Catalog sheet UH 506-101a

Static Heat- and Cooling Meter

T550 ULTRAHEAT® (UH50…)
T550 ULTRACOLD® (UH50…)
T550 Flow Sensor (UH50…)

Version of firmware: 5.15 and higher

Ultrasonic meter to measure flow and energy in a heat or cooling circuit with water using the ultrasonic principle. Important features are:

- **Non-wearing due to non-moving parts**
- **Measuring range of flow 1:100 according to EN 1434, 1:1000 total range**
- **Any mounting orientation, in flow or return, no setting sections or flow straighteners**
- **Power measurement with maximum values, tariffs selectable**
- **Data logger for system monitoring**
- **60 monthly values**
- **Logbook**
- **Battery or mains operated**
- **Optical interface according to EN 62056-21**
- **Wide range of communication modules for remote readout and system connection**
- **2 slots for using 2 communication modules simultaneously**
- **Also operable as a flow meter, cooling or combined heat/cooling meter**
- **Self-diagnostics**

Contents

Application

The T550 (UH50…) meter is used to measure thermal energy in district heating and cooling networks and in multi-family houses. It is available as a heat meter, combined heat/cooling meter, as Ultracold for cooling applications or for pure flow measurement in systems using water as medium.

Meter design

The meter consists of an electronic unit, a flow measuring part and two temperature sensors.

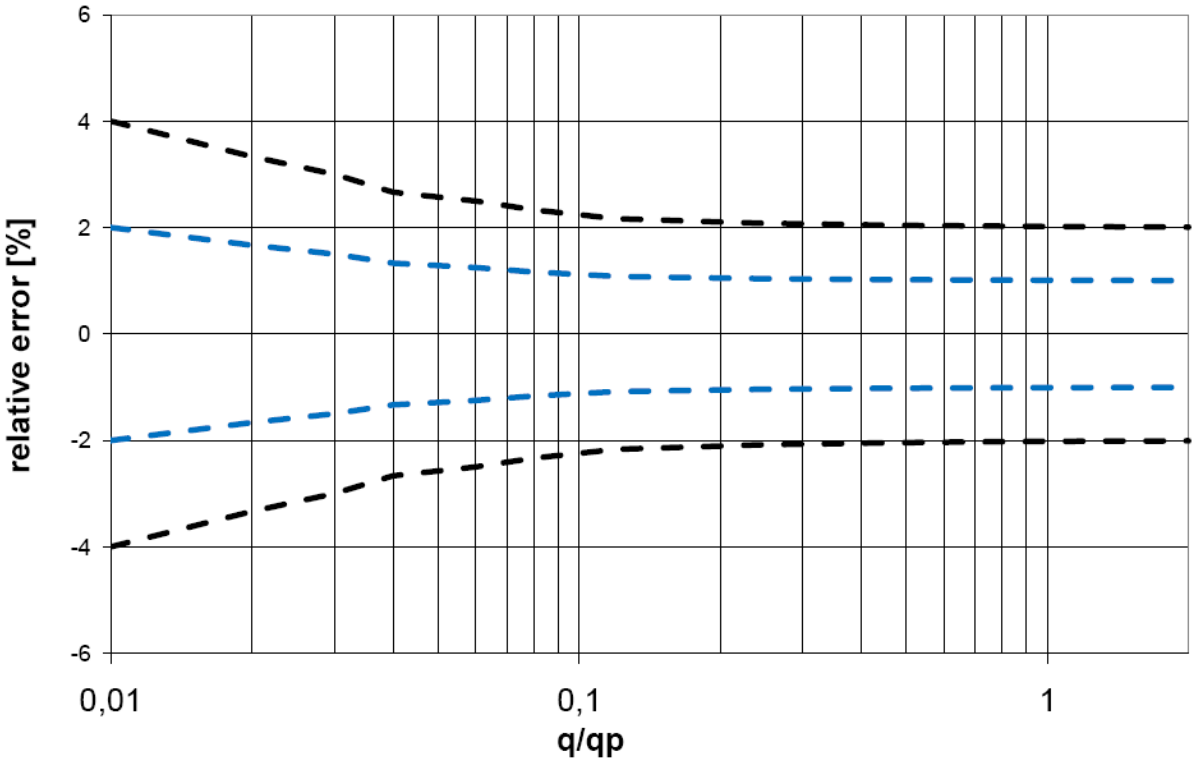
Method of operation

The quantity of energy transferred from the medium to the consumer over a defined period of time is proportional to the temperature difference between the flow and return and the volume of water that has passed through.
The water volume is measured in the measuring tube by ultrasonic pulses which are transmitted in the direction of flow and against the direction of flow. Downstream, the time difference between the transmitter and receiver is reduced, upstream it is increased. The water volume is then calculated using the measured values of the time difference.

The **flow and return temperatures** are measured using platin resistors.
The water volume and the temperature difference between flow and return are multiplied and its product integrated. The result which is the consumed **quantity of thermal energy** is stored and displayed in the physical **units kWh/MWh or MJ/GJ**, the volume in **m^3.**

Electronic unit
A standard electronic unit is used for all measuring tubes with identical operation and an integrated service unit.

Metering accuracy according to EN 1434 class 2



Legend: T550 (UH50…) typical
EN 1434 class 2

The diagram shows the typical accuracy of the UH50 in comparison with the error limits according to EN 1434 class 2.

Tariffs

The UH50 has different tariff functions.
Tariff options are:

1. Tariff registers with up to 3 different threshold values for flowrate, power, return- or flow temperature, or temperature difference. [T2-T6]
2. Registration of supplied or returned thermal energy. [T7,T8]
3. Combined heat/cooling metering with automatic switchover and selectable temperature thresholds. [T9]
4. Tariff registers with daily switch on/off times [T10]
5. Tariff registers switched on/off via M-bus [T11]
6. Surcharge quantity tariff by means of return temperature [T12]

Interfaces of the electronic unit

UH50 meters are all equipped with an optical interface according to EN 62056-21 as standard, e.g. for communication with the service software via an optical head.

In addition, up to two of the following **communications modules** can be added for remote readout:

- **Pulse module** with two outputs (heat and volume/cooling/unit status and tariff register). The pulse values and pulse length for connection to a controller can be individually parameterized.* A special version of the pulse module is available with an Opto-MOS output. Advantages: low voltage drop and reverse polarity protected (bipolar).
- **Current loop module,** CL 20 mA current loop according to EN 62056-21 is used to read out the consumption values with a point-to-point connection.
- **M-Bus module G4** according to EN 1434-3 with fixed or variable data frame. The variable data frame can individually be adjusted. Fast read out mode for coupling with a suitable heating controller. *
- **M-Bus module G4-MI** with 2 pulse inputs for the connection of up to 2 water meters to a MBus-system.*
- **Analog module** with 2 outputs for 0-10V, 0-20mA or 4-20mA. **Values** selectable (flowrate, power, flow temperature, return temperature, temperature difference)
  Scaling of the output is free selectable.
- **Radio module (readout consumption values via radio)** with 2 pulse inputs for installation of up to 2 water meters (frequency 433MHZ, range up to 200m)
- **GSM (readout via SMS)** with 2 pulse inputs, transmission of the consumption values via SMS
- **GPRS,** transmission of the consumption values via email, ftp, http, or SMS; integrated M-Bus Master, with up to 8 additional M-Bus-meters connectable.

*can be parameterized with the service software

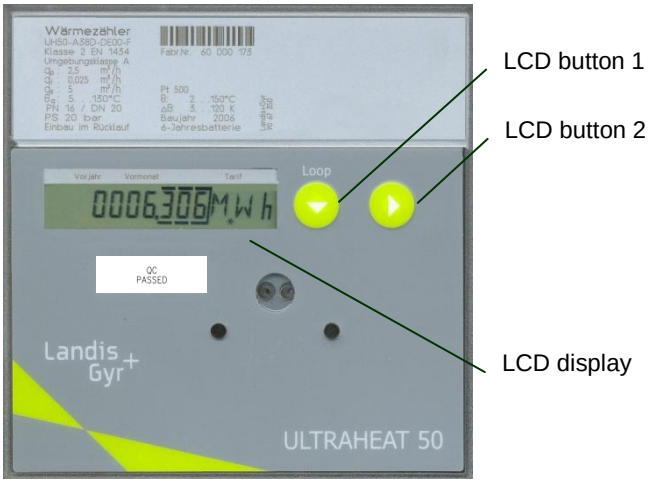
These modules do not affect acquisition of the consumption and can therefore be retrofitted at any time without affecting the calibration mark.

LCD display content

The UH50 has a big, well arranged LCD-Display, which consists of 4 alpha numeric digits, 7 digits for figures (with decimal points), 3 arrow icons and a star. The meter display is divided into several levels (loops). LCD button 1 is used to switch the display to the next loop. LCD button 2 advances the display of the chosen loop cyclically. The places after the decimal point of displayed values are indicated by a surrounding frame. Calibrated values can be recognized by the star symbol shown in addition to the value.
Note: Depending on how the unit is parameterized, the number of items and the data displayed may differ from this description. Certain button functions may also be disabled.

Changing of the displayed values is only possible in calibration mode or ex works.

Operating elements



User loop („Loop 0“):

LOOP 0	Head of the loop
F -------	Error message with error code number (only in case of error)
1234567 kWh	Accumulated quantity of energy with current tariff status
T1 1234567 kWh	Tariff register 1, 2, 3 (only if activated)
12345.67 m³	Accumulated volume
8.8.8.8.8.8.8 kWh	Segment test

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

Service loops (selection)

LOOP 1	Service loop 1
LOOP 2	Service loop 2

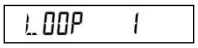
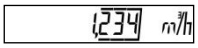
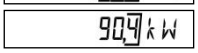
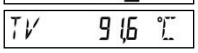
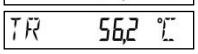
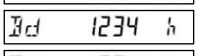
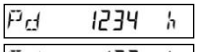
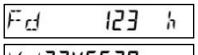
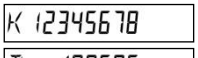
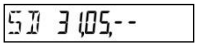
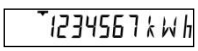
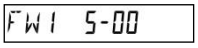
...

After the last loop, the user loop appears again (LOOP 0).

LCD button 2 is used to display the content of the selected service loop.

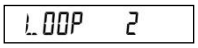
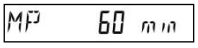
Within a loop, the LCD button 2 is used to advance to the next line of the display. After the last line of the display, the head of the loop appears again.

Service loop 1 („Loop1“)

	Head of the loop
	Current flowrate
	Current power
	Current flow/return temperature at 2s intervals
	
	Operating time
	Operating time with flow
	Missing time
	Ownership number, 8-digit
	Date
	Yearly set day (DD.MM)
	Quantity of energy previous year on set day
	Volume for previous year on set day
	Firmware version

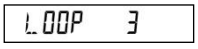
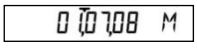
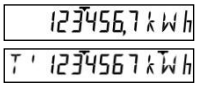
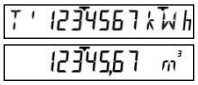
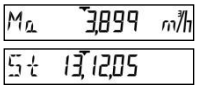
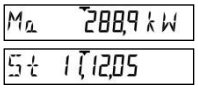
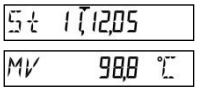
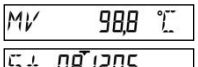
Service loop 2 („Loop2“)

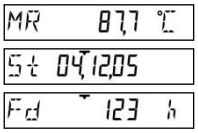
In service loop 2, the measuring period for the maximum calculation is displayed. LCD button 2 calls the displays one after the other.

	Head of the loop
	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 previous months. The data for that month are then selected with LCD button 2. Each further press of LCD button 2 shows the next value for the selected month.

	Head of the loop
...	
	…
	Set day for June 2008
	Set day for May 2008
...	...
	using LCD button 2: ⇩
	Quantity of energy on the set day
	Tariff register 1 on the set day
	Volume on the set day
	Max. flowrate on the set day,
	at 2s intervals with date stamp
	Max. power on the set day,
	at 2s intervals with date stamp
	Max. temperatures on the set day,
	at 2s intervals with date stamp for flow and return maximum



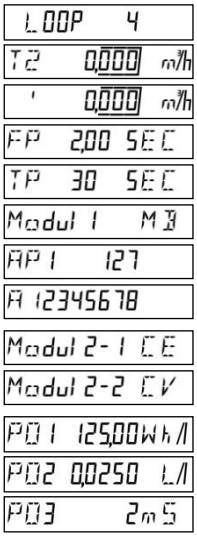
Missing time count on the set day

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

Notice: If the number of previous months to be read out via the optical interface is changed with the service software, the number of displayed months in the LCD is changed or well.

Service loop 4 („Loop 4“)

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



Head of the loop

Current tariff,
at 2s intervals with threshold value 1

Measuring interval for flowrate

Measuring interval for temperature

Module 1: M-bus module

M-bus primary address 1

M-bus secondary address 8-digit

Module 2: pulse module; channel 1 = energy quantity, Channel 2 = volume, 2s intervals

Significance for energy quantity pulses *)

Significance for volume pulses *)

Pulse duration in ms *)

*) for “fast pulses”

Previous yearly values

The electronic unit stores the meter readings for quantity of energy, volume, the tariff registers, missing time, and operating time with flow as well as the current maxima for the 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 energy, volume, the tariff registers, missing time, and operating time with flow as well as the monthly maxima for the flowrate, power, temperature difference, flow temperature and return temperature with their date stamp for up to 60 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 Current loop module, M-BusG4 module or with the service software via the optical interface.

Logbook

In the internal logbook, measurement relevant events (errors, states, actions) are stored in chronological order with their time of occurrence. The events acquired are predefined. The data of the logbook **cannot** be **deleted**.
Each event is stored in a separate 4-level shift register; the overflows are transferred to a 25-level circulating buffer. Therefore, at least the last 4 times can be traced for each event.
In a monthly register, the error states are stored for the current month and for the past 18 months (without time stamp).

Ser.No.	Description
1	F0 = Air in measuring tube
2	F1 = Interruption flow sensor
3	F2 = Interruption return sensor
4	F3 = Error temperature electronics
5	F5 = Short-circuit flow sensor
6	F6 = Short-circuit return sensor
7	F8 = Sensor error > 8 hours
8	F9 = ASIC error
9	Above max. temperature in the volume measuring unit
10	Below min. temperature in the volume measuring unit
11	Max. flowrate qs was exceeded
12	Soiling warning
13	Line voltage off
14	CRC error occurred
15	Adjustment values parameterized
16	F7-(EEPROM) pre-warning
17	Reset made
18	Date / time parameterized
19	Yearly set day parameterized
20	Monthly set day parameterized
21	Master reset performed
22	All times deleted
23	Missing time deleted
24	Maxima deleted

Read-out is performed via the optical interface with the service software or via M-Bus G4 module.

Data logger (optional)

The data logger allows the archiving of data that the user can select from a predefined set of values. The data logger contains four archives where 8 channels can be assigned. The data can be assigned to any of the channels.
The data logger has a standard parameterization, which can be changed with the service software.

Archive	Timebase	Storage depth	Averaging time for maximum
Hourly archive	1 hour	45 days	1 hour
Daily archive	1 day	65 days	1 hour
Monthly archive	1 month	15 months	1 hour
Yearly archive	1 year	15 years	1 hour / 24 hours

The data are recorded with the value and time stamp.
Read-out is performed via the optical interface with the service software

	Value set for data to be recorded
Meter readings at the end of the period for...	Quantity of energy Tariff register 1, 2, 3 Volume Operating duration *) Fault duration *) Pulse input 1 Pulse input 2 *) depending on parameter setting: hours or days
Instantaneous values at the end of the period for...	Power Flowrate Flow temperature Return temperature Temperature difference Error display
Maximum for...	Power Flowrate Flow temperature Return temperature Temperature difference

Special versions

- Delivery of the heat meter for **installation in flow** is possible, if it is declared in the order.
- Operable as **flow meter** with pulse module for connection to an external electronic unit or as **condensate meter** (without temperature sensors).
- Version as **cooling meter 6/12°C or combined heat-/cooling meter** for water
- Length of the **control cable** between measuring tube and electronic unit **up to 5 meters**.
- Electronic unit for connecting temperature sensors in four wire technique

Power supply

The meter can either be powered with a battery or from power supply modules:

- 6-, 11- or 16-year **battery**
- **Power supply unit** 230 V AC, 110 V AC or 24 V AC/DC with backup battery for bridging power failures up to 30 min

The lifetime of battery depends on the type of battery and on the requirements (e.g. timebase, communication module etc.).

Requirements (for measuring timebase Q = 4 s and measuring time base T = 30 s)	6 years	11 years	16 years
Standard pulses M-bus read out (max. each 15 min.), CL-Module	2x AA	C	D
M-bus fast read-out, fast pulses, analog module, radio module	D	--	--

UH50 detects automatically whether it is being powered from a battery or a power supply unit.

Temperature sensors

Pt500 temperature sensors are recommended in the following 2-wire types:

Standard types:

- Type DS / M 10x1, directly immersed, length 27,5 mm, up to q_p 2,5
- Type PL thread 1/4" / Ø 6x100 mm, for protection pocket, from q_p 3,5
- Type PL thread 1/4" / Ø 6x150 mm, for protection pocket, from q_p 40

Special versions:

- Type DS / M 10x1, directly immersed, length 38 mm
- Type PS Ø 5,2x45 mm, directly immersed or for protection pocket

The sensors are available in various cable lengths.

Integrated return sensor:
Orderable for up to 45mm in length with thread.

Approvals

- EN 1434 class 2 or 3
- MID (European Measuring Instruments Directive 2004/22/EC)
- national approval for cooling meter DE and in various countries

Parameterization

Directly on the meter or with service software.

Technical data electronic unit

Temperature range	**5 to 130°C** Recommended for... …heat application 10 to 130°C *) …cooling application 5 to 50°C *) *) national approvals may differ
Temperature difference range ΔΘ	3...120 K
Response threshold for ΔT	0,2 K
Thermal coefficient	gliding compensated
t-measurement error without sensor (EN 1434)	$(0,5 + \Delta\Theta_{min}/\Delta\Theta)$%, max. 1,5% at $\Delta\Theta$ = 3 K
Ambient temperature	5...55°C
Permissible humidity	< 93% r.h. (without condensation)
Dimensions	136 x 136 mm^2

Technical data flow measuring unit

Small meters

Nominal flowrate	q_p	**0,6**	**1,5**	**2,5**	m^3/h
Metrological class		1:100	1:100	1:100	
Maximum flow	q_s	1,2	3	5	m^3/h
Minimum flow	q_i	6	15	25	l/h
Response threshold ***		2,4	6	10	l/h
Pressure loss at q_p:					
110 mm thread	p	150	150	----	mbar
130 mm thread	p	----	160	200	mbar
190 mm thread	p	150	160	200	mbar
190 mm flange	p	125	160	195	mbar
Flowrate at p = 1 bar					
110 mm thread	K_V	1,5	3,9	----	m^3/h
130 mm thread	K_V	----	3,8	5,6	m^3/h
190 mm thread	K_V	1,5	3,8	5,6	m^3/h
190 mm flange	K_V	1,7	3,8	5,7	m^3/h
Mounting orientation		any			
Temperature range		5 ...130°C			
Maximum temperature	t_{max}	150°C for 2000h			
Nominal pressure	PN	16/25			
Tolerable measurement error according to EN 1434 (class 2)		2 + 0,02 qp/q max. 5%			

Large meters

Nominal flowrate	q_p	**3,5**	**6**	**10**	**15**	**25**	**40**	**60**	m^3/h
Metrological class		1:100	1:100	1:100	1:100	1:100	1:100	1:100	
Maximum flow	q_s	7	12	20	30	50	80	120	m^3/h
Minimum flow	q_i	35	60	100	150	250	400	600	l/h
Response threshold ***		14	24	40	60	100	160	240	l/h
Pressure loss at q_p:									
150 mm thread	Δp		240						mbar
200 mm thread	Δp			130					mbar
200 mm flange	Δp				95				mbar
260 mm thread	Δp	60	180						mbar
260 mm flange	Δp	60	180						mbar
270 mm flange	Δp				100				mbar
300 mm thread	Δp			100					mbar
300 mm flange	Δp			165		105	160		mbar
360 mm flange	Δp							115	mbar
Flowrate at Δp = 1 bar									
150 mm thread	K_V		12,2						m^3/h
200 mm thread	K_V			28					m^3/h
200 mm flange	K_V				48				m^3/h
260 mm thread	K_V	14	14						m^3/h
260 mm flange	K_V	14	14						m^3/h
270 mm flange	K_V				48				m^3/h
300 mm thread	K_V			32					m^3/h
300 mm flange	K_V			25		77	100		m^3/h
360 mm flange	K_V							177	m^3/h
Mounting orientation		any							
Temperature range		5 ...130°C							
Maximum temperature	t_{max}	150°C for 2000h							
Nominal pressure	PN	16/25							
Tolerable measurement error according to EN 1434 (class 2)		2 + 0,02 qp/q max 5%							

***** standard setting, meters with 50% of the value are also available**

Preferred types ULTRAHEAT® Heat Meters

Nominal size qp (Qn)	Overall length mm	Connection	Pressure stage PN	Sensor length mm	Order Number

1) Nominal flowrate qp (Qn) 0,6 m^3 - 2,5 m^3

Ultrasonic Heat Meter ULTRAHEAT®:

- Short design with threaded joint

Meter including
- installation in return
- removable electronic unit with 1,5 m control cable
- return sensor integrated in volume measuring unit
- temperature sensor Pt 500, M 10x27,5mm, type DS to EN1434 for direct mounting, cable length 1,5 m
- 6-year-battery (2xAA cells)
- compliant to MID Cl. 3
- display in MWh

qp 0,6	110	G 3/4	16	27,5	UH50-A05C-DE00-F 0B-A000-M3B
qp 1,5	110	G 3/4	16	27,5	UH50-A21C-DE00-F 0B-A000-M3B
plus					
Mounting element for temperature sensor DS, M 10x½" with Cu-seal					WZT-A 12
Fitting G ¾ x R½ , mounting kit(couple)					WZM-E34

- Standard design with flanged joint

Meter including
- installation in return
- removable electronic unit with 1,5 m control cable
- return sensor extern
- temperature sensor Pt 500, M 10x27,5mm, type DS to EN1434 for direct mounting, cable length 1,5 m
- 6-year-battery (2xAA cells)
- compliant to MID Cl. 3
- display in MWh

qp 0,6	190	DN 20	25	27,5	UH50-A08C-DE00-E 0B-A000-M3B
qp 1,5	190	DN 20	25	27,5	UH50-A24C-DE00-E 0B-A000-M3B
qp 2,5	190	DN 20	25	27,5	UH50-A39C-DE00-E 0B-A000-M3B
plus					
2x mounting elements for temperature sensor DS, M 10x½" with Cu-seal					WZT-A 12

2) Nominal flowrate qp (Qn) 3,5 m^3 - 60 m^3

Ultrasonic Heat Meter ULTRAHEAT®:

- Standard design with threaded joint

Meter including
- installation in return
- removable electronic unit with 1,5 m control cable
- temperature sensor Pt 500, mounting length 100mm for protection pockets, cable length 2 m
- 6-year-battery (2xAA cells)
- compliant to MID Cl. 3/ from qp 6 Cl. 2
- display in MWh

qp 3,5	260	G 1 1/4	16	100	UH50-A45C-DE00-E 0M-A000-M3B
qp 6	260	G 1 1/4	16	100	UH50-A50C-DE00-E 0M-A000-M2B
qp 10	300	G 2	16	100	UH50-A60C-DE00-E 0M-A000-M2B
plus					
2x protection pockets R ½" mounting length 100 mm, stainless steel with Cu-seal					WZT-S 100
fitting G 1 ¼ x R 1, for qp 3,5 and 6 (couple)					WZM-E 54
fitting G 2 x R 1 ½, for qp 10 (couple)					WZM-E 2.1

- Standard design with flanged joint

Meter including
- installation in return
- removable electronic unit with 1,5 m control cable
- temperature sensor Pt 500, to qp 25 with mounting length 100 mm, over qp 25 with 150 mm mounting length, for protection pockets, cable length 2 m
- 6-year-battery (2xAA cells)
- compliant to MID Cl. 3/ from qp 6 Cl. 2
- display in MWh

qp 3,5	260	DN 25	25	100	UH50-A46C-DE00-E 0M-A000-M3B
qp 6	260	DN 25	25	100	UH50-A52C-DE00-E 0M-A000-M2B
qp 10	300	DN 40	25	100	UH50-A61C-DE00-E 0M-A000-M2B
qp 15	270	DN 50	25	100	UH50-A65C-DE00-E 0M-A000-M2B
qp 25	300	DN 65	25	100	UH50-A70C-DE00-E 0M-A000-M2B
qp 40	300	DN 80	25	150	UH50-A74C-DE00-E 0P-A000-M2B
qp 60	360	DN 100	16	150	UH50-A82C-DE00-E 0P-A000-M2B
plus					
2x protection pockets R ½" mounting length 100 mm, stainless steel with Cu-seal					WZT-S 100 (1 piece)
2x protection pockets R ½" mounting length 150 mm, stainless steel with Cu-seal					WZT-S 150 (1 piece)

Preferred types ULTRACOLD® Cooling Meters

Nominal size qp (Qn)	Overall length mm	Connection	Pressure stage PN	Sensor length mm	Order Number

1) Nominal flowrate qp (Qn) 0,6 m^3 - 2,5 m^3

Ultrasonic Cooling Meter ULTRACOLD®:

- Short design with threaded joint

Cooling Meter including
- installation in return
- removable electronic unit with 1,5 m control cable
- return sensor integrated in volume measuring unit
- temperature sensor Pt 500, type DS to EN1434 for direct mounting, cable length 1,5 m
- 6-year-battery(2xAA Cells)
- compliant according to national regulations
- display in MWh

qp 0,6	110	G 3/4	16	27,5	UH50-G05C-DE00-F 0B-A000-CLB
qp 1,5	110	G 3/4	16	27,5	UH50-G21C-DE00-F 0B-A000-CLB
plus					
Mounting element for temperature sensors DS, M 10x½" with Cu-seals					WZT-A 12
Fitting G ¾ x R½ (Couple)					WZM-E34

- Standard design with flanged joint

Cooling Meter including
- installation in return
- removable electronic unit with1,5 m control cable
- return sensor extern
- temperature sensor Pt 500, type DS to EN1434 for direct mounting, cable length 1,5 m
- 6-year-battery (2xAA cells)
- compliant according to national regulations
- display in MWh

qp 0,6	190	DN 20	25	27,5	UH50-G08C-DE00-E 0B-A000-CLB
qp 1,5	190	DN 20	25	27,5	UH50-G24C-DE00-E 0B-A000-CLB
qp 2,5	190	DN 20	25	27,5	UH50-G39C-DE00-E 0B-A000-CLB
plus					
2 mounting elements for temperature sensors DS, M 10x½" with Cu-seal					WZT-A 12 (1 piece)

2) Nominal flowrate qp (Qn) 3,5 m^3 - 60 m^3

Ultrasonic Cooling Meter ULTRACOLD®:

- Standard design with threaded joint

Cooling Meter including
- installation in return
- removable electronic unit with 1,5 m control cable
- temperature sensor Pt 500, mounting length 100mm, for protection pockets, cable length 2 m
- 6-year-battery (2xAA cells)
- compliant according to national regulations
- display in MWh

qp 3,5	260	G 1 1/4	16	100	UH50-G45C-DE00-E 0M-A000-CLB
qp 6	260	G 1 1/4	16	100	UH50-G50C-DE00-E 0M-A000-CLB
qp 10	300	G 2	16	100	UH50-G60C-DE00-E 0M-A000-CLB
plus					
2x protection pockets R ½" mounting length 100 mm, stainless steel with Cu-seal					WZT-S 100 (1 piece)
fitting G 1 ¼ x R 1, for qp 3,5 and 6 (couple)					WZM-E 54
fitting G 2 x R 1 ½, for qp 10 (couple)					WZM-E 2.1

- Standard design with flanged joint

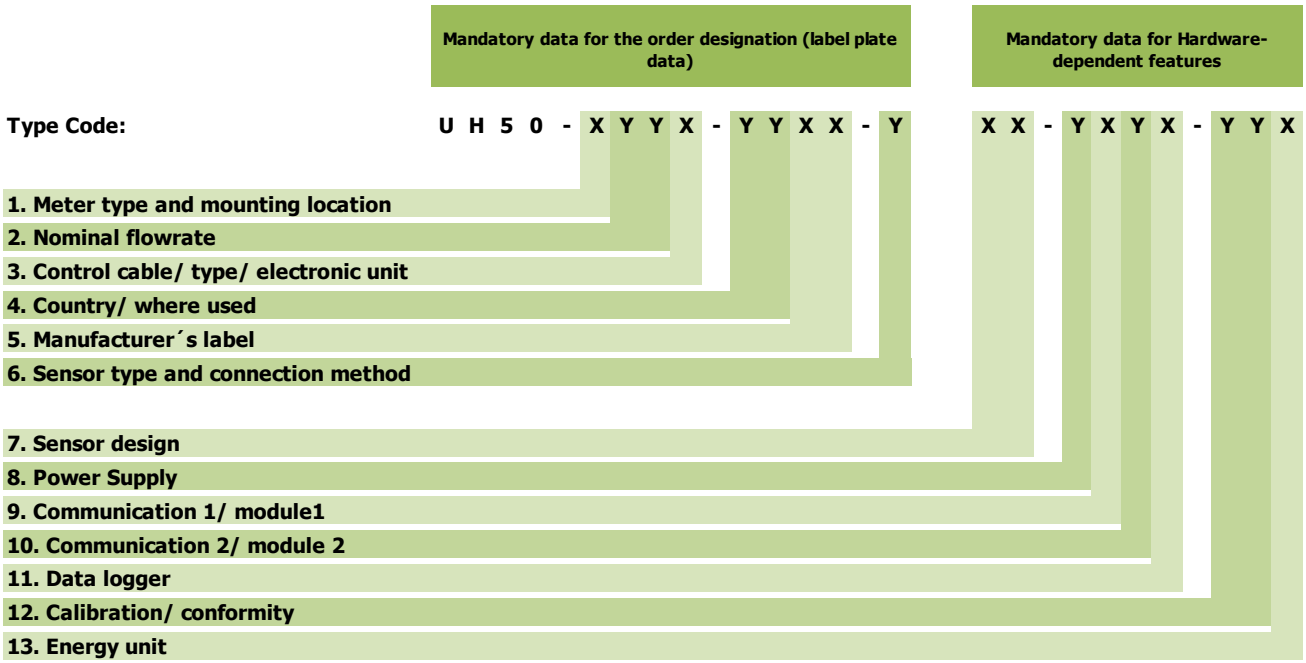
Cooling Meter including
- installation in return
- removable electronic unit with 1,5 m control cable
- temperature sensor Pt 500, to qp 25 with mounting length 100 mm, over qp 25 with 150 mm mounting length, for protection pockets, cable length 2 m
- 6-year-battery (2xAA cells)
- compliant according to national regulations
- display in MWh

qp 3,5	260	DN 25	25	100	UH50-G46C-DE00-E 0M-A000-CLB
qp 6	260	DN 25	25	100	UH50-G52C-DE00-E 0M-A000-CLB
qp 10	300	DN 40	25	100	UH50-G61C-DE00-E 0M-A000-CLB
qp 15	270	DN 50	25	100	UH50-G65C-DE00-E 0M-A000-CLB
qp 25	300	DN 65	25	100	UH50-G70C-DE00-E 0M-A000-CLB
qp 40	300	DN 80	25	150	UH50-G74C-DE00-E 0P-A000-CLB
qp 60	360	DN 100	16	150	UH50-G82C-DE00-E 0P-A000-CLB
plus					
2x protection pockets R ½" mounting length 100 mm, stainless steel with Cu-seal					WZT-S 100 (1 piece)
2x protection pockets R ½" mounting length 150 mm, stainless steel with Cu-seal					WZT-S 150 (1 piece)

In the selection of Cooling Meters and other differing types we are happy to help.
All available options please refer to the order data overview.

Ordering data

Order codes (type number key)



Order codes for label plate data	
1. Type of meter and mounting location	**Code**
Heat meter for two wire temperature measurement and for mounting in return	A
Heat meter for two wire temperature measurement and for mounting in flow	B
Combined heat/cooling meter for two wire temperature measurement and for mounting in return (only in connection with temperature sensor Pt500)	C
Flow sensor	D
Cooling meter for two wire temperature measurement and for mounting in return (only in connection with temperature sensor Pt500)	G
Heat meter for four wire temperature measurement and for mounting in return	L
Heat meter for four wire temperature measurement and for mounting in flow	M
Combined heat/cooling meter for four wire temperature measurement and for mounting in return (only in connection with temperature sensor Pt500)	N
Cooling meter for four wire temperature measurement and for mounting in return (only in connection with temperature sensor Pt500	T
2. Nominal flowrate	**Code**
Nominal flowrate 0.6 m³/h, length 110mm, nominal pressure PN16, connection G ¾ B	05
Nominal flowrate 0.6 m³/h, length 110mm, nominal pressure PN25, connection G ¾ B	06
Nominal flowrate 0.6 m³/h, length 190mm, nominal pressure PN16, connection G 1 B	07
Nominal flowrate 0.6 m³/h, length 190mm, nominal pressure PN25, connection flanged DN 20	08
Nominal flowrate 0.6 m³/h, length 190mm, nominal pressure PN25, connection G 1 B	09
Nominal flowrate 1.5 m³/h, length 110mm, nominal pressure PN16, connection G ¾ B	21
Nominal flowrate 1.5 m³/h, length 110mm, nominal pressure PN25, connection G ¾ B	22
Nominal flowrate 1.5 m³/h, length 190mm, nominal pressure PN16, connection G 1 B	23
Nominal flowrate 1.5 m³/h, length 190mm, nominal pressure PN25, connection flanged DN 20	24
Nominal flowrate 1.5 m³/h, length 190mm, nominal pressure PN25, connection G 1 B	25
Nominal flowrate 1.5 m³/h, length 130mm, nominal pressure PN16, connection G 1	26
Nominal flowrate 1.5 m³/h, length 130mm, nominal pressure PN25, connection G 1	27
Nominal flowrate 2.5 m³/h, length 130mm, nominal pressure PN16, connection G 1 B	36
Nominal flowrate 2.5 m³/h, length 130mm, nominal pressure PN25, connection G 1 B	37
Nominal flowrate 2.5 m³/h, length 190mm, nominal pressure PN16, connection G 1 B	38
Nominal flowrate 2.5 m³/h, length 190mm, nominal pressure PN25, connection flanged DN 20	39
Nominal flowrate 2.5 m³/h, length 190mm, nominal pressure PN25, connection G 1 B	40
Nominal flowrate 3.5 m³/h, length 260mm, nominal pressure PN16, connection G 1¼ B	45
Nominal flowrate 3.5 m³/h, length 260mm, nominal pressure PN25, connection flanged DN 25	46
Nominal flowrate 3.5 m³/h, length 260mm, nominal pressure PN25, connection G 1¼ B	47
Nominal flowrate 6.0 m³/h, length 260mm, nominal pressure PN16, connection G 1¼ B	50
Nominal flowrate 6.0 m³/h, length 260mm, nominal pressure PN25, connection flanged DN 25	52
Nominal flowrate 6,0 m³/h, length 150mm, nominal pressure PN16, connection G 1 ¼ B	55
Nominal flowrate 10 m³/h, length 300mm, nominal pressure PN16, connection G 2 B	60
Nominal flowrate 10 m³/h, length 300mm, nominal pressure PN25, connection flanged DN 40	61
Nominal flowrate 10 m³/h, length 200mm, nominal pressure PN16, connection G 2 B	63
Nominal flowrate 15 m³/h, length 270mm, nominal pressure PN25, connection flanged DN 50	65
Nominal flowrate 15 m³/h, length 200mm, nominal pressure PN25, connection flanged DN 50	69
Nominal flowrate 25 m³/h, length 300mm, nominal pressure PN25, connection flanged DN 65	70
Nominal flowrate 40 m³/h, length 300mm, nominal	74

pressure PN25, connection flanged DN 80	
Nominal flowrate 60 m³/h, length 360mm, nominal pressure PN16, connection flanged DN 100	82
Nominal flowrate 60 m³/h, length 360mm, nominal pressure PN25, connection flanged DN 100	83
3. Control cable / type / electronic unit	**Code**
Compact version (until 90°C, with 0.3m control cable)	A
Split version with 1.5m control cable	C
Split version with 3.0m control cable	D
Split version with 5.0m control cable	E
Compact version (until 90°C, with 0.3m control cable),control cable removable	M
Split version with 1.5m control cable, control cable removable	P
Split version with 3.0m control cable, control cable removable	Q
Split version with 5.0m control cable, control cable removable	R
4. Country / where used	**Code**
Dial plate for Armenia (Armenian)	AM
Dial plate for Austria (German)	AT
Dial plate for Bosnia-Herzegovina (Croatian)	BA
Dial plate for Belgium (French/Flemish)	BE
Dial plate for Bulgaria (Bulgarian)	BG
Dial plate for Belarus (Russian)	BY
Dial plate for Switzerland (German/French)	CH
Dial plate for China (Chinese)	CN
Dial plate for Serbia and Montenegro (Serbian)	CS
Dial plate for Czech Republic (Czech)	CZ
Dial plate for Germany (German)	DE
Dial plate for Denmark (Danish)	DK
Dial plate English neutral	EN
Dial plate for Spain (Spanish)	ES
Dial plate for Finland (Finnish)	FI
Dial plate for Great Britain (English)	GB
Dial plate for Greece (Greek)	GR
Dial plate for Croatia (Croatian)	HR
Dial plate for Hungary (Hungarian)	HU
Dial plate for Iceland (Icelandic)	IS
Dial plate for Italy (Italian)	IT
Dial plate for Japan (Japanese)	JP
Dial plate for Kazakhstan (Russian)	KZ
Dial plate for Lithuania (Lithuanian)	LT
Dial plate for Macedonia (Macedonian)	MK
Dial plate for Mongolia (Mongolian)	MN
Dial plate for The Netherlands (Dutch)	NL
Dial plate for Poland (Polish)	PL
Dial plate for Romania (Romanian)	RO
Dial plate for Russia (Russian)	RU
Dial plate for Sweden (Swedish)	SE
Dial plate for Slovak Repuplic (Slovakian))	SK
Dial plate for Southern Tyrol	I2
Dial plate for Ukraine (Ukrainian)	UA
Dial plate for Uzbekistan (Russian)	UZ
5. Manufacturer's label	**Code**
Logo Landis+Gyr	00
other labels on request	xx
6. Sensor type and method of connection	**Code**
Flow sensor (without temperature sensors)	0
Sensor Pt100, removable, not mounted in the tube	A
Sensor Pt100, removable, mounted in the tube	B
Sensor Pt100, removable, mounting in the tube as an option	C
Sensor Pt100, removable, mounted in the tube within a pocket	D
Sensor Pt500, removable, not mounted in the tube	E
Sensor Pt500, removable, mounted in the tube	F
Sensor Pt500, removable, mounting in the tube as an option	G
Sensor Pt500, removable, mounted in the tube within a pocket	H
Sensor Pt100, not removable, not mounted in the tube	N
Sensor Pt100, not removable, mounted in the tube	P
Sensor Pt100, not removable, mounting in the tube as an option	R
Sensor Pt100, not removable, mounted in the tube within a pocket	S
Hardware-dependent features	
7. Sensor type	**Code**
Without temperature sensors	00
Type DS, 25 bar/150°C/ M10x1 / length 27,5mm, cable length 1,5m	0B
Type DS, 25 bar/150°C/ M10x1 / length 27,5mm, cable length 2,5m	0C
Type DS, 25 bar/150°C/ M10x1 / length 38mm, cable length 1,5m (only Pt500)	0D
Type DS, 25 bar/150°C/ M10x1 / length 38mm, cable length 2,5m (only Pt500)	0E
Type PS, 16 bar/150°C/ Ø5,2x45mm, cable length 1,5m	0H
Type PS, 16 bar/150°C/ Ø5,2x45mm, cable length 5m	0J
Type PL, 40 bar/180°C/ Ø6x100mm, cable length 2m	0M
Type PL, 40 bar/180°C/ Ø6x100mm, cable length 5m (only Pt500)	0N
Type PL, 40 bar/180°C/ Ø6x150mm, cable length 2m	0P
Type PL, 40 bar/180°C/ Ø6x150mm, cable length 5m (only Pt500)	0Q
8. Power supply	**Code**
Without power supply	0
Standard battery for 6 years (2xAA cells)	A
Battery for 6 years for all applications (D-cells)	B
Battery for 11 years (C cell)	C
Battery for 11 years (D-cell)	E
Battery for 16 years (D cell)	F
Battery without printing of the year	G
Power supply 24V AC/DC with plug	M
Power supply 230V AC with 1.5m cable	N
Power supply 230V AC with 5m cable	P
Power supply 230V AC with 10m cable	Q
Power supply 110V AC with 1.5m cable	R
Power supply 110V AC with 5m cable	S
Power supply 110V AC with 10m cable	T
9. Communication module 1	**Code**
No module in slot1	0
Analog module in slot1	A
M-Bus module G4 in slot1	B
CL-module in slot1	C
M-bus 30s module in slot1	D
M-bus module G4-MI with 2 pulse inputs	N
Pulse module with OptoMOS in slot1	L
Pulse module standard in slot1	P
10. Communication module 2	**Code**
No module in slot2	0
Analog module in slot2	A
M-Bus module G4 in slot2	B
CL-module in slot2	C
M-bus 30s module in slot2	D
Pulse module with OptoMOS in slot2	L
Pulse module standard in slot2	P
Radio module in slot2	R
Radio module with external antenna in slot2	X
11. Data logger	**Code**
Without data logger	0
Data logger with 8 channels	8
12. Calibration / conformity	**Code**

certified acc. to national regulations	CL
compliant to MID class 2	M2
compliant to MID class 3	M3
compliant with CEN 1434, class 2	T2
compliant with CEN 1434, class 3	T3
compliant acc. to national regulations	TL
13. Energy unit	**Code**
Display: kWh (until qp 10)	A
Display: MWh with 3 decimal places (as of qp 15 with 2 decimal places)	B
Display: MJ (until qp 2.5)	C
Display: GJ with 3 decimal places (as of qp 3.5 with 2 decimal places))	D
Display: kWh (until qp 10), flashing	G
Display: MWh with 3 decimal places (as of qp 15 with 2 decimal places), flashing	H
Display: GJ with 3 decimal places (as of qp 6 with 2 decimal places), flashing	K
Display: m³ (for the flow meter) with 2 decimal places (as of qp 40 with 1 decimal place)	V
Further features	
Measurement dynamics	**Code**
Dynamic range 1:100	C
other ranges on request	

- further information and all instructions are currently in the Internet at **www.landisgyr.com**

Accessories for UH50

Temperature sensor accessories

Description	Order No.
Adapter for DS-sensor M 10 x 1 mm x G⅜ B, with sealing disk G⅜ Cu	WZT-A38
Adapter for DS-sensor M 10 x 1 mm x G½ B, with sealing disk G½ Cu	WZT-A12
Adapter for DS-sensor M 10 x 1 mm x G¾ B, with sealing disk G ¾ Cu	WZT-A34
Pocket G½ B x G ¼, mounting length 100mm, stainless steel, with sealing disk G ½ Cu	WZT-S100
Pocket G½ B x G ¼, mounting length 150mm, stainless steel, with sealing disk G ½ Cu	WZT-S150
Pocket G½ B Ms, Ø 5,2 x 35 mm for temperature sensor Ø 5,2 x 45 mm	WZT-M35
Pocket G½ B Ms, Ø 5,2 x 50 mm for temperature sensor Ø 5,2 x 45 mm (not conform according to MID)	WZT-M50
Ball valve Rp ½ for the installation of sensor DS M10x1; 28 mm long, max. 130°C, PN 25	WZT-K12
Ball valve Rp ¾ for the installation of sensor DS M10x1; 28 mm long, max. 130°C, PN 25	WZT-K34
Ball valve Rp 1 for the installation of sensor DS M10x1; 28 mm long, max. 130°C, PN 25	WZT-K1

Volume measuring units

Description	Order No.
Mounting kit, couple fittings G ¾ x R½, with sealings	WZM-E34
Mounting kit, couple fittings G1 x R ¾, with sealings	WZM-E1
Mounting kit, couple fittings G 1 ¼ x R 1, with sealings	WZM-E54
Mounting kit, couple fittings G 2 x R 1 ½, with sealings	WZM-E2.1

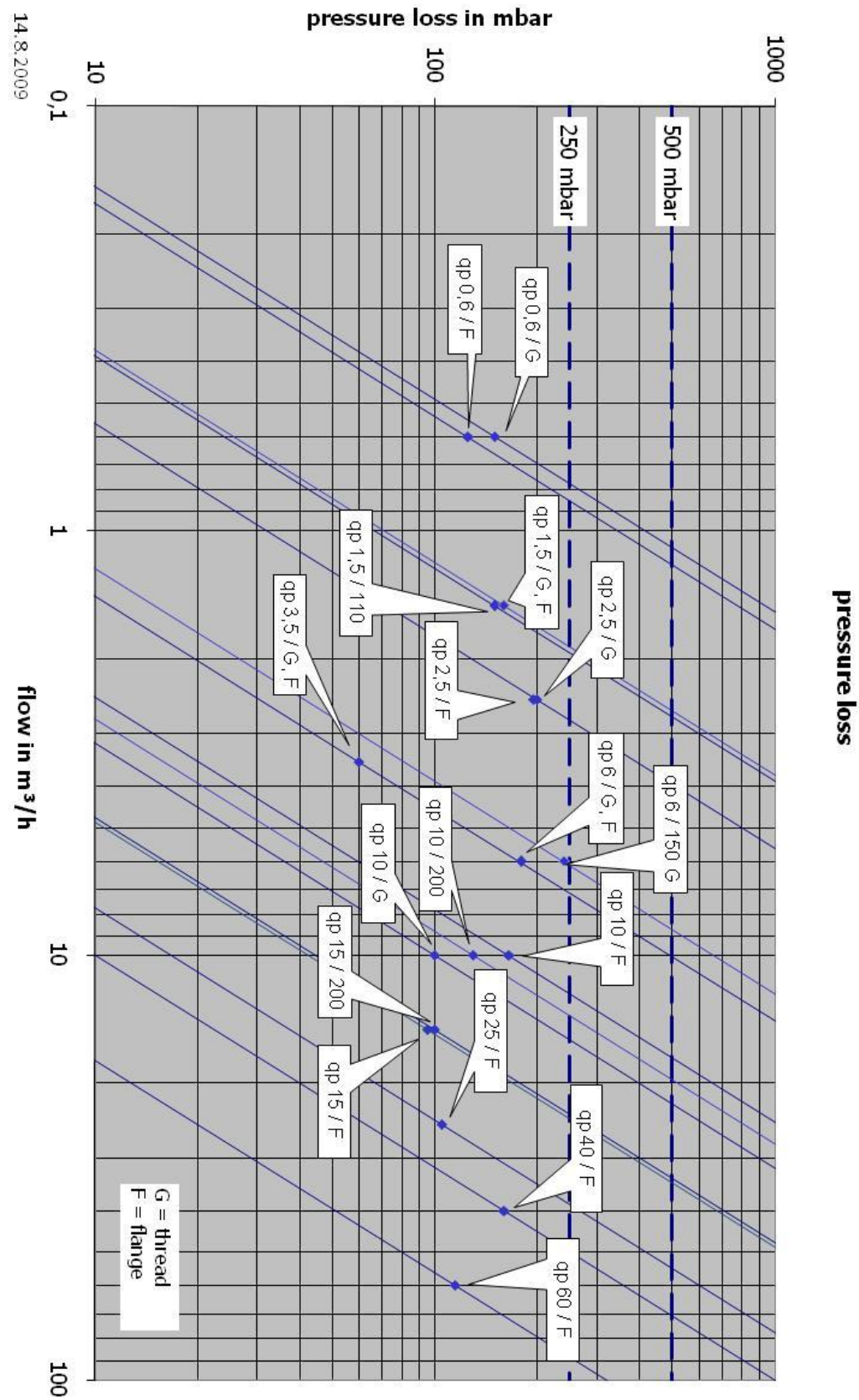
Power supply modules

Description	Order No.
Power supply 110V AC with 10m cable	WZU-AC110-100
Power supply 110V AC with 1.5m cable	WZU-AC110-15
Power supply 110V AC with 5m cable	WZU-AC110-50
Power supply 230V AC with 10m cable	WZU-AC230-100
Power supply 230V AC with 1.5m cable	WZU-AC230-15
Power supply 230V AC with 5m cable	WZU-AC230-50
Power supply 24V AC/DC with plug	WZU-ACDC24-00

Communication modules

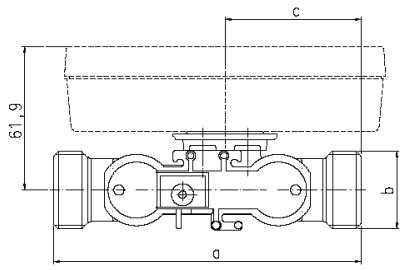
Description	Order No.
CL-module, digital passive 20mA interface according to DIN 1434-3	WZU-CL
Pulse module (Parameterization of fast pulses with PappaWin Light)	WZU-P2
Pulse module with OptoMOS (Parameterization of fast pulses with PappaWin Light)	WZU-P2L
Radio module	WZU-RM
Radio module with external antenna	WZU-RM-EXT
Analog module (optional is a power pack available)	WZU-AM
M-Bus module according to DIN 1434-3	WZU-MB
M-Bus module according to DIN 1434-3 with fast reading cycle, min. 30s	WZU-MB-30
M-Bus module according to DIN 1434-3 with guaranteed data frame	WZU-MB-GR
M-Bus module with two pulse inputs	WZU-MI
GSM Module with 2 pulse inputs, with battery; SMS support	WZU-GM
Power pack für analog module WZU-AM	WZR-NE
M-Bus module G4 acc. to EN 13757 and DIN 1434-3 (G4 - Generation 4 - FW 5.15 and higher)	WZU-MB-G4
M-Bus module G4 acc. to EN 13757 and DIN 1434-3 (G4 - Generation 4 - FW 5.15 and higher) with 2 pulse inputs	WZU-MI
GSM/GPRS module with ext. antenna (magnetic attachment) and UH50 power pack 110..230V / cable 5m; with interface for up to 8 M-Bus meter to be read over GPRS; amongst others Email support.	WZU-GPRS

Pressure loss characteristics



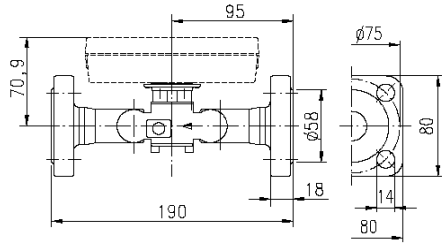
Dimensions

Small Heat Meters:



Overall length 110, 130, 190 mm (thread)

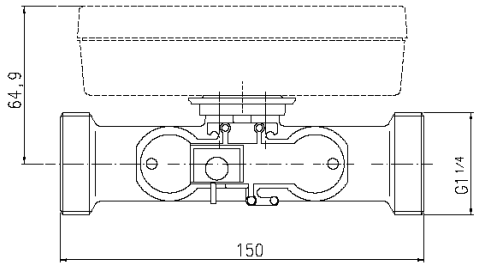
Order No.	qp m³/h	PN bar	a	b	c
UH50-x05	0,6	16	110	G ¾	47,5
UH50-x06		25		G ¾	47,5
UH50-x07		16	190	G 1	87,5
UH50-x09		25		G 1	87,5
UH50-x21	1,5	16	110	G ¾	47,5
UH50-x22		25		G ¾	47,5
UH50-x23		16	190	G 1	87,5
UH50-x25		25		G 1	87,5
UH50-x26		16	130	G 1	57,5
UH50-x27		25		G 1	57,5
UH50-x36	2,5	16	130	G 1	57,5
UH50-x37		25		G 1	57,5
UH50-x38		16	190	G 1	87,5
UH50-x40		25		G 1	87,5



Overall length 190 mm (flange)

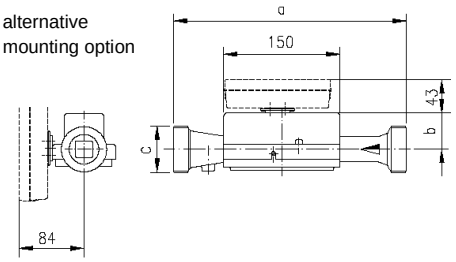
Order No.	qp m³/h	PN bar	Overall length in mm	Connection
UH50-x08	0,6	25	190	DN20
UH50-x24	1,5	25	190	DN20
UH50-x39	2,5	25	190	DN20

Special overall length 150 mm q_p 6 m^3/h



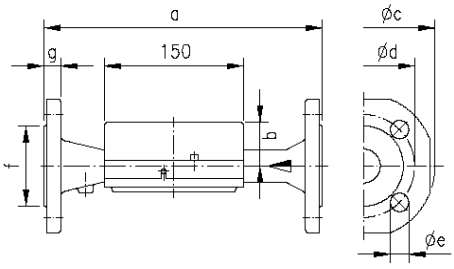
Order No.	qp m³/h	PN bar
UH50-x55	6	16

Large Heat Meters with thread:



Order No.	qp m³/h	PN bar	a	b	c
UH50-x45	3,5	16	260	51	G 1¼
UH50-x47		25			
UH50-x50	6	16	260	51	G 1¼
UH50-x60	10	16	300	48	G 2
UH50-x63		16	200		

Large Heat Meters with flange:



Order No.	qp m³/h	PN bar	DN	a	b	Øc	Ød	Øe	No. of holes	f	g
UH50-x46	3,5	25	25	260	51	115	85	14	4	68	18
UH50-x52	6	25	25	260	51	115	85	14	4	68	18
UH50-x61	10	25	40	300	48	150	110	18	4	88	18
UH50-x65	15	25	50	270	46	165	125	18	4	102	20
UH50-x69				200							
UH50-x70	25	25	65	300	52	185	145	18	8	122	22
UH50-x74	40	25	80	300	56	200	160	18	8	138	24
UH50-x82	60	16	100	360	68	235	180	18	8	158	24
UH50-x83	60	25	100	360	68	235	190	22	8	158	24

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