

3250 006 101 c

**These Operating Instructions must be handed to the final user on start-up**

### General information

The UH50 heat meter combines modern microcomputer technology with innovative ultrasonic measuring technology in which no moving parts are necessary.

This technology is therefore non-wearing, robust, and largely maintenance-free. Great accuracy and stability over a long time ensure true and fair billing of heating costs.

The quantity of thermal energy given off from the heating water is proportional to the temperature difference between the flow and return temperature and the volume of heating water that flowed through.

The volume of heating water is measured by an ultrasonic pulse that is first emitted in the direction of flow and then against the direction of flow.

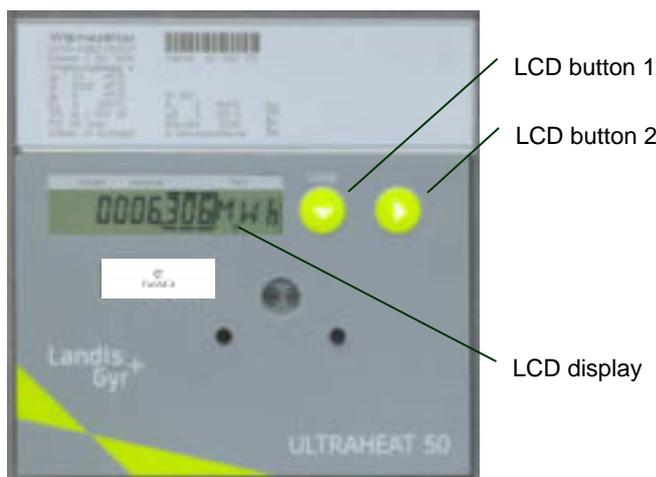
Downstream the time the pulse travels between the transmitter and the receiver becomes shorter; upstream it becomes correspondingly longer.

The volume of heating water is then calculated from the values measured for the pulse travel times. The flow and return temperatures are sensed using platinum resistors.

The volume of heating water and the temperature difference between the flow and return are then multiplied and the product is summated.

The result is that the quantity of thermal energy consumed is recorded and displayed in the units kWh or MWh or MJ or GJ.

### Operating elements



### Displays

The places after the decimal point of displayed values are indicated by a surrounding border.

Calibrated values can be recognized by the star symbol shown in addition to the value.

The displays of of the heat meter are arranged on several levels (LOOPS). LCD button 2 advances the display of the user loop (LOOP 0) cyclically.

**Note:** Depending on how the unit is parameterized, the number of items displayed and the data shown may differ from this description. Certain button functions may also be disabled.

#### User loop ("LOOP 0")

LOOP 0	Head of loop
- 1234567 kWh	Accumulated quantity of heat with tariff status
T 1234567 kWh	Tariff register 1 (optional)
1234567 m <sup>3</sup>	Accumulated volume
8888888 kWh	Segment test
F -----	Error message with error code number

LCD button 1 is used to switch the display from the user loop to the selection of service loops (LOOP 1..n).

#### Service loops (selection)

LOOP 1	Service loop 1
LOOP 2	Service loop 2
...	...
LOOP n	Service loop n

LCD button 1 advances the display to the next loop. After the last loop, the user loop (LOOP 0) appears again.

LCD button 2 displays the content of the selected service loop.

Within a loop, the LCD button 2 is used to advance to the next line of the display. After the last line of the display, the first display line appears again.

#### Service loop 1 ("LOOP 1")

LOOP 1	Head of the loop
1234 m <sup>3</sup>	Current flowrate
500 kWh	Current heat power
91.56 °C	Current flow/return temperature
Opd 1234 h	Operating time
Opd 1234 h	Operating time with flowrate
Fd 123 h	Missing time
K 12345678	Property number, 8-digit
D 100506	Date
SD 3105--	Yearly set day (DD.MM)
T 1234567 kWh	Quantity of heat previous year on set day
V 1234567 m <sup>3</sup>	Volume for previous year on set day
FW 5-00	Firmware version

### Service loop 2 (“LOOP 2”)

In service loop 2, the **maxima** are displayed. LCD button 2 calls the displays one after the other.

LOOP 2	Head of the loop
Ma 3899 m³/h St 13.12.05	Max. flowrate, at 2s intervals with date stamp
Ma 2889 kW St 11.12.05	Max. power, at 2s intervals with date stamp
Ma 98 87 °C St 08.12.05 St 04.12.05	Max. temperatures, at 2s intervals with date stamp for flow and return maximum
MP 60 min	Measuring period for maximum calculation

### Service loop 3 (“LOOP 3”)

Service loop 3 shows the **monthly values**. LCD button 1 is used to select a month out of the 18 previous months. The data for that month are then opened with LCD button 2. Each further press of LCD button 2 shows the next value for the selected month.

LOOP 3	Head of the loop
00 05 M	Set day for December 2005
01 205 M	Set day for November 2005
...	...
00 04 M	Set day for July 2004

using LCD button 2: ↓

1234567 kWh	Quantity of heat on the set day
T 1234567 kWh	Tariff register 1 on the set day
1234567 m³	Volume on the set day
Ma 3899 m³/h St 13.12.05	Max. flowrate on the set day, at 2s intervals with date stamp
Ma 2889 kW St 11.12.05	Max. heat power on the set day, at 2s intervals with date stamp
Ma 98 87 °C St 08.12.05 St 04.12.05	Max. temperatures on the set day, at 2s intervals with date stamp for flow and return maximum
Fd 123 h	Missing time count on the set day

After the last display, the previously selected set day is displayed again. Pressing LCD button 1 selects the next set day.

Note: If you want to drop out and go directly to the next loop, choose a monthly value by pressing LCD button 2 and then press LCD button 1.

### Service loop 4 (“LOOP 4”)

Service loop 4 shows the **unit parameters**. LCD button 2 calls the displays one after the other.

LOOP 4	Head of the loop
T2 0000 m³/h ' 0000 m³/h	Current tariff, at 2s intervals with threshold value 1
FP 200 SEC	Measuring interval for flowrate
TP 30 SEC	Measuring interval for temperature
Modul 1 M3	Module 1: M-bus module
AP1 127	M-bus primary address 1
A 12345678	M-bus secondary address 8-digit
Modul 2-1 CE	Module 2: pulse module; chan. 1 = heat quantity
Modul 2-2 CV	Channel 2 = volume, at 2s intervals
PO1 12500 kWh	Significance for heat quantity pulses *)
PO2 00250 L/h	Significance for volume pulses *)
PO3 2ms	Pulse duration in ms *)

\*) for “fast pulses”

### Previous year’s values

The electronic unit stores the meter readings for quantity of heat, volume, the tariff register, missing time, and flowrate measuring time as well as the current maxima for flowrate, power, temperature difference, flow temperature, and return temperature with their date stamps on a yearly set day.

### Monthly values

The electronic unit stores the meter readings for quantity of heat, volume, the tariff register, missing time, and flowrate measuring time as well as the monthly maxima for flowrate, power, temperature difference, flow temperature and return temperature with their date stamp for 18 months on the set day of each month.

Note: The standard time used is Central European Time (CET). If daylight-saving time is activated, storage will be performed accordingly.

The monthly values can also be read out via the optical and the 20 mA interface.

### Error messages

The heat meter constantly performs self-diagnostics and can display various error messages.

Error message **F0** means flowrate measurement is not possible, e.g. due to air in the volume measuring unit; the heating system must be carefully vented.

Error message **F4** means the battery must be replaced.

Error message **F1, F2 or F5, F6, F8** means that the temperature sensor is defective. Messages **F3, F7, F9** indicate a fault in the electronics. In all these cases, please call service.

## Functional details

If the response thresholds are exceeded and the flowrate and temperature difference are positive, the **quantity of thermal energy** and the **volume** are summated. In the **segment test**, all segments of the display are switched on for test purposes.

On the **yearly set day**, the meter readings for quantity of heat and volume, the values for the maxima and the flowrate and missing times are placed in the **previous year memory**.

The **flowrate**, **heat power**, and **temperature difference** are acquired with the correct sign. If the response threshold is not reached, the value is preceded by a **u**. The current **temperatures** are shown together on one line of the display as integers in **°C**.

To calculate the maximum, the heat power and flowrate are averaged over a **measuring period** of, for example, 60 min. The **maximum values** from the average calculation are preceded by **Ma**.

The 8-digit **property number** (also the secondary address in M-bus operation), can be set in parameter setting mode. The **unit number** is assigned by the manufacturer.

The **operating time** is counted from the first time the power supply is connected. **Missing times** are summated, if an error is pending that prevents the heat meter from measuring. The **date** is incremented daily.

The type of installed **modules** is displayed. If an M-but module is installed, the primary and secondary address will be displayed on the following lines.

The number for the **firmware version** is assigned by the manufacturer.

## EC Declaration of conformity

Landis+Gyr herewith declares that this product complies with the relevant requirements of the following directives:

- **2004/22/EC** measuring instruments directive
- **89/336/EEC** electromagnetic compatibility
- **73/23/EEC** low-voltage directive

EC type-examination certificate

**DE-06-MI004-PTB018**

EC design-examination certificate

**DE-07-MI004-PTB010**

## Further information

- The electronic unit must only be cleaned on the outside. Please use a soft, damp cloth to do this, which can be dipped in a non-corrosive cleaning agent.
- User seals must only be removed by authorized persons for service purposes and must then be replaced.

You will find more up-to-date information in the Internet at [www.landisgyr.com](http://www.landisgyr.com).

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