testo 545

testo

ISO 9001
TESTO QUALITY certified

C E

Instruction manual
Luminous intensity
measuring instrument

Contents

C E According to the conformity certificate, the instruments fulfill **89/336/EWG** guidelines.

Contents

Foreword

Dear Customer

You have made the right decision by choosing a measuring instrument from Testo. Every year, thousands of customers purchase our high-quality products. There are at least seven good reasons for this.

1) We offer value for money. Reliable quality at the right price. -

2) Considerably longer guarantee periods of up to 3 years - depending on the instrument.

3) With over 40 years of specialist experience we are optimally equipped to solve your measuring tasks

4) Our high quality standards are confirmed by ISO 9001 certification.

5) It goes without saying that our instruments bear the CE symbol required by the EU.

6) Calibration certificates for all relevant parameters.

7) Reliable service.

Please read prior to measurement

⚠

Do not measure on live parts.

Observe storage and transport temperature and max. operating temperature (e.g. protect measuring instrument from direct sunlight)

The V24 cable (PC connection) can be inserted anytime.
A simultaneous print command is not possible if the PC cable is connected.

Opening the instrument, inexpert handling and use of force cancels your warranty.
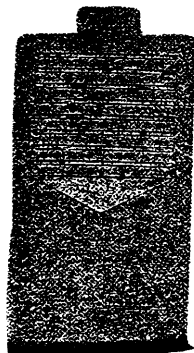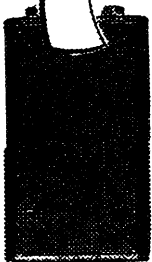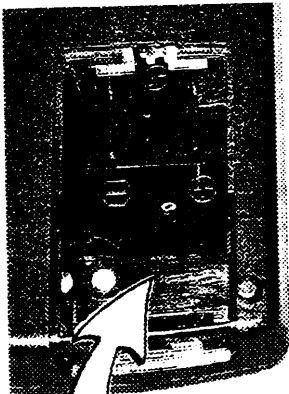
Putting in the batteries

9V block battery is included in delivery.

Open the battery compartment at the back of the instrument.
Put in block battery. **Observe polarisation**
Close battery compartment.

Refer to "Power supply" Chapter for more information on alternative power supply, charge, battery quality.

The description of the instrument and an overview of the controls provide a quick introduction.

```
┌───┐
│ i │
└───┘
┌─────────────────────────────┐
│ Instrument configuration    │
└─────────────────────────────┘
```

You will receive up to date readings once the instrument is switched on. However, you will still need to update or define the data in the instrument:
⇒ Date/Time:
⇒ Auto Off:
⇒ Units:

Some things can only be set via PC software (See Ordering data):
⇒ Location name (8 characters)
⇒ Log heading (24 characters), e.g. your company name - is printed when the readings are printed.
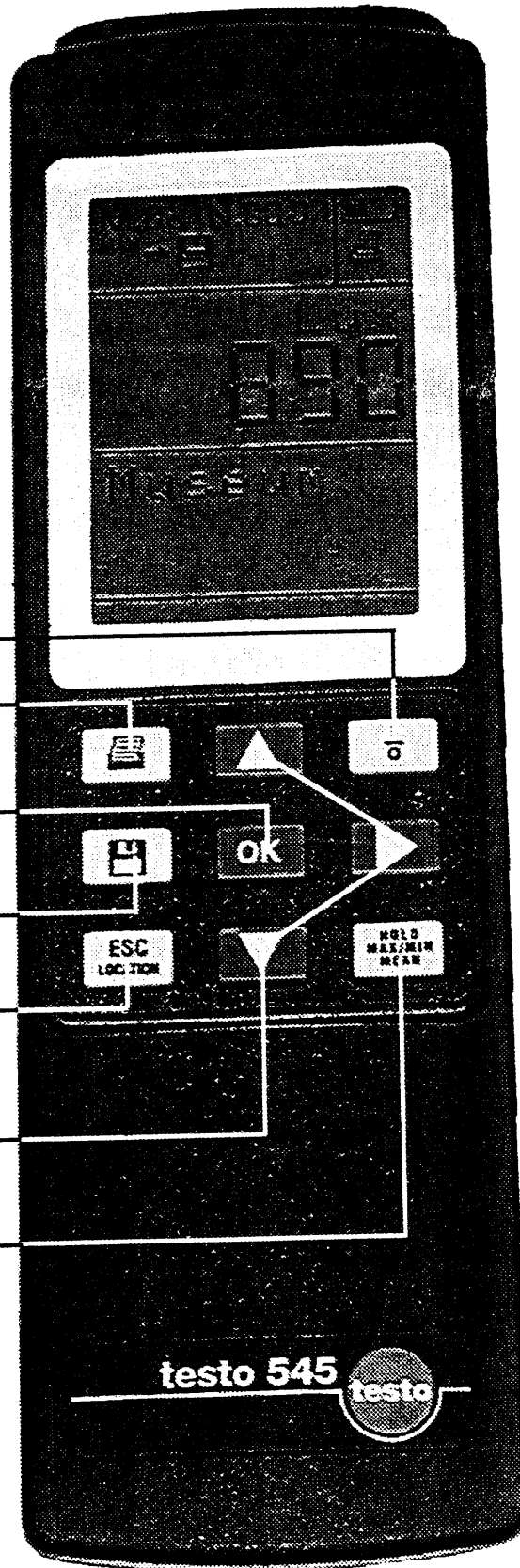
Keypad:

On/Off

Prints

Confirms menu setting/ executes function
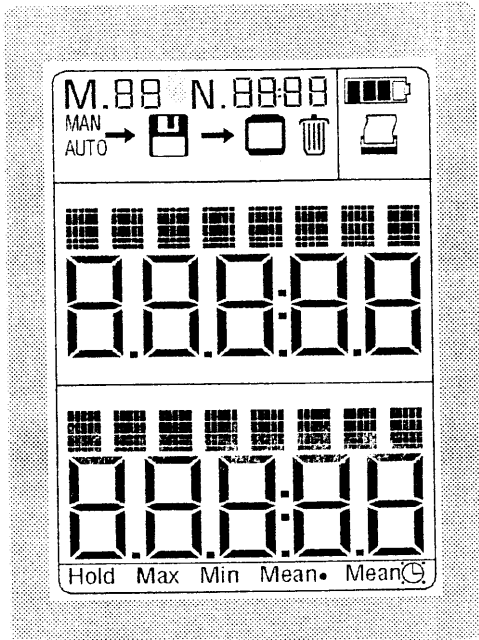
Saves

Return to current measurement/ location selection

Arrow buttons move the cursor

Hold Max Min Mean

testo 545

→ The symbols on the top line are explained below

→ Name of input socket and parameter

→ Displays reading in line 1

→ Name of location

→ Time/number of points in mean calculation

→ Displays measurement functions

Explanation of symbols:

M. 00
Counter for the log number in the memory.
When saving manually: number of the measurement saved.
When saving automatically: number of the measurement series. This counter is needed in order to be able to find single logs or a measurement series when reading out the memory.

N. 0000
Counter for saving a measurement cycle (required only for automatic saving). The measurement cycle in a measurement series can be found.

MAN →
Manual saving of a single measurement by pressing the save button.

AUTO →
Automatic saving program has been set up.
Saving is activated by pressing the button.

→
Symbol for reading contents of memory on display.

→
Symbol for deleting memory contents.

If this symbol appears, the printing function is activated.
The symbol flashes while data is being transmitted. You can print on the desktop printer by pressing the print button.

Shows capacity of battery and rechargeable battery.
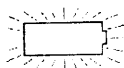
If the inner segment no longer appears (symbol flashes), the battery has to be changed or the rechargeable battery has to be recharged. The instrument switches itself off automatically after 1 minute.

testo

```
        ┌─────┐
        │  I  │
        │ ─── │
        │  O  │
        └─────┘
```

┌─────────────┐
│ HOLD   │
│ MAX/MIN   │
│ MEAN   │
└─────────────┘

2.
Measurement functions

| HOLD Freeze values |
| MAX Display maximum values |
| MIN Display minimum values |
| MEAN* Multi-point mean calculation |
| OK Update values |
| ► Calculate mean |
| OK Reset mean |
| MEAN ⏱ Timed mean calculation |
| OK Start and end |
| ► Calculate mean |
| OK Reset mean |

1.
Current measurement

| 💾 | Manual or automatic saving, depending on setting (5.) |
| 🖨 | Print readings |

┌──────────┐
│   OK   │
└──────────┘

┌──────────────┐
│ 💾 Save   │
│   manually │
│ 🖨 Print   │
│   readings │
└──────────────┘

┌──────────────┐
│ ESC   │
│ Location   │
└──────────────┘

3.
Location selection

1... ▼ Selection of
99 ▲ location

┌──────────┐
│   OK   │
└──────────┘

4. Measuring range switchover function

Selected parameter	
Lux ⟶	Switching from resolution of 1 Lux (meas. range 32,000 Lux) ► 10 Lux (meas. range 100,000 Lux) *
fc	Switching from resolution of 0.1 fc (meas. range 3200 fc) ► 1 fc (meas. range 10,000 fc)

* Multiply displayed value by 10.

```
 |
 O
```
↓

**1.
Current measurement**

OK

💾

↓

**5.
Memory
settings**

MAN
Activate
manual
saving

▶

AUTO
Program
automatic
saving

• Select no. of
meas. cycles
• Set
measurement
rate

▶

OUT
Read memory
contents on
display with
printing option

▶

CLEAR
Clear memory
Note: Everything
in the memory is
deleted

┌─ Simultaneously ─┐
↓   ↓

```
 |
 O
```
OK

↓

**6.
Instrument configuration**

OK — Activate - deactivate
automatic switch-off function

OK — Selection: Power supply
Battery - Rechargeable

OK — Setting: Date

OK — Setting: Time

— Unit selection

OK — Lux ▶ fc

— Factory reset

OK

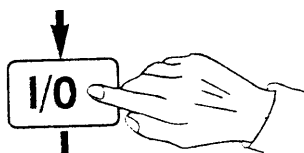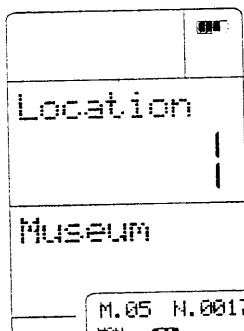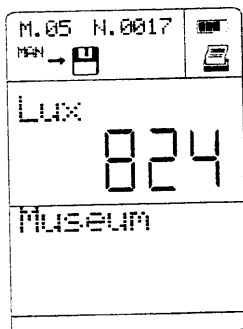
Note
*Flashing display is activated and is confirmed
by pressing* OK .
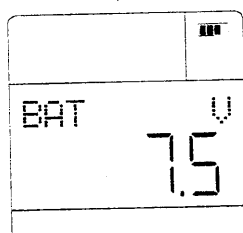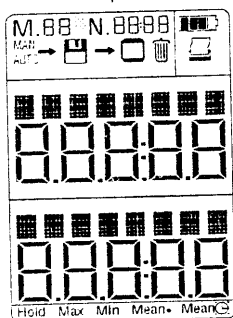
Battery / rech. battery power

Location

Line 1

Line 2

It is possible to activate the following functions during measuring at the touch of a button:
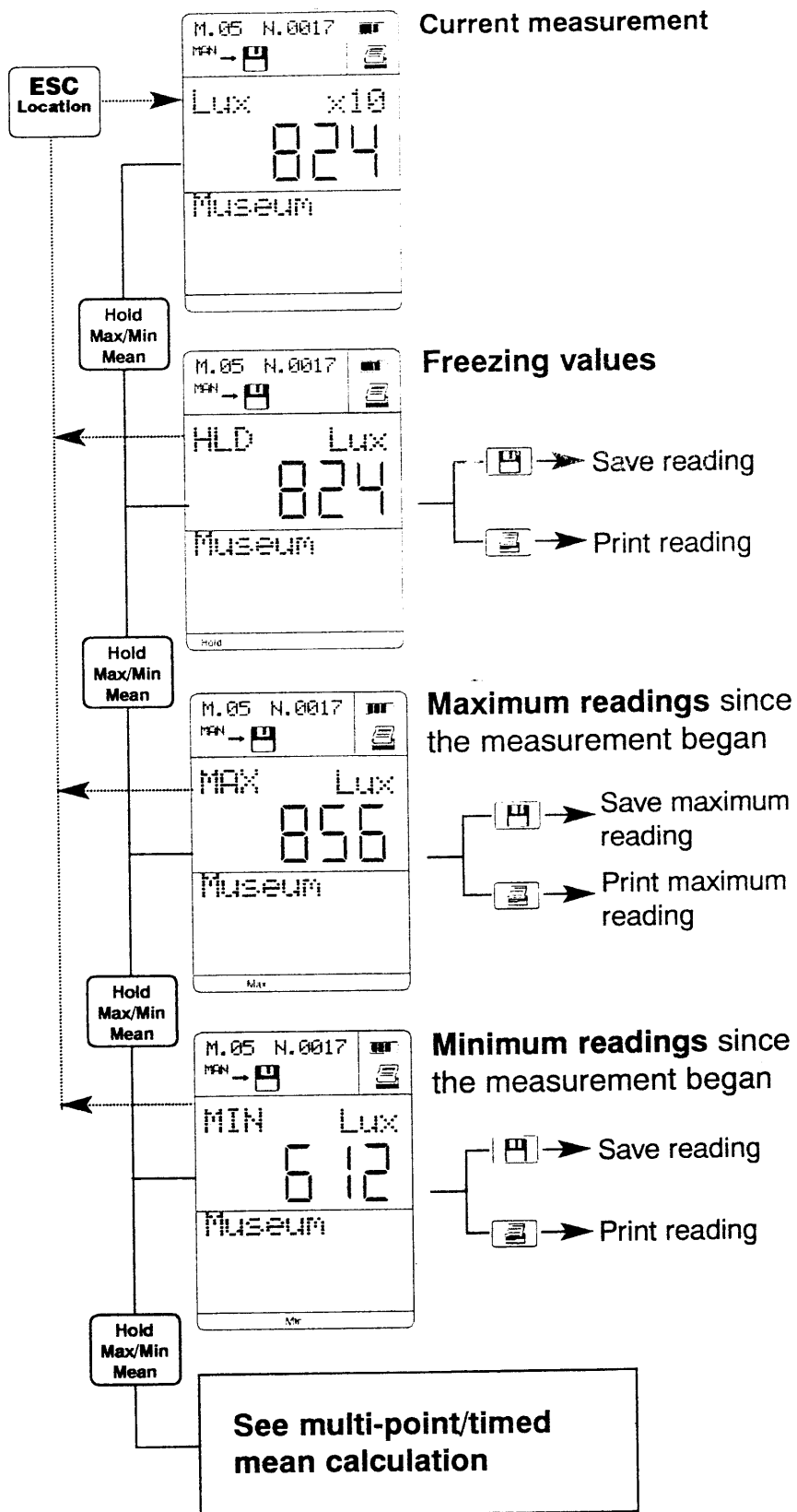
Save readings.
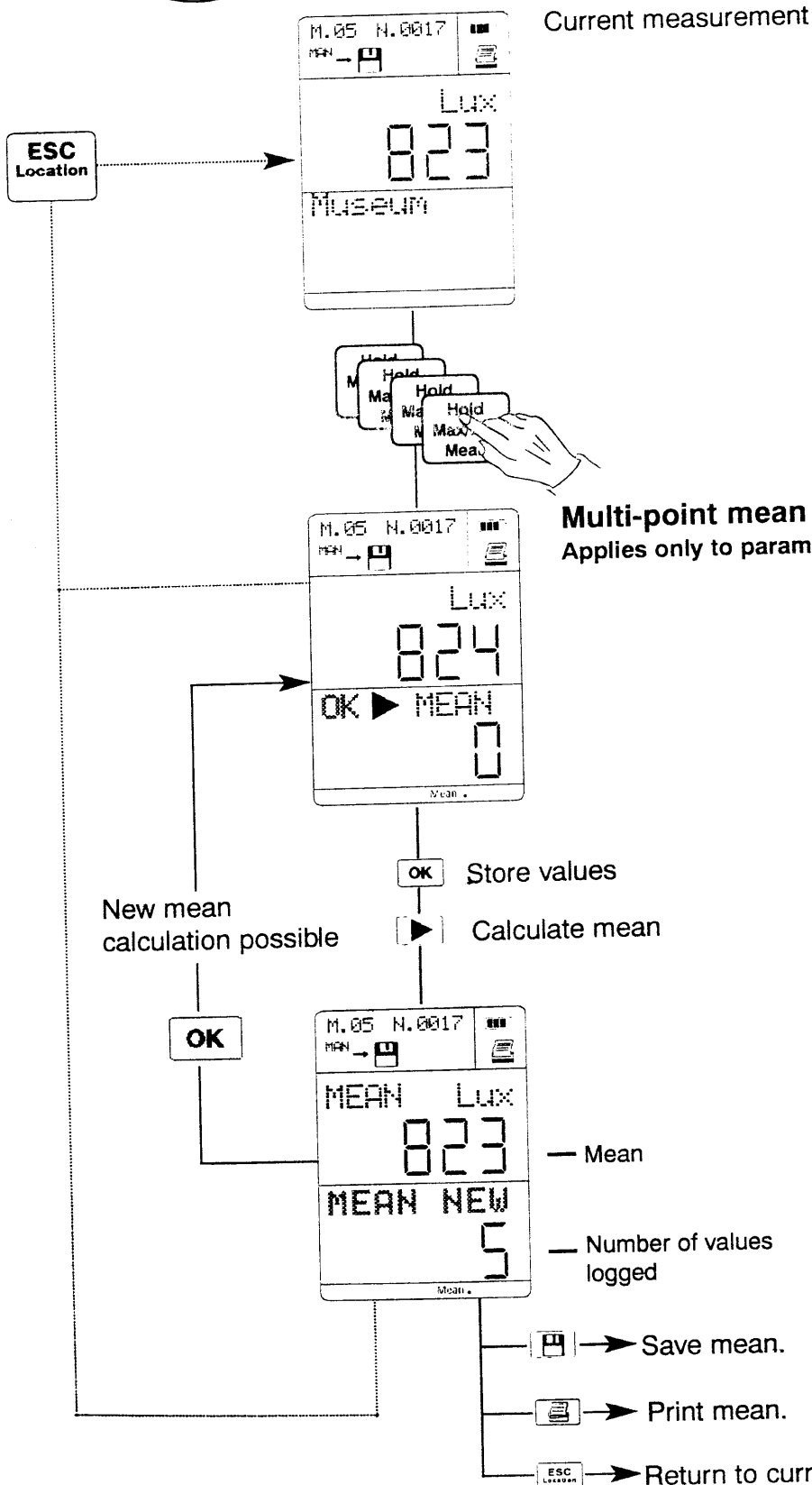Manual or automatic saving is determined by the save setting (Chapter 5).

Print readings.
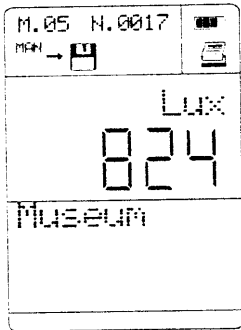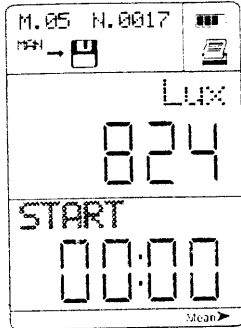
Freezing values, maximum readings, minimum readings

Current measurement

M.05 N.0017	
MAN → 💾	🖨
Lux ×10	
824	
Museum	

ESC Location

Hold Max/Min Mean

Freezing values

M.05 N.0017	
MAN → 💾	🖨
HLD Lux	
824	
Museum	
Hold	

💾 → Save reading

🖨 → Print reading

Hold Max/Min Mean

Maximum readings since the measurement began

M.05 N.0017	
MAN → 💾	🖨
MAX Lux	
856	
Museum	
Max	

💾 → Save maximum reading

🖨 → Print maximum reading

Hold Max/Min Mean

Minimum readings since the measurement began

M.05 N.0017	
MAN → 💾	🖨
MIN Lux	
612	
Museum	
Min	

💾 → Save reading

🖨 → Print reading

Hold Max/Min Mean

See multi-point/timed mean calculation

Current measurement

`M.05 N.0017`
`MAN→💾`
`Lux`
`823`
`Museum`

ESC Location

Multi-point mean calculation
Applies only to parameter on first line

`M.05 N.0017`
`MAN→💾`
`Lux`
`824`
`OK ▶ MEAN`
`0`

Note on saved or printed logs:
1. The log of a **multi-point** mean calculation contains single values, max. value, min. value and mean value.
2. The log of a **timed** mean calculation contains max. value, min. value and mean value.

OK Store values

▶ Calculate mean

New mean calculation possible

OK

`M.05 N.0017`
`MAN→💾`
`MEAN Lux`
`823`
`MEAN NEW`
`5`

— Mean

— Number of values logged

💾 → Save mean.

🖨 → Print mean.

ESC Location → Return to current measurement.
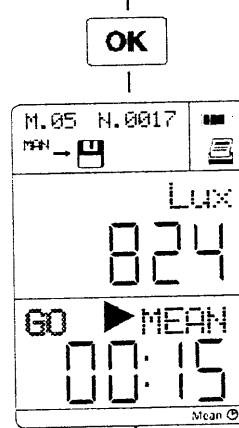
Timed mean calculation **Mean** ☉

Current measurement

M.05 N.0017	
MEAN → 💾	🖨
	Lux
	824
Museum	

Hold
Hold
Hold
Hold
Hold
Max/Min
Mean

M.05 N.0017	
MEAN → 💾	🖨
	Lux
	824
START	
00·00	
	Mean▶

OK — Start timed mean calculation.

OK

M.05 N.0017	
MEAN → 💾	🖨
	Lux
	823
END ▶ MEAN	
00·10	
	Mean ☉
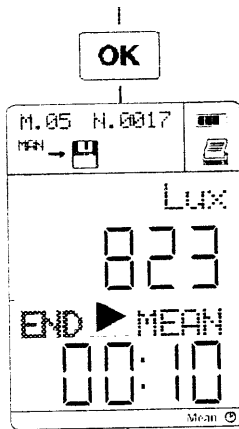
OK — Finish timed mean calculation.

OK

M.05 N.0017	
MEAN → 💾	🖨
	Lux
	824
GO ▶ MEAN	
00·15	
	Mean ☉

OK — Continue timed mean calculation

or

▶ — Calculate mean.

▶

M.05 N.0017	
MEAN → 💾	🖨
	Lux
	823
MEAN NEW	
00·05	
	Mean ☉

OK
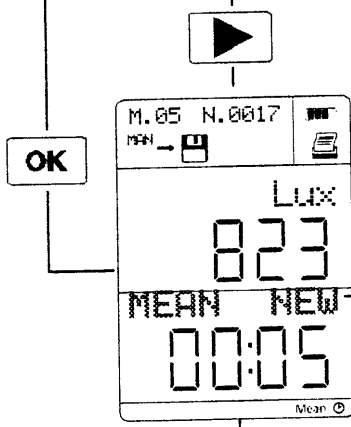
New mean
calculation is
possible

— Mean

— Duration of mean
calculation

💾 ▶ Save mean.

🖨 ▶ Print mean.

ESC or HOLD/MAX/MIN/MEAN ▶ Return to current measurement.

Note on saved or printed logs:
1. The log of a **multi-point** mean calculation contains single values, max. value, min. value and mean value.
2. The log of a **timed** mean calculation contains max. value, min. value and mean value.
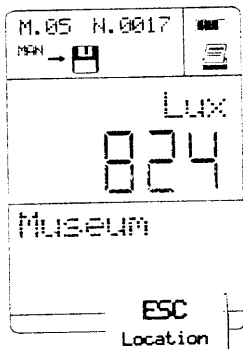
The location names Location 1 to 99 are specified by the factory.

You can load your own location names (8 characters) onto your instrument using PC software.

1. Current measurement
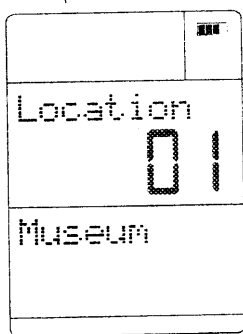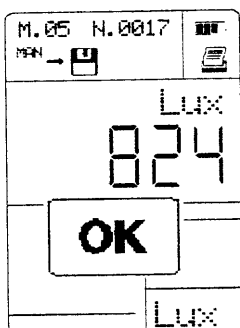
◄──► ▲/▼ Selection of location.

OK

⟶ Confirm selection and return to measurement.

Return to current measurement

🖨 or 💾:
From now on all measured data which is saved or printed is linked to the selected location or product names.

Measuring range switchover function

Switching between measuring range and lux or fc resolution

Lux ▶ Lux × 10 / 0.1 fc ▶ fc

The resolution selected flashes.

▶ ⟶ Select

OK ⟶ Confirm selection and return to measurement.

Resolution	Meas. range	Resolution	Meas. range
1 Lux	32,000 Lux	0.1 fc	3200 fc
10 Lux *	100,000 Lux	1 fc	10,000 fc

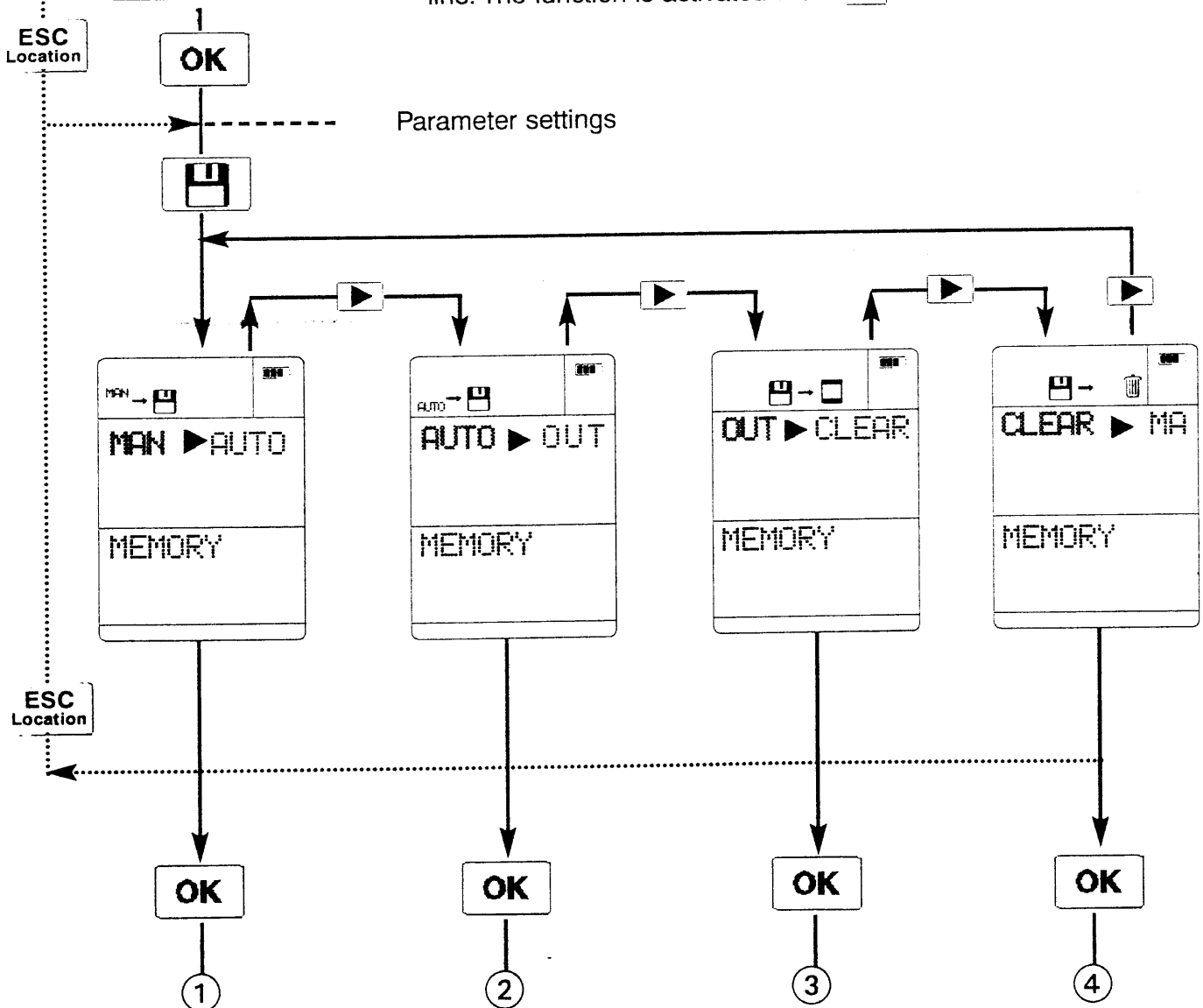* Multiply displayed value by 10.
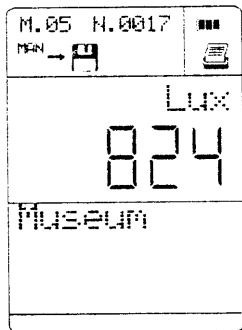
14

1. Current measurement

Press the `OK` button to get to the memory settings mode. Confirm flashing save symbol 💾 via 💾 button.

4 memory settings are possible. Select the required saving option by pressing `▶`:

MAN ▶ AUTO ▶ OUT ▶ CLEAR ▶ MAN ▶ ...

The symbol corresponding to the selection appears in the top line. The function is activated with `OK`.

```
M.05 N.0017
MAN→💾

        Lux
    824
Museum
```

ESC
Location

OK

- - - - - Parameter settings

💾

```
MAN→💾
MAN ▶AUTO

MEMORY
```

```
AUTO→💾
AUTO ▶ OUT

MEMORY
```

```
💾→☐
OUT ▶ CLEAR

MEMORY
```

```
💾→ 🗑
CLEAR ▶ MA

MEMORY
```

ESC
Location

OK **OK** **OK** **OK**

① ② ③ ④

Manual / Automatic saving

(1)

> **i** Press the ⟨OK⟩ button to get to the memory settings mode.
> Confirm flashing save symbol 💾 via 💾 button.
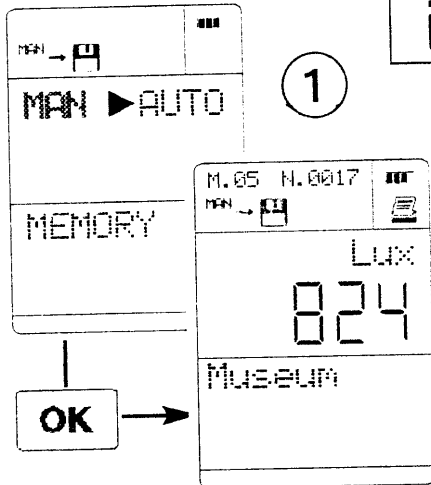
MAN

Manual saving:

Each time 💾 is pressed a log of the measurement is saved in the instrument and includes measured values, location, date and time. The counter in the top left corner of the display shows the number of logs saved for this location.

> Saving a **log with timed or multi-point mean calculation :**
> The log includes MIN value, MAX value and mean of the measurement and also single values in multi-point mean calculations.

(2)
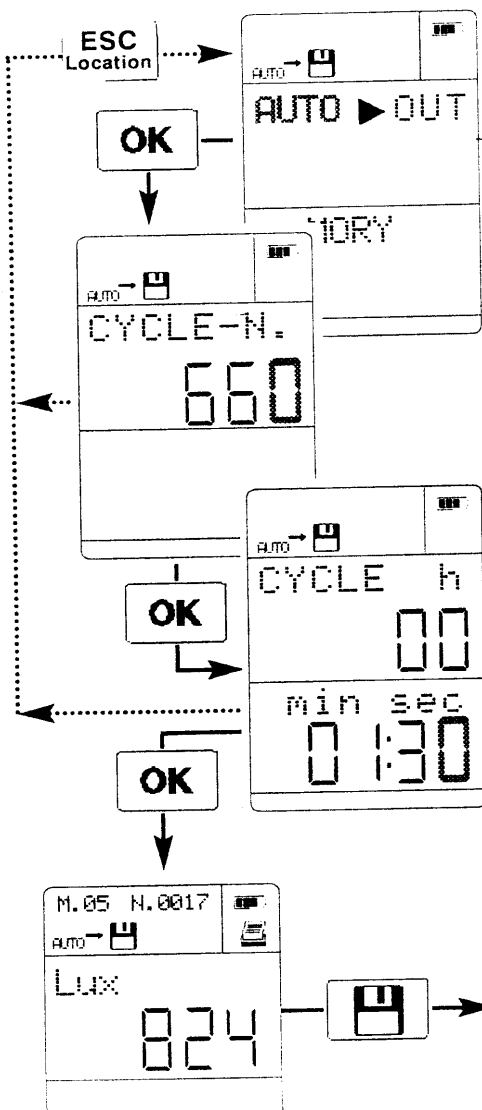
AUTO

Automatic saving:

When this saving function is set, the instrument automatically accepts the measured values at fixed intervals and saves them (=logger operation).
The number of measuring cycles (CYCLE-N.) to be saved and intervals (CYCLE) have to be programmed:

1. Cycle-N.
The instrument automatically offers the maximum possible number of measuring cycles. Set required number using
▲ / ▼ / ▶.
Confirm set value by pressing ⟨OK⟩.

2. Cycle
Select interval in which the measured values are to be saved.
The blinking position can be changed using ▶ ▲ ▼.
Confirm set value by pressing ⟨OK⟩.

Automatic saving is started by pressing 💾. The symbol flashes until the programmed measurement series is accepted.

⟨ESC⟩ Cancel saving procedure.
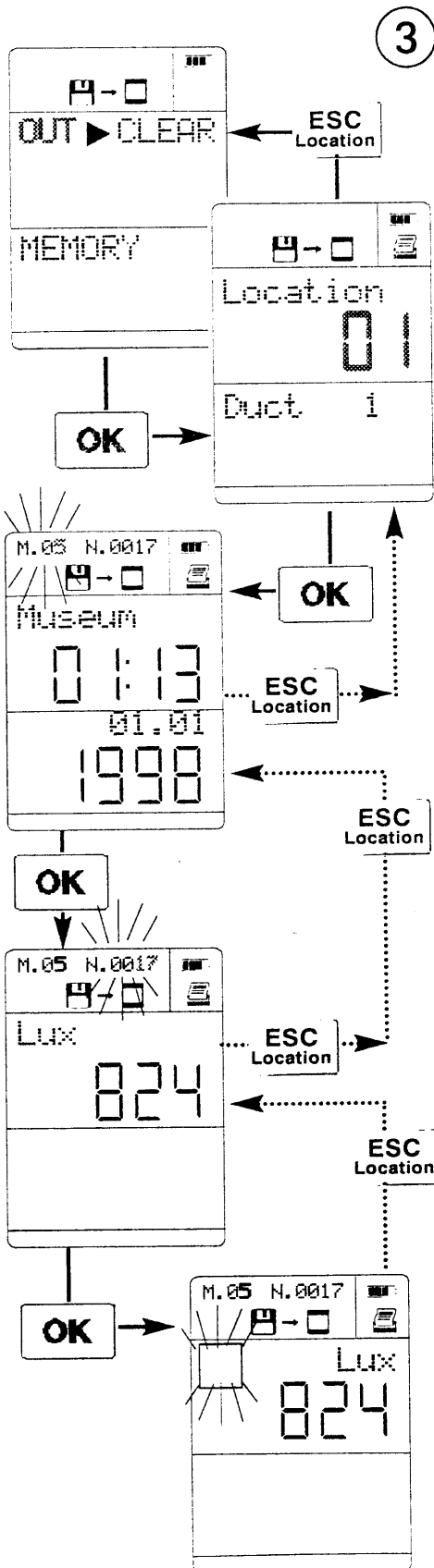💾 Starts automatic saving again. An additional measurement series is added.

Reading or printing memory

Press the OK button to access the memory settings mode. Confirm flashing save symbol 💾 via the 💾 button.
Cancel printout by pressing the ⊥ button.

OUT

1. Reading out or printing memory contents:

If the "OUT" display is flashing and the 🗐 button is pressed, printing of the complete memory contents is started. Cancel printout by pressing the ⊥ button.

2. Selecting the location:

If OK is activated selection options appear in the display to select the required location. Select location by pressing ▲ ▼.

If printing is activated by pressing 🗐 at this point, **all** of the logs (measurement series and cycles) for this location are printed.

Cancel printout by pressing the ⊥ button.

3. Selecting the log:

Confirm the location selected above by pressing OK.
The M.0x counter flashes in the display.

Select the log no. by pressing ▲ ▼.

🗐 activates a printout of the selected measurement log.
Press OK to display the values measured.

Cancel printout by pressing the ⊥ button.

4. Select the measurement cycle (only possible if a measurement log consists of a measurement series):

Confirm the measurement log selected above by pressing OK.
The N.0x counter flashes in the display.

Select the measurement cycle by pressing ▲ ▼.

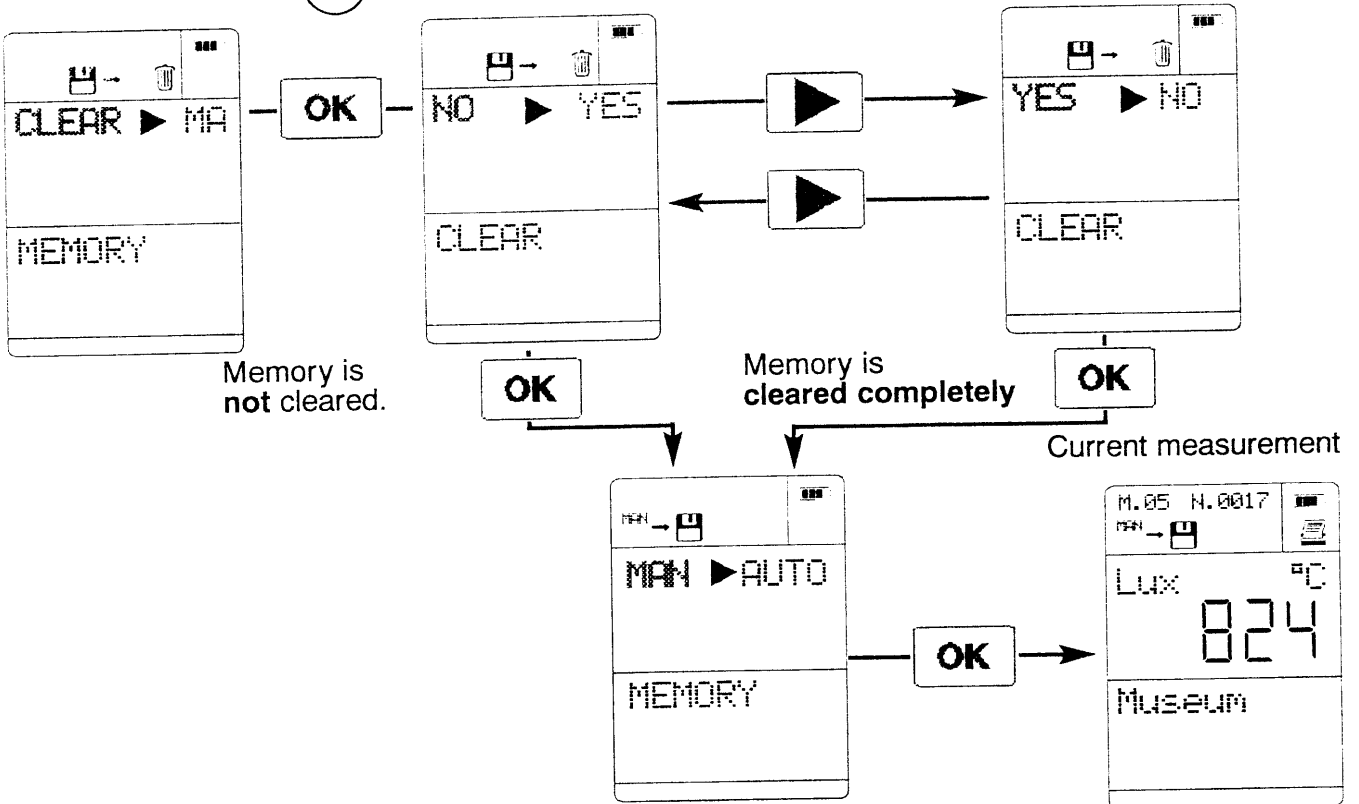🗐 activates a printout of the selected measurement cycle.

The 🔙 button enables you to go back one step.

Clearing memory contents/Sample printouts

| i | Press the ⬛OK button to access the memory settings mode. Confirm flashing save symbol 💾 via the 💾 button. |

(4) CLEAR **Clearing memory:**

Memory is **not** cleared.

Memory is **cleared completely**

Current measurement

Printout of automatic saving

Heading	— Smith Ltd.
Date of printout	— 31.08.1998 11:27:32
Location	— Museum
Log	— M.05
Start of saving	— 31.08.1998 11:26:59
Measuring cycle	— cycle 00:00:02

```
            1:Lux
-----------------------------
01        653
02        652
03        650
04        690
05        705
06        710
07        695
08        675
09        638

Info :
```

Printout of manual saving

```
Smith Ltd.
31.08.1998   11:26:05
Museum

M.01
31.08.1998   11:20:05

1:      725     Lux

Info :
```

## Power save function / Power supply

Auto off function: On/Off

AUTO-OFF

ON ▶ OFF

AUTO-OFF

OFF ▶ ON

OK

Power supply

BAT ▶ AKKU

AKKU ▶ BAt

OK

1
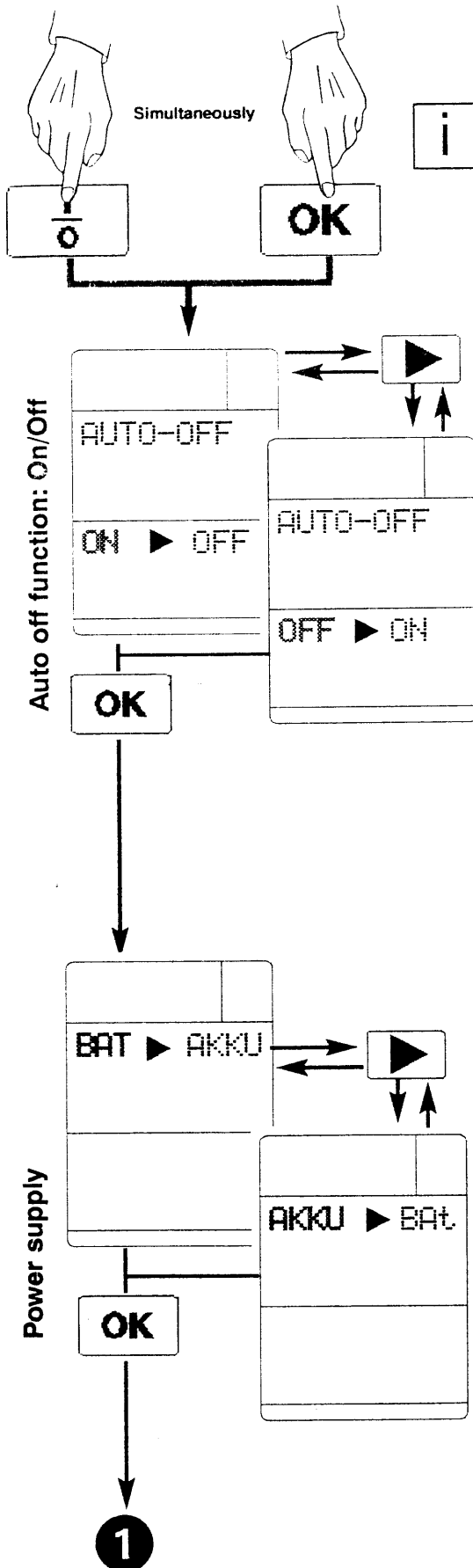
[i] The [ESC Location] button enables you to change to the current measurement from every menu item.

The [OK] button has to be kept pressed for approx. 2 seconds when switching on the instrument ([I/O] button).

The blinking position can be changed by pressing [▶] [▲] [▼] or confirmed by pressing [OK].

Power save function
Auto OFF function is switched on ("ON")

If a button has not been pressed in the last 5 minutes or there is no communication with the PC, the instrument switches off automatically.

Exceptions:
- the function is deactivated during timed and multi-point mean calculation
- Automatic saving mode:
  The function is only activated if saving cycles > 1 min are programmed.
- In the case of an activated function (cycle >1 min) the instrument switches itself on at the measurement time and switches off again. This also occurs if the instrument is switched off via the [I/O] button after the saving program has been activated.

BAT: Battery operation with 9 V block battery, Alkali manganese IEC 6LR61.
AKKU: Rechargeable battery operation with Testo rechargeable battery (Part no. 0515.0025), Type: Ni-MH IEC 6F22. If the **rechargeable battery** is empty: Recharge battery in external charger (Part no. 0554.0025).
Note:
If the battery/rechargeable battery is removed, the instrument retains set values (date/time) and memory contents for approx. 10 minutes. The data is lost after 10 minutes.
The capacity of the battery/rechargeable battery is shown in the display:

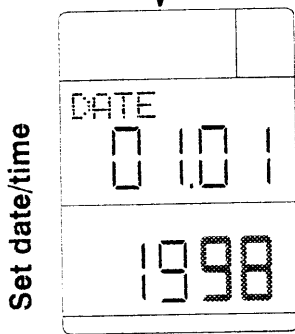|	
▮▮▮▮	100 %
▮▮▮	75 %
▮▮	50 %
▮	25 % (last segment is flashing: the battery/ rechargeable battery is almost empty)
▭	0 % (change battery/recharge rechargeable battery). Instrument switches off after 1 min.

19

Set date/time

DATE
01.01
1998

OK
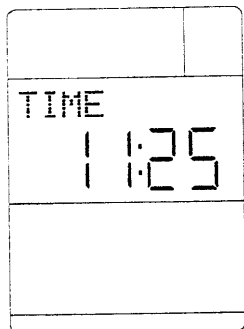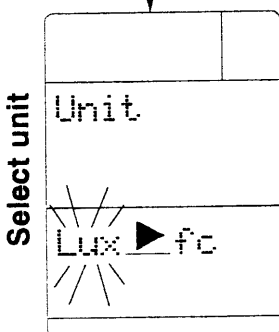
Setting date

The flashing position in the display can be set
- ▲/▼ = scroll/ ▶ = next position -

TIME
11:25

OK

Setting the time

The blinking position in the display can be set
- ▲/▼ = scroll/ ▶ = next position -

Select unit

Unit

Lux ▶ fc

Lux ▶ fc
The selected parameter flashes.

▶ → Select
OK confirms the selection.

OK

Factory resets all of the settings in the instrument configuration
to the factory settings.
- "AUTO OFF" is set at "ON"
- "Lux" is activated

OK confirms the selection and switches to the display of the
current measurement.

Current measurement

Error message	Cause	Remedy
Memory full	The memory is full	Clear memory
_-!_ _—_ _—_	Measuring range has not been reached	The measured values are outside the allowed measuring range. Switch resolution.
_—_ _—_ _—_ _—_ _—_	Connection to the probe has been interrupted.	Please contact a Testo service point.

Sensor:	Silicon photodiode
Meas. range:	0 to 100,000 Lux
Accuracy:	To DIN 5032, Part 6 $f_1 = 8\ \%$ $f_1 = V\ (l)$ adaptation $f_2 = 5\ \%$ $f_2 = \cos$ like rating
Resolution can be switched:	0 to 32,000 Lux 1 Lux 0 to 100,000 Lux 10 Lux 0 to 3.200 fc 0,1 fc 0 to 10.000 fc 1 fc
Display:	2 line LCD and 2 matrix lines
Battery lifetime:	9 V IEC 6F22 > 50 h Al-Mn
Battery check:	Automatically in 4 stages
Operating temperature:	0 to +50 °C
Storage temperature:	-20 to +70 °C
Dimensions:	220 x 68 x 50 (instrument)
Weight:	500 g (incl. packaging)
Warranty:	2 years

Ordering data for testo 545

Measuring instrument and accessories

Part no.

testo 545 incl. probe, batteries and instruction manual **and calibration protocol**	0560.0545
TopSafe (indestructible protective case) With bench stand and belt clip, protects measuring instrument from impact, dirt...	0516.0441
Testo log printer, with 4 AA batteries and 1 roll of thermal paper Prints measured data, location with date and time	0554.0545
Comfort software "Light" for data management with data base, analysis and graphics function	0554.0273
Comfort software "Professional" for data management with data base, analysis and graphics function, data analysis, trend curve	0554.0274
Transport case For safe storage of measuring instrument, TopSafe, probe and Testo log printer	0516.3250
RS232 cable Connects measuring instrument ↔ PC for data transmission	0409.0178
ISO calibration certificate Calibration point: 1000 Lux	0520.0010

The warranty time is
- 2 years for display instruments
- 1 year for probes.

Warranty services do not extend the warranty life.

If you have reason for complaint we will repair any faults free of charge if it can be proven that they are manufacturing faults. The fault should be reported immediately after it has been found and within the warranty time guaranteed by us.

Excluded are working parts such as rechargeable batteries, measuring cells, filters, measuring elements etc. as well as fragile parts. Also not included is damage caused by improper use and non-adherence to the instruction manual.

The warranty is also cancelled once the measuring instrument has been opened provided this is not described in the instruction manual for maintenance purposes. This is also the case if the serial numbers have been changed, damaged or removed.

If in addition to the warranty service necessary repairs, adjustments or similar are carried out, the warranty services are free of charge but there is a charge for the other services in addition to transport and packaging costs.

Other claims, especially those for damage occurring outside the instrument are not included unless responsibility is legally binding.

After-sales service after the warranty time has elapsed
We are, of course, there for you after the warranty time has elapsed. In the case of function faults please send us your measuring instrument with a brief description of the defect. Include your telephone number should we need to contact you.

Testo's **CUSTOMER SERVICE** puts the customer first.