Manual XC200

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Notes regarding the operating manual

Symbols

⚠ **Danger!**
Warns of a hazard which can lead to personal injury.

⚠ **Caution!**
Warns of a hazard which can lead to damage to property.

The current version of the operating manual can be found at: www.lufft.de

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Changes to construction in the interests of constant improvements to the product, as well as changes to the shape and colour are reserved.

The scope of delivery may vary from product images. This document was created with all due care. Lufft® accepts no liability whatsoever for possible mistakes or omissions.

The only party responsible for determining measured results to be valid, drawing conclusions and deriving actions is the user! Lufft® accepts no claims of warranty for correctness of detected measured values or measured results. Further, Lufft® accepts no liability whatsoever for possible mistakes or damage which have been caused by utilising the detected measured results. © Lufft®

Warranty

The warranty is for 12 months. Damages caused by incorrect use by untrained people or start-up by unauthorised people are excluded from the warranty.

The device complies with the fundamental health and safety requirements of the applicable EU regulations and was tested at the factory for perfect functionality multiple times. However, if faults in the functionality occur and cannot be remedied with the measures in the chapter Errors and faults, please get in touch with your dealer or distributor. When making a warranty claim, supply the device number (see the rear of the device). The invoice acts as warranty certificate. When manufacturer's instructions or legal regulations have not been followed, or after unauthorised changes to the device are made, the manufacturer is not responsible for the resulting damages. Changes to the device or unauthorised replacement of individual parts can drastically impact the electrical safety of this product and leads to the forfeit of the warranty. Liability does not extend to damages to people or property caused by the device being used other than as described in the instructions in this operating manual. Subject to changes to technical design and model changes as part of constant development and product improvement without prior notice.

No liability is accepted for damages resulting from improper use. In such cases, entitlements to a warranty are then also forfeited.

Lufft

Information about the device

Description of the device

The thermohygrometer enables a quick and precise determination of the air temperature and relative humidity indoors. Both measured values are indicated in real time on a pseudo colour display.

In addition to the relative humidity, further climate parameters such as the dew point or absolute moisture content in the air can be calculated with this device.

The temperature indication can be switched from °C to °F and back.

A minimum, maximum and average function is available for the direct analysis of the measured data. Besides, the currently measured value can be recorded via the hold function.

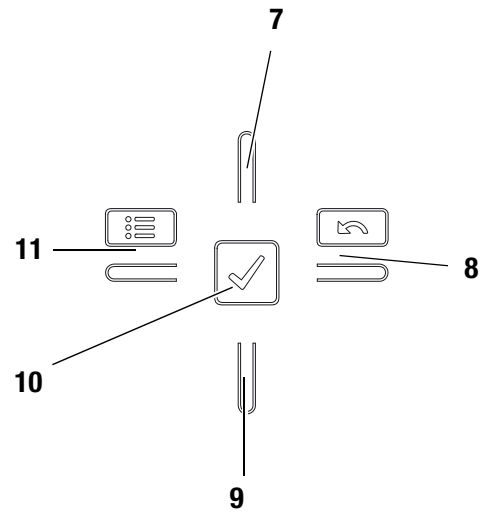The device can be operated via a capacitive touchscreen control panel.

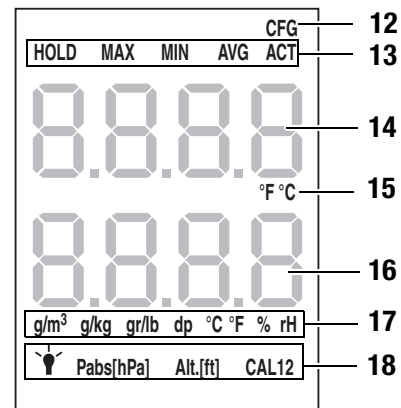When not in use, an automatic switch-off saves the battery.

Device depiction
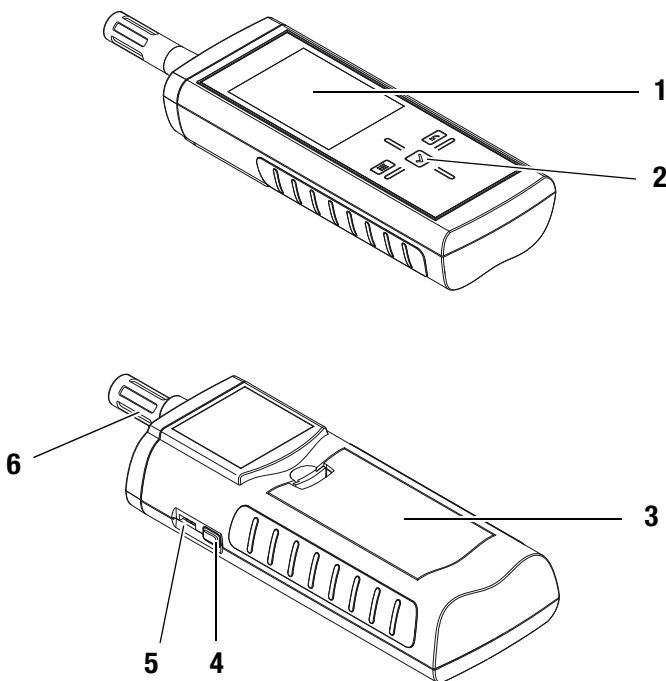
No.	Operating element
1	Display
2	Cross control
3	Battery compartment with battery cover
4	On/Off key
5	USB interface
6	Measuring sensor

Cross control

No.	Operating element
7	Up key
8	Right/back key
9	Down key
10	OK button
11	Left/menu key

Display

No.	Display element
12	Configuration mode display
13	Measuring mode
14	Temperature display
15	Temperature unit
16	Humidity display
17	Unit for humidity
18	Configuration mode options

Technical data

Parameter	Value
Temperature sensor	NTC
Measuring range	-20 to +50 °C
Tolerance	+/- 0.2 °C (0 to 40 °C), otherwise +/-0.4 °C
Resolution	0.1 °C
Humidity sensor	Capacitive
Measuring range	0 to 100 % RH
Tolerance	+/- 2 % RH
Resolution	0.1 % RH
Measuring frequency	2x per second
Operating temperature	-20 °C to 50 °C
Storage temperature	-20 °C to 60 °C
Battery type	4x AA 1.5 VDC
Dimensions (LxWxH)	202 mm x 63 mm x 35 mm

Scope of delivery

Scope of delivery includes:

- 1 x Thermohygrometer XC200
- 1 x USB cable
- 4 x Alkaline LR6 AA, 1.5 V batteries
- 1 x Getting started guide
- 1 x Factory test certificate

Safety

Carefully read the operating manual before using the device and keep it within reach!

- Do not use the device in atmospheres containing oil, sulphur, chlorine or salt.
- Never use the device for measurements at live parts.
- Ensure that all connection cables are protected from damages (e.g. from kinks or crushing).
- Protect the device from permanent direct sunlight.
- Observe the storage and operating conditions (see chapter Transport and storage).

Intended use

Only use the thermohygrometer XC200 for indoor measurements of temperature and humidity. Here, read and observe the technical data.

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

Improper use

Do not use the device in potentially explosive atmospheres, or for measurements in liquids. Lufft® accepts no liability for damages resulting from improper use. In such a case, entitlements to a warranty are forfeited. Any unauthorised modifications, alterations or structural changes to the device are forbidden.

Personnel qualifications

People who use this device must:

- have read and understood the operating manual, especially the Safety chapter.

For maintenance or repair work which requires the housing to be opened, contact Lufft® customer service. Devices which have been opened unlawfully are void of any warranty and warranty claims.

Residual risks

Danger!
Do not leave the packaging lying around. Children may use it as a dangerous toy.

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

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

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

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

Transport and storage

Transport

Use a suitable bag to transport the device safely.

Storage

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

- dry,
- protected from dust and direct sunlight,
- with a plastic cover to protect it from invasive dust, if necessary.
- The storage temperature is the same as the range given in the chapter .
- When storing the device for a long time, remove the batteries.

Accessories

Optionally, the following accessories are available for transport and storage:

- Lufft® case
- Sinter protection cap

For further information please contact your Lufft® customer service.
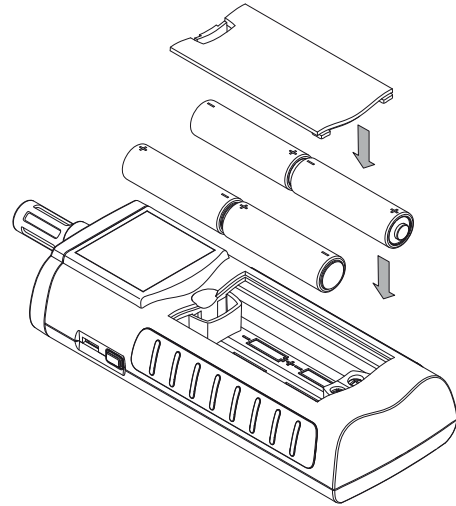
Operation

Inserting batteries

- Insert the supplied batteries before first use.

⚠ **Caution!**
Make certain that the surface of the device is dry and the device is switched off.

1. Open the cover of the battery compartment (3).
2. Insert the batteries with correct polarity.
3. Close the cover of the battery compartment (3).
   – The device can now be switched on.

Switch-on and measurements

Note:

The cross control is very sensitive. Therefore, avoid dirt on the control panel, because it could be misinterpreted by the device as keystroke.

Before use make sure that the touchscreen control panel is dirt-free.

If required clean the touchscreen control panel according to chapter Cleaning the device on page 8.

1. Press the On/Off key (4) until a beep is emitted.
2. The device performs a short self-test.
   – The device name and firmware version is shown on the display.
   – The battery charge is indicated on the display.
   – The device is ready for operation.
   – The displayed units are based on the settings of the last utilization.
3. Select the desired measuring mode.
4. Point the device at the area to be measured.
   – The measured values will be displayed.

Note:

Note that moving from a cold area to a warm area can lead to condensation forming on the device's circuit board. This physical and unavoidable effect can falsify the measurement. In this case, the display shows either no measured values or they are incorrect. Wait a few minutes until the device has become adjusted to the changed conditions before carrying out a measurement.

Key lock

1. Briefly press the On/Off key (4) during operation.
   – The device emits a short beep.
   – The following message appears on the display: LoC on.
   – Key lock is activated.
2. Press the On/Off key (4) again.
   – The device emits a short beep.
   – The following message appears on the display: LoC off.
   – Key lock is no longer activated.
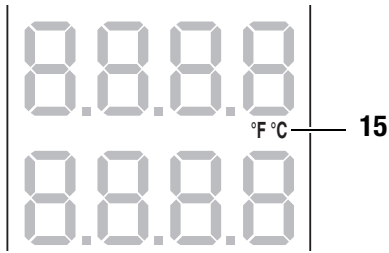
Configuration mode

1. Press the Left/menu key (11) for approx. 2 seconds.
   – The device emits a short beep.
   – The CFG symbol (12) is displayed in the upper right corner.
2. Use the Right/back or Left/menu key to choose from the available settings.
   – Please note that some of the settings can only be selected with a certain measuring mode.
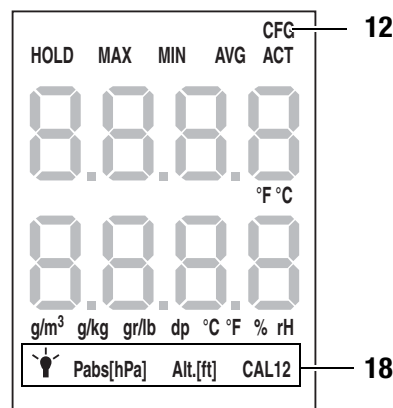
Configuration mode	Description
Lamp	Setting brightness. Available are values between 20 and 100 %. Switch-off after 30 min unless with setting AL.on.
Pabs[hPa]	**Only available when the unit g/kg is active.** Specifying the absolute pressure (value range: 600 and 1200 hPa). 1. Enter the value using the cross control (2). 2. Confirm with the OK button (10).
Alt.[ft.]	**Only available when the unit gr/lb is active.** Specifying the local altitude in feet (value range: -999 and 9999 ft). 1. Enter the value using the cross control (2). 2. Confirm with the OK button (10).
CAL1	Specifying the temperature offset. 1. Enter the value using the cross control (2). 2. Confirm with the OK button (10).
CAL2	**Only available, when % rH is active.** Specifying the offset for relative humidity (value range: +/- 30 % RH). A negative offset allows no measured values of less than 0.00. 1. Enter the value using the cross control (2). 2. Confirm with the OK button (10).

## Temperature display configuration

The temperature can be displayed in either Celsius (°C) or Fahrenheit (°F).

1. Press the Up key (7) to switch between °C and °F.
   - The temperature will be displayed in the selected unit.
   - The unit (15) will be indicated on the display (1).

Humidity display configuration

The humidity can be displayed in % RH, g/m^3, g/kg and gr/lb, and the dew point temperature in dp °C and dp °F.
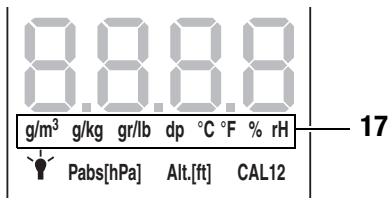

1. Press the down key (9) until the desired unit is displayed.
   - The humidity or dew point temperature will be displayed in the selected unit.
   - The unit (17) will be indicated on the display (1).

Unit	Description
g/m^3	Absolute humidity in g/m^3
g/kg	Mixing ratio in g/kg
gr/lb	Mixing ratio in gr/lb
dp °C	Dew point temperature in °C
dp °F	Dew point temperature in °F
% RH	Relative humidity in per cent

Measuring mode

1. Press the keys Right/back (8) or Left/menu (11) until the desired measuring mode is displayed.
   - The selected measuring mode (13) will be indicated on the display (1).
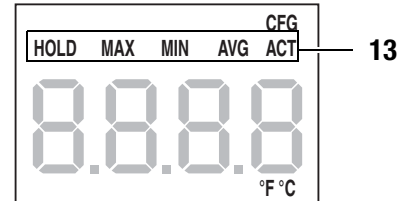
The thermohygrometer comes with the following measuring modes:

Measuring mode	Description
ACT	Measured value in real time
AVG	Average value of measurements since switch-on
MIN	Minimum measured value
MAX	Maximum measured value
HOLD	Measured value will be held

Holding the measured value

1. Set the measuring mode to HOLD.
   - The current measured value will be held and displayed.
   - The device will hold this value until the measured values are set back or the device is switched off.

Resetting the measured values

1. Press the OK button (10) for approx. 2 seconds.
   - All previously stored measured values of the measuring modes AVG, MIN, MAX and HOLD will be set back.
   - All measured values are then determined anew based on the measurement proceeding in the background.

Measured value storage

Please note that measured values cannot be saved on the device itself. In order to save measured values, the device has to be connected to a PC via a USB cable using the SmartGraph3 software.

1. Briefly press the OK button (10).
   - The displayed measured value will be saved in the software.

USB interface

The device can be connected to a PC via the USB interface (5). See chapter PC software on page 7.

Switch-off

1. Press and hold the On/Off key (4) for approx. 3 seconds until a beep is emitted.
   - The device will be switched off.

PC software

Use the SmartGraph3 PC software to carry out a detailed analysis and visualisation of your measured results. Only by employing this PC software can all options of the measuring device for visualization and functioning be utilized (e.g. data export into an Excel/PDF file or data output in form of a printout).

Installation conditions

Ensure that the following minimum requirements for installing the SmartGraph3 PC software are fulfilled:

- Supported operating systems (32 or 64 bit version):
  - Windows XP from service pack 3
  - Windows Vista
  - Windows 7
  - Windows 8
- Software requirements:
  - Microsoft .NET Framework (is automatically installed during the software installation, where applicable)
- Hardware requirements:
  - Processor speed: min. 1.6 GHz
  - USB connection
  - 2 GB RAM, minimum
  - 1 GB hard disk space, minimum

Installing the PC software

1. Download the current PC software from the Internet. To do so, visit the website www.smartgraph3.de/download.
2. Double-click the downloaded file.
3. Follow the instructions of the installation wizard.

Starting the PC software

1. Start the SmartGraph3 software.
2. Switch on the device (see chapter Switch-on and measurements) if necessary.
3. Connect the device to your PC via the USB connection cable provided in the scope of delivery. After a few seconds (up to one minute) the device is automatically detected and added to the device list in the SmartGraph3 software.
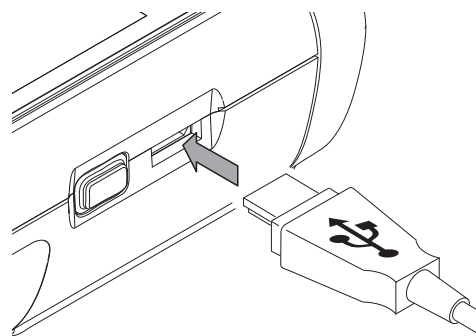
Information about using the PC software is provided in the online help.

Errors and faults

The accurate functionality of the device was tested during production a number of times. However, if functionality faults do occur, then check the device according to the following list.

The device does not switch on:

- Check the charging status of the batteries. Change the batteries when the message *Batt lo* is displayed upon switch-on.
- Check that the batteries are properly positioned. Check the polarity is correct.
- Never carry out an electrical check yourself; instead, contact your Lufft[®] customer service.

Maintenance

⚠️ **For maintenance or repair work which requires the housing to be opened, contact Lufft® customer service. Devices which have been opened unlawfully are void of any warranty and warranty claims.**

Cleaning the device

1. Use a soft, lint-free cloth for cleaning.
2. Dampen the cloth with clean water. Do not use sprays, solvents, alcohol-based or abrasive cleaners to dampen the cloth.
3. Remove dirt from the housing, the connections and the display.
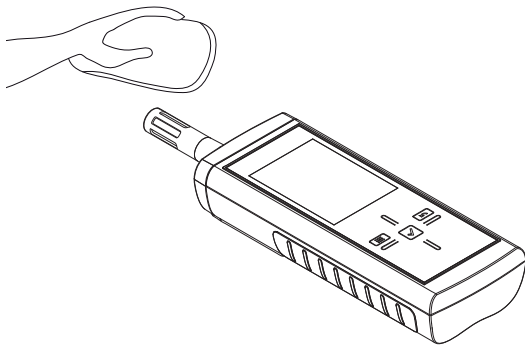
Battery change

Change the batteries when the message *Batt lo* is displayed upon switch-on or the device can no longer be switched on. See Inserting batteries on page 4.

Disposal

In the European Union, electronic equipment must not be treated as domestic waste, but must be disposed of professionally in accordance with Directive 2002/96/EC of the European Parliament and Council of 27th January 2003 concerning old electrical and electronic equipment. After the end of its use, please dispose of this device in a manner appropriate to the relevant legal requirements.

In the European Union, batteries 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 Council of 6th September 2006 concerning batteries and accumulators. Please dispose of batteries in a manner appropriate to the relevant legal requirements.

Declaration of conformity

in accordance with the EC Low Voltage Directive 2006/95/EC and the EC Directive 2004/108/EC about electromagnetic compatibility.
Herewith, we declare that the XC200 thermohygrometer was developed, constructed and produced in compliance with the named EC directives.

The CE marking is found on the rear of the device.

Manufacturer:
G. Lufft Mess- und Regeltechnik GmbH
Gutenbergstr. 20
D-70736 Fellbach
Phone: +49 711 518 22 0
Fax: +49 711 518 22 41
Email: info@lufft.de

Fellbach, 31/03/2014

Managing Director: Axel Schmitz-Hübsch

a passion for precision · passion pour la précision · pasión por la precisión · passione per la precisione ·

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