# testo 177

**Data logger**

CE

ISO 9001
TESTO
QUALITY
certified

**Instruction manual**

# Copyright

## Introduction

Dear Customer

Thank you for purchasing a Testo product. We hope you will enjoy the benefits of this product for a long time to come and that it will help you with your work.

Please take the time to read the instruction manual carefully and make sure you become familiar with how the instrument operates before using it.

If there are any problems, which you cannot solve yourself, please contact our Customer Service Department or your nearest distributor. We will do our best to help you quickly and competently to reduce downtimes.

## General information

Warnings and particularly important information, which has to be observed when working with this product, are highlighted in this instruction manual as follows

### Warnings

Warnings are marked by a warning symbol. The appropriate **Warning title** indicates the danger level:

| | |
|---|---|
| ⚠️ **Warning titie!** | **Warning!** means death or serious physical injury may occur if the specified safety measures are not carried out. <br><br> **Caution!** means minor physical injury or damage to property may occur if the specifed safety measures are not carried out. <br><br> ▸ Read all the warnings carefully and carry out the specified safety measures to avoid danger. |

### Important information

❗ Particularly important information is highlighted in this instruction manual by an exclamation mark.

### Standards

C€ The conformity certificate confirms that this product fulfills the guidelines in accordance with **89/336/EWG**.

# Contents

# 1. Basic safety instructions

Please read through the following safety instructions carefully:

## ⚠ Avoiding electricity:

▶ Never use the instrument and external probes to measure on or near live parts if the instrument is not expressly approved for current and voltage measurement!

## ⚠ Product safety:

▶ Prior to each measurement, check if the connections are connected properly via the blind plug and if the right probe is correctly inserted. Otherwise the protection class specified in the Technical data cannot be guaranteed.

▶ The logger should only be operated within the parameters specified in the Technical data.

▶ Please handle the logger with care.

▶ The instrument should only be opened if expressly described in the instruction manual for maintenance purposes.

▶ Force should never be applied!

## ♻ Disposal:

▶ Please dispose of spent batteries responsibly.

▶ You can return your logger directly to us at the end of its service life. We will dispose of it responsibly.

The **testo 177** data loggers are used to save and read out separate readings and measurement sequences. The readings are measured, saved and transmitted to a PC, to the **testo 575** fast printer or to the **testo 580** data collector per infrared using **testo ComSoft** software.

**Applications**

**testo 177-T1**

Fast and affordable temperature monitoring in refrigeration and deep freeze sector:

- During transport
- In refrigerated rooms
- In display cabinets
- In containers
- Fulfills guidelines in accordance with EN 12830 standards *

**testo 177-T2**

Temperature monitoring with display:

- During transport
- In glass cabinets
- In refrigerated rooms
- In containers
- In domestic housing
- Fulfills guidelines in accordance with EN 12830 standards *

**testo 177-T3**

Temperature logger with display and switch (door contact) for monitoring transport:

- Transport monitoring
- Refrigerated room monitoring
- In containers
- In warehouses
- Blood plasma monitoring
- Fulfills guidelines in accordance with EN 12830 standards *

**testo 177-T4**

Fast measurement of high temperatures:

- During industrial processes
- In laboratories
- In heating installation sector
- In containers
- In domestic housing

**testo 177-H1**

Monitoring of humidity and temperature values with external temperature and dew point measurement

- In domestic housing
- In the pharmaceutical sector
- In museums
- In warehouses
- In industry

* In accordance with EN 12830, please ensure that a regular check in accordance with EN 13486 (recommendation: once a year) is carried out on this instrument.

# 3. Initial operation

The data loggers have the defaults below:

| Type | 177-T1 | 177-T2 | 177-T3 | 177-T4 | 177-H1 |
|---|---|---|---|---|---|
| Start criterion | | | Key start | | |
| Measuring rate | 5 Min. | 5 Min. | 5/1 Min.* | 3 Sek. | 1 Min. |
| Stop criterion | | Wraparound memory | | Until memory is full | Wraparound memory |
| Alarm values | | Respective measuring range full-scale values (See Technical data) | | | |
| Display | - | | On | | |
| LEDs | | Status led (green): Off / Alarm led (red): On | | | |
| Measurement channels | | All channels switched on ** | | | |
| Fast printer- / data collector function | | Stop: Switched on New programming: Switched on | | | |
| Protocol name | | testo177-{Type}_{Serial number} | | | |

\* Depending on event: switch (e.g. door contact) open or not connected/switch closed

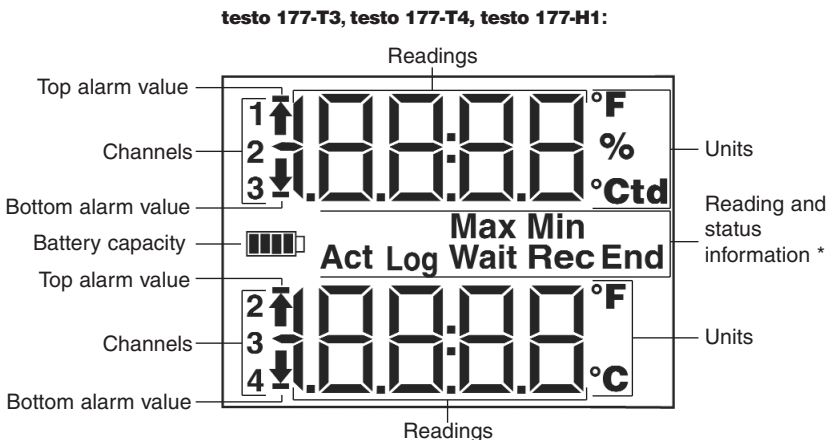\*\* **testo 177-T4**: T/C -Type "K" programmed

The data logger with the above factory defaults can be used immediately.

If you wish to use other measurement criteria, you will have to program your data logger in accordance with your requirements using **testo ComSoft** software (See **7. Programming**, P. 14).

External probes can be attached to many of the data loggers (See **6. Connecting probes**, S. 13).

## 4.1 Display

**!** The display function can be activated/deactivated via the **testo ComSoft** software. The **testo 177-T1** data logger do not have a display.

**testo 177-T2:**

Readings
Top alarm value
Bottom alarm value — Units
Battery capacity
Reading and status information *

**testo 177-T3, testo 177-T4, testo 177-H1:**

Readings
Top alarm value
Channels — Units
Bottom alarm value
Battery capacity — Reading and status information *
Top alarm value
Channels — Units
Bottom alarm value
Readings
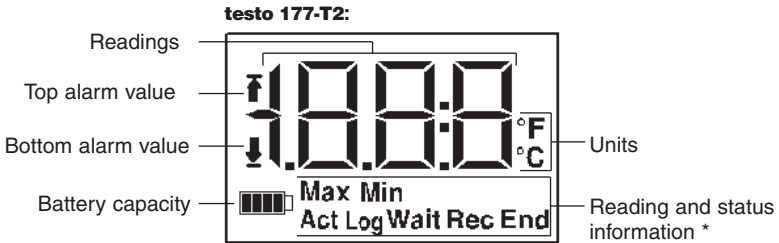
* **Reading information:**
Max = highest reading, Min = lowest reading, Act = Intermediate reading (is shown in display but is not saved), Log = saved reading

**Status information**:
*Wait* = Waiting for program to start, *Rec* = Measuring program is running, *End* = Measuring program is finished

**!** Due to technical reasons, the display speed of the liquid crystals slows down at temperatures below 0 °C (approx. 2 s at -10 °C, approx. 6 s at -20 °C). However, this does not have any influence on the accuracy of the measurement.

# 4. Display and control elements

## 4.2 LED functions

| Symbol [3] | Capacity |
|---|---|
| ▮▮▮▮▯ | 75-100% |
| ▮▮▮ ▯ | 50-75% |
| ▮▮ ▯ | 25-50% |
| ▮ ▯ | 10-25% |
| ▯ | <10% |
| **OFF** | Battery empty (measuring program was stopped) |
| | ▸ Reading out data and changing battery (See **9. Changing battery**, P. 26) |

**!** The LED functions can be switched on/off via **testo ComSoft** software.

**In all modes:**

The Alarm led flashes three times every 15 seconds if the remaining battery capacity is less than10% (even if Alarm led is deactivated).

**Wait mode and Key start start criterion programmed:**

The status led flashes five times if the *GO* button is kept pressed for approx. 3 s (even if the Status led is deactivated).
It is confirmation that the measuring program was started and that the data logger is now in the *Record* mode.

**Record mode:**

The Alarm led flashes once every 15 s if alarm values have been exceeded (only if Alarm led is activated).

The Status led flashes once every 15 s (only if the Status led is activated).
It is confirmation that the measuring program is running.

The Status led flashes five times if the *GO* button is kept pressed for approx. 3 s (even if Status led is deactivated).
It is confirmation that a time mark has been set.

Alarm led
(red LED)

Status led
(green LED)

## 4.3 Display sequence

Depending on the mode, different information can be displayed in the data loggers with display. You will find a detailed description of the information which can be called up in the short version of the instruction manual enclosed with every data logger.

## 4.4 Button functions

**In all modes in data loggers with display:**

▸ Press the △ button to switch between the displays.

▸ Press the *GO* button to activate an intermediate measurement.

***Wait* mode and *Key start* start criterion programmed:**

▸ Press the *GO* button for approx. 3 s to start the measuring program.

- The measuring program starts, *Record* appears in the display (if available) and the Status led flashes five times.

***Record* mode:**

▸ Press the *GO* button for approx. 3 s to set a time mark.

- The Status led flashes five times.

**Time mark:** This function enables you to monitor and read out/print out the memory content from a specified point in time (*time mark*) without having to reprogram the data logger. The readings from *Start* (*All readings*) are also saved.

The readings from *Start* (*All readings*) or *From time mark* can be read out on the **testo 575** fast printer or the **testo ComSoft** software.

The readings from *Start* (*All readings*) can be read out on the **testo 580** data collector.

**!** Only one time mark can be set. If the *GO* button is pressed for approx. 3 seconds in the *Record* mode, the existing time mark is deleted and a new time mark is set up.

- The readings (max./min. values, exceeding of alarm values) are shown in the display (if available) from the set time mark.

# 5. Mounting

## 5.1 Mounting the wall holder
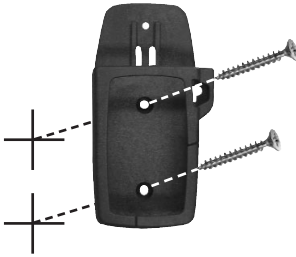
**!** Mounting materials (e.g. screws, dowels) are not included.

**1** Position the wall holder at the required location.

**2** Using a pencil or similar, mark where the fixing screw is to go.

**3** Prepare the area for mounting (e.g. drill a hole, put in dowel).

**4** Mount the wall holder using a screw which fits.

## 5.2 Securing the data logger with a lock

**1** Insert the data logger into the wall holder.

**2** Place the retainer key in the wall holder.

**3** Attach the lock to the wall holder (Accessory: Part no. 0554 1755).

## 5.3 Transportable unit

A unit can be made out of the wall holder, logger and the interface to make transport or dispatch easier.

**1** Push the data logger into the wall holder.

**2** Push the interface onto the wall holder.

**3** Secure the unit by connecting the wall holder and the interface using the screw supplied.

Observe the following points when connecting the probes to the data logger and to the measurement points:

▸ Observe poles of plug.

▸ Insert the plugs firmly into the connections to guarantee that they are properly in place. Force should not be used.

▸ Ensure that the plugs are firmly attached to the data logger or that the connections are in place with a blind plug.

▸ Ensure that the probe is positioned properly to avoid disturbing influences on the measurement.

**testo 177-T3:**

Use the enclosed twin-wire cable to connect the switch (door contact). Connect a potential-free button or switch to it.

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⚠ **Warning!**

False connection!

**Electric shock! Damage to data logger!**

▸ Do **not** apply electrical signal to cable and **avoid** contact with live parts.
▸ Only one potential-free contact should be connected.

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*Measuring rate* is activated if the contact is open electrically i.e. if both cables are not connected with one another.
*Measuring rate Door* if the contact is closed electrically i.e. if both cables are connected with one another (See page 24).

❗ The data logger requires slightly more energy if the contact is electrically closed. It is recommended to select the contact so that it is electrically open most of the time.

**testo 177-T4:**

▸ Ensure that each respective configured probe is connected to the socket (via **testo ComSoft** software). The numbers of the connections are printed on the housing!

# 7. Programming

## 7.1 Installing software

In order to program your data logger in accordance with your individual needs, you will need a PC on which the **testo ComSoft** software is installed.

You will find instructions on the installation and operation of the software in the **testo ComSoft** instruction manual.

▶ Continue with **7.2 Connecting data logger to PC**, P. 14 once the software is successfully installed.

## 7.2 Connecting data logger to PC

You will need a free serial interface (RS232) to connect the data logger interface to your PC.
If you only have USB interfaces, you will need a USB-to-serial adapter available from your local PC dealer.
Testo recommends you use the adapter from Belkin, Model no. F5U103. This adapter was tested for its functionality with **testo ComSoft** software.

**1** Connect the serial connection cable of the interface to your PC.

**2** Connect the interface to the connection cable.

**3** Insert the interface in the desk-top holder.

**4** Place the logger in the desk-top holder.

**!** The interface can be placed directly in the wall holder. In this way, the data can be read out directly on location.

**5** Start the **testo ComSoft** software.

## 7.3 Setting up the connection

**1** Start **testo ComSoft** software.

**2** Select *Instrument* > *Autodetect...* .
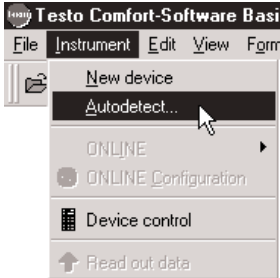
- *Autodetect* opens.

- The connection to the data logger found is set up automatically and the name of the connection appears in the *Data* window.

**-or-**

**2** Select *Instrument* > *New device*.

- The *New device setup wizard* opens.
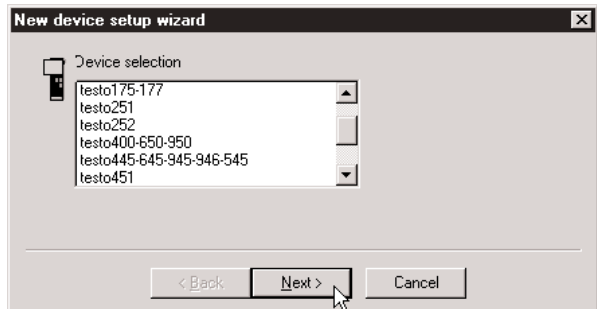
**3** Select *testo175-177* in Device selection and click on *Next*.

**4** Select the interface in *Connection*, with which you have connected your data logger to your PC and click on *Next*.

**5** Enter a name for the connection and click on *Finish*.

# 7. Programming

**Confirmation of battery change**

- If the data logger is used for the first time or the data logger battery has been changed, the *New battery* window opens.
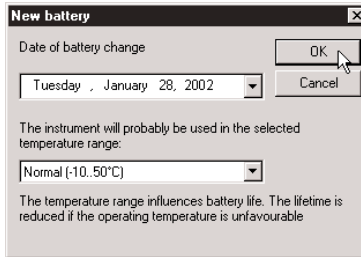


▶ Enter the date when the battery was changed.

▶ Enter the temperature range in which you will use the data logger and confirm with *OK*.

- The connection to the data logger is set up. The name of the connection appears in the *Data* window.

## 7.4 Opening the connection



▶ Click twice on the connection, which you want to open, in the *Data* window.

- If a protocol is saved in the data logger, the protocol symbol and the title appear under the opened connection.



**!** The readings saved in the data logger are not transmitted to the PC when the connection is opened. Carry out the following to transmit the readings:

▶ Click twice on the title of the protocol (See **testo ComSoft** software instruction manual).

**Use one connection for several data loggers**

**!** You can connect different data loggers once a connection has been set up. The connection must be closed when changing the data logger and then opened again for the new data logger. Otherwise, it cannot be identified by the software (See **7.6 Closing the connection**, P.24).

## 7.5 Programming the data logger

**!** Any readings in the data logger are deleted if the data logger is programmed.
  ▶ Read out any data from the data logger which may exist before programming
    (See **testo ComSoft** software instruction manual).

▶ Select *Instrument > Device control*.

**!** This function is only activated if the name of the connection is highlighted. If this is not the case:

▶ First click on the name of the connection so that it is highlighted and then select *Instrument > Device control*.

- The window for programming the data logger opens.
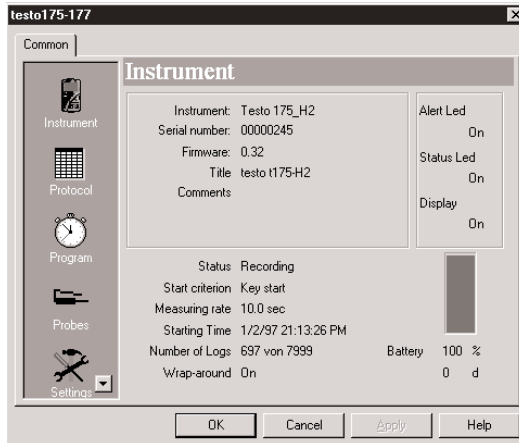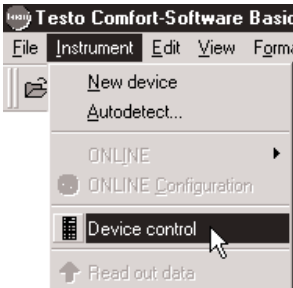




**Window selection**

You will find a bar on on the left side in which the available windows are shown. Click to select.

**Programming recommendation**

It is recommended to carry out programming first in the *Probes* and *Settings* windows and then in the *Program window*.

# 7. Programming

**Instrument**
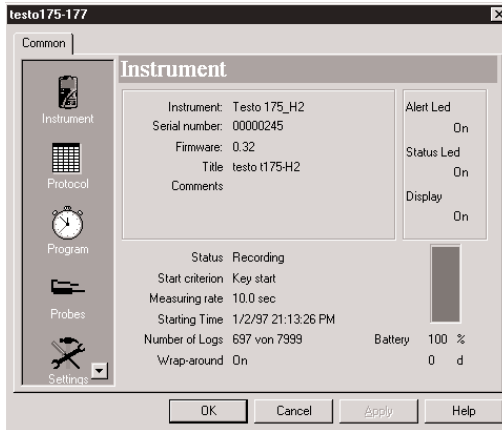


You can read general information on the data logger in the *Instrument* window.

**!** This window is a pure information window. Programming is not possible.

**Protocol**
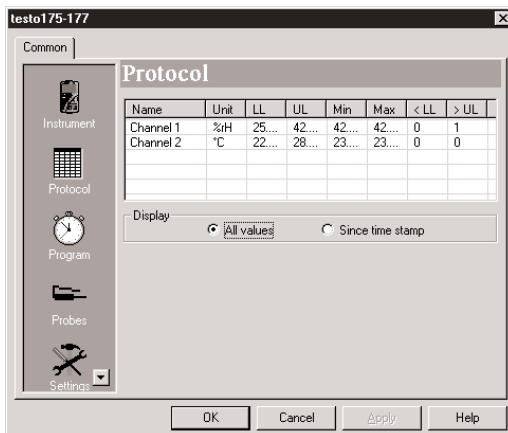


You can read information from the protocol currently stored in the data logger in the *Protocol* window. You can choose to display *All values* and *Since time mark*.

**!** This window is an information window. Programming is not possible.

**Probes**
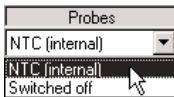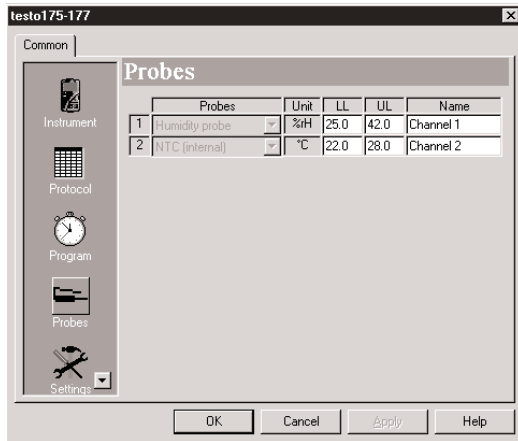


*Probes:*



‣ Activate the probes available or deactivate them.

*Unit:*



Displays the set unit for the respective channel.

▌ You cannot change the unit in this window, but in the *Settings*,
■ window.

*LL:*



‣ The lower alarm limit for the channels is entered here.

*UL:*



‣ The upper alarm limit for the channels is entered here.

*Name:*



‣ Enter a name for the channel here.

# 7. Programming

**Settings**
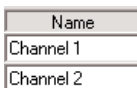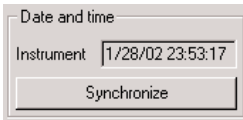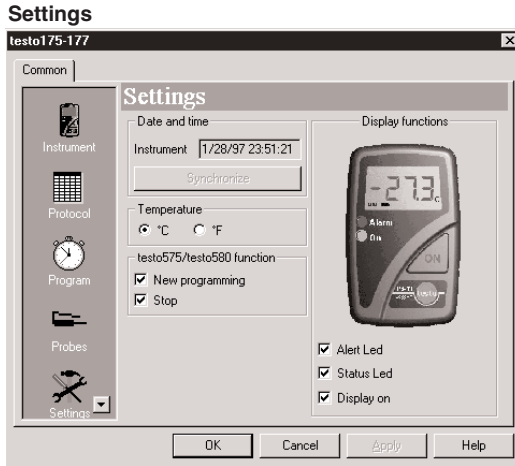




*Date and time:*

The set date and the time in the data logger are shown.

▸ Select *Synchronize* to synchronize the date and the time in the data logger with the clock in your PC.

**!** Date/Time can only be synchronized when the data logger is in the *Wait* or *End* mode.
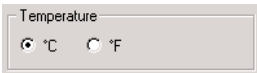


*Temperature:*

▸ Select the required temperature unit for the temperature channels (*°C* or *°F*).
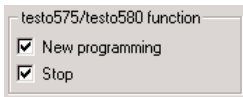


**testo 575** / **testo 580** - *Function:*

▸ Select whether the data logger is to be newly programmed (*New programming*) and stopped (*Stop*) via the **testo 575** fast printer and the **testo 580** data collector.
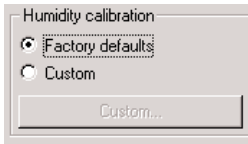
*Humidity calibration (***testo 177-H1** *only):*

▸ Select between *Factory defaults* or *Custom*.

If *Custom* is selected, the *Custom ...* button is activated.

▸ Click on *Custom ....*

- The *Humidity calibration* window opens.
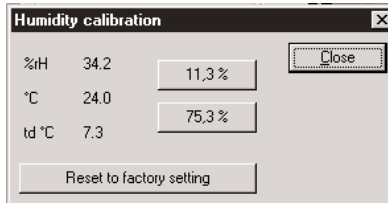
▸ Carry out humidity calibration using the control and adjustment set (Part no. 0554.0660). Follow the instructions in the Instruction Manual for the Control and Adjustment Set.

*Display functions:*

▸ Select whether the LEDs, the *Alert led*, Status led and *Display* on are to be activated in the data logger.

❗ Only the data display is deactivated when the display is switched off. Status information on mode and battery capacity are always shown.

# 7. Programming

**Program**
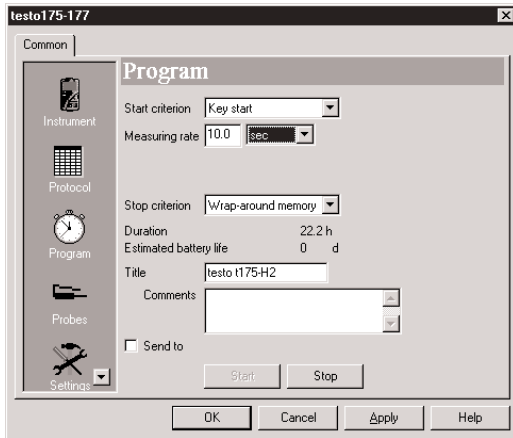




*Start criterion:*

▸ Select the required criterion for the start of the program.

You have the choice between *Date/Time*, *Key start* and *PC Start*.

If *Date/Time* is chosen, an additonal field appears in which you can enter/select the required date/time.
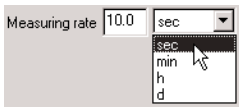


*Measuring rate:*

▸ Select the time cycle in which the measurements are to be carried out.

You can choose between sec (seconds), *min* (minutes), *h* (hours) and *d* (days).
The smallest/largest measuring rate differs depending on the instrument type (Refer to **11. Technical data**, P. 28).
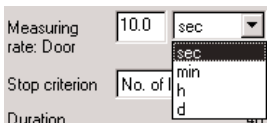


*Measuring rate Door (***testo 177-T3*** only):*

▸ Select the time rate in which the measurements are to take place, if the contact is closed electrically.
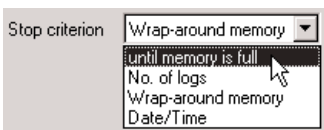


*Stop criterion:*

▸ Select the required criterion to stop the measuring program.

You can choose between *Until memory is full*, *No. of logs*, *Wraparound memory* and *Date / Time.*

! It is only possible to select *Date/Time* if *Date/Time* is also selected as *Start criterion*. If you choose *No. of logs* an additional field will appear in which the number of measurements required can be entered.
**testo 177-T3**: *Date/Time* is not possible as *Stop criterion* if door contact is activated.

*Duration:*

Indicates running time of program calculated on the basis of the values for *Start criterion*, *Measuring rate* and *Stop criterion*.

If the *Wraparound* stop criterion is selected, the length of time until the memory is full is calculated.

*Estimated battery life:*

Indicates estimated battery life.

*Title:*

‣ Enter a Title for the measuring program.

Maximum 24 characters can be entered.
The title of the measuring program is accepted into the **testo ComSoft** software when the data logger is read out. The title will appear at the top of the printout when the protocol is printed on the **testo 575** printer.

*Comments:*

‣ Additional information on the measuring program can be entered here.

The entered text is printed on the **testo 575** printer printout. Up to 96 characters can be entered. The fast printer automatically enters return after every 24 characters.

*Send to:*

‣ Activate the function by clicking on the selection window and enter an e-mail address in the text box.

Once the measurement protocol has been opened in the **testo ComSoft** software, you can send it by e-mail via *File > Send* ...
The entered email address and the log are automatically saved in your e-mail.

! System requirement for this function:
Microsoft Windows 95 or newer and
Microsoft Internet Explorer 5.0 or newer.

# 7. Programming

*Start and Stop:*

Start ▸ Click on *Start* to start a measuring program..

**!** This function can only be selected if *PC start* has been selected as *Start criterion*.

Stop ▸ Click on *Stop* to end a measuring program.

**!** This function can only be selected if a measurement is running.
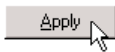
**Programming ended**

Apply ▸ Click on *Apply* to transmit the programming to the data logger.

**!** A measuring program can only apply in the data logger if it is in the *Wait* or *End* mode.
If a measurement is running (*Record* mode):

Stop ▸ Finish the measurement by clicking on *Stop.*

- The *Programming data* window opens to confirm the following programming.

| Programming data | ☒ |
| --- | --- |
| The instrument has been newly programmed | OK |

| | |
| --- | --- |
| Programming time | 1/29/02 1:20:52 |
| Battery | 97 % |
| Estimated lifetime | 483 d |
| Start criterion | Key start |
| Measuring rate | 10.0 sec |
| Wrap-around memory | Off |
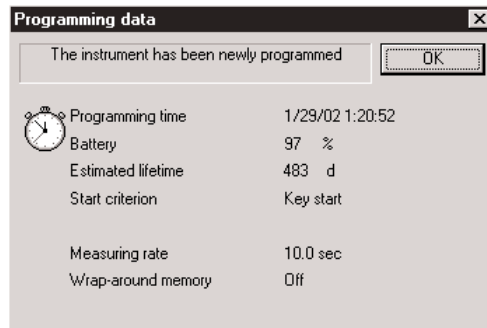
## 7.6 Closing the connection

**1** Click on the connection you wish to close with your right mouse button in the *Data* window.

**2** Select *Close*.

- The connection to the data logger is closed.

You have three options to read out data from the data logger:

**1.** Via **testo ComSoft** software. Data is transmitted directly to a PC.
Please read the Instruction manual on the **testo ComSoft** software.

**testo ComSoft** software is available in 2 versions with the following range of functions:

### testo ComSoft 3 Basic (0554.1758)

- Programming and reading out the **testo 174**,
  **testo 175** and **testo 177** data loggers
- Display and printout as table or diagram
- Data export (e.g. in Microsoft Excel)
- Automatic search for instrument driver when started
  (Auto Detect)

### testo ComSoft 3 Professional (0554.0830)

like **testo ComSoft 3 Basic**, but with the following additional features:

- Programming and reading out other Testo instruments such as **testo 400**, **testo 650**, etc.

- Display and printout as number box, histogram, form, analog instrument, parametric graph

- Data management function

- Analysis functions (compensation curve, mean function)

- Selection of different printing heads for table and graph printouts

- Adaptation of menus and range of functions

- Developer ToolBox with functions to incorporate the instrument driver in non-Testo software

**2.** Via the **testo 580** data collector.
Data can then be read out via **testo Comsoft** software.
For more information, refer to the **testo 580** Instruction manual.

**3.** Printout via **testo 575** fast printer
For more information, refer to the **testo 575** Instruction manual.

# 9. Changing the battery
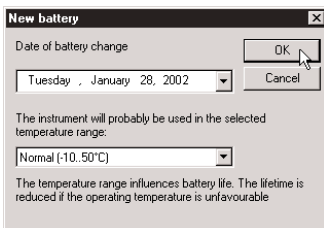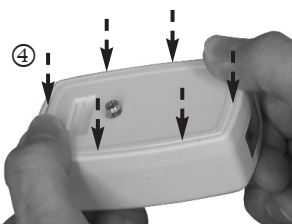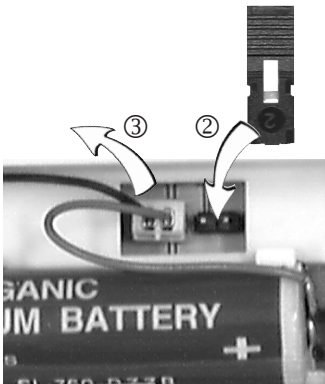


**1** Please read out the saved data before changing the battery. See **testo ComSoft** software Instruction manual

**!** If it is not possible to read out the saved data due to low battery capacity, please carry out the following:
  ‣ First change the battery and then read out the saved data (no data will be lost).

**2** Remove the screw at the back of the data logger using a small crosstip screwdriver.

**3** Using a screwdriver, lift the back wall at the bottom of the data logger and then remove from data logger ①.

**4** Attach the jumper (included with spare battery) to the plug connector beside the connection for the battery ②.

**!** The inserted jumper prevents the memory from being deleted or written over.

**5** Take the battery out of the battery compartment and pull out the plug-in connection to the data logger ③.

**6** Connect the new battery to the data logger`s plug-in connection and place in battery compartment.

**!** Only original Testo spare batteries should be used (see **12. Accessories/Spare parts**, P. 34 for Part nos).

**7** Remove the jumper from the plug connector.

**8** Hold the back wall at a 45° angle to the top of the instrument and then flip down.

**!** Ensure that both O rings are positioned on the screw so as to guarantee that it is sealed completely.

**9** Press the back wall onto the logger with your thumbs. Make sure that it is closed properly ④ and then secure using screw.

**10** Place the data logger in the desk-top holder and attach to interface.

**11** Start the **testo ComSoft** software and set up a connection to the data logger by clicking twice on the required connection with the left mouse button.

- The *New battery* window is opened ⑤.
  ‣ Enter the date of battery change.
  ‣ Enter the temperature range in which you will be using the data logger and confirm with OK.

- The data logger is now ready for use.

If problems occur which are not described here, please contact Testo or your local distributor.

| Error message | Possible causes | Remedy / Comments |
|---|---|---|
| *OFF* and *END* are lit, ☐ flashes | Battery power too low | ▸ Read out data and change battery (See **9. Changing battery**, P. 26) Communication with PC is possible. Communication with **testo 575** fast printer/ **testo 580** data collector is not possible. |
| *OFF* is lit | Battery empty | ▸ Change battery (See **9. Changing battery**, P. 26) No communication with PC / **testo 575** fast printer/ **testo 580** data collector possible. |
| *OFF*, *END* and ▮▮▮▮ are lit | Measuring program was cancelled by Reset | ▸ Reactivate data logger via **testo ComSoft** software |
| *PC* is lit | An attempt was made to start the data logger via *GO*: data logger indicates that *Start criterion PC Start* is programmed. | ▸ Start the data logger via PC or change the *Start criterion* to *Key start*. |
| *date* is lit | An attempt was made to start the data logger via *GO*: data logger indicates that *Start criterion Date/Time Start* is programmed. | ▸ Change *Start criterion* to *Key start*. |
| Red and green LEDs flash alternately five times | The *GO* button was pressed for more than 3 seconds in the *END* mode | No function is allocated. |

# 11. Technical data

## 11.1 testo 177-T1

**Parameter** ....................................................Temperature (°C/°F)

**Sensor** ...................................................................................NTC

**Number of measuring channels** ................................1 x internal

**Measuring range** ......................................................-40 to +70 °C

**Accuracy** .............................................±0.4 °C (-25 °C to +70 °C)
...........................................................±0.8 °C (-40 °C to -25,1 °C)

.....................................................................................±1 digit

**Resolution** ...........................................................................0.1 °C

**Measuring rate** ...............................2 s to 24 h (freely selectable)

**Adaptation time t$_{90}$ (internal)** ......Approx. 30 min. at wind speed 1m/s

**Storage temperature**................................................-40 to +85 °C

**Operating temperature** ...........................................-40 to +70 °C

**Memory capacity** ...............................................48,000 readings

**Protection class** ...................................................................IP 68

**Housing** ........................................................................ABS/TPE

**Dimensions in mm (lxwxh)** ...................................103 x 64 x 33

**Weight** ..................................................................................111g

**Battery** .................................................................Lithium (1 AA)

**Battery life**..........................................................Typical: 5 years*
....(Measuring rate: 15 Min., Operating temperature: -10 to +50°C,
.....................................Display: On, Status led (green LED): Off)

* See Chapter **11.6 Battery life**, P. 33

## 11.2 testo 177-T2

**Parameter** ....................................................Temperature (°C/°F)

**Sensor** ...................................................................................NTC

**Number of measuring channels** ................................1 x internal

**Measuring range** ....................................................-40 to +70 °C

**Accuracy** ................................................± 0.4 °C (-25 to +70 °C)

...............................................................± 0.8 °C (-40 to -25,1 °C)

....................................................................................±1 digit

**Resolution** .........................................................................0.1 °C

**Measuring rate** ................................1 s to 24 h (freely selectable)

**Adaptation time $t_{90}$ (internal)** ......Approx. 30 min. at wind speed 1m/s

**Storage temperature** ................................................-40 to +85 °C

**Operating temperature** ...........................................-40 to +70 °C

**Display** ........................................................................LCD, 1 line

**Operating temperature/Display** .............................-30 to +65 °C

**Memory capacity** ................................................48,000 readings

**Protection class** ...................................................................IP 68

**Housing** .......................................................................ABS/TPE

**Dimensions in mm (lxwxh)** ...................................103 x 64 x 33

**Weight** ..................................................................................122g

**Battery** ...................................................................Lithium (1 AA)

**Battery life** .........................................................Typical: 5 years*

....(Measuring rate: 15 Min., Operating temperature: -10 to +50°C,

.....................................Display: On, Status led (green LED): Off)

\* See Chapter **11.6 Battery life**, P. 33

# 11. Technical data

## 11.3 testo 177-T3

**Parameter** .....................................................Temperature (°C/°F)

**Sensor** ..............................................NTC (internal and external)

**Number of measuring channels** ..........4 channel (2x ext./1x int./
............................................................1x event, e.g. door contact)

**Measuring range** ......................................-40 to +70 °C (internal)
................................................................-40 to +120 °C (external)

**Accuracy, internal** ..................................±0.8 °C (-40 to -25,1 °C)
**(System)** ....................................................±0.4 °C (-25 to +70 °C)
..........................................................................................±1 digit

**Accuracy, external**..................................±0.4 °C (-40 to -25,1 °C)
**(only Logger)** ............................................±0.2 °C (-25 to +70 °C)
............................................................±0.4 °C (+70.1 to +120 °C)
..........................................................................................±1 digit

**Resolution** ...........................................................................0.1 °C

**Measuring rate**..............2 s to 24 h (event channel switched off) /
........................................2 s to 9,1 h (event channel switched on)
................2 measuring rates (event-dependent, freely selectable)

**Adaptation time t$_{90}$ (internal)**Approx. 30 min at wind speed 1m/s

**Storage temperature**................................................-40 to +85 °C

**Operating temperature** ............................................-40 to +70 °C

**Display** ......................................................................LCD, 2 lines

**Operating temperature/Display** ..............................-30 to +65 °C

**Memory capacity** .................................................48,000 readings

**Protection class** ....................................................................IP 67

**Housing** ........................................................................ABS/TPE

**Dimensions in mm (lxwxh)** ...................................103 x 64 x 33

**Weight** ....................................................................................127g

**Battery** ..................................................................Lithium (1 AA)

**Battery life**............................................................Typical: 5 years*
....(Measuring rate: 15 Min., Operating temperature: -10 to +50°C,
......................................Display: On, Status led (green LED): Off)

* See Chapter **11.6 Battery life**, P. 33

## 11.4 testo 177-T4

**Parameter** ......................................................Temperature (°C/°F)

**Sensor** .............................................Type K and T thermocouples

**Number of measuring channels**................................4 x external

**Measuring range Type K**....................................-100 to +1000 °C

**Measuring range Type T** ......................................-100 to +400 °C

**Accuracy Logger** ..................................±0.3 °C (-100 to +70 °C)
............................................±0.5% of reading (+70 to +1000 °C)
.........................................................................................±1 digit

**Resolution** ........................................................................0.1 °C

**Measuring rate** ...............................................1 or 2 : 2 s to 24 h
..........................................3 or 4 channels activated: 3 s to 24 h
.....................................................................(freely selectable)

**Storage temperature**................................................-35 to +70 °C

**Operating temperature** ..............................................0 to +70 °C

**Display** .......................................................................LCD, 2 lines

**Operating temperature/Display**..................................0 to +65 °C

**Memory capacity** ...............................................48,000 readings

**Housing** .........................................................................ABS/TPE

**Protection class** ...................................................................IP 43

**Dimensions in mm (lxwxh)** ....................................103 x 64 x 33

**Weight** ..................................................................................129g

**Battery** ................................................................Lithium (1 AA)

**Battery life**.........................................................Typical: 5 years*
....(Measuring rate: 15 Min., Operating temperature: -10 to +50°C,
.....................................Display: On, Status led (green LED): Off)

* See Chapter **11.6 Battery life**, P. 33

# 11. Technical data

## 11.5 testo 177-H1

**Parameter** ........................Humidity (%RH) / Temperature (°C/°F) /
..................................................................Dew point (td°C/td°F)

**Sensor** .....................................Humidity sensor / NTC (internal) /
................................................................................NTC (external)

**Number of measuring channels** ......4 (3 x internal: %RH, °C/°F,
.........................................................td°C/td°F, 1 x external: °C/°F)

**Measuring range** ....................................................0 to 100%RH
..................................................................-20 to +70 °C (internal)
.............................................................-40 to +120 °C (external)
...............................................................................-40 to +70 td°C

**Accuracy, internal** ...........................................................±2 %RH
**(System)** ....................................................±0.5 °C (-25 to +70 °C)
.............................................................................................± 1 digit

**Accuracy, external**....................................±0.2 °C (-25 to +70 °C)
**(only Logger)** ................................±0.4 °C in the remaining range
.............................................................................................± 1 digit

**Resolution** ...........................................0.1%RH / 0.1°C / 0.1td°C

**Measuring rate** ................................2 s to 24 h (freely selectable)

**Storage temperature**..................................................-40 to +85 °C

**Operating temperature** ............................................-20 to +70 °C

**Display** ......................................................................LCD, 2 lines

**Operating temperature/Display** ..............................-20 to +65 °C

**Memory capacity** ................................................48,000 readings

**Housing** .......................................................................ABS/TPE

**Protection class** ....................................................................IP 54

**Dimensions in mm (lxwxh)** ..........103 x 64 x 33 (without probe)
.............................................................160 x 64 x 33 (with probe)

**Weight** ....................................................................................130g

**Battery** ...................................................................Lithium (1 AA)

**Battery life**...........................................................Typical: 5 years*
....(Measuring rate: 15 Min., Operating temperature: -10 to +50°C,
.....................................Display: On, Status led (green LED): Off)

* See Chapter **11.6 Battery life**, P. 33

## 11.6 Battery life

Typical approximate values for the expected battery life are included in the programming windows of the software. These values are calculated on the basis of the following factors:
- Measuring rate
- Number of probes connected
- Status led (green LED) activated/deactivated

The calculated data is only an approximation since the battery life depends on many additional factors.
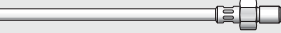
The following factors have a negative influence on the battery life:
- Alarm LED flashing for longer periods of time
- Frequent reading out (several times a day)
- Strong fluctuations in operating temperature

The following factors have a positive influence on the battery life:
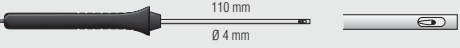- Deactivated Status led (green LED) particularly in the case of extended measuring rates
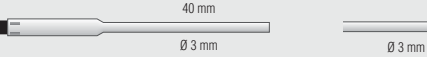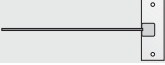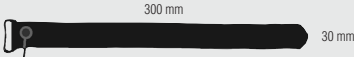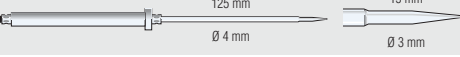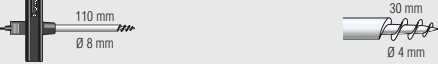
**!** The battery capacity displayed is based on calculated values. The data logger can be switched off if a critical power level has been reached. The following could occur:
- The logger continues to take readings although the display indicates that the battery capacity is "empty".
- The measuring program is stopped even though the battery capacity display indicated a short time previously that battery capacity was available.

**!** Saved readings are not lost if the battery is spent or changed. Requirement:
The battery is changed by following the directions in the Instruction manual.

# 12. Accessories/Spare parts

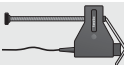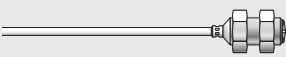| Description | Part no. |
|---|---|
| **testo 177-T1** (1 channel temp. internal, wall holder, calibration protocol) | 0563 1771 |
| **testo 177-T2** (1 channel temp. internal, display, wall holder, calibration protocol) | 0563 1772 |
| **testo 177-T3** (4 channel temp. internal/external, display, switch (e.g. for door contact), wall holder, calibration protocol) | 0563 1773 |
| **testo 177-T4** (4 channel temp. external (T/C), display, wall holder, calibration protocol) | 0563 1774 |
| **testo 177-H1** (3 channel humidity/temp. internal/external, display, wall holder, calibration protocol) | 0563 1775 |
| **testo 580** data collector incl. desk-top holder for **testo 175/177** data loggers | 0554 1778 |
| **testo 575** fast printer, infrared controlled thermal line printer with graph function, incl. 1 roll of thermal paper and batteries | 0554 1775 |
| Thermal paper for printer (6 rolls) | 0554 0569 |
| Thermal paper for printer (6 rolls) for long-term legible data documentation up to 10 years | 0554 0568 |
| Self-adhesive label thermal paper for printer (6 rolls) | 0554 0561 |
| **testo ComSoft 3 Basic** Software Set for **testo 175** incl. interface, desk-top holder and PC connection cable | 0554 1774 |
| **testo ComSoft 3 Professional** Software (without interface) | 0554 0830 |
| Interface for **testo 175/177** incl. desk-top holder and PC connection cable | 0554 1757 |
| Lock to secure **testo 175/177** data logger in the wall holder | 0554 1755 |
| Retainer key to prevent **testo 175/177** data logger from falling out of wall holder | 0192 0638 |
| Spare desk-top holder for **testo 177** data logger | 0554 1772 |
| Spare wall holder for **testo 177** data logger | 0554 1771 |
| Spare battery 1 AA (3.6V/1.9Ah) for **testo 177** | 0515 0177 |
| Transport case for up to 5 **testo 177** data loggers and accessories | 0516 1770 |
| For **testo 177-H1**: metal protection cage for humidity probe, V4A stainless steel, for velocities below 10m/s | 0554 0755 |
| For **testo 177-H1**: Cap with mesh wire filter | 0554 0757 |
| For **testo 177-H1**: Teflon sintered filter, for corrosive substances, high humidity range (long-term measurements), high velocities | 0554 0756 |
| For **testo 177-H1**: Stainless steel sintered caps, to screw on humidity probe, For high velocities or dirty air | 0554 0647 |
| For **testo 177-H1**: Control and adjustment set 11.3%RH/75.3%RH, incl. adapter | 0554 0660 |

Accurate NTC probes for **testo 177-T3** and **testo 177-H1** data loggers

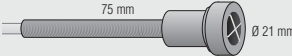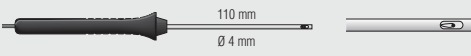| Description | Illustration | Meas. range | Part no. |
|---|---|---|---|
| Stub probe * | 35 mm / Ø 3 mm | -20... +70 °C | 0628 7510 |
| Mounting probe with aluminium sleeve, IP65 Cable length: 2.40 m * | 40 mm / Ø 6 mm | -20... +90 °C | 0628 7503 |
| Accurate immersion/penetration probe, cable length 6 m * | 40 mm / Ø 3 mm / Ø 3 mm | -35... +80 °C | 0610 1725 |
| Screw-in probe for measurements in difficult to access places, M6 thread, IP 54; cable length: 2 m * | | -50... +80 °C | 0628 7514 |
| Probe for surface measurement; cable length: 2 m * | 40 mm / 8 x 8 mm | -50... +80 °C | 0628 7516 |
| Wall surface temperature probe, e.g. for proof of damage to building structure; cable length: 3 m | | -50... +80 °C | 0628 7507 |
| Pipe probe with Velcro, for pipe diameter of max. 75 mm | 300 mm / 30 mm | -50... +70 °C | 0613 4611 |
| Food probe (IP65) made of stainless steel, PUR cable, can be used up to +80 °C, plug-in connection IP54 * | 125 mm / Ø 4 mm / 15 mm / Ø 3 mm | -50... +150 °C | 0613 2211 |
| Robust food penetration probe with special handle, IP 65, reinforced cable (PUR) and reinforced bending protection * | 115 mm / Ø 5 mm / 30 mm / Ø 3.5 mm | -50... +150 °C | 0613 2411 |
| Frozen food probe, no drilling required * | 110 mm / Ø 8 mm / 30 mm / Ø 4 mm | -50... +140 °C | 0613 3211 |
| Robust, affordable air probe, for checking storage temperature, for example * | 110 mm / Ø 4 mm | -50... +150 °C | 0613 1711 |

* Probe tested in accordance with EN 12830 for suitability in the areas of transport and storage.

# 12. Accessories/Spare parts

Accurate thermocouple probes for **testo 177-T4** data loggers

| Description | Illustration | Meas. range | Part no. |
|---|---|---|---|
| Mounting probe with stainless steel sleeve and mini T/C plug, IP 54 Cable length: 1.90 m | 40 mm — Ø 6 mm | -100... +205 °C | 0628 7533 |
| Pipe wrap probe with Velcro, for temperature measurement on pipes with diameter up to 120 mm, Tmax +120 °C | 395 mm — 20 mm | 0... +120 °C | 0628 0020 |
| Pipe wrap probe for pipe diameter 5 to 65 mm, with exchangeable meas. head Measuring range short-term to +280 °C | | -60... +130 °C | 0602 4592 |
| Temperature probe Type 21, fast action surface probe Cable length: 2 m | | -50... +180 °C | 0628 7521 |
| Thermocouple, flexible, 1500 mm long, fibre optic | 1500 mm — Ø 1.5 mm | -100... +400 °C | 0602 0645 |
| Thermocouple, flexible, 1500 mm long, Teflon | 1500 mm — Ø 1.5 mm | -100... +250 °C | 0602 0646 |
| Immersion measurement tip, bendable | 500 mm — Ø 1.5 mm | -100... +1000 °C | 0602 5792 |
| Magnet probe, adhesive force ap. 10 N, w. adhesive magnets, for higher temperatures, for measurements on metal surfaces | 75 mm — Ø 21 mm | -50... +400 °C | 0602 4892 |
| Water-tight immersion/penetration probe | 110 mm — Ø 4 mm — 30 mm — Ø 3.2 mm | -60... +400 °C | 0602 1292 |
| Accurate and fast-action immersion probe, water-tight | 300 mm — Ø 1.5 mm | -60... +1000 °C | 0602 0592 |
| Robust, affordable air probe | 110 mm — Ø 4 mm | -60... +400 °C | 0602 1792 |

Testo gives a 2 year warranty on this product from the date of purchase. All material and manufacturing errors are covered by the warranty

Any faults occurring during the warranty time will be repaired by Testo AG, Testo's authorised sales companies or authorised dealers in accordance with the following conditions and without charge for working and material costs.

It is left to Testo's discretion as to whether defective parts are to be replaced by new spare parts or if the complete product is to be replaced by a new product.

The following are excluded from the manufacturer's warranty:

- Working parts (e.g. rechargeable batteries/batteries, measuring cells, printing mechanisms) and expendables (e.g. printer paper).
- Damage caused by:
  - inexpert handling or non-observance of the Instruction manual and/or safety information,
  - lack of care, accidents or normal use,
  - outside influences (e.g. damage during transport, damage caused by vibration, excess heat, water, moisture or acids),
  - use of unsuitable accessories.

This warranty is invalid if:
  - the type or serial number of the product is changed, deleted, removed or made illegible
  - repairs or modifications are undertaken by third parties or unauthorised persons.

This warranty does not cover the following:
  - Regular maintenance and repair or the replacement of parts as a result of normal wear and tear,
  - Costs of packaging and transport,
  - Transport risks connected directly or indirectly to this warranty,
  - Costs for necessary repairs, adjustments or similar carried out outside the warranty.

If you have a warranty claim, please contact your local distributor or the sales company responsible for your company. You will find the address on the Internet at **www.testo.com**.

Please send a brief description of the fault  and your receipt showing date of delivery and purchase with the product. Also include your telephone number should we need to contact you.

Warranty services rendered do not extend the warranty time.

Other claims directed at Testo, such as cancellation, mitigation or compensation, regardless of type, are not admitted.

# Customer Service

If your data logger is not functioning to your satisfaction, please contact the nearest Testo service point where our well-trained, experienced engineers and technicians will help you.

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