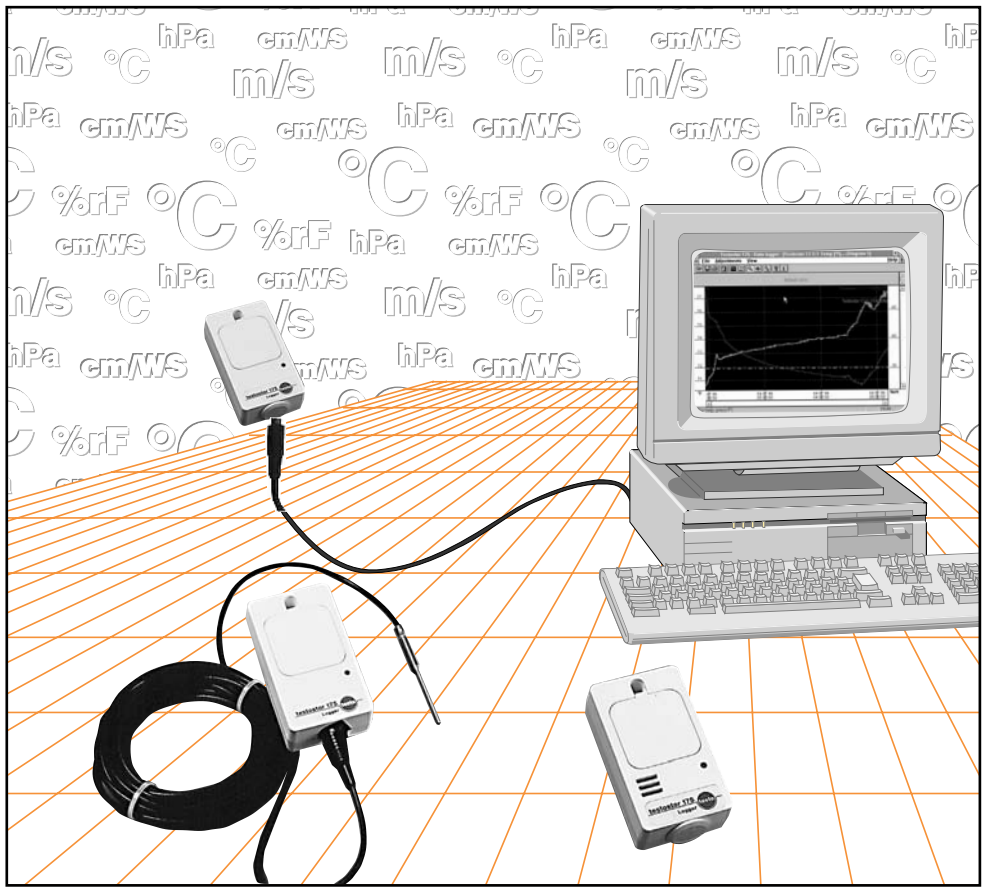
testostor 175

Instruction manual
and Software description

Data logger and software module

Version 2.4

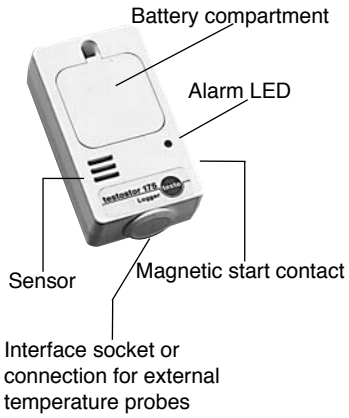


Contents

General information

- The instruments in the testostor 175 series conform with EN 50 081-1 and EN 50 082-1 in the EMC guideline in accordance with the EMVG (law on electromagnetic compatibility of instruments).
- Please observe the licence agreement and the software warranty.
- MS-DOS and Windows are registered trademarks of the Microsoft Corporation.

Technical layout of a mini logger



Functioning principle

A built-in sensor (or an external probe in the 175-1 model) measures a value (or value pair) within a fixed measurement interval and saves the measured data in the memory. The measuring interval (i.e. the time which elapses before the next measured value is measured) can be set by the user when programming. Once the measurement is completed the data is read from the PC and saved.

Logger software

Windows software is needed to read and program. The software explained in this description is used to simply operate the testostor 175 logger series. In addition to this software there are 2 program packages available which offer more technical possibilities for the analysis of measured data. Those users already working with the loggers from the testostor 171 series can purchase the instrument driver for the testostor 175 logger as an accessory in order to use the software packages already available (either “Light” or “Professional”).

Connecting the loggers to the PC

The testostor 175 loggers are connected to the PC via the serial interface. Connect the interface cable to the testostor 175 logger (round plug) and the PC (9 pin sub-miniature D plug).
A 25/9 pin adapter plug (available from your local dealer) is required for connection to the 25 pin interface sockets.

The instructions in this manual assume that you are used to working with DOS and WINDOWS® . If this is not the case please read your DOS and WINDOWS® manuals and practice for a while on your computer.

Installation

System requirements

- IBM PC or compatible computer (at least 386) or an instrument from the IBM Personal System/2 series. The use of a mathematical co-processor is recommended.
- DOS 3.1 or newer
- Windows 3.1 or newer
- A hard disk with at least 3 MB free capacity and a disk drive for 3.5” disks (1.44 MB)
- Mouse or similar pointer device
- VGA card or alternative graphics card compatible with Windows (256 colour display recommended)
- Monitor (suitable for graphics card)
- Conventional adapter for serial interface if required
- Main memory: at least 4 MB

Making back-up copies

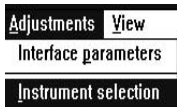
Take the program disks from the enclosed package and make a back-up copy so that you are protected from loss of data.

Installation

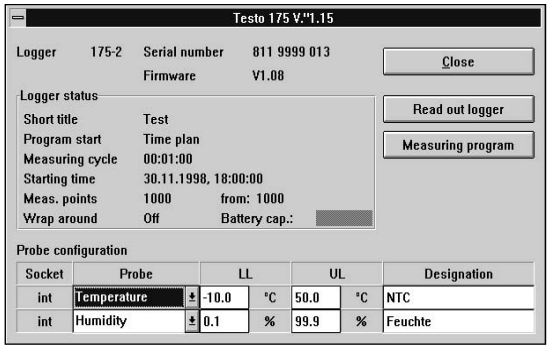
- Start Windows. The Programm Manager is opened.
- Place the program disk in drive A.
- Open the **FILE** menu and select RUN. The dialog box is opened.
- Enter **a:\setup** in the Command line and press the RETURN KEY. Follow the instructions which will now appear on the screen.

If you use drive B instead of drive A enter **b:\setup** and press the RETURN KEY. The program can also be installed via the DOS command line. To do this enter **a:\setup**. Windows is then automatically started and installation is carried out.
The installation program copies program and demonstration files from the software to a directory on your hard disk. A new program group is set up. The Testo logo appears on your screen.

Programming testostor 175 loggers



Set up the PC-data logger connection via the interface. Start the program by clicking twice on the Testo circle in the Windows mask.
Under **ADJUSTMENTS** “Interface parameters” select the interface to which you have connected your testostor 175.
Under **ADJUSTMENTS** “INSTRUMENT SELECTION” activate the instrument driver for the data loggers from the testostor 175 series.

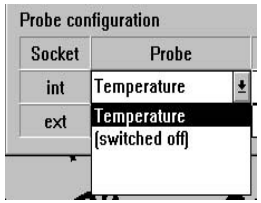


Once communication between PC and data logger has been established the dialog box opposite appears

UPPER/LOWER LIMIT VALUE (UL/LL)
An upper and a lower limit value can be assigned to each measurement channel. These limit values are monitored in the testostor 175 logger.

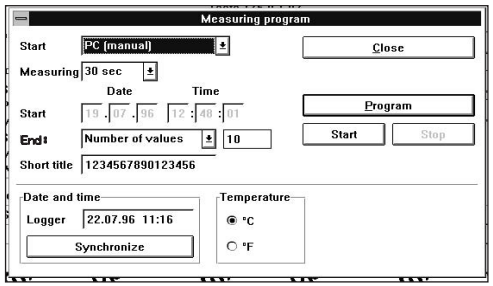
DESIGNATION
Identification of a measuring location is possible by overwriting the entry with a designation specific to the user. 8 characters are available for naming the channel.

PROBE
Select the probes you wish to work with from the list. The word “int“ in front of the probe names indicates that it is an internal channel (“ext” stands for external channels).



In the “Probe” field of the testostor 175-1, you can select “Temperature” or “switched off”.

The following window appears when the “MEASURING PROGRAM” key is pressed:



MEASURING
Enter the required rate frequency for the measurement. The rate frequency should not be too high in order to save the battery.

SHORT TITLE
The character sequence entered accompanies the data set (for identification when reading out or when processing the graphs or tables).

The DATE and TIME are adapted to the date and time in your PC via the “SYNCHRONIZE” key.

START
The following is available as starting criteria:

a) Time plan: (date/time)
   The required start time is entered directly in the corresponding marked fields.
b) Magnetic switch (does not apply to 175-3)
   The testostor 175 logger goes into Standby mode after programming. The memory function is activated on location by placing a magnet on the housing (on the LED side). A successful start is confirmed when the LED flashes three times.
c) PC (manual)
   PC is started via the Start/Stop key in the measuring program window.

END

a) Number of values
   The testostor 175 logger measures exactly the number of measured values input and then stops automatically.
b) until the memory is full
   The measurement is stopped once the memory is full (2000 measured values or 2000 measured pairs).
c) Wrap around
   The testostor 175 logger measures continuously. The values available are overwritten if the memory is full.

Select the settings with which you want to program the testostor 175 logger. Press “Program” in order to program the testostor 175 logger.
The interface cable can be removed once the message “The logger has been successfully programmed” appears. The testostor 175 logger is now ready to operate.

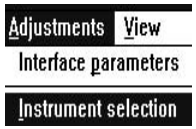
Multiple programming

If you wish to program several loggers of the same type with the same data, confirm with **OK**. It is not necessary to input the data again.

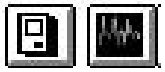
Reading out the testostor 175 loggers

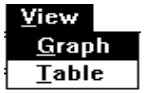
Set up the connection between the PC and the data logger via the interface and start the program.

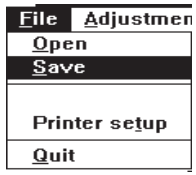
Activate the instrument driver for the data loggers from the testostor 175 series via **ADJUSTMENTS** → INSTRUMENT SELECTION.



Activate the “Read out logger” key in the “Testo 175 V.1.xx” dialog box. In the window “Read memory” which now appears you can choose whether you wish to read out all or only some of the values. The measured data is read out once “O.K.” is clicked.

Graphics  Table





Showing the measured values

The quickest way to set up graphics is to click the graph or table key in the tool bar.

By clicking **"View"** you can choose between graph and table as a display element.

Saving data

To save the read out data on the hard disk select the FILE "Save".
You can select the file format under which the data is to be saved in the window which now appears.

Loading data

You can again show the saved measured data in table/graph form on your PC by selecting "File/Open" and the required file names.

Printing the measured data

The dialog window contains all the data needed for printing. The graphs and tables can be printed on a printer compatible with Windows.

Printer

The "Printer" dialog window opens. Here you can select the most suitable printer (black/white or colour) or the print format (portrait or landscape format).

Cross-hairs

Select the **"Cross-hair"** symbol in the tool bar. If the left mouse key is kept pressed near the measurement curve a cross-hair and a small window appear with the measured values of the corresponding point.
Section magnification is recommended for very steep curves.

Magnification function

Select the magnifying glass symbol in the tool bar. Press the left mouse key and keep pressed to magnify a section. A rectangular box appears and the left mouse key is let go. The section of the curve inside the rectangular shape then becomes the size of the window.

Setting the X axis

If you click twice quickly in the time axis area the Set time axis window opens. If the selection field "automatic" is set the program calculates a favourable division. This division can be made smaller or enlarged with the "←" and "→" keys. The measuring interval can be set individually under "manual".

Setting the y axis

Following a double click on one of the two axis divisions the appropriate window opens.

Automatic scaling

In the case of automatic scaling the value range of the y axis is set automatically by the program. If automatic scaling is switched off the text in the value area changes "from grey (not available) to black (available and can be changed)". Your value range limits can now be input.

Automatic/manual division

These settings can be undertaken as with the X axis.

Fonts

If the "AZ" symbol is activated in the tool bar the dialog window "Font" is opened. You can select a font from the fonts on your computer.

Changing the battery

For the protection of the lithium battery the maximum storage and transport temperature of the instruments is +70 °C.

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The battery must be changed if your measurement program lasts longer than the remaining calculated battery lifetime or the testostor 175 logger has cancelled the measurement series due to insufficient battery capacity. If the battery power is low (red in display) you are advised not to carry out long-term measurements (lasting several weeks) nor measurements with a very short measuring cycle (< 2 min). If the battery power is too low, this leads to incor-rect readings. Prior to long-term measurements read out the data available, change the battery and then program the logger. The saved calibration values remain intact when the battery is changed. However the measured data in the memory cannot be read out by the Windows software.

2 + 3

The battery can be changed using the battery set (item no. 0515.0019) which is available as an accessory.

Proceed as follows:

1. Carefully lift off the battery cover on the front of the housing using a screwdriver or similar tool.
2. Remove the battery plug from the board.
3. Remove the battery from the holder and dispose of responsibly.
4. Put in new battery.
5. Plug in battery plug on the board. Make sure that the battery is inserted correctly.
6. Replace the cover of the battery compartment.
7. Carry out a test measurement.

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Instructions for disposal:

Only run down batteries should be disposed of. Place batteries in separate plastic bags to prevent short-circuits.

Battery lifetime

The testostor 175 series is equipped with long-life Li batteries which guarantee reliable operation for up to several years. The battery lifetime (up to 2 years at standard room conditions; up to 6 months in the deep-freeze branch) is reduced by frequent PC communication. The calculated remaining capacity is given in 3 steps:

Green: Capacity > 60 %
Yellow: Capacity > 30 %
Red: Capacity < 30 %

Examples for possible lifetimes depending on the application:

- Monitoring refrigeration cabinets
  175-1, external channel is switched off.
  Measuring rate: 15 min
  Measuring temperature: -18 °C
  Read: Every 30 days
  ➡ **Lifetime:** **With alarm: 17 months**
  Without alarm 18 months

- Pharmaceutical industry, air humidity in store rooms with raw materials for medical drugs
  175-2
  Measuring rate: 30 min
  Measuring temperature: 25 °C
  Read: Every 7 days
  ➡ **Lifetime:** **With alarm: 17 months**
  Without alarm 18 months

- Measurement during transport, dairy
  175-3
  Measuring rate: 1 min
  Measuring temperature: 8 °C
  Read: Every 10 days
  Alarm after 4 hours
  ➡ **Lifetime:** **With alarm: 13 months**
  Without alarm: 14 months

Response times of testostor 175-2

Humidity measurement in still air:

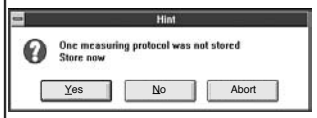
t_{63}	15 minutes
t_{90}	47 minutes
t_{95}	78 minutes
t_{98}	164 minutes

Humidity measurement at a velocity of 2 m/s:

% RH	< 1 minute
°C	< 5 minutes

The RS232 cable should be disconnected when logging data, otherwise the data may be falsified - especially in the case of humidity - when the housing heats up.

Error messages

Error/error message	Possible cause	Remedy
"No values are available..." 	You want to create a view but there is no data in the memory.	Load a file with measured data or read the data out of a logger
"One measuring protocol was not stored. Store now. 	Data was read from the measuring instrument or was changed in the memory.	Save the protocol as a "*.prn" file.
Axis labels are written over the margin in a diagram.	Some window fonts have a larger kerning than standard fonts.	Try using a different font type or change the size of the font.
Error when reading out the instrument data. Check whether instrument is connected properly 	Communication with the logger is not possible	- Check interface cable - Check plug-in connections - Is the correct interface set?

Technical data

testostor type	175-0	175-3	175-1	175-2
Data logger				
NTC sensor, internal	X			
NTC sensor, internal, probe connection, external		X		
Humidity sensor, internal, NTC sensor, internal				X
Measuring range				
-35 to +70 °C internal	X	X		
-35 to +120 °C with external probe		X		
-10 to +50 °C				X
0 to 100 %RH (avoid continuous condensation)				X
Accuracy				
Temp. meas. ±0.5 °C (to +50 °C)	X	X		X
Temp. meas. ± 1.2% of meas. value (above +50 °C)	X	X		
Temp. meas. ± 2% of meas. value (+70 to 120 °C)		X		
Humidity measurement ±3% (up to 100%RH)				X
Resolution				
0.1 °C	X	X		X
0.1 %RH				X
Channels				
1 channel (internal)	X			
2 channel (1 x internal/ 1 x external)		X		
2 channel (2 x internal)				X
Measuring				
30 s to12 h	X	X		X
Memory capacity				
2000 measured values	X			
4000 measured values		X		X
Protection class				
IP 65		X		
IP 68	X			
Battery life - Lithium battery				
Room conditions: up to 2 years/deep freeze branch: 6 months	X	X		X
Housing				
ABS, white	X	X		X
Dimensions				
65 x 45 x 23 mm	X	X		X
Weight				
Approx. 60 g (incl. battery)	X	X		X
Storage temperature				
-40 to +70 °C	X	X		X
Software				
Menu-driven with Dos-Version 3.1 (and Windows-Version 3.1 upwards)	X	X		X
Instrument warranty				
2 years	X	X		X

Ordering data

Item **Part no.**

Mini data logger

175-0 logger (°C internal) 0577.1750
175-1 logger (°C internal/external) 0577.1751
175-2 logger(%RH/°C) 0577.1752
175-3 logger (°C internal), without magnetic start 0577.1753

Software

Standard Windows software 0554.0152
175 instrument software (for the owners of 171) 0554.0156
PC connection cable 0409.1750

Probes for mini loggers

Immersion/air probe (1.5m cable) 0628.0006
Immersion/air probe (6m cable) 0610.1725
Food probe 0613.2211
Frozen food probe 0613.3211
Pipe probe (with velcro strip) 0613.4611
Air probe 0613.9711

Accessories for mini logger

PC cable extension 0554.1785
Attachable probe holder (5 off) 0554.1783
Magnetic probe holder (5 off) 0554.1784
Starting magnet for testo 175 ..... 0554.0170
Case for 5 loggers and accessories 0516.0175
Spare battery 0515.0019

Testo warranty

Dear Customer

Thank you for your confidence in Testo which you have shown by buying this measuring instrument. You have made the right choice by choosing a quality product.

The warranty time is

- **2 years for the data logger**
- **1 year for the probes**

Warranty services do not extend the warranty time.

The warranty does not apply to the following:

- All working parts such as batteries, measuring elements etc.,
- Fragile parts
- Damage caused by improper use
- Damage caused by non-adherence to the Instruction manual
- Measuring instruments which were opened following purchase provided this is not described in the Instruction manual for maintenance purposes.
- Instruments whose serial number has been changed, damaged or removed.

We will repair faults **free of charge** if

- it can be proven that they are manufacturing faults,
- the faults are reported immediately
- the faults are reported to us within the warranty time.

You will be charged for any additional repairs, adjustments or similar carried out by us and not under warranty. There is also a charge for transport and packaging.

Other claims, in particular those for damage occurring outside the instrument, will not be accepted unless legally binding.

Even after the warranty time has elapsed

our customer service will look after you. Send us your measuring instrument with a brief description of the fault. Include your telephone number should we need to contact you.

Licence agreement

This is a legally binding contract between you, as the end user, and Testo. Once you or another authorised person opens the sealed disk packaging the conditions of this contract are recognised. If you do not agree with the conditions return the unopened software package with all accompanying items, including all written documentation and boxes to the point from which you purchased the software and your money will be returned in full.

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