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Supplied items:

- Ultrasonic flow meter PolluFlow
- Installation and operating instructions
- Mounting and lead-sealing material

1. Important directions

This instrument has been delivered by the producers in consistency with sound safety engineering. In order to ensure a safe installation and operation job read the complete instructions. It is only allowed to open covers and remove parts, where this can be done by hand. Otherwise life parts might be exposed. And connectors can be alive, too. All repair and maintenance jobs have to be done by specially trained and authorized experts. If body and/or connection cables show any damages put the instrument out of operation and ensure that nobody can restart its operation by mistake.

In order to protect PolluFlow against damage and dirt leave it in its packing until you want to install it. Do not clean it with anything else but a cloth moistened with water.

Battery-operated meters:

The battery must not be opened by force, be short-circuited or exposed to water or to temperatures exceeding 80°C. Empty batteries are special refuse and have to be disposed of at suitable collection centres.

Mains-operated meters:

Protect the power pack by using a 6 A-fuse in the installation site. **Only specially trained and authorized experts are allowed to do the connecting job.** Furthermore pay attention to the standard technical rules - VDE 0100 in particular.

2. Installation

2.1 Installation of the flow meter

Applicable standard: EN 1434-6

Secure that installed flow meters are always completely filled with heat resp. refrigeration liquid. Air bubbles will interrupt the ultrasonic signal and, therefore, cause measuring errors.

An arrow on the flow meter shows the flow direction. The admissible operating pressure and the admissible operating temperature must not be exceeded.

Install shut-off valves before and after the flow meter, so that there is no need to empty the pipe system when the meter will be exchanged on expiry of the verification period. If necessary, a dirt trap suitably located in the heating pipe system reduces particle sediments. At first install a fitting piece instead of the flow meter and flush the pipe system thoroughly. Then close shut-off valves, remove fitting piece, clean sealing surfaces and install the flow meter using new gaskets.

PolluFlow can be installed horizontally or vertically (in rising or down pipes).

PolluFlow is delivered with the integrator mounted on the flow meter. Depending on the flow meter's installation position, the integrator can be turned through steps of 90 degrees. Lift the red spring catch at the bottom side of the casing using a slotted screw driver and take the integrator from the C-rail. Then turn the integrator to the required position by transposing the C-rail and fasten it again.

If required, the PolluFlow integrator can be removed from the flow meter and mounted separately at a suitable place. The connection cable can be delivered optionally with a length of 1.5 m or 3 m. Proceed as before in order to remove the integrator. Then unscrew the C-rail from the bottom and use it as a wall adapter.

Observe following special directions for **horizontal installation of meters of qp 15 and more:**

- Both ultrasonic transducers inside of the measuring tube have to be in horizontal position. Therefore the PolluFlow has to be installed with the integrator turned upwards (see fig. 1).
- Removed and separately mounted integrators have to be installed accordingly (see fig. 2).

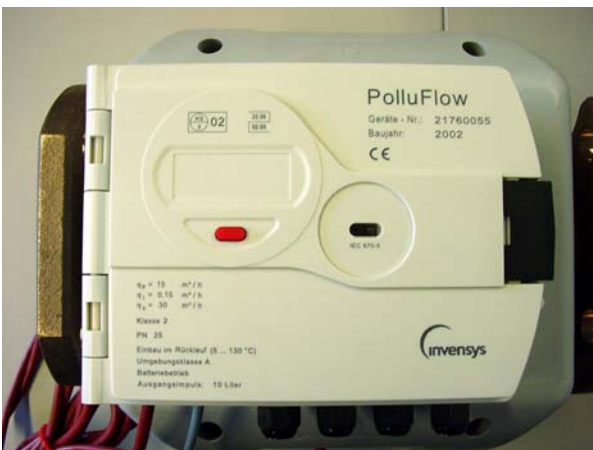


Fig. 1: PolluFlow – horizontally mounted



Fig. 2:
PolluFlow – integrator removed

2.2 Connection of the pulse transmission cable

Connect the enclosed two-wire pulse transmission cable to the two-pole terminal box in accordance with fig.3.

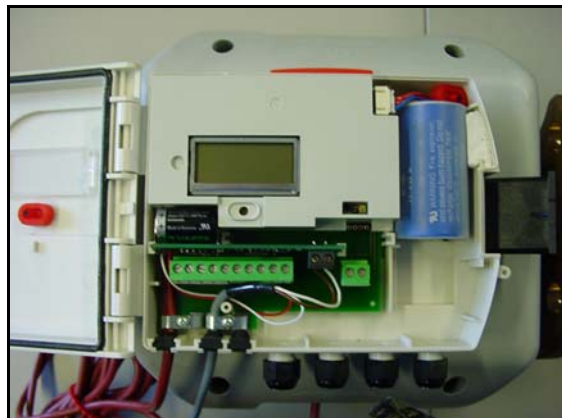


Fig. 3:
Connection of pulse transmission cable

2.3 Specification of volumetric pulse

Pulser: open collector, physically separated

Left terminal: 18 (brown) positive
Right terminal: 19 (white) negative

	Standard mode	High-speed mode
Pulse value	qp 0,6 to 6: 1 liter qp 10 to 60: 10 liter	qp 0,6: 0,025 Liter qp 1,5 to 3,5: 0,1 Liter qp 6 to 10: 0,25 Liter qp 15 to 40: 1 Liter qp 60: 2,5 Liter
Closing time	125 ms	16 ms
Max. output frequency	4 Hz	32 Hz
Bouncetime	none	
U-Max.	28 V DC	
I-Max.	30 mA	

3. Service display

For servicing purposes PolluFlow is equipped with an inside LC display. Use this display, for example, during the plant's start-up phase to read the current flow or to program user-specified numbers, e.g. an M-Bus address.

Many parts of the software, which is used for PolluFlow, are identical to the software used for the ultrasonic heat meter PolluStat E. However, only display items regarding volume and flow are relevant to PolluFlow. For this reason non-relevant display items are shown in light grey.

Our PolluFlow offers 4 different display menus:

- **User menu**
- **Archive menu**
- **Service menu**
- **Parameter menu**

In normal condition the display is in off status. Depress the red key for approx. 2 seconds and then release it in order to activate the first display item of the user menu. In order to have the other three menus displayed proceed as follows:

- **Archive menu:** Double click on key within 0.5 seconds.
- **Service menu:** Switch to the item „segment test“ in the user menu, then depress key and hold it for approx. 3 seconds.
- **Parameter menu:** Switch to item „accumulated volume“, in the user menu, then depress key and hold it for approx. 5 seconds.

If there is no key operation within five minutes, the display returns automatically to the normal condition. The display items marked with an asterisk (*) can be masked out by means of the service software „MiniCom“ using the optical interface.

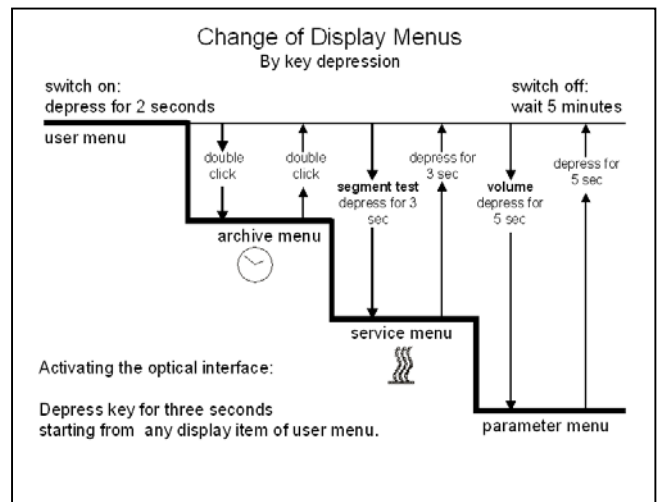


Fig. 4: change of display menus

3.1 Operation of the display

To operate the display field use the operating key enclosed in the accessory kit.

Open the casing cover and insert the black end of the operating key in the borehole below the display.

Depress the operating key slightly in order to activate the display field and to change to the various display menus.

In case of lost or damaged operating key, use a suitable tool with blunt, electrically conductive tip.



Fig. 5: operating key enclosed in accessory kit

3.2 User menu (example)

Change from one display item to the next by depressing the key once.

	Accumulated heat consumption
	Accumulated volume
	Tariff function (if activated)
	Segment test
	Instantaneous flow*
	Instantaneous energy *
	Instantaneous temperature in warmer room*
	Instantaneous temperature in colder room*
	Instantaneous temperature difference
	Number specified by customer

3.3 Archive menu (example)

Starting with the current date the values at the turn of the past 16 months are displayed. Depress and hold the key, and the months are displayed one after the other for one second each. Release the key when the display arrives at the required month:

Selected turn of month

Display loop showing the monthly values (continued by short keystroke)

	Heat consumption at selected turn
	Volume at selected turn
	Maximum flow during past month*
	Maximum energy during past month*

Depress and hold the key for approx. 2 seconds in order to leave the display loop and to select another month.

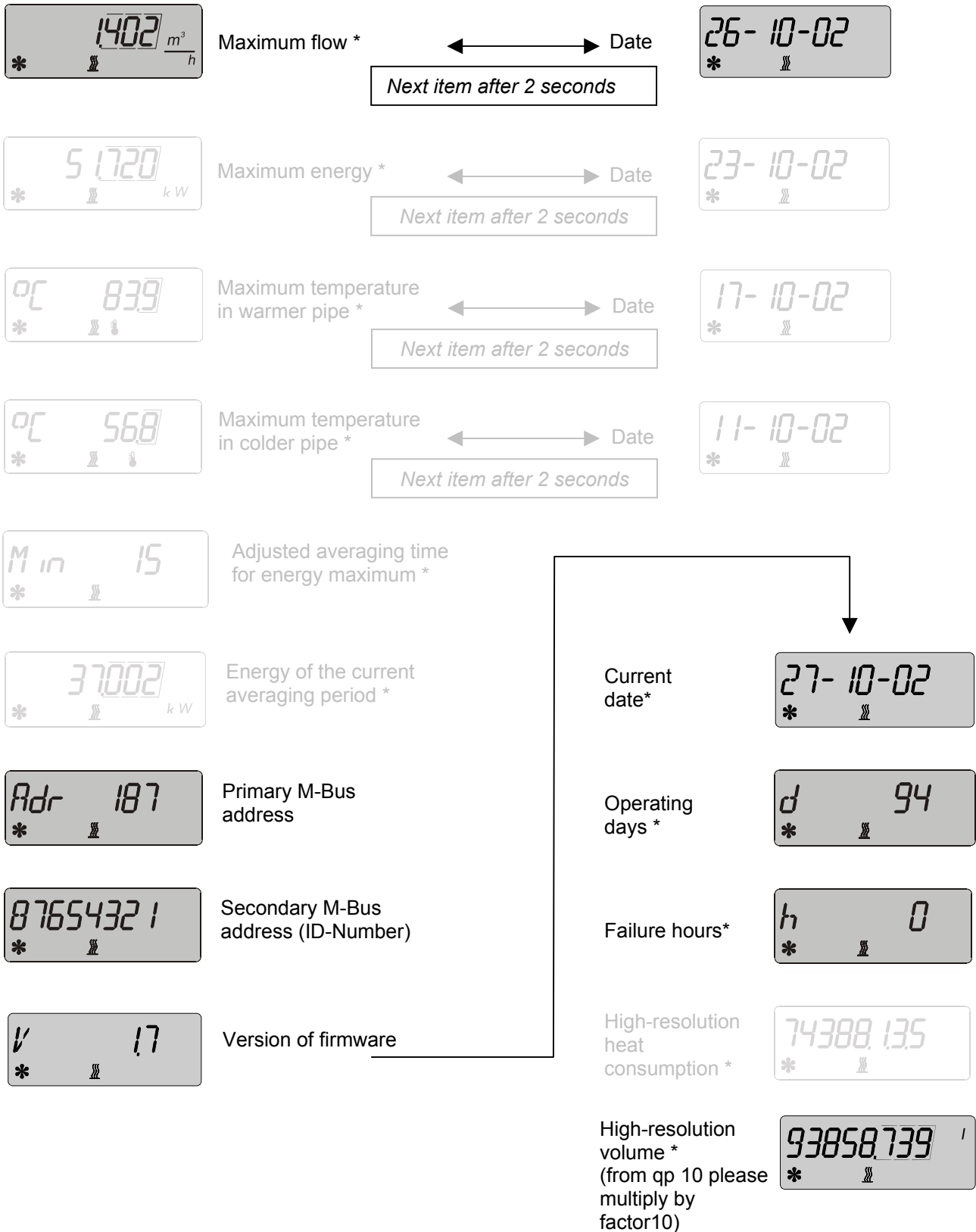
Next turn of the month

etc..

To leave the archive menu double click on the key or wait 5 minutes.

Ultrasonic Flow Meter PolluFlow Installation and Operating Instructions

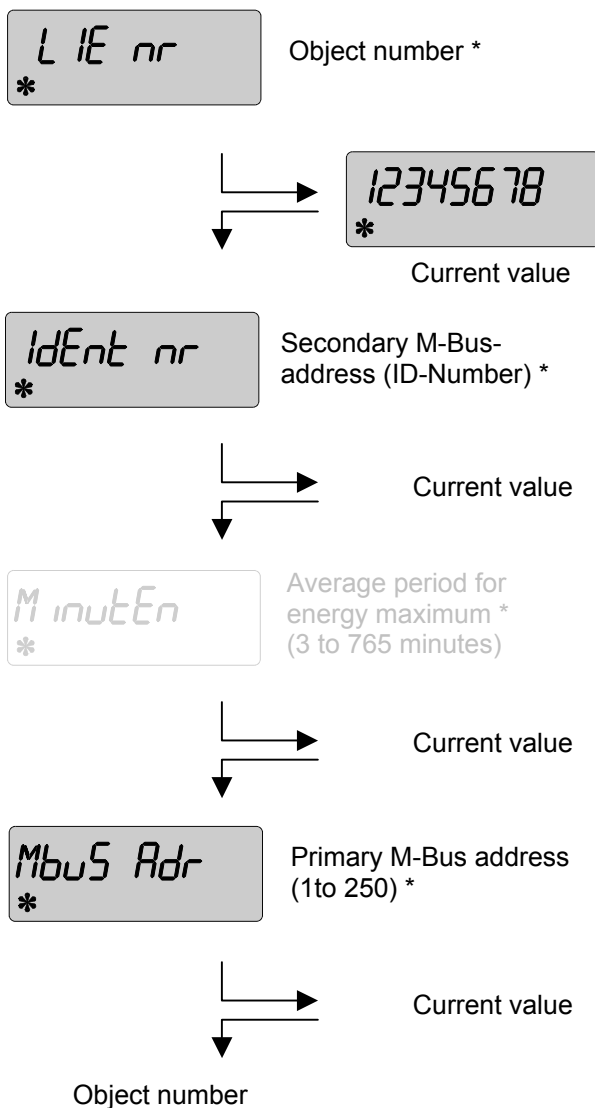
3.4 Service menu (example)



To leave the service menu depress and hold the key for approx. 3 seconds or wait 5 minutes.

3.5 Parameter menu

Following items can be programmed in this menu without any peripheral equipment. Select the current value of the required item and depress the key for approx. 2 seconds. Then the left display digit starts blinking. Adjust the value of the blinking digit by depressing and holding the key. As soon as the required value is displayed, release the key. A short key depression confirms the adjusted value and switches to the next display digit. Then proceed as before. The last digit having been adjusted the display changes to the next item. In order to leave the parameter menu depress and hold the key for 5 seconds or wait 5 minutes.



4. Functional test, lead-sealing

Open the shut-off valves and test the installed units for leaks. Finally check by calling the current values of flow, energy, as well as supply pipe and return pipe temperature to the display according to chapter 3.

In order to protect the meter against manipulation the enclosed selflock lead-seals have to be applied to the following points:

- Union of the flow meter
- Locking bolt of the body

5. Specification

Temperature range of heat or refrigeration liquid	5 ... 130 °C
Admissible ambient temperature	5 ... 55 °C
Storage temperature	- 10 °C ... + 60 °C
Integrator dimensions	approx. 170x 140 x 53 mm (W x H x D)
Protection class	IP 54 acc.to DIN 40050
Dirt intensity according to EN 61010	None or dry, non-conductive dirt only
Overload cat. II according to EN 61010	2.500 V surge voltage

5.1 Battery-operated version

Type: 3,6 Volt lithium battery

Durability: verification period

5.2 Mains-operated version

Voltage: 220 ... 240 V AC

Frequency: 50/60 Hz

Max. consumption: 0,5 VA

Cable length: approx. 1,1 m

Protect the power pack by using a 6A fuse in the installation site. Only specially trained and authorized experts are allowed to do the connecting job. Furthermore pay attention to the standard technical rules and particularly to the rules of VDE 0100.

6. Possible error situations

PolluFlow is equipped with an automatic self-checking function. As soon as an error is detected, the display shows a four-digit error code „Err XYZW“, which can be decoded as follows:

- X:** Checking the temperature sensors
(irrelevant to PolluFlow)
- Y:** Checking the integrator
- Z:** Error statistics
- W:** Control of the ultrasonic measuring cycle

Following error messages can appear, if – due to insufficient venting of the pipe – there is air in the flow sensor disturbing the ultrasonic signals:

- Err 00 x 2
- Err 00 x 6

where „x“ stands for a figure from 1 to 9 or for a capital from A to F.

Such error messages can also appear on the display of new meters, when – due to logistic reasons – the flow meter has not been filled with water. This is no reason for a complaint because such an error message will vanish after correct installation of the meter.

If nominal flow is exceeded by more than 140%, following error message is displayed:

- Err XXX4

After reducing the flow, this message will disappear.

In case of all other error situations please inform our service department.



Material number: 28504202

Edition: June 2004
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