testo 175

Data logger

$C\epsilon$

Instruction manual

ISO 9001
TESTO QUALITY
certified

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 title!**	**Warning!** means death or serious physical injury may occur if the specified safety measures are not carried out. **Caution!** means minor physical injury or damage to property may occur if the specifed safety measures are not carried out. ▸ 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

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

Contents

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 175** 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 175 - T1

User-friendly and affordable temperature monitoring

- during transport
- in refrigerated rooms
- in display cabinets
- in containers
- when monitoring rooms
- Fulfills guidelines in accordance with EN 12830 standards *

testo 175 - T2

Simultaneous product and air temperature monitoring

- during transport
- in refrigerated rooms
- in containers
- during production
- Fulfills guidelines in accordance with EN 12830 standards *

testo 175 - T3

Simultaneous product and air temperature monitoring

- in technical laboratories
- during production
- in the domestic building sector
- during metal processing

testo 175 - S1

Easy checks on current and voltage circuits

- In industrial processes
- In laboratories
- In control systems
- During development
- In production
- When logging transmitter signals

⚠ See **6. Connecting probes**, P. 13!

testo 175 - H1

Reliable monitoring of humidity and temperature values

- during industrial processes
- in laboratories
- in museums
- in warehouses
- for domestic building sector

testo 175 - H2

Reliable monitoring of humidity and temperature values

- during industrial processes
- in laboratories
- in museums
- in warehouses
- in domestic building sector

* 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	175-T1	175-T2	175-T3	175-S1	175-H1	175-H2
Start criterion	Key start					
Measuring rate	5 min.	5 min.	10 s	1 s	1 min.	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			-		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	testo175-{Type}_{Serial number}					

* **testo 175-T3**: T/C -Type "K" programmed
  testo 175-S1: "0 to 10V" programmed

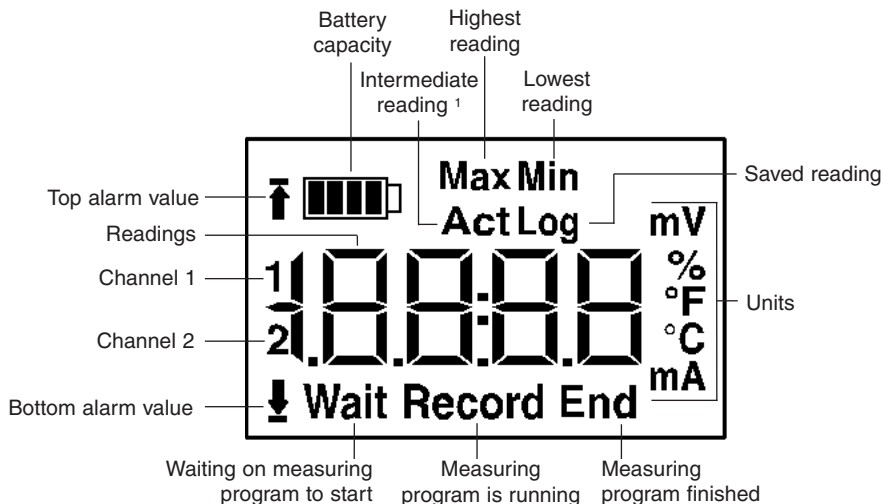The data logger with the above factory defaults can be used immediately.

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 175-S1** and **testo 175-H1** data loggers do not have a display.

testo 175-T1, testo 175-T2, testo 175-T3 and testo 175-H2:

Battery capacity

Highest reading

Intermediate reading [1]

Lowest reading

Top alarm value

Readings

Channel 1

Channel 2

Bottom alarm value

Saved reading

Units

Waiting on measuring program to start

Measuring program is running

Measuring program finished

[1] Intermediate readings are shown in the display but are not saved.

! 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.

Battery capacity [2]

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. 25)

[2] Reference values (See **11.7 Battery life**, P. 33)

[3] The battery symbol is updated when:
- the wraparound memory is full
- measurement program is started/ended
- In *Record* mode: Once a day
- the *GO* button is pressed: if last measurement was more than 24 hours ago

4. Display and control elements

Alarm led
(red LED)

Status led
(green LED)

4.2 LED functions

! 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.

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 *GO* button to switch between the displays.

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.
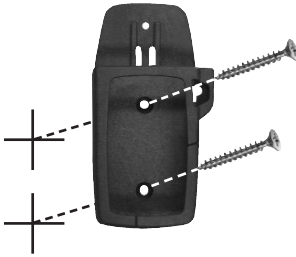
5.2 Securing the data logger with a lock

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 175-T3:

▸ 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!

testo 175-S1:

The testo 175-S1 data logger is designed for use in electric circuits in measurement technology, automatic control, information technology in process, laboratory and technical systems (0 to 20mA current loop; 0-1V, 0-10V voltage sockets).

⚠ Warning!

Strong currents and high voltage!

Electric shock!

▸ The **testo 175-S1** data logger should only be connected to electric circuits from the SELV (safety extra-low voltage) or PELV (protective extra-low voltage) category.

▸ The **testo 175-S1** data logger should only be connected to direct current circuits. Rated voltage should only be max. 60 V DC.

▸ The electric circuits in the data logger should only be set up, connected, operated and maintained by trained personnel.

▸ Disconnect the measurement leads from the logger before changing the battery.

▸ Connect the cables by following the printed connection plan.

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.
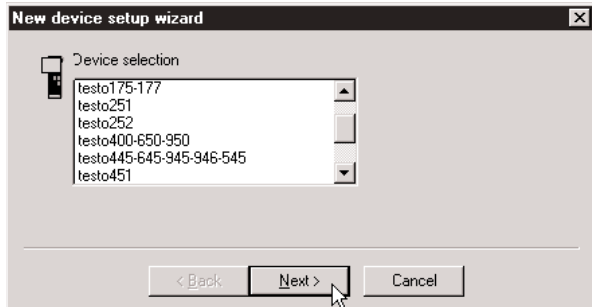
3 Select *testo175-177* in Device selection and click on *Next*.

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.
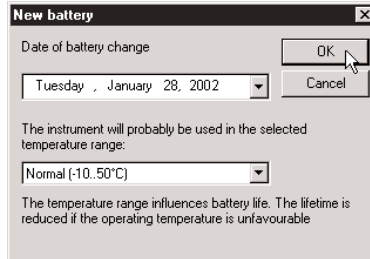
▸ Enter the date when the battery was changed.

▸ 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.23).

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.
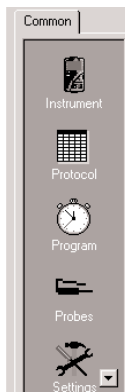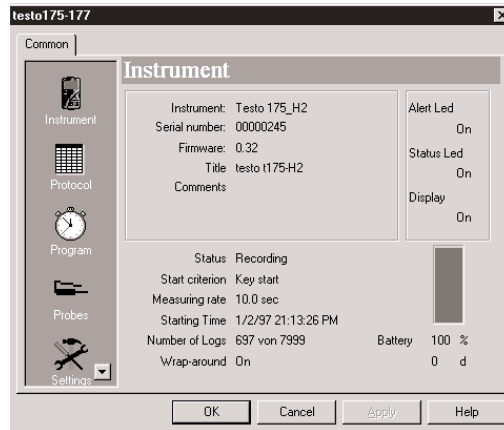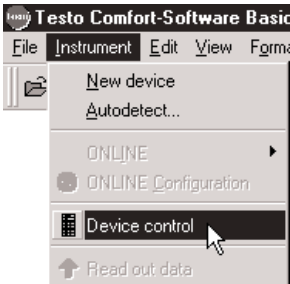
Window selection

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*.

17

7. Programming

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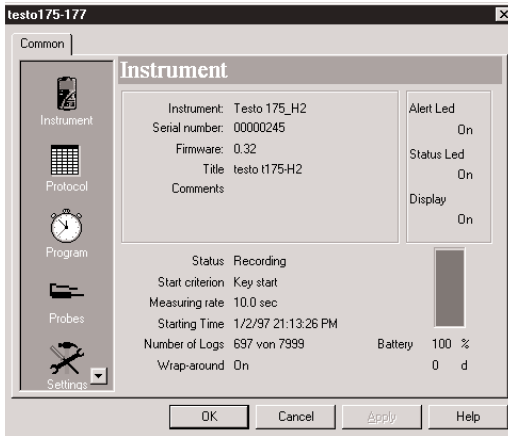
You can read general information on the data logger in the *Instrument* window.

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

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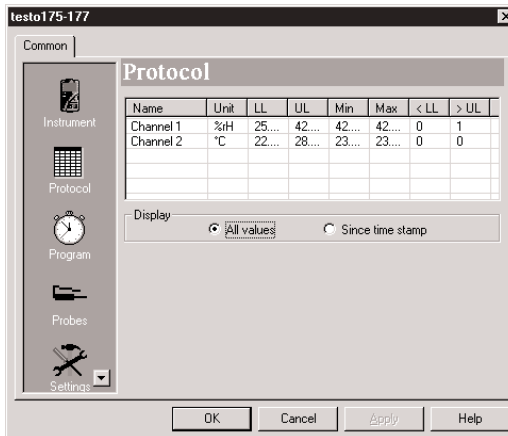
You can read information from the protocol currently stored in the data logger in the *Protocol* window. You can choose to display *All values* and *Since time mark*.

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

Probes
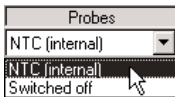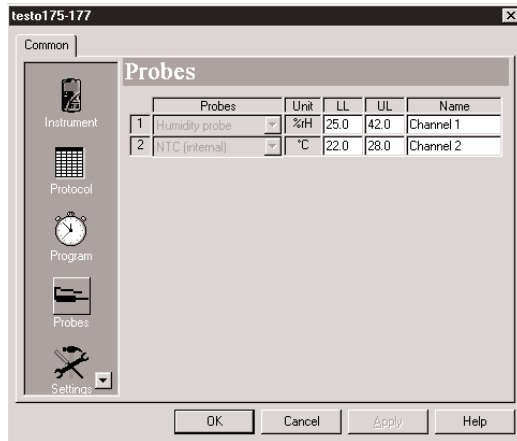
Probes:

▸ 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.
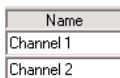
7. Programming

Settings
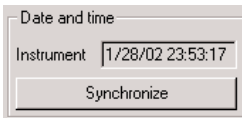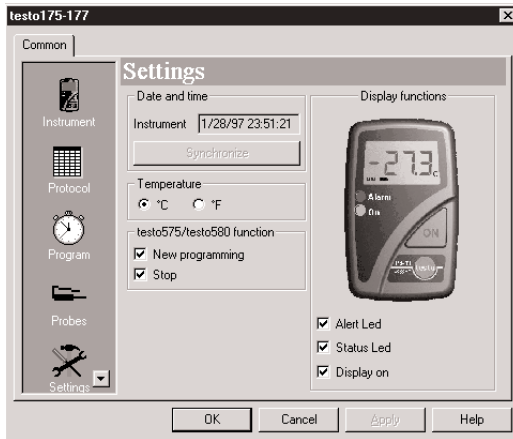
Date and time:

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.
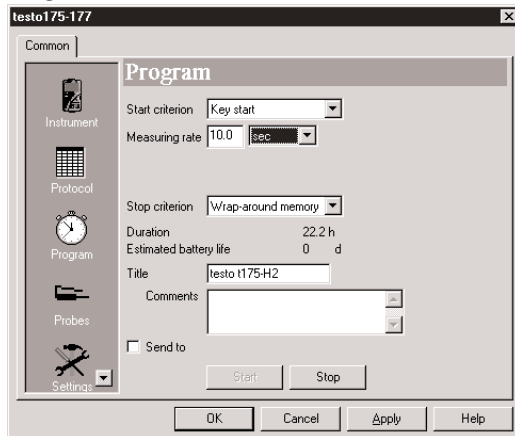
Display functions:

▸ 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.

Program
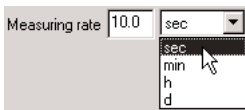
Start criterion:
▶ Select the required criterion for the start of the program.

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.
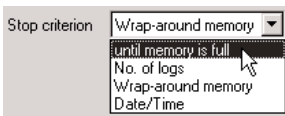
Measuring rate:
▶ Select the time cycle in which the measurements are to be carried out.

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. 27).

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.

7. Programming

Duration	22.2 h

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	500 d

Estimated battery life:

Indicates estimated battery life.

Title	room 23

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	temperature control

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:

☑ Send to   example@testo.com

▸ 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.

Start and Stop:

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

Start

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

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

Stop

❗ 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):
  ▸ Finish the measurement by clicking on *Stop.*

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
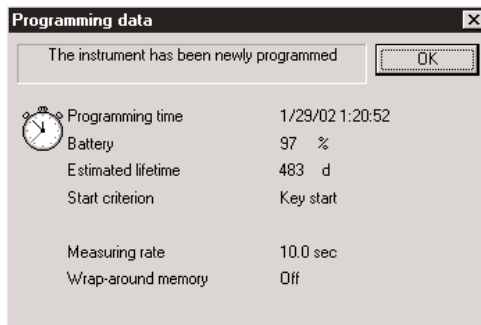
7.6 Closing the connection

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.

8. Reading out data

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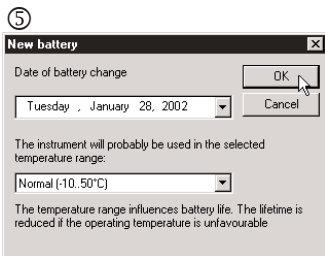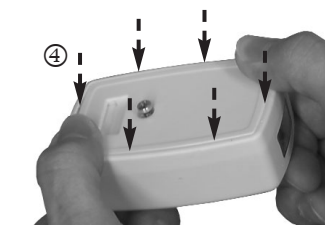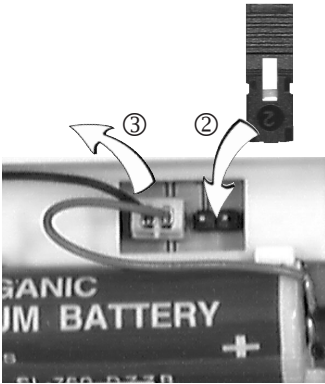
1 Please read out the saved data before changing the battery. See **testo ComSoft** software Instruction manual

! 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.

10. Error messages

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. 25) 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. 25) 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.

11.1 testo 175-T1

Parameter ....Temperature (°C/°F)

Sensor ....NTC internal

Number of measuring channels ....1 x internal

Measuring range ....-35 to +70 °C

Accuracy ....± 0.5 °C (-20 to +70 °C)

....± 1 °C (-35 to -20.1 °C)

....±1 digit

Resolution ....0.1 °C (-20 to +70 °C)

....0.3 °C in remaining range

Measuring rate ....10 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 ....-35 to +70 °C

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

Memory capacity ....7,800 readings

Protection class ....IP 68

Housing ....ABS/TPE

Dimensions in mm (lxwxh) ....82 x 52 x 30

Weight 90g

Battery ....Lithium (1 AA)

Battery life ....Typical: 2½ years*

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

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

* See Chapter **11.7 Battery life**, P. 33

11. Technical data

11.2 testo 175-T2

Parameter ....Temperature (°C/°F)

Sensor ....NTC (intern+extern)

Number of measuring channels..........2 (1x internal/1x external)

Measuring range ....-35 to +70 °C internal

....-40 to +120 °C external

Accuracy, internal ....± 0.5 °C (-20 to +70 °C)

(System)...± 1 °C (-35 to -20.1 °C)

....±1 digit

Accuracy, external ....± 0.3 °C (-25 to +70 °C)

(only Logger) ....± 0.5 °C in the remaining range

....±1 digit

Resolution ....0.1 °C (-20 to +70 °C)

....0.3 °C in remaining range

Measuring rate ....10 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 ....-35 to +70 °C

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

Memory capacity ....16,000 readings

Protection class ....IP 68

Housing ....ABS/TPE

Dimensions in mm (lxwxh) ....82 x 52 x 30

Weight 84g

Battery ....Lithium (1 AA)

Battery life ....Typical: 2½ years*

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

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

* See Chapter **11.7 Battery life**, P. 33

11.3 testo 175-T3

Parameter ....Temperature (°C/°F)

Sensor ....T/C-Type K or T (external)

Number of measuring channels ....2 (2x external)

Measuring range....................................-50 to +1000 °C (Type K)

....-50 to +400 °C (Type T)

Accuracy/Logger ....±0.5 °C (-50 to +70 °C)

....±0.7% of reading (-70.1 to +1000 °C)

....±1 digit

Resolution ....0.1 °C

Measuring rate ....10 s to 24 h (freely selectable)

Storage temperature...-40 to +85 °C

Operating temperature ....0 to +70 °C

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

Memory capacity ....16,000 readings

Protection class ....IP 54

Housing ....ABS/TPE

Dimensions in mm (lxwxh) ....82 x 52 x 30

Weight 90g

Battery ....Lithium (1/2 AA)

Battery life ....Typical: 2½ years*

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

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

* See Chapter **11.7 Battery life**, P. 33

11. Technical data

11.4 testo 175-S1

Parameters...Current (mA) / Voltage (V)

Sensor ....Built-in screwed contact socket

No. of measuring channels ....1x external

Measuring ranges ....0 to 1V / 0 to 10V

....0 to 20 mA / 4 to 20 mA

Accuracy/System ....±2 mV (0 to 1 V) /

....± 20 mV (0 to 10 V) /

....±0.05 mA (0 to 20 mA)

....±1 digit

Resolution...........................1 mV (0 to 1 V) / 10 mV (0 to 10 V) /

....0.01 mA (0 to 20 mA)

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

Storage temperature...-40 to +70 °C

Operating temperature ....-10 to +50 °C

Memory capacity ....16,000 readings

Housing ....ABS/TPE

Dimensions in mm (lxwxh) ....82 x 52 x 30

Weight 80g

Battery ....Lithium (1/2 AA)

Battery life ....Typical: 2½ years*

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

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

* See Chapter **11.7 Battery life**, P. 33

11.5 testo 175-H1

Parameters ....Humidity (%RH) / Temperature (°C/°F)

Sensor ....Humidity sensor / NTC

Number of measuring channels ....2x internal

Measuring range ....0 to 100 %RH

....-10 to +50 °C

Accuracy ....±0.5 °C

....±3 %RH

Resolution ....0.1 °C

....0.1 %RH

Measuring rate ....10 s to 24 h (freely selectable)

Storage temperature...-40 to +70 °C

Operating temperature ....-10 to +50 °C

Memory capacity ....3,700 readings

Housing ....ABS/TPE

Dimensions in mm (lxwxh) ....82 x 52 x 30

Weight 80g

Battery ....Lithium (1/2 AA)

Battery lifetime...Typical: 2½ years*

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

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

* See Chapter **11.7 Battery life**, P. 33

11. Technical data

11.6 testo 175-H2

Parameters.........................Humidity (%rF) / Temperature (°C/°F)

Sensor ....Humidity sensor / NTC

Number of measuring channels...................................2x internal

Measuring range ....0 to 100 %RH

....-20 to +70 °C

Accuracy ....±0.5 °C

....±3 %RH

Resolution ....0.1 °C

....0.1 %RH

Measuring rate ....10 s to 24 h (freely selectable)

Storage temperature...-40 to +85 °C

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

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

Memory capacity ....16,000 readings

Housing ....ABS/TPE

Dimensions in mm (lxwxh) ....82 x 52 x 30

Weight 84g

Battery ....Lithium (1/2 AA)

Battery life ....Typical: 2½ years*

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

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

* See Chapter **11.7 Battery life**, P. 33

11.7 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.
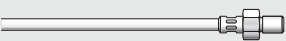
The following factors have a negative influence on the battery life:
- Alarm LED flashing for longer periods of time
- Frequent reading out (several times a day)
- Strong fluctuations in operating temperature

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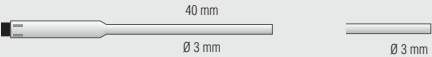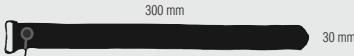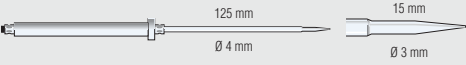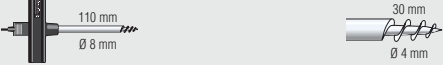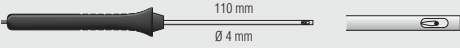
! The battery capacity displayed is based on calculated values. The data logger can be switched off if a critical power level has been reached. The following could occur:
- The logger continues to take readings although the display indicates that the battery capacity is "empty".
- The measuring program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

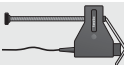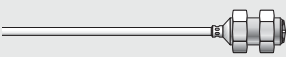| Description	Part no.
testo 175-T1 (1channel temp. internal, display, wall holder, calibration protocol)	0563 1754
testo 175-T2 (2 channel temp. internal/external, display, wall holder, calibration protocol)	0563 1755
testo 175-T3 (2 channel temp. external (for T/C), display, wall holder, calibration protocol)	0563 1756
testo 175-H1 (2 channel/temp. internal, wall holder, calibration protocol)	0563 1757
testo 175-H2 (2 channel humidity/temp. internal, display, wall holder, calibration protocol)	0563 1758
testo 175-S1 (1 channel current/voltage, built-in screwed contact socket, wall holder, calibration protocol)	0563 1759
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 1759
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 175** data logger	0554 1756
Spare wall holder for **testo 175** data logger	0554 1754
Spare battery 1/2 AA (3.6V/0.8Ah) for **testo 175-T3/H1/H2/S1**	0515 0175
Spare battery 1 AA (3.6V/1.9Ah) for **testo 175-T1/T2**	0515 0177
Transport case for up to 5 **testo 175** data loggers and accessories	0516 1750

Accurate NTC probes for **testo 175-T2** data loggers
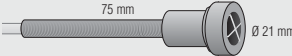
Description	Illustration	Meas. range	Part no.
Stub probe *	35 mm Ø 3 mm	-20... +70 °C	0628 7510
Mounting probe with aluminium sleeve, IP65 Cable length: 2.40 m *	40 mm Ø 6 mm	-20... +90 °C	0628 7503
Accurate immersion/penetration probe, cable length 6 m *	40 mm Ø 3 mm Ø 3 mm	-35... +80 °C	0610 1725
Screw-in 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 175-T3** 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.

ARGENTINA
Automat Medicion S.R.L.
1427 Buenos Aires
Tel. (11) 45 55 00 55
Fax (11) 45 55 04 44
automat@infivia.com.ar

AUSTRALIA
Testo Pty. Ltd.
Bayswater, Victoria 3153
Tel. (3) 97 20 00 11
Fax (3) 97 20 00 22
info@testo.com.au

AUSTRIA
Testo Ges. mbH
1170 Wien
Tel. (1) 4 86 26 11- 0
Fax (1) 4 86 26 11 20
info@testo.at

BELGIUM/LUXEMBURG
S. A. Testo N. V.
1741 Ternat
Tel. (2) 5 82 03 61
Fax (2) 5 82 62 13
info@testo.be

BOLIVIA
T.E.C.
Av. Peru Nro. 1033
Cochabamba
Tel. (4) 4 28 60 02
Fax (4) 28 60 02
tec@supernet.com.bo

BOSNIA-HERZIGOWINA
Tehnounion Sarajevo
Sarajevo
Tel. (33) 20 59 44
Fax (33) 44 40 00

BRAZIL
Testo do Brazil
13024-240 Campinas - SP
Tel. (19) 32 55 74 61
Fax (19) 32 95 69 00
testo@testo.com.br

BULGARIA
Global Test OOD
1000 Sofia
Tel. (2) 9 53 07 96,
Fax (2) 9 53 07 96
glbl_tst@sps.bg

CHILE
ANWO Chile S.A.
Santiago
Tel. (2) 7 31 00 00
Fax (2) 2 73 04 04
instrumentos@anwo.cl

CHINA
Testo Far East Ltd.
Shanghai 200031
Tel. (21) 5456-6470
Fax (21) 5456-1470
testo@guomai.sh.cn

CIS
Global Export GmbH
105 023 Moscow
Tel. (0 95) 3 60 53 68
Fax (0 95) 3 60 53 68
global_export@aport2000.ru

COLOMBIA
Arotec Colombiana S. A.
Bogota D. E.
Tel. (1) 2 88 77 99
Fax (1) 2 85 36 04
mantenimiento@arotec.net

COSTA RICA
Representaciones Corelsa S. A.
San José
Tel. 2 44 25 50
Fax 2 44 30 90
corelsa@sol.racsa.co.cr.

CROATIA
"H.I.P." Zagreb d.o.o.
10090 Zagreb
Tel. (1) 3 73 40 07
Fax (1) 3 73 40 44
hip@inet.hr

CYPRUS
Deksa Ltd.
Tel. (2) 31 31 41
Fax (2) 49 70 59
deksa@cytanet.com.cy

CZECH REPUBLIC
Testo s.r.o.
158 00 Praha 5
Tel. (2) 57 29 02 05
Fax (2) 57 29 04 10
info@testo.cz

DENMARK
Buhl & Bonsoe A/S
2830 Virum
Tel. 45 95 04 10
Fax 45 95 04 12
inf@buhl-bonsoe.dk

EASTERN EUROPE
Testo Osteuropa GmbH
79850 Lenzkirch
Tel. (0 76 53) 6 81 - 141
Fax. (0 76 53) 6 81 - 102
pmies@testo.de

EGYPT
Future Plants Contractors
Heliopolis 11 361, Cairo
Tel. (2) 4 18 67 79
Fax (2) 4 18 95 04
future98@intouch.com.

EL SALVADOR
Eco Control S.A de C.V.
San Salvador
Tel. 2 60 66 01
Fax 2 60 66 02
eco.control@saltel.net

FINLAND
Humitec Oy
00410 Helsinki
Tel. (9) 5 30 84 00
Fax (9) 53 08 40 99
testo@humitec.fi

FRANCE
testo S.à.r.l.
57602 Forbach
Tel. 3 87 29 29 00
Fax 3 87 87 40 79
info@testo.fr

GREECE
Sigma Hellas Ltd.
185 36 Piraeus
Tel. (10) 4 18 01 67
Fax (10) 4 51 90 20
sigmahellas@hol.gr

GREAT BRITAIN
Testo Ltd.
Alton, Hampshire GU34 2QE
Tel. (14 20) 54 44 33
Fax (14 20) 54 44 34
info@testo.co.uk

Testo worldwide

HONG KONG
Testo Far East Ltd.
Shatin, N. T., Hong Kong, PRC
Tel. 26 45 16 11
Fax 26 45 16 10
testo@testofe.com.hk

HUNGARY
Testo Kft.
1139 Budapest
Tel. 237 17 47
Fax 237 17 48
testo@testo.hu

ICELAND
Rafn Jensson, Mechanical
Engineers ehf
110 Reykjavik
Tel. 5 67 80 30
Fax 5 67 80 15
rj@rj.is

INDIA
Siskin Instruments Co. (P) Ltd. "JULABO"
Bangalore 560 054
Tel. (80) 3 60 25 60
Fax (80) 3 60 36 79
siskin@eth.net

IRAN
Mehr Kanaz Co.
Tehran
Tel. (21) 2 26 26 89
Fax (21) 2 22 37 77
info@mehr-kanaz.com

ISRAEL
Manoraz Ltd.
Azur 58001
Tel. (3) 5 59 33 99
Fax (3) 5 58 44 95
david@manoraz.com

ITALY
Testo S.p.A.
20019 Settimo Milanese (Mi)
Tel. (02) 33 50 33 05 (r.a.)
Fax (02) 33 50 33 06
info@testo.it

JAPAN
Testoterm K.K.
Yokohama 226
Tel. (45) 4 76 22 88
Fax (45) 4 76 22 77
info@testo.co.jp

JORDAN
Al-Masar Technique Est.
Sahab 115-12
Tel. (6) 4 02 95 22
Fax (6) 4 02 35 64
masar@nets.com.jo

KOREA (Republic of)
Testo (Korea) Ltd.
Seoul 150-102
Tel. (2) 6 72 72 00
Fax (2) 6 79 98 53
testo@testo.co.kr

MACEDONIA
Pharmachem Skopje
1060 Skopje
Tel. (2) 33 11 93
Fax (2) 33 14 34
farmahem@mt.net.mk

MEXICO
Grupo de Instrumentación y Medición
Industrial de México, S.A. de C.V.
08920 Mexico, D.F.
Tel. (55) 56 34 04 02
Fax (55) 56 33 04 01
scc@gimin.com

NETHERLANDS
Testo B.V.
1314 BH Almere-Stad
Tel. (36) 5 48 70 00
Fax (36) 5 48 70 09
info@testo.nl

NEW ZEALAND
Eurotec Instruments Ltd.
Auckland
Tel. (9) 5 79 19 90
Fax (9) 5 25 33 34
cfarmer@eurotec.co.nz

NICARAGUA
Adolfo Gröber & Cía Ltda.
Managua
Tel. 2 66 51 36
Fax 2 66 51 39
a.grober@cablenet.com.ni

Norway
Max Sievert A/S
0134 Oslo
Tel. (22) 17 30 85
Fax (22) 17 25 11
firmapost@maxsievert.no

PERU
JJL Asociados S.A.
Lima 17
Tel. (1) 2 61 17 52
Fax (1) 4 61 46 07
jlasociados@hotmail.com

PHILIPPINES
Keystone Industrial
Trading Corporation
Pasay City 1300,
Tel. (2) 8 31 95 71
Fax (2) 8 31 40 13
keystone@globenet.com.ph

POLAND
Testo Sp.z.o.o.
02-362 Warszawa
Tel. (22) 8 63 74 22
Fax (22) 8 63 74 15
testo@testo.com.pl

PORTUGAL
Testo LDA.
3800-559 Paco do Cacia
Tel. 96 76 00 45 34
Fax 234 08 37 08
testo@netvisao.pt

REPUBLIC OF SOUTH AFRICA
Unitemp
Landsdowne, Cape Town, 7779
Tel. (21) 7 62 89 95
Fax (21) 7 62 89 96
info@unitemp.com

Romania
Test Line SRL
72217 Bucharest
Tel. (1) 6 87 34 62
Fax (1) 2 42 68 24
testline@customers.digiro.net

SINGAPORE / MALAYSIA / INDONESIA
Futron Electronics
Singapore 329857
Tel. (65) 62 50 24 56
Fax (65) 62 50 65 92
futron@cyberway.com.sg

SLOVAKIA
K - Test s.r.o.
042 60 Kosice
Tel. (1) 55 625 36 33
Fax (1) 55 625 36 33
ktest@isternet.sk

SLOVENIA
Tehnounion D.D.
1000 Ljubljana
Tel. (1) 5 13 50 88
Fax (1) 5 13 52 96
matjaz.ponikvar@tehnounion.si

SPAIN
Instrumentos Testo S. A.
08348 Cabrils
Tel. (93) 753 95 20
Fax (93) 753 95 26
info@testo.es

SWEDEN
Nordtec Instrument
40241 Göteborg
Tel. (31) 704 10 70
Fax (31) 12 50 42
nordtec@nordtec.se

SWITZERLAND
Testo AG
8604 Volketswil
Tel. (1) 9 08 40 50
Fax (1) 9 08 40 51
info@testo.ch

SYRIA
Medical Business Center
Damascus
Tel. (11) 2 32 23 01
Fax (11) 2 31 75 55
bahah@net.sy

TAIWAN, R.O.C.
Hot Instruments Co. Ltd.
Taipei
Tel. (2) 87 32 51 71
Fax (2) 87 32 51 70
info@testotaiwan.com

THAILAND
Entech Associate Co. Ltd.
Bangkok 10210
Tel. (2) 9 54 54 99
Fax (2) 9 54 54 95
info@entech.co.th

TUNISIA
Starepr
Immeuble Mouradi (Touta)
2000 Le Bardo
Tel. (71) 50 92 86, 58 16 68
Fax (1) 58 49 20
afri.sta@gnet.tn

TURKEY
Testo Elektronik ve Test Ölcüm Cihazlari
Dis Ticaret Ltd. STI
80280 Esentepe-Istanbul
Tel. (212) 2 75 77 99
Fax (212) 2 72 06 13
info@tetrainc.com.tr

UNITED ARAB EMIRATES
Envirotech General Trading Co.
Ajman
Tel. (14) 2 27 70 20
Fax (14) 2 23 36 83
Envirote@emirates.net.ae

USA
Testo Inc.
Flanders, NJ. 07836
Tel. (973) 2 52 17 20
Fax (973) 2 52 17 29
info@testo.com

VENEZUELA
G & M International Service, C. A.
San Antonio de los Altos, Edo.Miranda
Tel. (2) 3 72 77 70
Fax (245) 57 16 774
gminter@cantv.net

VIETNAM
MTC
Measuring and Testing Equipment
Company Ltd.
Hanoi
Tel. (4) 7 33 36 36
Fax (4) 7 33 21 03
mtc-hn@hn.vnn.vn

Head office / Hauptsitz

Testo AG
Postfach 11 40, D-79849 Lenzkirch
Testo-Straße 1, D-79853 Lenzkirch

Tel. (0 76 53) 6 81 - 0
Fax (0 76 53) 6 81 - 1 00

E-Mail: info@testo.de
http://www.testo.de