

Ultrasonic Flow Meter Ultraheat 2WR7 / Flow Installation and Operating Instructions UH205-101n

issue august 2010

3250 005 101 n

Safety instructions

- F Never hold and transport the meter by the electronics housing but only by the flanged or threaded joint.
- F Pay attention to sharp edges (thread, measuring pipe).
- F Calibration, maintenance, replacement of components, and repairs must only be performed by a qualified person familiar with the hazards involved.
- F Assembly and dismantling may be carried out only in a pressureless plant.
- F After the installation the tightness must be proved by pressurizing with cold water.
- F Use meter only under the specified operating conditions. Otherwise dangers may arise and the warranty expires.
- F Calibration-related seals of the heat meter may not be damaged or removed! Otherwise, the warranty of the heat meter becomes void.
- F Return of the Lithium batteries must be carried out professionally.
- F A lightning protection cannot be ensured; this has to be made sure through the house installation.

General

The electronic unit is fixed to a mounting plate. Never handle the heat meter by the electronic unit. Handle the heat meter only by the threaded or flanged connection.

All cables must be laid at least 12 inches from power cables:

If two or more meters are installed in one unit, make sure all the meters operate under the same mounting conditions.

Avoid cavitation over the entire measurement range by overpressure, i.e. at least 1 bar to q_p and about 3 bar on overload q_s (valid for ca. 80°C).

The flow meter left the factory in perfect safe condition. Calibration, maintenance, component replacement, and repairs must only be performed by trained personnel who are familiar with the hazards involved. The manufacturer will provide further technical support on request. Flow meter safety marks that are relevant for calibration must not be damaged or removed! Doing so voids the warranty and calibration validity of the device.

Technical data

Environment class	A (EN1434) for indoor installation
Mechanical class	M1 *)
Electromagnetical class	E1 *)

*) according 2004/22/EG EC directive

Volume measuring parts:

(Consider the details on the meter)

Installation location	Return or supply
Installation orientation	Horizontal or vertical
Flow straightening	none
Metrological class	1:100 resp. 1:50

Temperature range recommended...	5 to 130°C *)
...heat application	10 to 130°C
...cooling application	5 to 50°C

*) national approvals may differ

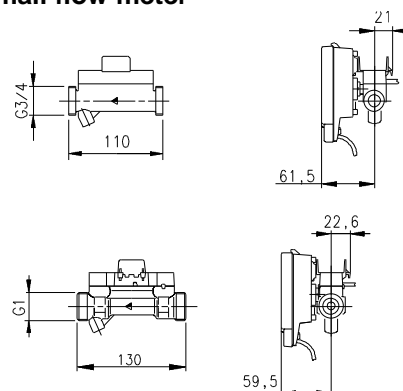
Maximum temperature	150 ° C for 2000 h
Degree of protection	IP 54 or IP 65
Maximum overload	2.8 x q_p
Nom. pressure	PN 16, PN 25

Electronics :

Storage temperature	- 20 to 60 °C
Ambient temperature	5 to 55 °C
Ambient humidity	< 93 %
Degree of protection	IP 54

Nominal flowrate q_p	Overall length	Connection	Maximum flowrate q_s	Minimum flowrate q_m	Response threshold (variable)	Pressure lost at q_p	Kv flowrate at Δp 1 bar	Kv flowrate at Δp 100 mbar	Weight
m ³ /h	mm	G / DN	m ³ /h	l/h	l/h	mbar	m ³ /h	m ³ /h	kg
0,6	110	G ¾	1,2	6	2,4	150	1,5	0,5	1
	190	G 1				125	1,7		1,5
		DN20							3
1,5	110	G ¾	3	15	6	150	3,9	1,2	1
	130	G 1				160	3,8		1,5
		DN20							
2,5	130	G 1	5	25	10	200	5,6	1,8	1,5
	190	DN20				195	5,7		3
3,5	260	G 1 ¼	7	35	14	60	14	4,5	3
		DN25							
6	150	G 1 ¼	12	60	24	240	12	3,8	3
	260	DN25				180	14		4,5
10	200	G 2	20	100	40	130	28	8,8	2,6
						100	32		10
	300	DN40				165	25		7,8
15	200	DN50	30	150	60	95	48	14	5
	270					100	47		15
25	300	DN65	50	250	100	105	77	24,4	11
40	300	DN80	80	400	160	160	100	31,6	13
60	360	DN100	120	600	240	115	177	56	22

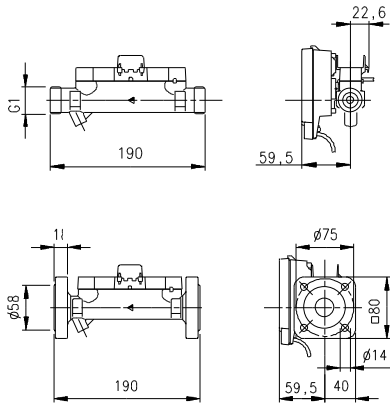
Small flow meter



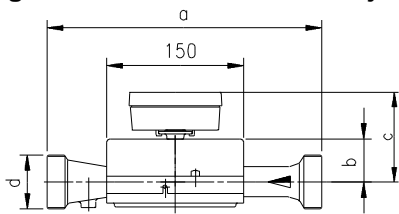
motrallec

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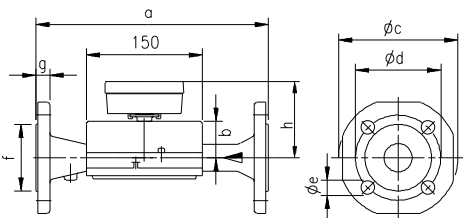


Large flow meter with threaded joint



order no.	qp m ³ /h	PN bar	a	b	c	d
2WR7 45	3.5	16	260	51	96	G 1 1/4 B
2WR7 50	6	16	260	51	96	G 1 1/4 B
2WR7 55	6	16	150	22	63	G 1 1/4 B
2WR7 60	10	16	300	48	93	G 2 B
2WR7 63			200			

Large flow meter with flanged joint



order no.	qp m ³ /h	PN bar	DN	a	b	Øc	Ød	Øe	no. holes	f	g	h
2WR7 46	3.5	25	25	260	51	115	85	14	4	68	18	96
2WR7 52	6	25	25	260	51	115	85	14	4	68	18	96
2WR7 61	10	25	40	300	48	150	110	18	4	88	18	93
2WR7 65	15	25	50	270	46	165	125	18	4	102	20	91
2WR7 69				200								107
2WR7 70	25	25	65	300	52	185	145	18	8	122	22	97
2WR7 74	40	25	80	300	56	200	160	18	8	138	24	101
2WR7 82	60	16	100	360	68	235	180	18	8	158	24	113
2WR7 83	60	25	100	360	68	235	190	22	8	158	24	113

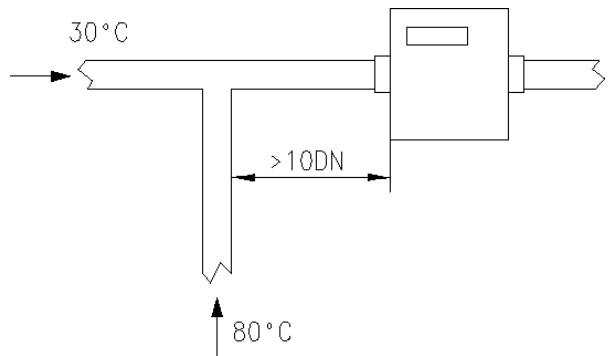
Mounting

Please study the dimensions and check there is sufficient clearance for the meter.

No straight pipe sections are necessary before or after the meter.

If the flow meter is installed on the common return of two heating circuits, e.g. heating and hot water, the mounting location must be at sufficient distance, at least

10 × DN, from the T-element to ensure different temperatures homogenize, e.g.:

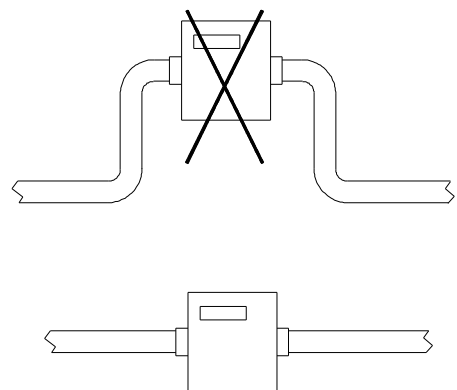


Mixture of different return temperatures

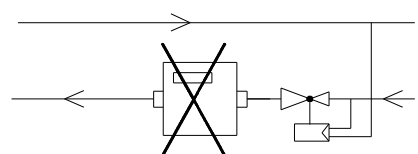
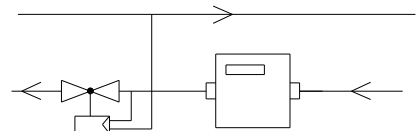
Rinse the system thoroughly before mounting the flow meter.

As shown in the examples, mount the volume measuring unit horizontally or vertically between two shut-off valves with the arrow pointing in the direction of flow. Screw connections must be sealed against manipulation.

Installation instructions



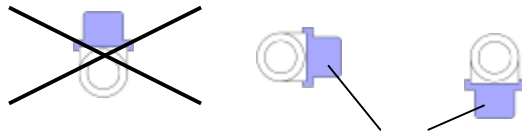
Advice: Avoid accumulation of air



Advice: Mount a valve or a regulator **after** the meter (in direction of flow)

Installation as a cold meter

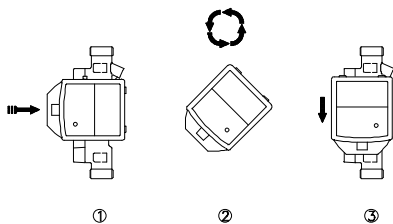
Make sure that the black cover on the measuring tube is oriented to the side or downward (because of water condensation). The measuring tube has to be installed **always in return**. The electronic unit must be separated from the flowrate measuring tube and, for example, mounted on the wall. Make sure that condensed water cannot run along the wiring into the electronic unit (building a loop downwards).



Allowed position of the cold meter

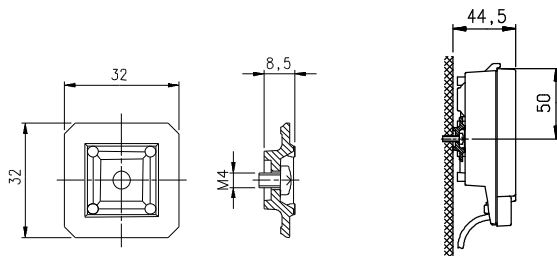
Electronic unit

The ambient temperature of the electronics must not exceed 55°C. Avoid direct sunlight. Mounting can be vertical or horizontal with respect to the volume measuring unit (see fig.). Remove the electronic unit from the volume measuring unit, rotate it, and plug it in the required position.



Mounting location of calculator

For wall mounting, remove the electronic unit from the volume measuring unit, unscrew mounting plate, and mount on wall. Slice the calculator onto the mounting plate (see fig.).



Mounting plate and wall mounting

Power Supply

ULTRAHEAT® FLOW comes equipped with a long-life battery for 5 or 9 years operating time. **Due to transport regulations the battery might be deactivated by an insulating strip. Remove the strip completely in order to activate the meter.**

Batteries must not be opened, come into contact with water, or be exposed to temperatures above 80 °C. Dispose of used batteries at suitable collection centers.

If the meter needs to be sent by air freight then the battery must be removed prior to shipping! (IATA rule)

Optical Interface

The flow meter ULTRAHEAT® FLOW is equipped with an optical interface. The data protocol is according to EN 61107.

Pulse output

The flow meter is equipped with a pulse output and is delivered with a two wire cable (length 2m), which can be lengthened with a cable 2 x 0.75mm² (put a distributing box).

Technical Data:

Type	open collector
Dielectric strength	500 V _{eff} against ground (galvanic insulated)
Pulse significance	see dial plate
Pulse length	see dial plate
Pulse sequence	not equally spaced, but in packages every 0.5s
Cable length:	2m
Voltage	max. 30V
Current	max. 30mA
Voltage drop	< 0,3V at 10 mA
Polarity	none (bipolar)

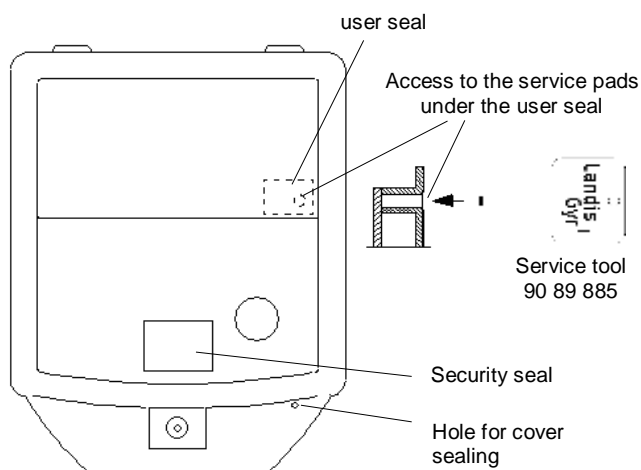
Parameterization of pulses

Table of standard settings for pulses dependent on the nominal flow rate:

q _p in m ³ /h	Significance in liter / imp.	Pulse length in ms
0,6	0,1	10
1,5	0,1	10
2,5	1	10
3,5	1	10
6	1	10
10	1	10
15	1	10
25	10	10
40	10	10
60	10	10

A change of the pulse parameters is possible – after opening the meter cover – with the PC software PappaWin light. Therefore an optical head is necessary for the communication with the meter.

- Open the cover and destroy the user seal, e.g. with a pen.
- Shorten the service pads (see fig.) with the conductive end of the service tool for about 3s to activate the service mode.
- Close cover, apply the optical head and start the software.



Short-circuiting of the service pads with a service tool

Attention: changed pulse parameters must be amended on the dial plate, too!

Para mode is exited:

- via software PappaWin
- automatically after 15 hours

Commissioning

Open shut-off valves. Check the heating system for tightness and vent carefully. After no more than 100 s the flow meter will start working.

When the operating limit is exceeded and the flow rate is positive, then volume pulses are generated according to the pulse parameter settings.

Then check the flow value displayed on the attached calculator for plausibility. **Vent the system until the flow rate value on the calculator is stable.**

Finally seal the fitting of the measuring tube.

Operational data

The following data can be read through the software PappaWin:

The **operating hours** are counted from initial connection of the battery. **Missing hours** are summated if a fault is pending that prevents the flow meter from measuring. Both counters can be reset through the software PappaWin.

Volume readings, maximum flow rates and missing hours are stored monthly for 36 months.

The **device number** and the **firmware version** number (as assigned by the manufacturer).

Important Notes

- All regulations on the use of meters must be observed.
- Cavitation in the system must be avoided.
- Ensure by appropriate mounting of the meter that flooding the meter or water dripping is avoided.
- Flow meter safety marks relevant for calibration must not be damaged or removed! Doing so void the warranty and calibration validity of the device.
- The transport of the flow meter is permitted only in the original package.
- If the meter needs to be sent by air freight then the battery must be removed prior to shipping! (IATA rule)



For up-to-date information, go to INTERNET address: www.landisgyr.com

EC Declaration of conformity

Landis+Gyr GmbH, Humboldtstraße 64, D-90459 Nürnberg, herewith declares that the products of type 2WR7 comply with the requirements of the following directives:

- **2004/22/EC** Measuring instruments directive
- **2004/108/EG** Electromagnetic compatibility
- **73/23/EEC** Low voltage directive

Nürnberg the 26.05.2006

Erstner GGD  Reichmann, head of R&D 
Techn. Institut Techn. Institut

This declaration and the corresponding documents are lodged at Mr. Reichmann c/o Landis+Gyr under the number CE 2WR7 004/05.09.

EC type-examination certificate
DE-06-MI004-PTB004
 Certificate of the approval of a quality management system
DE-09-AQ-PTB006MID
 Notified body:
 PTB Braunschweig und Berlin, Deutschland; Nr. 0102

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