

T350 (2WR6...)



Note: These operating instructions remain with the end user following activation.



Note: In the following text, the term meter refers to both the heating meter and the cooling meter, unless otherwise specified.

1. General

1.1 Use

The T350 (2WR6...) is used as a meter for heating or cooling consumption measurement in systems with water. The meter consists of two temperature sensors and an electronic unit which calculates the energy consumption from the volume and temperature difference.



Note: The meter cannot be opened without damaging the security seal.

1.2 General notes

The meter left the factory in a faultless condition where safety is concerned. The manufacturer will provide additional technical support on request. Calibration relevant security seal on the meter must not be damaged or removed. Otherwise the guarantee and calibration validity of the meter will lapse.

- Keep the packaging so that you can transport the meter in its original packaging following expiry of the calibration validity.
- Lay all cables at a minimum distance of 500 mm to high voltage and high frequency cables.
- A relative humidity of < 93 % at 25 °C is permissible (without condensation).
- Avoid cavitation in the whole system due to overpressure i.e. at least 1 bar at qp and approx. 3 bar at qs (applies for approx. 80 °C).
- At a **heating meter** the mounting place of the flow sensor cold side is equivalent to return. The mounting place of the flow sensor hot side is equivalent to flow.
- At a **cooling meter** the mounting place of the flow sensor hot side is equivalent to the return. The mounting place of the flow sensor cold side is equivalent to flow.

2. Safety Information



The meters may only be used in building service engineering systems and only for the applications described.



The local regulations (installation etc.) must be adhered to.



Adhere to the operating conditions according to the dial plate during use. Non-adherence can cause hazards and the guarantee will lapse.



Adhere to the AGFW requirements regarding circulating water (FW510).



The meter is only suitable for circulating water in heating systems.



The meter is not suitable for drinking water.



Do not lift the meter by the electronic unit.



Be aware of sharp edges on the thread, flange and measuring tube.



Only personnel, trained in the installation and operation of meters in heating and cooling systems, may install and remove the meter.



Only install or remove the meter when the pipes are pressure-less.



After installing the meter, check the leak-tightness of the system.



Guarantee and calibration validity will lapse if the calibration relevant security seals are broken.



Only clean the meter from outside with a soft, lightly wetted cloth. Do not use any spirit or cleaning solvent.



As far as disposal is concerned, the meter is a waste electronic appliance in the sense of European Directive 2002/96/EC (WEEE) and it must not be disposed of as domestic waste. The relevant national, legal regulations must be observed as the appliance must be disposed of via the channels provided for this purpose. The local and currently valid legislation must be observed.



The meter contains lithium batteries. Do not dispose of the meter and the batteries with domestic waste. Observe the local stipulations and laws on disposal.



You can return the lithium batteries to the manufacturer for appropriate disposal following use. When shipping please observe legal regulations, in particular, those governing the labelling and packaging of hazardous goods.



Do not open the batteries. Do not bring batteries into contact with water or expose to temperatures above 80 °C.

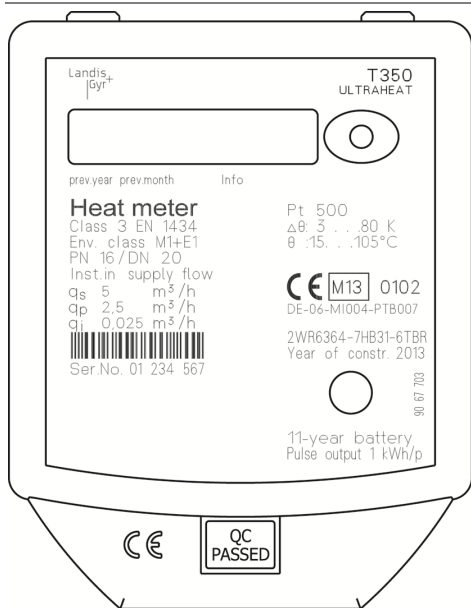


The meter does not have any lightning protection. Ensure lightning protection via the in-house installation.



3. Operating

3.1 Operating elements



Note: Both display range and data displayed can differ from this description depending on the meter parameterisation. Certain button functions can also be blocked.

Switching the display

Please proceed as follows to switch between the display values:

- Press the button briefly to show the next line of the current loop.
- The first display value will appear again after the final display value.
- Press the button for a longer time (longer than 10 s) in order to display the service loop.
- Press the button for 3 s in the service loop in order to leave the service loop.

User loop

User loop	Display type		
0054567	kWh	Energy accumulated	
00065.43	m ³	Volume accumulated	
888888	kWh	Segment test	Info
F---		In case of error: message with error code	Info

Service loop

Service loop	Display type		
0.534	m ³ /h	Current flow	
22.9	kW	Current power	
84 47	°C	Current temperature hot side / cold side	
04.06.11	D	Date	
786	Bh	Operating hours	
56	Fh	Missing hours	
3792701	G	Device number, 7 digit	Info
PulSE	CH	Remote read out mode (optional)	Info
123	A	Primary address for M-Bus option	Info
2345678	K	Property number, 7 digit	Info
18.02.11	F0	Date stamp for F0 early warning	Info
3-01	FW	Firmware version	Info
31.12.10	V	Storage day previous year	Previous year
0034321	kWh	Energy previous year on set day	Previous year
00923.12	m ³	Volumes: previous year on set day	Previous year
12	Fh	Missing hours previous year	Previous year
-----	C	Code input for parameterisation	

Service loop	Display type		
01.06.11	M	Storage day month 1-15 over 3s button press:	Previous month
0034321	kWh	Energy previous month on reference date	Previous month
00923.12	m ³	Volume previous month on reference date	Previous month
12	Fh	Missing hours previous month on reference date	Previous month

3.2 Monthly values

The meter stores the following values for 15 months on the monthly set day

- Energy (meter status)
- Volume (meter status)
- Missing hours (meter status)

When the meter shows the monthly set day, press the button for 3 s in order to display the previous month's values. You can also read the monthly values via the optical interface.

4. Functional Details

If the respective operation thresholds are exceeded and flow and temperature difference are positive, the meter summates the energy and the volume. All segments of the display are switched on for control purposes during the segment test.

The meter status for energy, volume and missing time is entered into a log for the previous year on an annual basis on the annual set day.

The flow, power and temperature difference are recorded with the appropriate +/- signs. If the operation threshold has dropped, a "u" is displayed in front. The current temperatures are presented together as whole numbers in °C in a display line.

You can set the 8 digit property number (secondary address for M-Bus operation) in the parameterising mode. The highest value point is suppressed in the display. The device number is issued by the manufacturer.

The operating hours are counted from the first connection of the power supply. Missing hours are summated if there is a fault and the meter is thus unable to take measurements. The date is incremented on a daily basis.

The number for the firmware version is issued by the manufacturer.

5. Error Messages

The meter continuously runs a self-diagnosis and can thus recognise and display various installation or meter error messages.

The error message **F0** means that no flow measurement is possible, due to air in the volume measurement unit for example; the system must be vented carefully.

The error message **F4** means the battery must be replaced. When any of the error messages **F1, F2 or F5, F6, F8** are displayed, the temperature sensors are defective. The messages **F3, F7, F9** mean a defect in the electronics. Contact the service department in all these cases.

6. Technical data



Note: The information on the meter must be observed!

General

Measuring accuracy Class 2 or 3 (EN 1434)
 Environment class A (EN 1434) for indoor installation
 Mechanical class M1 *)
 Electromagnetic class E1 *)
 *) according to 2004/22/EC Directive on Measuring Instruments
 Ambient humidity < 93 % rel. humidity at 25°C without condensation
 Max. height 2000 m above sea level
 Storage temperature - 20 ... 60°C

Electronic unit

Ambient temperature 5... 55 °C
 Housing protection rating IP 54 according to EN 60529
 Power supply Battery for 6 or 11 years
 or 24 V AC/DC external (optional)
 Operation threshold f. ΔT 0.2 K
 Temperature difference Δ T 3 K ... 80 K
 Temperature measurement range 2 ... 180 °C
 National type approvals may be different.
 LCD indication 7 digit
 Optical interface Standard, EN 1434-3
 Communication Optional: M-Bus or pulse output
 Protocol IEC 870, 300 baud in Nb
 Separability Always detachable, cable length 1 m

Sensor

Type Pt 500 according to EN 60751
 Connection type 2-wire technology, fixed connection
 Cable length 1.5 m (optional 5 m)
 Construction type DS direct short, M10 × 27.5 mm or PS pocket short
 ø 5.2 x 45 mm according to EN 1434
 Temperature range 0 ... 105 °C
 National type approvals may be different.
 Max. temperature 105 °C

Volume measurement unit

Protection class IP 54 / IP 65 according to EN 60529
 Mounting place Hot side / cold side
 Installation position Any, horizontal or vertical
 Smoothing section None
 Measuring range Approved 1:100, calibrated 1:50
 Temperature range 5... 105 °C
 National type approvals may be different!

recommended for...

...heating applications 15... 105 °C
 ...cooling applications 5... 50 °C
 Maximum overload qs = 2 × qp, permanent
 Nominal pressure PN16 (1.5 MPa; PS16)

qp

	Overall length and connection	
0,6	110mm (3/4")	190mm (1")
1.5	110mm (3/4")	190mm (1")
2.5	130 mm (1")	190mm (1")

7. EU-Directives Declaration of Conformity

Landis+Gyr GmbH, Humboldtstr. 64, D-90459 Nürnberg hereby declares that the type Ultraheat T350 / 2WR6 meter meets the requirements of the following directives:

- **2004/108/EC** Electromagnetic Compatibility of Electrical and Electronic Devices
- **2006/95/EC** Low Voltage Directive
- **2004/22/EC** Directive on Measuring Instruments
- **2011/65/EU** Directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS2)

Nürnberg, 17.03.2014

Brunner, COO

signature

Fuchs, Head R&D

signature

This declaration and the associated documents are deposited with Mr. Fuchs c/o Landis+Gyr with the number CE 2WR6 007/03.14.

EC Type Approval Certificate
DE-06-MI004-PTB007

Certificate recognising the quality management system
DE-12-AQ-PTB006MID

Notified Body:
 PTB Braunschweig and Berlin, Germany; identification number
 0102 0102

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