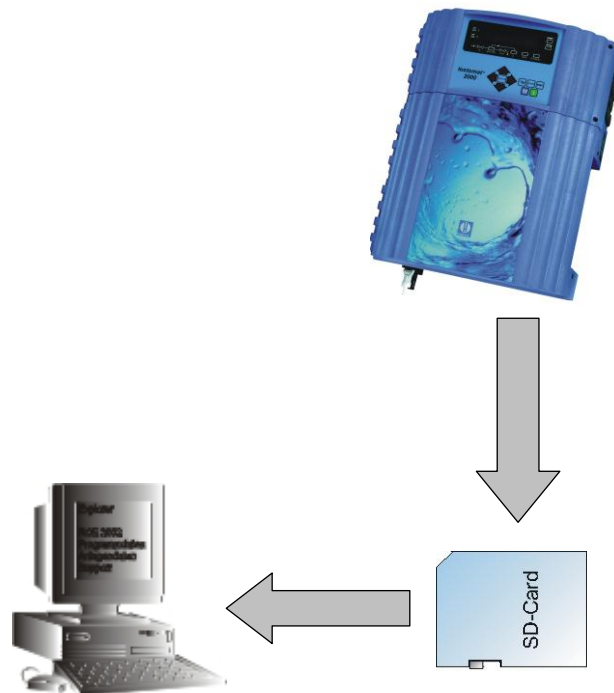


# Operating Instructions

## SD Card Data Logger

### for Testomat 2000<sup>®</sup>

Plug-in card for saving Testomat 2000<sup>®</sup>  
measuring values and messages



# Contents

<b>Contents</b> .....	<b>2</b>
<b>Important safety information</b> .....	<b>3</b>
Intended use .....	3
Qualification of the staff .....	3
Warning notices in these instructions .....	4
Further documents.....	4
<b>Pay particular attention to</b> .....	<b>4</b>
General instructions .....	4
Installation .....	5
Operation .....	5
De-installation .....	5
Disposal .....	5
<b>Scope of delivery</b> .....	<b>6</b>
<b>Performance specifications</b> .....	<b>6</b>
<b>Operating elements and displays</b> .....	<b>7</b>
<b>Installing the plug-in card</b> .....	<b>8</b>
Inserting the SD card .....	8
<b>Commissioning</b> .....	<b>9</b>
Formatting the SD card.....	9
Status displays of the data logger.....	9
Configuring the Testomat 2000® interface.....	10
After commissioning.....	10
<b>Operation</b> .....	<b>11</b>
Evaluating "CSV files" on the PC.....	11
<b>Troubleshooting</b> .....	<b>13</b>
<b>Disassembly</b> .....	<b>14</b>
<b>Accessories</b> .....	<b>14</b>
<b>Technical data</b> .....	<b>14</b>



## Important safety information

- Please read these operating instructions carefully and completely prior to working with the instrument.
- Ensure that the operating instructions are always available for all users.
- Always pass the data logger on to a third party together with these operating instructions.
- Also observe the respective operating instructions of the Testomat 2000<sup>®</sup> instrument! For further information, please visit <http://www.heyl.de>.

### Intended use

When using the SD data logger for Testomat 2000<sup>®</sup>, it is possible to save all the measuring values and messages of the Testomat 2000<sup>®</sup> instrument on a standard SD card and to view and process them on a PC.

- Always adhere to the performance limits stated in the section entitled “Technical data”.

To ensure correct and intended usage, always read and understand these instructions, especially the section entitled “Important safety information”, prior to use.

The instrument is not used as intended if

- it is used in areas not specified in these instructions.
- it is used in conditions which do not correspond to the ones described in these instructions.

### Qualification of the staff

Assembly and commissioning require fundamental electrical knowledge as well as knowledge of the respective technical terms. Assembly and commissioning should therefore only be carried out by a specialist or by an authorised individual supervised by a specialist.

A specialist is someone who due to his/her technical training, know-how and experience as well as knowledge of relevant regulations can assess assigned tasks, recognise potential hazards and ensure appropriate safety measures. A specialist should always adhere to the relevant technical regulations.

## Warning notices in these instructions

The warning notices in these instructions warn the user about potential dangers to individuals and property resulting from incorrect handling of the instrument. The warning notices are structured as follows:



### Description of the type or source of danger

Description of the consequences resulting from non-observance

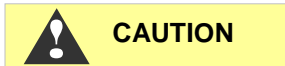
- Preventive measures. Always adhere to these preventive measures.



“**DANGER**” indicates an immediate hazardous situation which, if not avoided, will result in death or serious injury.



“**WARNING**” indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



“**CAUTION**” indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injuries or property damage.



“**Note**” indicates important information. If this information is not observed, it may result in an undesirable result or state.

## Further documents

The SD card data logger is an additional function for Testomat 2000<sup>®</sup>. Also observe the respective operating instructions of the Testomat 2000<sup>®</sup> instrument.

## Pay particular attention to

### General instructions



- Adhere to national health and safety regulations as well as environmental protection regulations in the country of use and at the installation site.
- Do not modify or tamper with the instrument.
- Do not carry out any actions at the instrument which are not described in these instructions; failure to adhere to these instructions will negatively affect any warranty claims that you make thereafter.
- Trouble-free operation of the data logger is only guaranteed in conjunction with Testomat 2000<sup>®</sup> instruments!



## Installation

- Always disconnect the relevant plant parts and the Testomat 2000<sup>®</sup> instrument before installing the data logger. Secure the plant against reconnection.
- Do not touch the circuit board components and plug-in contacts during installation.
- Only use standard SD cards (up to 4 GB, no SDHC-cards!)  
Do not touch the SD card contacts!
- Always observe technical data and ambient parameters.

## Operation

- Never remove the SD card during write operation (loss of data!)

## De-installation

- Remove the SD card. The Testomat 2000<sup>®</sup> instrument must be isolated from all possible sources of supply before disconnecting the data logger from the socket. Secure the plant against reconnection.

## Disposal

- Dispose of the data logger and the SD card in accordance with national regulations.

## Scope of delivery

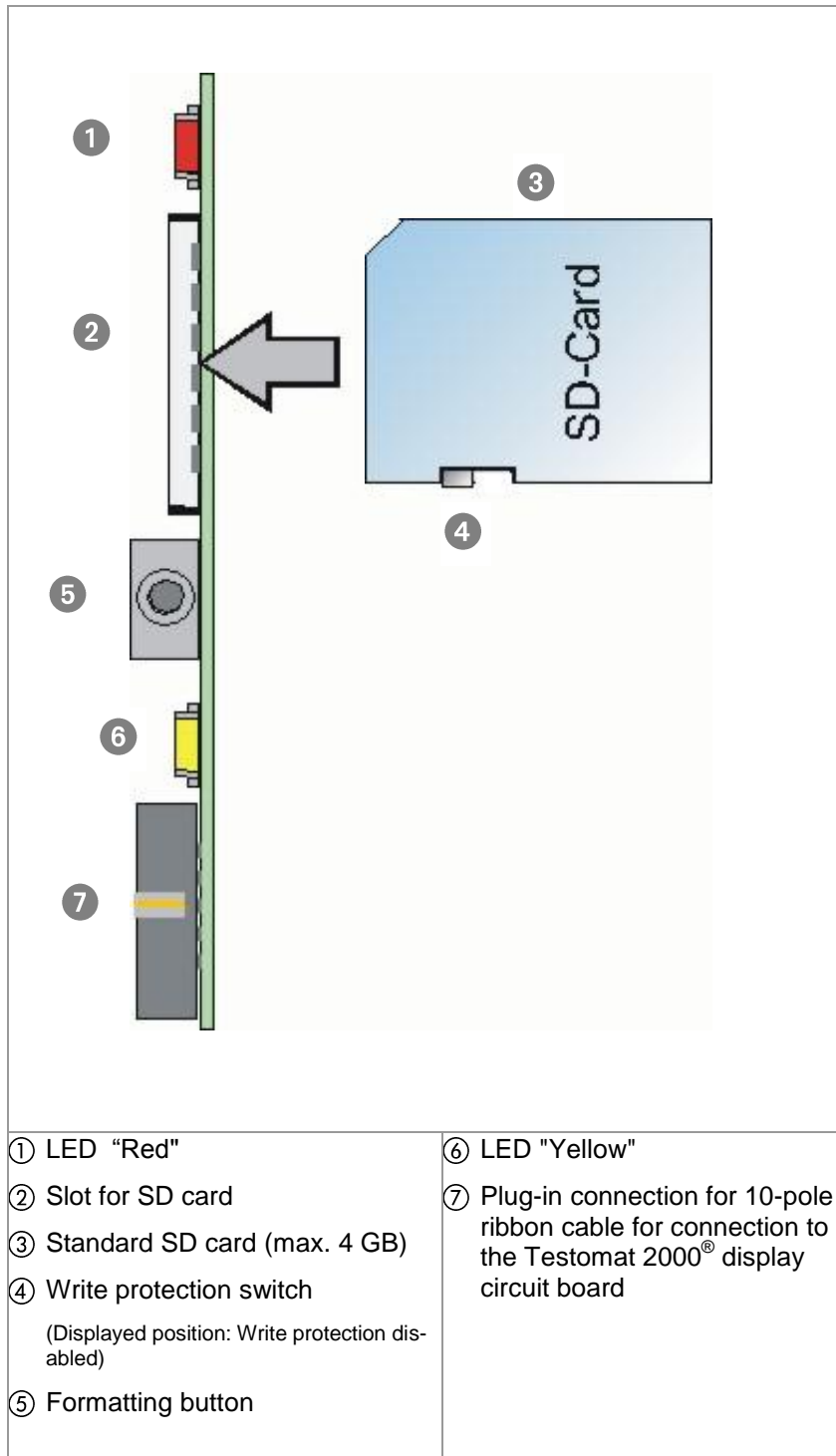
- 1 SD card data logger Testomat 2000<sup>®</sup> (plug-in card)
- 1 standard SD card, 2 GB
- 1 ribbon cable, 10-pole with EMI filter clamp
- 1 operating instructions

## Performance specifications

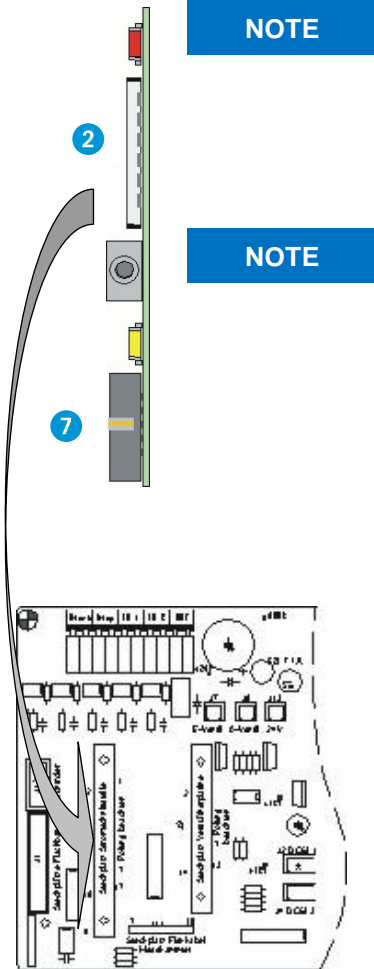
The SD card data logger Testomat 2000<sup>®</sup> saves all the values measured by Testomat 2000<sup>®</sup>, including all the generated error messages, on a standard SD card (max. 4 GB).

- Suitable for Testomat 2000<sup>®</sup>
- Capacity of the standard SD card up to max. 4 GB  
When used for the shortest measuring interval of the Testomat 2000<sup>®</sup> instrument, an SD card with 2 GB will last for more than 10 years
- Generation of one measuring file each day
- Generation of max. one alarm file each day
- Files are saved in "CSV" format and can be further processed using spreadsheet software, e.g. Microsoft Excel.

## Operating elements and displays



## Installing the plug-in card



**NOTE**

### Risks resulting from incorrect installation!

- Insert the plug-in circuit board as shown (components facing to the left) into the empty slot on the Testomat 2000® base circuit board.

**NOTE**

### Risk of damages caused by static discharges!

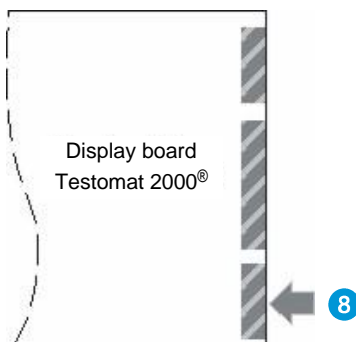
- Do not touch the contacts or components when inserting the plug-in card and the SD card.

- Make sure the Testomat 2000® instrument is isolated from all possible sources of supply
- Open the upper door of Testomat 2000® by loosening the two fastening screws on the right-hand side
- Open the upper housing door and insert the plug-in circuit board into the empty slot on the base circuit board
- Now connect the supplied 10-pole ribbon cable to header 7 and the free plug connector 8 to the display circuit board of Testomat 2000® at the bottom right. Pay attention to the connector coding.

## Inserting the SD card

The Testomat 2000® instrument must be switched on before inserting the supplied SD card.

Insert the SD card into slot 2 shown in the section entitled "Operating elements and displays". Insert the SD card gently until you feel it engage.



Installation of the plug-in card and the SD card has now been completed.



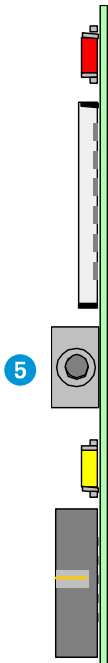
# Commissioning

## Formatting the SD card

Please format the card prior to initial use. This ensures that the file system required for operation is transferred to the card. Only then can data be written onto the card. The red and yellow LEDs flash simultaneously if an unformatted card is inserted.

- To format the card, press button **5** once. The yellow LED flashes for 5 seconds. Press the button again during these 5 seconds.

The card is ready for operation when neither LED is illuminated.



## Status displays of the data logger

Yellow LED	Red LED	Action or Status
On/Off alternately	Off/On alternately	No SD card inserted
On/Off alternately	On/Off alternately	SD card unformatted
Off	Off	SD card installed
On/Off alternately (fast)	Off/On alternately (fast)	Write protection enabled
On	On	SD card installing failed
Flashes	Off	1st press button: Ready for formatting
On	Off	2nd press button: Formatting in progress
On	Flashes	Formatting failed
On	Off	Insert the SD card, check card in progress
Off	On	Write operation in progress

## Configuring the Testomat 2000<sup>®</sup> interface

To operate the data logger correctly, proceed as described below:

>INTERFACES	▼▲ME
Type 0-20mA	
Type 4-20mA	
TYPE RS232	*
Type Data logger	

- In >BASIC MENU select  
=> PROGRAM VALUES=> INTERFACES
- Select "Type RS232" or "Type Data logger"  
If you have a data logger with a software version lower than 34-003, then select "Type RS232"  
If you have a data logger with a software version of 34-004 or higher then select "Type Data logger"
- Press "ENTER" to confirm the selection

The data logger is now ready for operation.



### After commissioning

- Close the upper door of the Testomat 2000<sup>®</sup>-instrument
- Tighten the two fastening screws ① of the upper door

## Operation

All the measuring values and messages recorded by Testomat 2000<sup>®</sup> during operation are saved on the SD card. All daily measuring values (e.g. on 08.07.2009) are saved in the file "ME090708.CSV". Any errors are saved in the file "AL090708.CSV".

If the SD card is changed or removed during operation, up to 30 data sets are saved in the internal buffer of the plug-in card (measurements and messages). The data sets are then transferred to the SD card once it is reinserted.

### NOTE

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#### Attention loss of data!

**Never remove the SD card during write operation!**

- Only remove the SD card when the red LED is off!
- 

## Evaluating "CSV files" on the PC

To evaluate the files, you can remove the SD card from the Testomat 2000<sup>®</sup> instrument and transfer the data to a PC using a respective reader. The "CSV" files can be read/edited, e.g., using "Microsoft Excel".

#### Proceed as follows:

- Remove the SD card from Testomat 2000<sup>®</sup>
- Insert it at the card reader of the PC
- Open it using a software program (e.g. "Excel" )
- Data can now be viewed
- Save data under the correct software format (e.g. with "Excel" under "xls") to further process it

### NOTE

---

#### Attention loss of data!

**Do *not* save the files in "CSV" format for further processing. Formatting informations of the files will be lost!**

- Always use the original software format!
-

After opening the file ME090713.CSV (e.g. using Excel), a table appears on the monitor with all the day's measuring values:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	
	parameter	date	time	meas. point	meas. value	unit	limit	limit value	unit	meas. point	meas. value	unit	limit	limit value	unit	
1	Water hardness	13.07.09	13:36	M1:	3,6	°dH	*									
2	Water hardness	13.07.09	13:39							M2:	3,6	°dH	*			
3	Water hardness	13.07.09	13:41	M1:	3,6	°dH	*									
4	Water hardness	13.07.09	13:44							M2:	3,6	°dH	*			
5	Water hardness	13.07.09	13:47	M1:	3,6	°dH	*	Limit val.1:	2	°dH						
6	Water hardness	13.07.09	13:49							M2:	3,6	°dH	*			
7	Water hardness	13.07.09	13:52	M1:	3,6	°dH	*									
8	Water hardness	13.07.09	13:54							M2:	3,6	°dH	*	Limit val.2:	3	°dH
9	Water hardness	13.07.09	13:56	M1:	3,6	°dH	*									
10	Water hardness	13.07.09	13:59							M2:	3,6	°dH	*	Limit val.2:	3	°dH
11	Water hardness	13.07.09	14:02	M1:	3,6	°dH	*									
12	Water hardness	13.07.09	14:04							M2:	3,6	°dH	*	Limit val.2:	3	°dH
13	Water hardness	13.07.09	14:07	M1:	3,6	°dH	*									
14	Water hardness	13.07.09	14:10							M2:	3,6	°dH	*	Limit val.2:	3	°dH
15	Water hardness	13.07.09	14:12	M1:	3,6	°dH	*	Limit val.1:	2	°dH						
16	Water hardness	13.07.09	14:15							M2:	3,6	°dH	*	Limit val.2:	3	°dH
17	Water hardness	13.07.09	14:17	M1:	3,6	°dH		Limit val.1:	2	°dH				Limit val.2:	3	°dH
18	Water hardness	13.07.09	14:20	M1:	3,6	°dH		Limit val.1:	2	°dH						
19	Water hardness	13.07.09	14:22	M1:	3,6	°dH								Limit val.2:	3	°dH
20	Water hardness	13.07.09	14:24	M1:	3,6	°dH		Limit val.1:	2	°dH				Limit val.2:	3	°dH
21	Water hardness	13.07.09	14:27	M1:	3,6	°dH										
22	Water hardness	13.07.09	14:27	M1:	3,6	°dH										

After opening the file AL090713.CSV (e.g. using Excel), the following table appears on the monitor:

	A	B	C
1	error message	date	time
2	POWER FAILURE	13.07.09	12:36
3	MEASUR. RANGE EXCEEDED	13.07.09	12:40
4	FF. OPTICS	13.07.09	12:57
5	LOW WATER PRESSURE	13.07.09	13:02

## Troubleshooting

Yellow LED	Red LED	Action or Status	Possible remedy
On/Off alternating	Off/On alternating	No SD card available	Insert SD card
On/Off alternating	On/Off alternating	SD card unformatted	Format SD card or replace SD card
On	On	Check SD card failed	Replace SD card, wrong SD card
On/Off alternating (fast)	Off/On alternating (fast)	Write protection enabled	Disable write protection
On	Flashes	Formatting failed	Replace SD card

Should problems or questions arise while operating the SD card data logger which are not described in these operating instructions and/or cannot be solved, please contact our technical hotline.

Tel.: +49 (0)5121 7609-0

Fax: +49 (0)5121 7609-44

E-Mail: [info@heyl.de](mailto:info@heyl.de)

Try to identify the problem as accurately as possible and record the actions and conditions under which it occurred. A precise definition of the problem allows us to provide you with quick and effective help.

## Disassembly



### Risk of electric shocks

If the power supply is not disconnected prior to disassembly, it may result in personal injuries, destruction of the product or damage to plant parts.

### Please proceed as follows:

- Always disconnect the relevant plant parts before removing the plug-in card from the Testomat 2000<sup>®</sup> instrument.
- Remove the ribbon cable plug-in connection.
- Remove the plug-in card from the slot
- Do not touch the plug-in contacts or the components
- Pack the plug-in card in the original packaging or in anti-static packaging for shipping

## Accessories

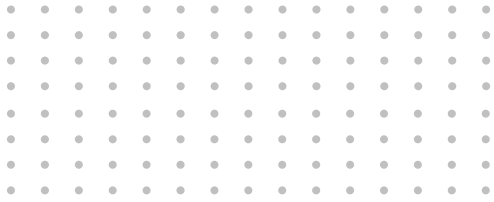
Type	Order no.
SD card data logger Testomat 2000 <sup>®</sup>	100490
Standard SD card, 2 GB	37320
Ribbon cable, 10 pole with EMI filter clamp	31713

## Technical data

We reserve the right to make technical changes without notice in the interest of constantly improving our products!

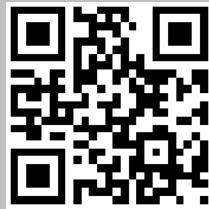
Suitable SD cards	Standard SD card max. 4 GB
Memory capacity of SD card	When used for the shortest measuring interval of the Testomat 2000 <sup>®</sup> instrument, an SD card with 2 GB will last for more than 10 years
Ambient temperature:	5 – 45 °C
Dimensions:	W x H x D = 77 x 80 x 12 mm
Weight:	Approx. 30 g





Gebrüder Heyl  
Analysentechnik GmbH & Co. KG  
Orleansstraße 75b  
D 31135 Hildesheim  
[www.heyhl.de](http://www.heyhl.de)

Datenlogger\_T2000\_GB\_140722.doc



Scan the code and  
visit us on our website!