PolluStat E

Ultrasonic Meter
for heating and cooling energy / nominal sizes q_p 0.6 to 15 m^3/h



Application

The ultrasonic meter PolluStat E is applicable for energy consumption measurement in heating or cooling circuits with water as the heat carrier.

Optionally PolluStat E is available for the usage in combined heating and cooling systems, where an automatic switch-over point provides storing of heating and cooling energy in separate registers.

The newly designed integrator is equipped as standard with two sockets for data communication and remote reading modules. The modules (e.g. M-Bus or LONWORKS®-FTT10A) can be factory-fitted or retrofitted after meter installation.

Compared to the previous model also the meter firmware has been extended comprehensively. Besides the considerably improved reading comfort it is now also possible to activate different tariffs for district heating utilities. An upcoming application is the measuring of so-called „returned heat quantity" into the heating grid caused by overstepping a defined return flow temperature (e.g. 50 °C) at an endpoint heat exchanger.

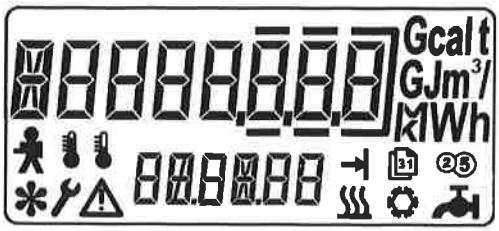
High-quality connecting terminals and novel cable entrances allow a safe and easy connection of the temperature sensors.

Special Features

- Approval in class 2 according to EN 1434, measuring range (minimum flow qi to maximum flow qs) of 1 : 200
- Robust and service friendly design with flow sensors in all-metal
- Flow sensor temperature range from 5 °C to 130 °C, through this ideal suitability for cooling systems
- Integrator is removable from flow sensor as standard
- Possibility to choose between flow sensor installation in colder line or warmer line directly at the meter (optional)
- Standard possibility to connect "four wire technology" temperature sensors
- Standard MiniBus interface (Local-Bus according to EN 13757)
- Two sockets for extension modules
- Programmable scope of displayed informations
- Programmable tariff register

Integrator

PolluStat E is equipped with a comfortable LC-display with eight-digit main reading line and six-figure subordinate reading line. Moreover 12 additional symbols support the readout. Mains supplied meters (230 V AC or 24 V AC) are optionally available with illuminated display.



Segment test

One of many useful features of this conception is the simultaneous display of stored consumption values together with the associated date – an important contribution to avoid misreadings:



Example: Target day value of returned heat quantity

Wherever it is appropriate, the display shows additional letters in the six-figure subordinate line in order to increase the readout comfort:



Example: Secondary M-Bus address

The available display items are clearly structured in 6 menus and include in substance:

L 1: User menu

- Accumulated consumptions
- Segment test
- Instantaneous values (power, flowrate, temperatures)
- Customer's reference number

L 2: Target day menu

Consumption values at a programmable annual target day

L 3: Archive menu

Rolling monthly storage of the following values for the last 16 months:

- Consumptions
- Volumina of the heating resp.chilling liquid
- Maxima for power and flowrate
- Potential failure hours

L 4: Service menu

- Maximum values since operational start-up
- Date and time
- Next target day
- Operation days
- M-Bus addresses

L 5: Control menu

- Set tariff parameters
- Switch-over point between heat and chill metering

L 6: Parameter menu

This is the menu where, among other possibilities, following items can be set right at the meter itself (protected by password):

- M-Bus addresses
- Customer's reference number
- Date and time
- Next target date
- Reset of maximum values

Upgrade Plugin Modules

For electronic reading and connection to building automation systems a variety of anytime upgrade plug-in modules are available for PolluStat E:

M-Bus according to EN 13757-3
Order number: 68504020

This plug-in module allows reading the meter via its primary or secondary address with an M-Bus level converter (300 and 2400 Baud, automatic recognition). The secondary address is preset in the factory to the eight-digit meter serial number. If required both M-Bus addresses can be changed at the meter itself. Because of the short updating time for temperatures of 2 seconds only as well as for power and flow rate values of 4 seconds only, the mains-operated PolluStat E is excellently suitable for the connection to district heating regulators.

Suitable read-out software:
DOKOM CS (data sheet LS 1300)

Suitable read-out hardware:
See leaflet LS 1100

M-Bus with two inputs for external consumption meters
Order number: 68504686

This plug-in module allows the additional connection of up to two external consumption meters (cold water, warm water, electricity, gas, „others") with passive remote reading pulse output (reed switch, open collector). The consumptions of those meters can then be read out via the M-Bus or Mini-Bus interface of the PolluStat E.

Required pulse duration:	> 100 ms
Pulse input frequency:	< 3 Hz
Terminal voltage :	3 V

Remote reading pulses energy for battery-operated meters
Order number: 68503922

Remote reading pulses energy and volume for mains-operated meters
Order number: 68503920

Those two plug-in modules provide potential-free and bounce free remote reading pulses, which can be added up by a remote totalizer.

Closing time:	125 ms
Bounce time:	none
Max. voltage:	28 V DC or AC
Max. current:	0.1 A

The pulse values depend on the nominal size of the flow sensor:

Nominal size qp (m³/h)	Pulse value for energy (kWh)	Pulse value for volume (litres)
0.6 to 6	1	1
10 to 15	10	10

USB interface

Order number: 68504688

his plug-in module allows the connection of the meter to an USB interface of a PC or a notebook.

USB-Port:	1.1 or 2.0
Connection plug:	type A
Cable length:	ca. 1.5 m
Baud rate:	< 19,200

USB plug-in with 2 inputs for external consumption meters (68504902)
Order number: 68504688

Join this unit can plug an additional 2 meters with pulse output and can be connected (see point M-Bus according)

LONWORKS®-FTT10A
Order number: 68504857

This plug-in module is used to implement the meter via LONTALK® protocol into a building automation system. For detailed informations please refer to data sheet LH 6130 INT.

Further equipment

MiniBus interface (Local-Bus)

This standard interface offers the following possibilities of application:

Connection of an inductive readout point (MiniPad, order number: 182079) with an up to 50 m long cable. A typical application is the quick and accurate remote reading of single meters in measuring sites with difficult access.

Suitable readout systems:

- MiniReader, data sheet LS 3200
- SensusREAD, data sheet LS 3400

Integration of PolluStat E into the radio system Sensus((S))cout. For details of this system please refer to data sheet LS 3300.

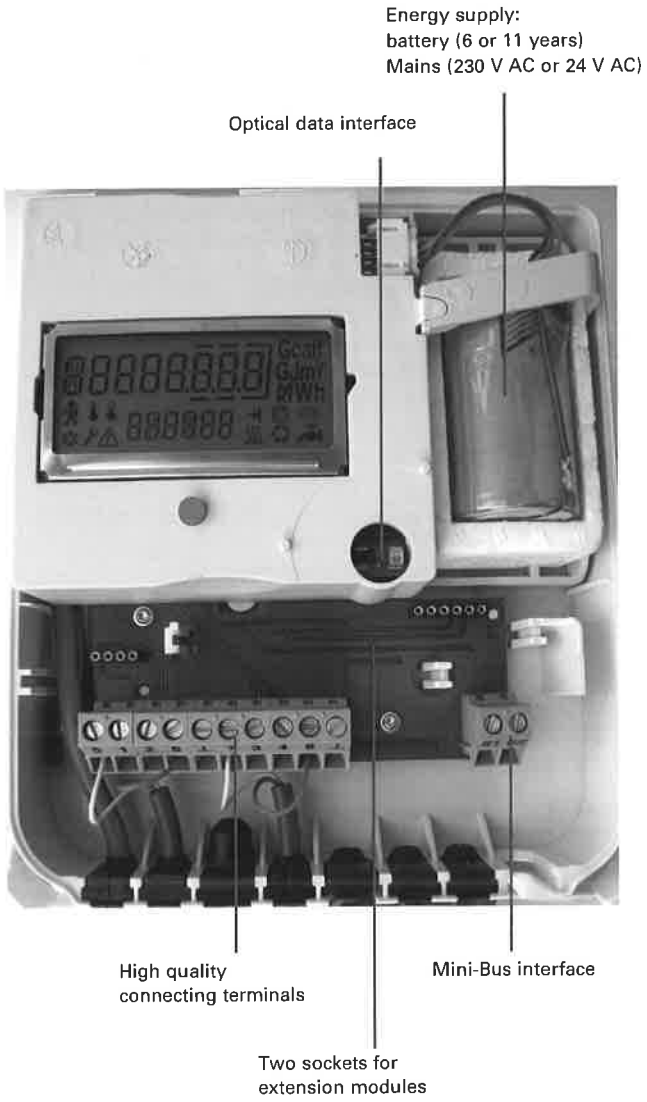
Integrated data logger

By this factory-set option the following values are stored in a selectable time interval (3 to 1440 minutes):

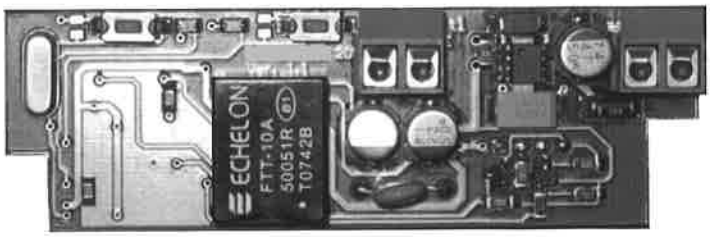
- Consumption (incl. tariff consumption and, if applicable, consumptions of the two external meters)
- Volume of the heating and cooling liquid resp.
- Flowrate of the heating and cooling liquid
- Heating and cooling power resp.
- Temperature in the warmer line
- Temperature in the colder line
- Temperature difference
- Potential failure hours

The capacity is ca. 1,300 data records, i.e. for example covering ca. 54 days in case of hourly logger intervals.

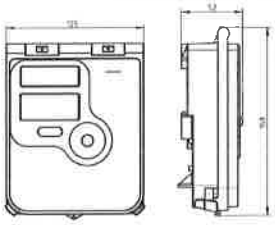
The logger values are read out with the service software MiniCom.



Example for plug-in module: LONWORKS®-FTT10A



Technical Data of integrator

Temperature measuring range	Θ = 2 ... 180 °C
Temperature difference range	$\Delta\Theta$ = 3 ... 150 K
Switch-off threshold	0.15 K
Measuring accuracy	better than (%) $\pm$ (0.5 + $\Delta\Theta_{min}$ / $\Delta\Theta$)
Updating times and integration cycles resp.	Temperatures: 2 sec Flow rate, power: 4 sec Energy, volume: 4 sec (16 sec *) * with battery supply
Buffering of measuring and counting functions in case of power failure	≤ 3 months
Optical data interface	Physical acc. to EN 61107 Data protocol acc. to EN 13757-3
Suitable temperature sensors	Pt 500 Connection in two or four wire technology
Connection cable length between integrator and flow sensor	1.5 m (optional: 5 m)
Power supply	Battery for 6 years (optional: 11 years) or mains supply 230 V AC resp. 24 V AC
Electromagnetic environment condition	Class E 1
Mechanical environment condition	Class M 2
Protection class	IP 54
Permissible ambient temperature	5 ... 55 °C
Storing temperature	-20 ... +65 °C
Relative air humidity	< 93 %
Size	

Technical data of flow sensor General

Approvals	German PTB acc. to EN 1434, class 2 Directive 2004/22/EEC (MID)
Measuring accuracy	Better than (%):+ (2 + 0.02 q_p / q)
Flow rate ratios	q_i / q_p = 1 / 100 q_p / q_s = 1 / 2
Straight inlet and outlet pipes	Not required acc. to approval guideline (in case of stronger disturbances a straight inlet pipe of 5 x DN is recommended for the sizes DN 50 to 100)
Temperature range	5 ... 130 °C
Installation position	Horizontal or vertical
Electromagnetic environment condition	Class E 1
Mechanical environment condition	Class M 2
Exterior protection class of the ultrasonic probes (protection against water condensation in case of cooling meter)	IP 65
Used materials in touch with water: Nominal sizes q_p 0.6 to 10 Nominal sizes q_p 15	 Hot-pressed brass and stainless steel 1.4435 Red brass 5 and stainless steel 1.4301

Version with thread connection

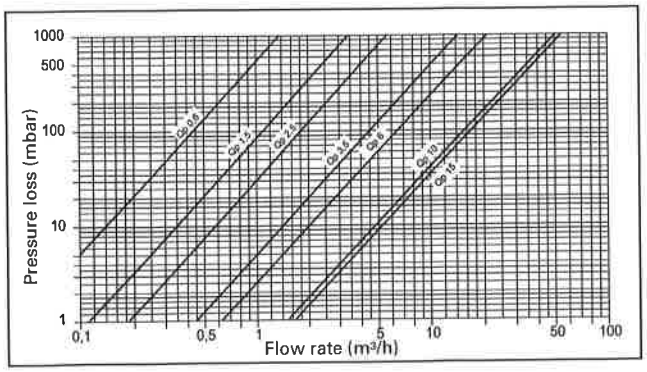
Nominal size q_p (m³/h)	Minimum flow rate q_i (m³/h) acc. to approval	Maximum flow rate q_s (m³/h)	Body length (mm)	Nominal diameter	Meter thread	Pressure level PN (bar)	Weight incl. integrator, without temperature sensors (kg, ca.)
0.6	0.006	1.2	110	R ½" (DN 15)	G ¾"	16	1.2
0.6	0.006	1.2	190	R ¾" (DN 20)	G 1"		1.6
1.5	0.015	3	110	R ½" (DN 15)	G ¾"		1.2
1.5	0.015	3	190	R ¾" (DN 20)	G 1"		1.6
2.5	0.025	5	130	R ¾" (DN 20)	G 1"		1.2
2.5	0.025	5	190	R ¾" (DN 20)	G 1"		1.6
3.5	0.035	7	260	R 1" (DN 25)	G 1 ¼"		2.9
6	0.06	12	260	R 1" (DN 25)	G 1 ¼"		2.6
10	0.1	20	300	R 1 ½" (DN 40)	G 2"		4.2

Version with flange connection (drilling scheme acc. to EN 1092 *)

Nominal size q_p (m³/h)	Minimum flow rate q_i (m³/h) acc. to approval	Maximum flow rate q_s (m³/h)	Body length (mm)	Nominal diameter	Pressure level PN (bar)	Weight incl. integrator, without temperature sensors (kg, ca.)
0.6	0.006	1.2	190	DN 20	16	3.0
1.5	0.015	3	190	DN 20		3.0
2.5	0.025	5	190	DN 20		3.0
3.5	0.035	7	260	DN 25		4.8
6	0.06	12	260	DN 25		4.6
10	0.1	20	300	DN 40	or	7.4
15	0.15	30	270	DN 50		8.6
25**	0.25	50	300	DN 65		11.3
40**	0.4	80	300	DN 80	25	12.0
60**	0.6	120	360	DN 100		PN 16: 17,6 PN 25: 18.5

* Note: The nominal sizes q_p 25 and 60 have, depending on the pressure level, different drilling schemes
** for further information please refer to datasheet LH 4100 INT

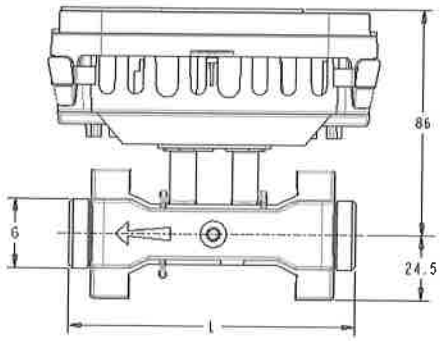
Pressure loss curves

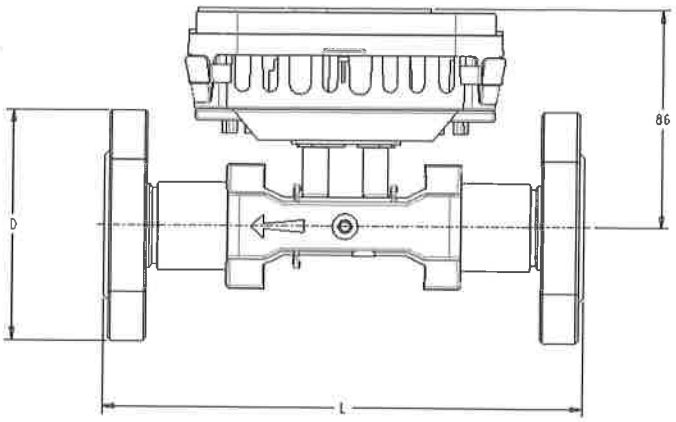


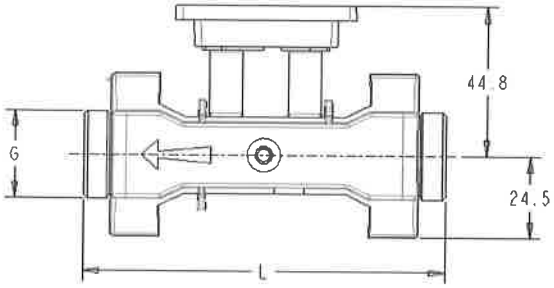
Nominal sizes q_p 0.6 to 15

Order details for integrator sub-unit

Nominal sizes q_p 0.6 to 2.5

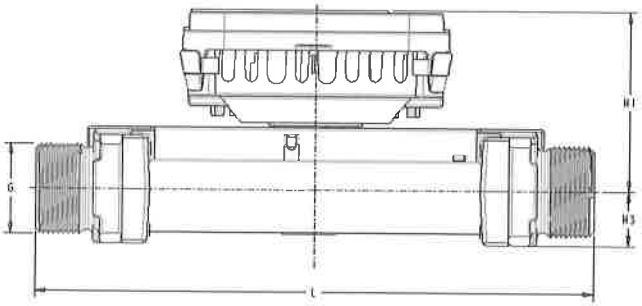


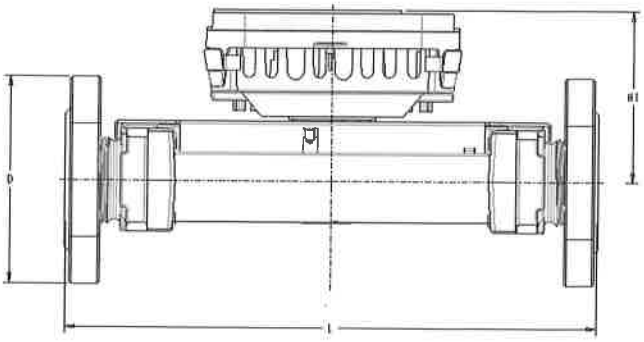


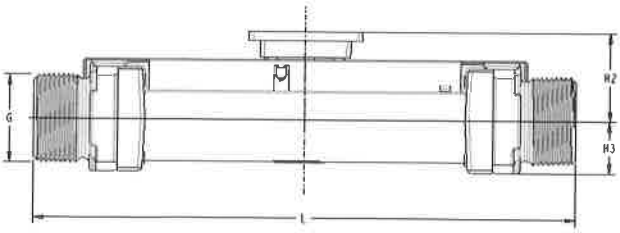


	Version with thread connection		Version with flange connection	
q_p (m³/h)	Meter thread G	L (mm)	D (mm)	L (mm)
0.6	¾"	110	91	190
	1"	190		
1.5	¾"	110		
	1"	190		
2.5	1"	130		
		190		

Nominal sizes q_p 3.5 to 10 m³/h

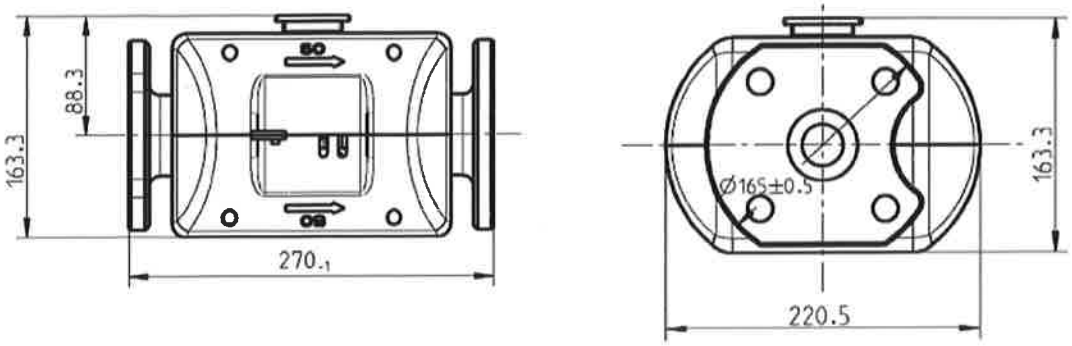






q_p (m³/h)	L (mm)	H 1 (mm)	Meter thread G	H 2 (mm)	H 3 (mm)	D (mm)
3.5	260	84	1 ¼"	42	25	101
6	260	84	1 ¼"	42	25	101
10	300	91,5	2"	49.5	32.5	136

Nominal sizes q_p 15 m³/h



Order information

The tables at page 9 to 11 contain the standard variants with configuration as shown below:

- Installation of flow sensor in colder pipe (return pipe in case of heating, supply pipe in case of cooling)
- Physical unit of energy consumption in MWh
- Temperature sensors: Pt 500, cable length between flow sensor and removable calculator: 1.5 m
- Metrological class 2, ratio q_i / q_p = 1 / 100, MID (Directive 2004/22/EC) conformity

Additional order specifications resp. optional equipment can be defined with the table at page 12.

Standard variants with battery operation

Type	q_p (m³/h)	PN (bar)	Temperature sensors Length and diameter (mm)	Length (mm) and nominal diameter	Order number
Screw connection. battery 6 years / C-cell					
PolluStat E	0.6	16	45 / 5.2 1 sensor integrated in flow sensor	110 / R ½"	PSTHA10A
	0.6			190 / R ¾"	PSTHA113
	1.5			110 / R ½"	PSTHB10A
	1.5			190 / R ¾"	PSTHB113
	2.5			130 / R ¾"	PSTHC10A
	2.5			190 / R ¾"	PSTHC11A
	0.6		100 / 6	190 / R ¾"	PSTHA173
	1.5		100 / 6	190 / R ¾"	PSTHB173
	2.5		100 / 6	190 / R ¾"	PSTHC173
	3.5		45 / 5.2	260 / R 1"	PSTHD153
	3.5		100 / 6	260 / R 1"	PSTHD09A
	6		45 / 5.2	260 / R 1"	PSTHE113
	6		100 / 6	260 / R 1"	PSTHE12A
	10		45 / 5.2	300 / R 1½"	PSTHF083
	10		100 / 6	300 / R 1½"	PSTHF03A
Flange. battery 6 years / C-cell					
PolluStat E	0.6	25	45 / 5.2 1 sensor integrated in flow sensor	190 / DN 20	PSTHA123
	1.5			190 / DN 20	PSTHB123
	2.5			190 / DN 20	PSTHC123
	0.6		100 / 6	190 / DN 20	PSTHA183
	1.5		100 / 6	190 / DN 20	PSTHB183
	2.5		100 / 6	190 / DN 20	PSTHC183
	3.5		45 / 5.2	260 / DN 25	PSTHD103
	3.5		100 / 6	260 / DN 25	PSTHD113
	6		45 / 5.2	260 / DN 25	PSTHE143
	6		100 / 6	260 / DN 25	PSTHE15C
	10		100 / 6	300 / DN 40	PSTHF04C
	15		100 / 6	270 / DN 50	PSTHG033
	15		150 / 6	270 / DN 50	PSTHG043
	25*		100 / 6	300 / DN 65	PSTHH053
	25*	16	100 / 6	300 / DN 65	PSTHH063
	25*	25	150 / 6	300 / DN 65	PSTHH073
	25*	16	150 / 6	300 / DN 65	PSTHH083
	40*	25	100 / 6	300 / DN 80	PSTHI033
	40*	25	150 / 6	300 / DN 80	PSTHI043
	60*	25	100 / 6	360 / DN 100	PSTHK053
	60*	16	100 / 6	360 / DN 100	PSTHK063
	60*	25	150 / 6	360 / DN 100	PSTHK073
	60*	16	150 / 6	360 / DN 100	PSTHK083

* for further information please refer to datasheet LH 4100 INT

Standard variants with mains operation

Type	q_p (m³/h)	PN (bar)	Temperature sensors Length and diameter (mm)	Length (mm) and nominal diameter	Order number
Screw connection, mains operation 230 V AC					
PolluStat E	0.6	16	45 / 5.2 1 sensor integrated in flow sensor	110 / R ½"	PSTHA013
	0.6			190 / R ¾"	PSTHA023
	1.5			110 / R ½"	PSTHB013
	1.5			190 / R ¾"	PSTHB023
	2.5			130 / R ¾"	PSTHC013
	2.5			190 / R ¾"	PSTHC023
	0.6		100 / 6	190 / R ¾"	PSTHA153
	1.5		100 / 6	190 / R ¾"	PSTHB153
	2.5		100 / 6	190 / R ¾"	PSTHC153
	3.5		45 / 5.2	260 / R 1"	PSTHD013
	3.5		100 / 6	260 / R 1"	PSTHD023
	6		45 / 5.2	260 / R 1"	PSTHE013
	6		100 / 6	260 / R 1"	PSTHE023
	10		45 / 5.2	300 / R 1½"	PSTHF233
	10		100 / 6	300 / R 1½"	PSTHF013
Flange, mains operation 230 V AC					
PolluStat E	0.6	25	45 / 5.2 1 sensor integrated in flow sensor	190 / DN 20	PSTHA033
	1.5			190 / DN 20	PSTHB033
	2.5			190 / DN 20	PSTHC033
	0.6		100 / 6	190 / DN 20	PSTHA163
	1.5		100 / 6	190 / DN 20	PSTHB163
	2.5		100 / 6	190 / DN 20	PSTHC163
	3.5		45 / 5.2	260 / DN 25	PSTHD033
	3.5		100 / 6	260 / DN 25	PSTHD043
	6		45 / 5.2	260 / DN 25	PSTHE043
	6		100 / 6	260 / DN 25	PSTHE053
	10		100 / 6	300 / DN 40	PSTHF023
	15		100 / 6	270 / DN 50	PSTHG013
	15		150 / 6	270 / DN 50	PSTHG023
	25*		100 / 6	300 / DN 65	PSTHH013
	25*	16	100 / 6	300 / DN 65	PSTHH023
	25*	25	150 / 6	300 / DN 65	PSTHH033
	25*	16	150 / 6	300 / DN 65	PSTHH043
	40*	25	100 / 6	300 / DN 80	PSTHI013
	40*	25	150 / 6	300 / DN 80	PSTHI023
	60*	25	100 / 6	360 / DN 100	PSTHK013
	60*	16	100 / 6	360 / DN 100	PSTHK023
	60*	25	150 / 6	360 / DN 100	PSTHK033
	60*	16	150 / 6	360 / DN 100	PSTHK043

* for further information please refer to datasheet LH 4100 INT

Standard variants with battery or mains operation and temperature sensor type DS 27,5

Type	q_p (m³/h)	PN (bar)	Temperature sensors	Length (mm) and nominal diameter	Order number
Screw connection, battery 6 years / C-cell					
PolluStat E	0.6	16	DS 27.5 1 sensor integrated in flow sensor	110 / R ½"	PSTHA043
	0.6			190 / R ¾"	PSTHA053
	1.5			110 / R ½"	PSTHB043
	1.5			190 / R ¾"	PSTHB053
	2.5			130 / R ¾"	PSTHC043
	2.5			190 / R ¾"	PSTHC053
	3.5		DS 27.5	260 / R 1"	PSTHD053
	6		DS 27.5	260 / R 1"	PSTHE073
Flange, battery 6 years / C-cell					
PolluStat E	0.6	25	DS 27.5 1 sensor integrated in flow sensor	190 / DN 20	PSTHA063
	1.5			190 / DN 20	PSTHB063
	2.5			190 / DN 20	PSTHC063
	3.5		DS 27.5	260 / DN 25	PSTHD063
	6		DS 27.5	260 / DN 25	PSTHE083
Screw connection, mains operation 230 V AC					
PolluStat E	0.6	16	DS 27.5 1 sensor integrated in flow sensor	110 / R ½"	PSTHA073
	0.6			190 / R ¾"	PSTHA083
	1.5			110 / R ½"	PSTHB073
	1.5			190 / R ¾"	PSTHB083
	2.5			130 / R ¾"	PSTHC073
	2.5			190 / R ¾"	PSTHC083
	3.5		DS 27.5	260 / R 1"	PSTHD073
	6		DS 27.5	260 / R 1"	PSTHE093
Flange, mains operation 230 V AC					
PolluStat E	0.6	25	DS 27.5 1 sensor integrated in flow sensor	190 / DN 20	PSTHA093
	1.5			190 / DN 20	PSTHB093
	2.5			190 / DN 20	PSTHC093
	3.5		DS 27.5	260 / DN 25	PSTHD083
	6			260 / DN 25	PSTHE103

Additional order specifications and optional equipment

	Order code	Description	Remark
Marking Metrology	18W	Installation of flow sensor in warmer pipe (supply pipe in case of heating, return pipe in case of cooling)	
	18E	Programmable flow sensor installation place (colder pipe or warmer pipe)	
	17H	Combined heating and cooling meter with automatic switchover point	
	192	Physical unit of energy consumption in GJ	
	193	Physical unit of energy consumption in kWh	Only up to q_p 6 m³/h
	16U	Uncalibrated resp. without MID conformity declaration	
Factory-fitted options	23B	M-Bus	Also retrofittable later on
	23D	Energy pulses for telecounting	Also retrofittable later on
	23F	Energy and volume pulses for telecounting	Also retrofittable later on Only for mains supply 230 V AC or 24 V AC
	23E	M-Bus with energy pulses for telecounting	Also retrofittable later on
	23G	M-Bus with energy and volume pulses for telecounting	Also retrofittable later on Only for mains supply 230 V AC or 24 V AC
	23C	M-Bus with interface for two external meters with pulse output	Also retrofittable later on
	23Q	LONWORKS®-FTT10A	Also retrofittable later on
	20A	Integrated data logger	
	212	Mains supply 24 V AC	Also retrofittable later on
	21F	Special battery D-size for 11 years using period	Also retrofittable later on
	21D	Special battery D-size for 6 years using period and more frequent data communication	Also retrofittable later on
Cable lengths Temperature sensors	27F	Connection cable between flow sensor and calculator 5 m	
	31D	Temperature sensor cable length 5 m	Only for temperature sensors Pt 500
	31E	Temperature sensor cable length 10 m	Only for temperature sensors Pt 500 Not for temperature sensors DS 27.5
	32S	Temperature sensor not integrated in flow sensor	Only for meters with temperature sensors 45 mm x 5.2 mm or DS 27.5 with nominal sizes q_p 0.6 to 2.5
	30X	Without temperature sensors	

Order example: Standard version in nominal size qp 6 m³/h (out of table at page 9) additionally with programmable flow sensor installation place and factory-fitted M-Bus interface

PSTHE203 -18E-23B

(Order codes are added with a hyphen to eight-digit order codes of the standard variant)

Installation accessoires

Content	Order number	Suitable for
Fitting piece R ½" / 110 mm, 2 connection threads, 1 ball valve R ½" with temperature sensor retainer M 10 x 1, 2 gaskets	68504876	PolluStat E q_p 0.6 to 1.5 / length 110 mm 1 temperature sensor integrated in flow sensor
Fitting piece R ¾" / 130 mm, 2 connection threads, 1 ball valve R ¾" with temperature sensor retainer M 10 x 1, 2 gaskets	68504877	PolluStat E q_p 2.5 / length 130 mm 1 temperature sensor integrated in flow sensor
Fitting piece R 1" , 260 mm 2 connection threads, 2 ball valves R 1" with temperature sensor retainer M 10 x 1, 2 gaskets	68504767	PolluStat E q_p 3.5 to 6 / nominal diameter R 1" (DN 25) thread connection
Ball valve R ½" with temperature sensor retainer M 10 x 1	68502314	PolluStat E q_p 0.6 to 1.5 / length 110 mm 1 temperature sensor integrated in flow sensor (in case of non-integrated temperature sensor 2 ball valves are required)
Ball valve R ¾" with temperature sensor retainer M 10 x 1	68502315	PolluStat E q_p 0.6 to 2.5 / nominal diameter R ¾" (DN 20), 1 temperature sensor integrated in flow sensor (in case of non-integrated temperature sensor 2 ball valves are required)
Ball valve set (2 pieces) R 1" with temperature sensor retainer M 10 x 1	68504771	PolluStat E q_p 3.5 to 6 / nominal diameter R 1" (DN 25)
Stainless steel sensor pocket 100 mm	68500057 2 pieces required	PolluStat E q_p 3.5 to 15
Stainless steel sensor pocket 150 mm	68500058 2 pieces required	PolluStat E q_p 15 to 15
Connection thread R ½"	03008501 2 pieces required	PolluStat E q_p 0.6 to 1.5 / nominal diameter R ½" (DN 15), thread connection
Connection thread R ¾"	03008504 2 pieces required	PolluStat E q_p 0.6 to 2.5 / nominal diameter R ¾" (DN 20), thread connection
Connection thread R 1"	03008509 2 pieces required	PolluStat E q_p 3.5 to 6 / nominal diameter R 1" (DN 25) Thread connection
Connection thread R 1 ½"	03008513 2 pieces required	PolluStat E q_p 10 / nominal diameter R 1 ½" (DN 40) Thread connection

Example: installation kit / order number 68504877



For single fitting pieces (with thread connections or flanges) please refer to price list „Heating / Cooling Meters"

Data communication and programming

Description	Order number	Leaflet
Inductive read-out point „MiniPad" for connection with MiniBus (Local-Bus) interface max. distance from the meter 50 m 	182079	LS 3100
Inductive data coupler with USB-interface to read meters via "MiniPad" 	184081	LS 3100
Read-out device „MiniReader" with LC-display to read meters via „MiniPad" including protective bag 	182080	LS 3100 LS 3200
Optical data coupler with USB interface 	184023	LS 3100
Bidirectional radio module „Scout-MB" for connection with Mini-Bus (Local-Bus) interface	48115766	LS 3300
Bidirectional radio module „Scout-P2" for connection with energy pulse module	48115762	LS 3300
Unidirectional radio module „Base-P" for connection with energy pulse module	04410511	LS 2100
Programming and read-out software „MiniCom 3" for Microsoft Windows (2000 / XP / Vista)	181447	-