy	±2 °C or ±1.8 °F
Resolution	0.1 °C/ °F
Ambient conditions	
Operation	-40 °C to 70 °C or -40 °F to 158 °F and 100 % RH
Storage	-40 °C to 30 °C or -40 °F to 86 °F and 100 % RH
Power supply	1 x 3.6 V Li-SOCL 2 battery, type 14.250
Memory organisation	
Sampling interval	> 1 s
Saving interval	> 1 s
Memory	32,000 measured values (16,000 each for temperature and relative humidity)

Scope of delivery

- 1 x Measuring device BL30
- 1 x 3.6 V Li-SOCL 2 battery
- 1 x Bag / holster
- 1 x USB connection cable
- 1 x CD-ROM with BL30 data logger software
- 1 x Quick guide

Transport and storage

Note

If you store or transport the device improperly, the device may be damaged.
Note the information regarding transport and storage of the device.

Transport

For transporting the device, use the bag included in the scope of delivery in order to protect the device from external influences.

The supplied lithium thionyl chloride battery is subject to the requirements of dangerous goods legislation.

Observe the following when transporting or shipping lithium thionyl chloride batteries:

- The user may transport the batteries by road without any additional requirements.
- If transport is carried out by third parties (e.g. air transport or forwarding company), special requirements as to packaging and labelling must be observed. This includes consulting a dangerous goods specialist when preparing the package.
  - Only ship batteries if their housing is undamaged.
  - Please also observe any other national regulations.

Storage

When the device is not being used, observe the following storage conditions:

- dry and protected from frost and heat
- protected from dust and direct sunlight
- with a cover to protect it from invasive dust if necessary
- the storage temperature complies with the values specified in the Technical data
- Remove the battery from the device.

Operation

Inserting the battery

Insert the battery into the device before first use. The scope of delivery includes a 3.6 V battery.

> **Note**
> Make sure that the surface of the device is dry and the device is switched off.

Proceed as follows to insert the battery:
1. Open the battery compartment (5) at the rear of the device by removing both screws.
2. Insert the batterie with correct polarity (+/-).
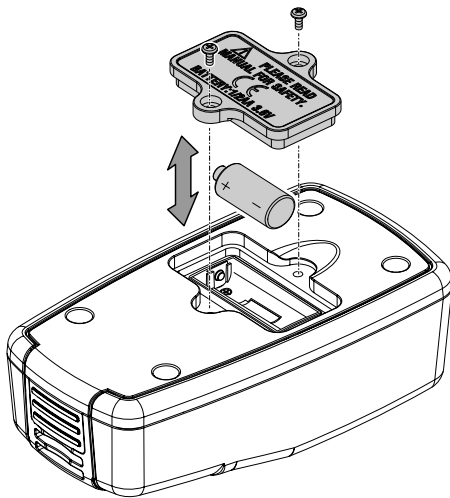
3. Close the battery compartment (5) and secure it by remounting both screws.
⇨ The device is switched on and the display is activated.

> **Note**
> Make sure that the device is always in an upright position (usage and storage). This has the effect that any possibly forming condensation water can escape on the bottom part of the device. Potential humidity may have been formed due to physical processes in the inside of the device. If so, wait until humidity has completely evaporated. Afterwards, the collected data can be read for evaluation.

Setting date and time

You can set date and time in the supplied software. For more detailed information please refer to the software explanations.

Alarm function

In the software, you can set temperature and humidity limit values for the device. If the set limit values are fallen below or exceeded, the LED Alarm (2) flashes:

LED flashes in red	LED flashes in yellow
The set temperature limit values are fallen below or exceeded.	The set humidity limit values are fallen below or exceeded.

For more detailed information on how to activate and deactivate the alarm function please refer to the section "Adjusting settings".

Displaying the minimum / maximum value

The device saves the highest and lowest measured display values. To call up these measured values, please proceed as follows:
1. Press the *MAX/MIN* button (6).
   ⇨ The *MAX* indication (18) appears on the display. The temperature or relative humidity maximum values are indicated (by pressing the *Temp/%RH* button (7), you can switch between temperature and relative humidity on the display).
2. Press the button again to view the minimum values.
   ⇨ The *MIN* indication (17) appears on the display.
3. Press the *MAX/MIN* button (6) once more to exit this mode.

Software installation

There is a data logger software included in the scope of delivery. You can use it to read and process measuring device data when the device is connected to a computer or notebook. Data can be graphically displayed directly in the software or visualised in an Excel sheet or similar programme.

Required operating system:

Windows 2000 / Windows XP / Vista / Windows 7 / Windows 8 / Windows 10

Minimum hardware requirements:

PC or notebook with Pentium 90 MHz or higher, 32 MB RAM; at least 7 MB of free hard disk space for the installation of the data logger software. Recommended screen resolution: 1024 x 768 with high colour resolution (16 bit).

The software is available in the following languages:
- English
- English
- French
- Turkish

Please select one of these languages if your local language is not listed. Please also observe that the translations of the following screenshots in this chapter only serve for a better understanding of the user.

Proceed as follows to install the software:

1. Place the supplied CD into the CD-ROM drive.
   - ⇨ A pop-up menu appears. Follow the instructions described in the menu to install the software on your PC.
2. Leave the CD in the drive, even when the software installation is completed. Using the supplied USB cable, connect the data logger to your PC. The USB driver window opens. Follow the instructions and select the USB driver path (CD drive).
   - ⇨ The USB driver is installed.
   - ⇨ The software can be launched.

Establishing communication

1. Use the supplied USB cable to connect the data logger to the USB interface of your PC/notebook.
2. Run the data logger software.
   - ⇨ The main window appears.
3. Click on the ⬇ button to call up the measured values saved in the device.
   - ⇨ A dialog window opens. You can either confirm the data download or cancel the operation.
   - ⇨ If you have confirmed the download, the measured values are called up from the device. The *-PC*-indication appears on the display and the *LED REC* (3) flashes. After the download has been completed, the main window opens, indicating the progression curves of the measured values:

- Temperature (Temp): red progression curve
- Relative humidity (RH): yellow progression curve
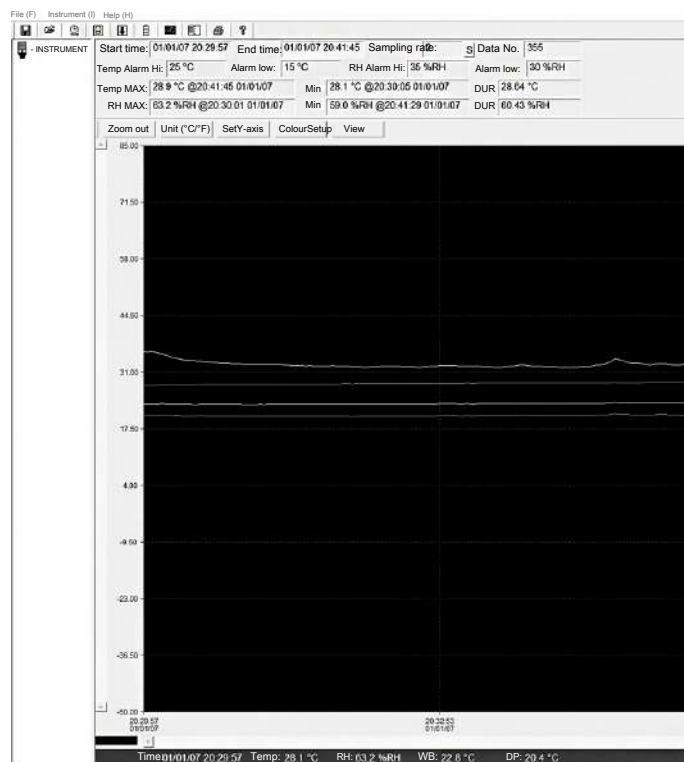
- Wet-bulb temperature (WB): green progression curve (the wet-bulb or theoretical limit of cooling is the lowest temperature below the current surrounding conditions which can be reached by the evaporation of water)
- Dew point temperature (DP): pink progression curve (the dew point temperature is the temperature to be fallen below at constant pressure in order for the water vapour to be separated in the air as fog or dew)

✍ **Info**
The colour specifications of the progression curves are set as standard. The colours can be adjusted by pressing the *Colour Setup* button.

The section above the graph contains information regarding start and end time of the measurement , the sampling rate, the data points number, the set alarm values as well as the maximum, minimum and average value of temperature and relative humidity.

Main menu

In the following you will find information regarding the main menu buttons. Thereafter, you can find additional information about some of the functions.

Button	Function
💾	Opens the dialog window for saving. Files are saved in ".record" and ".xls" formats
📂	Opens the dialog window for opening files
🕐	Opens the dialog window for setting date and time
▭	Opens the dialog window for adjusting the settings.
⬇	Starts data import from the data logger
🔋	Indicates the battery status of the data logger
㎊	Indicates the saved measured values in form of a graph
📖	Indicates the saved measured values in form of a list
🖨	Opens the dialog window for printing the chart or list
?	Opens the help

Save file

1. Press the 💾 button to open the dialog window for saving files.
2. Enter a name for the file.
3. Save the file (in ".record" and ".xls" format).
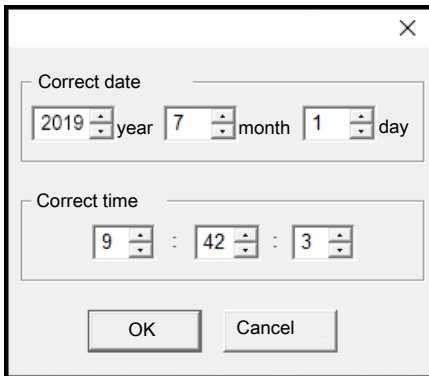
☞ **Info**

As standard, the programme processes files with the ".record" extension. When saving the file in the data logger software, an additional ".xls" file is produced and saved which can later be edited by using a spreadsheet software. If you do not need the "xls" file, you can delete it in the file explorer.

Open an existing file

1. Click on the 📂 button to open an existing file which you can view in the data graph window.

Setting date and time

1. Click on the 🕒 button to readjust time and date.
   ⇨ The dialog window for setting date and time appears. Enter the correct date and time. Then click on the *OK* button.


Adjusting the measurement settings

☞ **Info**

If the adjustments have been made and saved by pressing the *Setup* button, all measured values that have been saved before will be automatically deleted in the data logger. Therefore, save the previously recorded measured values before making adjustments on the settings.

1. Click on the 🔲 button.
   ⇨ The dialog window for the measurement settings opens.
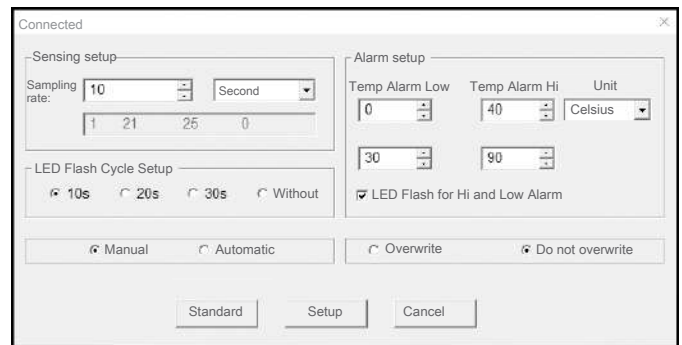
2. Please proceed as follows to adjust the individual menu items:
- Setting the sampling rate

  Enter the desired number in the left box and select a time unit in the right box.
- Setting the LED flashing rate

  Choose from 10 seconds, 20 seconds, 30 seconds or *Without*. If you selected Without, the LED *REC* (3) does NOT flash. This mode saves the battery and ensures a longer service life.
- Setting the recording mode

  Select *Manual* if you like to start recording of the measured values later by pressing one of the buttons on the device.

  Select *Automatic* to start recording the measured values as soon as you close the dialog window of the settings.
- Setting the alarm limits

  Enter the upper and lower limit values for the temperature alarm and select the unit (°C or °F).

  Select the upper and lower limit values for relative humidity.

  Select the box for LED flashing if you want the *Alarm* LED (2) to flash in case of fallen below or exceeded limit values.
- Overwrite measured values

  Select the *Overwrite measured values* if you want to overwrite the saved measured values, in case of the memory being full.

Select the *Do not overwrite measured values* if you like to keep the saved measured values and to terminate recording of the measured values in case of the memory being full.

Press the *SETUP* button to save the adjusted settings.

By clicking the *Standard* button you can reset the data logger to its factory settings.

If you click on the *Cancel* button, the menu for adjusting the settings is cancelled.

List view

1. Click on the [image] button to open the list view window indicating the individual measured values.
   ⇨ The data list will be displayed. You will find information regarding date and time of the individual measured value, as well as the corresponding values for relative humidity (in percent), temperature (in degrees Celsius) and temperature (in degrees Fahrenheit).

2. Click on the [image] button to switch back to the graph view.

Print graph or list

1. Click on the [image] button to display the data in form of a chart. Afterwards, click on the [image] button to print the chart.

2. Click on the [image] button to display the data in form of a list. Afterwards, click on the [image] button to print the list.

Zooming in

1. Left-click and hold the left mouse button. Drag a rectangle around the section you like to zoom in.
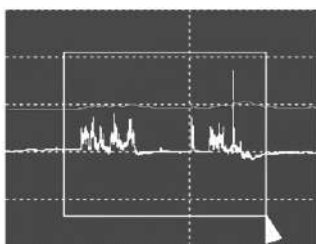

2. Let go of the mouse button again.
3. Use the horizontal scrollbar to browse/scroll the data. Use the left vertical scrollbar to browse the temperature data. Use the right vertical scrollbar to browse the humidity data.

Zooming out

1. Click on the *Zoom out* button to zoom out and return to the original image size.

Setting the scaling

1. Click on the *SetY-axis* button to open the settings for temperature and humidity axis (y-axis).
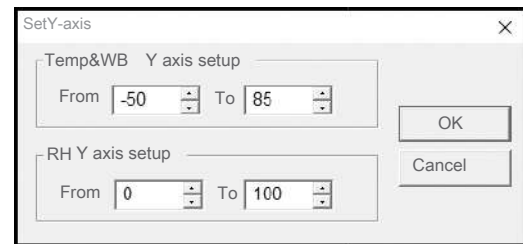
1. Enter the desired temperature scale values (on the left of the graph) and the relative humidity scale values (on the right of the graph).

Adjusting colour settings

1. Click on the *ColourSetup* button to adjust the colour settings for background, grid lines and for the different progression curves.
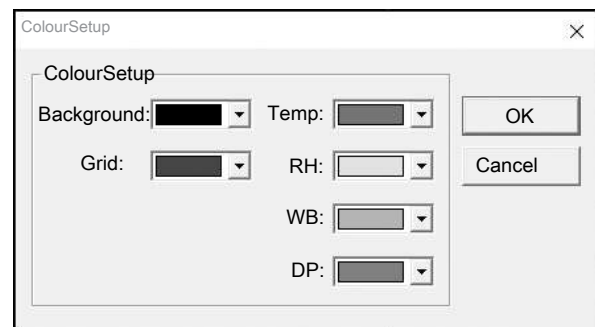
Adjusting the diagram window

1. Click on the *View* button to individually adjust the diagram window.

These settings allow you to determine which data you like to view in form of a progression curve, whether or not the set alarm limit values shall be displayed graphically or which grid lines you like to add to or remove from the x- and y-axis.

Selecting data points: Adds the individual data points to the measuring graphs.

Maintenance and repair

Battery change

A battery change is required when the battery status indication displays an empty battery symbol or when the device can no longer be switched on (see chapter Inserting the battery).

Cleaning

Clean the device with a soft, damp and lint-free cloth. Make sure that no moisture enters the housing. Do not use any sprays, solvents, alcohol-based cleaning agents or abrasive cleaners, but only clean water to moisten the cloth.

Repair

Do not modify the device or install any spare parts. For repairs or device testing, contact the manufacturer.

Disposal

Always dispose of packing materials in an environmentally friendly manner and in accordance with the applicable local disposal regulations.

The icon with the crossed-out waste bin on waste electrical or electronic equipment stipulates that this equipment must not be disposed of with the household waste at the end of its life. You will find collection points for free return of waste electrical and electronic equipment in your vicinity. The addresses can be obtained from your municipality or local administration. You can also find out about other return options that apply for many EU countries on the website https://hub.trotec.com/?id=45090. Otherwise, please contact an official recycling centre for electronic and electrical equipment authorised for your country.

The separate collection of waste electrical and electronic equipment aims to enable the re-use, recycling and other forms of recovery of waste equipment as well as to prevent negative effects for the environment and human health caused by the disposal of hazardous substances potentially contained in the equipment.

In the European Union, batteries and accumulators must not be treated as domestic waste, but must be disposed of professionally in accordance with Directive 2006/66/EC of the European Parliament and of the Council of 6 September 2006 on batteries and accumulators. Please dispose of batteries and accumulators according to the relevant legal requirements.

Only for United Kingdom

According to Waste Electrical and Electronic Equipment Regulations 2013 (SI 2013/3113) (as amended) and the Waste Batteries and Accumulators Regulations 2009 (SI 2009/890) (as amended), devices that are no longer usable must be collected separately and disposed of in an environmentally friendly manner.

802 Hallmark Dr.
Laredo, TX. 78045

(956) 606-0041
info@trotecequipment.com

www.trotecequipment.com