Instruction manual

UWS
OUR WATER. SAFE.

Heaty test device
System isolator

Measurement technology

1 Device description

1.1 Notes on documentation

1.1.1 Documents supplied with the device

The following documents are supplied with the device: Operating, assembly and installation instructions for the system separator test device

1.1.2 Attachment and storage of the documentation

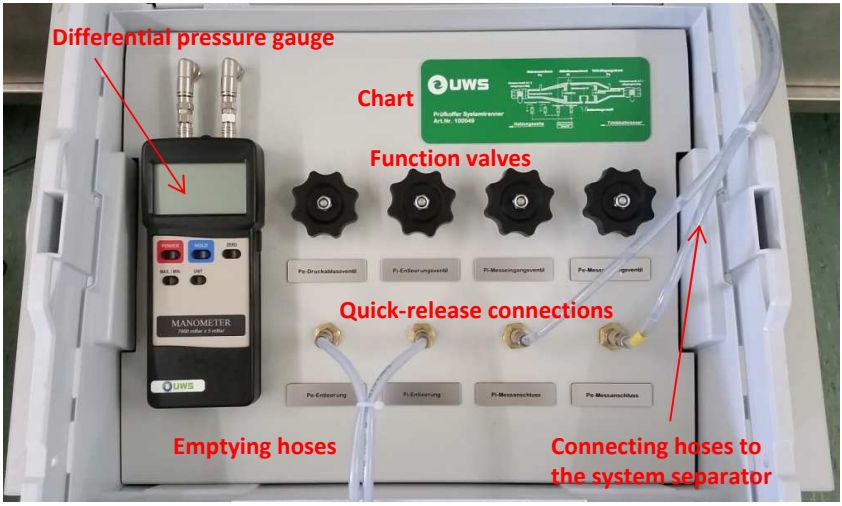
Please keep these instructions in a safe place.
Pass these operating instructions on to the user.

1.1.3 Safety instructions

When installing and operating this device, please observe the safety instructions in this manual.
The manufacturer/supplier accepts no liability for damage caused by non-compliance with these instructions, the manufacturer/supplier accepts no liability.

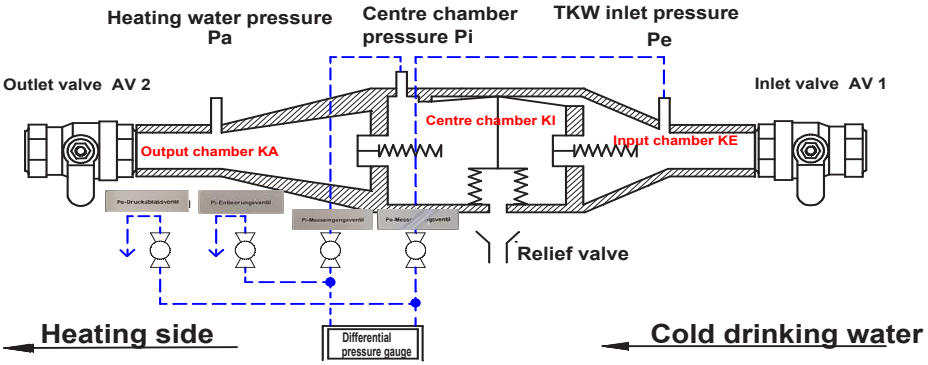
1.2 Structure

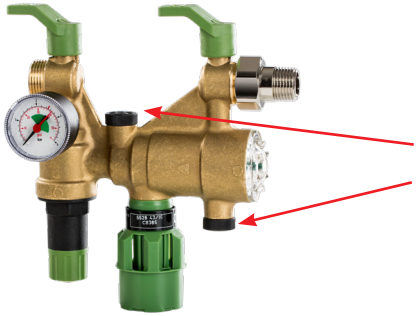
The illustration shows the structure of the device



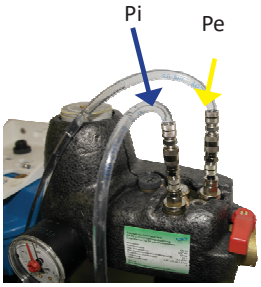
Functional design in L-Boxx

Wiring diagram





Pi = centre chamber pressure
Pe = inlet chamber pressure



Depending on the manufacturer of the system separator the connection pieces may be positioned differently. Follow the manufacturer's instructions for function and maintenance.

1.3 Type overview

Technical data

Differential pressure gauge

Visual	Digital display of the differential pressure, selectable in mbar, PSI, mH20, mmHG and cmH20
RS 232	Available, optional cable and software tool
Automatic switch-off	The measuring device has an automatic switch-off function to save battery power (after 10 minutes without operation). The function is deactivated as soon as the device shows „Rec." on the display for continuous measurement
Battery change	Change the 9 V block battery when the battery symbol LBT appears on the left of the display.

Physical - Electrical		Hydraulic	
Pressure range	0 to 7000 mbar - Resolution 6 mbar	Valve control	1 x fine control valve 3x shut-off valves
Supply	1 x 9 V block battery PP3 IP52	Connections Measuring device	1x quick coupling for plus-minus pressure application
Environment	0 to 35 °C, no condensation	Connections System separator	2x measuring hoses with self-closing coupling on both sides Length approx. 1.5 m
Storage	0 to 35 °C		
Accuracy	+/- 2% over the full range Repeatability: +/- 1%	Connections Function feed-through	2x measuring hoses with self-closing coupling on one side Length approx. 0.2 m
Measuring sequence	0,8 sec	Internal pipework	YES - ready for use
Min/Max-Peak-Hold-function	YES	Complete housing	In practical L-Boxx with handle

1.3 Type overview

Technical data

Differential pressure gauge

Measuring device	180 x 72 x 32 mm
Test device System isolator Optional L-Boxx version	approx. 350 x 440 x 240 mm (W x L x H) on request
Spare battery	1 x 9 V block battery PP3 included
Cardboard packaging	YES
Total weight	4.85 kg

L-BOXX-version

1.4 Intended use

Background:

In December 1988, DIN 1988 was first published with its parts 1-8 as the Technical Rules for Drinking Water Installations (TRWI) - Technical Rules of the DVGW. For decades, this set of rules had proved its worth in the German plumbing trade.

For decades, this set of rules had proved its worth in the German plumbing trade. In the course of the harmonisation of regulations in the European Union, the first European standardisation approaches for drinking water installations were published in May 2001 with DIN EN 1717 and in December 2001 with DIN EN 806 Part 1 the first European standardisation approaches for drinking water installations. By April 2012, the standardisation work on DIN EN 806 with parts 1-5 should be be finalised by April 2012.

In practice, it became apparent that there was a need for a national supplementary standard to the EN 806 series. In this context, the 100 series of DIN 1988 was further developed by DIN in collaboration with the ZVSHK and DVGW. The last parts of the national supplementary standard were published in May 2012 with DIN 1988-200 and -300.

This means that the two series of regulations of the European standardisation (DIN EN 806 / DIN EN 1717) and the national supplementary standard DIN 1988 parts 100, 200, 300, 500, 600 are now available to professionals in Germany.

The old Part 4 of DIN 1988, which deals with the protection of drinking water, has been incorporated into DIN EN 1717 (current edition from August 2011) at European level and can now be found in DIN 1988-100 at national level, meaning that Part 1988-400 does not exist.

Significance for practice:

The filling or refilling of heating systems in accordance with DIN EN 1717 may only be carried out using BA or CA type system separators.

While DIN 1988, Part 4 and DIN EN 1717 were previously valid at the same time, the old regulations were withdrawn in August and the parallel solution thus cancelled.

DIN EN 1717 differentiates the areas of application for safety fittings more precisely than the old regulations and in some cases sets higher requirements.

1.4 Intended use

Classification of the liquid classes: Liquid categories according to DIN EN 1717

Category 1 - **Water** for human consumption taken directly from a drinking water installation.

Category 2 - Liquid that does not pose a risk to human health. Liquids suitable for human consumption, including **water** from a drinking water installation, which may exhibit a change in taste, odour, colour or temperature (heating or cooling).

Category 3 - Liquid that poses a health hazard to humans due to the presence of one or more less toxic substances.

Category 4 - Liquid presenting a health hazard to humans due to the presence of one or more toxic or particularly toxic substances or one or more radioactive, mutagenic or carcinogenic substances.

Category 5 - Liquid presenting a health hazard to humans due to the presence of microbial or virtual agents of communicable diseases.

The term „temporary connection", such as that for filling a heating system via a hose, is no longer used. Instead, the standard defines all connections to the drinking water installation as permanent.

During the filling process, it must be ensured that no liquids which, as carriers of one or more that pose a risk to human health as carriers of one or more toxic substances are sucked or pressed back into the drinking water system.

Example:
If the supply pressure drops below the pressure of the heating system while the heating is being topped up, the system separator prevents heating water from entering the drinking water system.

To ensure that there is a permanent connection between the drinking water between the drinking water and heating water circuits cannot exist in the long term, it is recommended, use safety devices, e.g. differential pressure-controlled disconnection in the event of back-suction or back-pressure.

The following safety fittings are available in accordance with DIN EN 1717:

BA system separator (up to fluid category 4)
CA system separator (up to fluid category 3)

1.4 Intended use

BA system separators are compact safety fittings according to DIN EN 1717, group B, with controlled separation (three-chamber system).
It corresponds to the BA installation type defined there and can therefore be used for protection up to and including liquid category 4.
Its task is to prevent non-drinking water from being sucked or flowing back of non-drinking water into the public drinking water network.
network. The BA system separator covers a wide range of possible applications (e.g. printing works, chemical and food processing plants, laboratory and medical technology, heating system filling with inhibitors).

The installation of a type BA system separator is associated with the following safety features:

- Uncompromisingly permissible up to liquid category 4.
- No subsequent replacement if the filling water quality changes.
- Can be used several times if planned as a precaution, e.g. for garden pipes or irrigation systems, taking stagnation pipes into account.
- Systems with toxic substances such as frost or corrosion protection can be connected without hesitation.
- If tenants or owners could make subsequent changes to an installation that has been carried out in accordance with regulations (e.g. chemical additives in the heating water that cause a change in the fluid category) due to a lack of technical knowledge, the planner and installer are always legally „on the safe side" with protection against the highest conceivable risk.

2 Safety instructions / regulations

2.1 Safety instructions

2.1.1 Installation and adjustment

Installation, adjustment work and minor repairs to the appliance may only be carried out by the manufacturer or a specialist company recognised by the manufacturer.

2.1.2 Caution when working on the appliance

If the quick-release couplings are operated incorrectly, water may escape at mains pressure.

2.1.3 Changes in the environment of the Heaty system separator test device

No changes may be made to the following equipment:
- on the differential pressure gauge

2.1.4 Special hazards

The mains pressure must not be higher than max. 7 bar. Otherwise the differential pressure measuring chamber will be destroyed.

2.1.5 Rules and standards

The relevant guidelines and standards for testing type BA system separators must be observed.

3 Assembly

3.1 Scope of delivery and accessories

3.1.1 Scope of delivery

Check that the scope of delivery is complete and undamaged (see table):

Item	Quantity	Designation
1	1	Test device mounted ready for operation
2	1	Operating, installation and maintenance instructions
3	1	Connection set consisting of quick-release coupling and hoses

3.2 Installation location

Please observe the following safety instructions when selecting the installation location: **Do not use the appliance in rooms or areas at risk of frost.**

3.3 Required minimum distances and installation clearance

No hints!

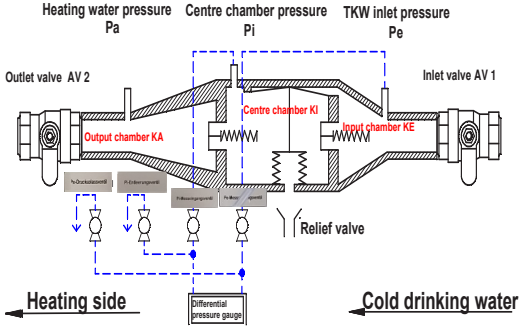
3.4 Mounting the device

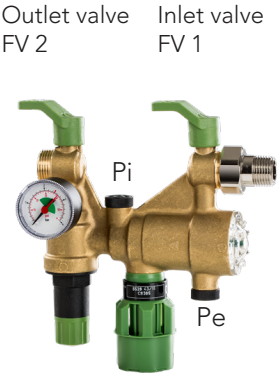
No hints!

4 Performing the test - general part

4.1 Performing the test - general information

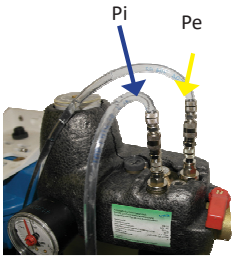
According to the VDI/DVGW 6023, EN 806-5 and DIN 1988-400 guidelines, type BA system separators must be checked and maintained annually. This can be done quickly, safely and easily with the measuring kit developed by UWS Technologie. The work steps are described below:





First work step

Close the inlet valve (FV1) and outlet valve (FV2). Carefully loosen the plastic plugs on Pe and Pi (pressure is released via the centre chamber) and remove.



Second work step

Connect the measuring hose Pe (yellow marking at the ends) using the with Pe on the system separator and the measuring case.

Connect the measuring hose Pi (blue marking at the ends) using the quick-release couplings to Pi on the system separator and measuring case.

Connect the relief hoses (E1 and E2) to the measuring case using the quick-release couplings. **All valves are closed!**

Third work step

Open all valves Pe-D., Pi-D., MV1 and MV2.

Switch on the differential pressure measurement and set to zero with Zero.

Close the valves Pe-D. and Pi-D.

Open inlet valve FV1 and pressurise system separator.

Slowly open drain valves Pe-D. and Pi-D. and release the air from the measuring hoses. As soon as no air bubbles can be seen in the hose, valves AV1 and AV2 can be closed.

Fourth step (testing)

Slowly open the fine adjustment valve Pe-D. and observe the system separator until water begins to drip from the drain funnel.

Press the Hold button on the measuring device to record the dripping point.

The differential pressure value must be > 140 mbar.

Then open the Pe-D. and Pi-D. valves fully open. The centre chamber pressure Pi must be 0 (+/- 15 mbar in the display).

Slowly close the Pe-D. and Pi-D. valves. Then open FV2 - no water must escape from the centre chamber.

If these steps are successful, continue with step 5. If one or more of these points are not fulfilled, maintenance or repair of the system separator must be carried out according to the manufacturer's instructions.

Fifth work step

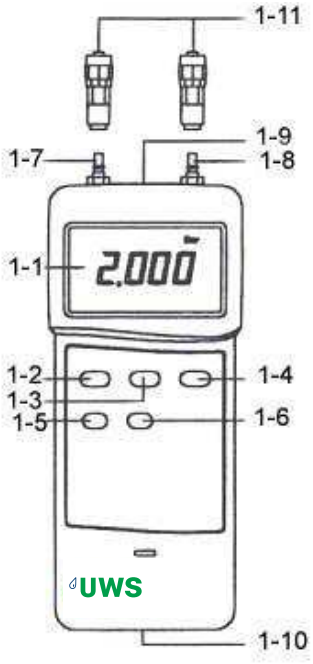
Close valves FV1 and FV2. Open relief valves 3 (AV2) and 4 (AV1) (pressure relief). Remove the hose connections and replace the plastic caps on the system separator.

Briefly open AV1 and AV2 again (pressurisation) and then close.

Once the test is complete, the log book must be filled in.

4.1.1 Differential pressure gauge instructions for air and non-corrosive liquids and gases

1 - 1 Display / indicator
1 - 2 On/off switch
1 - 3 HOLD button
1 - 4 Button for zero setting
1 - 5 MAX /MIN button
1 - 6 Selection button for units
1 - 7 Holder for hose adapter 1
1 - 8 Holder for hose adapter 2
1 - 9 RS-232 interface connection
1 - 10 Battery compartment
1 - 11 Quick connector for hose adapter



Measurement

- Switch the measuring device on using the „Off/On" button (1 - 2).
- Select the desired pressure measurement unit (mbar, mmHg, ...) by pressing the „UNIT" button (1 - 6).
- Carry out a zero setting by pressing the „Zero" button (1 - 4).
- Attach the two quick connectors (1 - 11) to the adapter nipples (1 - 7 and 1 - 8).
- The display will now show a number.

Caution: If the pressure applied to nipple 1 (1 - 7) is lower than the pressure applied to nipple 2 (1 - 8), a negative measurement result is displayed. If this is the other way round, a positive pressure is displayed.

4.1.1 Differential pressure gauge instructions for air and non-corrosive liquids and gases

If you press the „HOLD" button (1 - 3) during a measurement, the current measured value is frozen in the display and the „HOLD" symbol also appears in the display. If you press the „HOLD" button (1 - 3) again, the value disappears and the current measured values are displayed again.

If you press the „MAX/MIN" button (1 - 5), a „REC" symbol appears in the display and the lowest and highest values of a measurement series are recorded. If you want to call up the maximum value in the display, press the „MAX/MIN" button (1 - 5) again. The value and a „MAX" symbol appear. If you press the „MAX/MIN" button (1 - 5) again, the minimum value and a „MIN" symbol will appear. To deactivate this function again, press the „MAX/MIN" button (1 - 5) and hold it down for about 2-3 seconds.

Automatic switch-off

The measuring device has an automatic switch-off function to save battery power (after 10 minutes of inactivity). The function is deactivated as soon as the device shows „rec." on the display for continuous measurement.

RS-232 data interface

The measured values can be tr C or laptop via the integrated interface socket (3 - 9) a software).

Changing the battery

Change the 9 V block b n the left of the display.

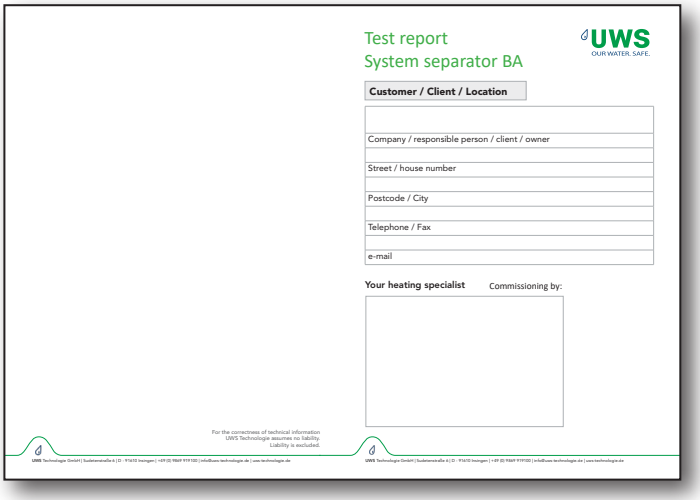
Use your fingernail and er on the back of the device off the hous a new one. Press the cover back on.

Bis hier fertig

4.2 System logbook

The system logbook is provided free of charge digitally and as a printed version when the system separator test device is purchased.
With imprinted company data on request.

The system logbook, as shown below, is supplied separately.



Test report
System separator BA

UWS
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Customer / Client / Location

Company / responsible person / client / owner

Street / house number

Postcode / City

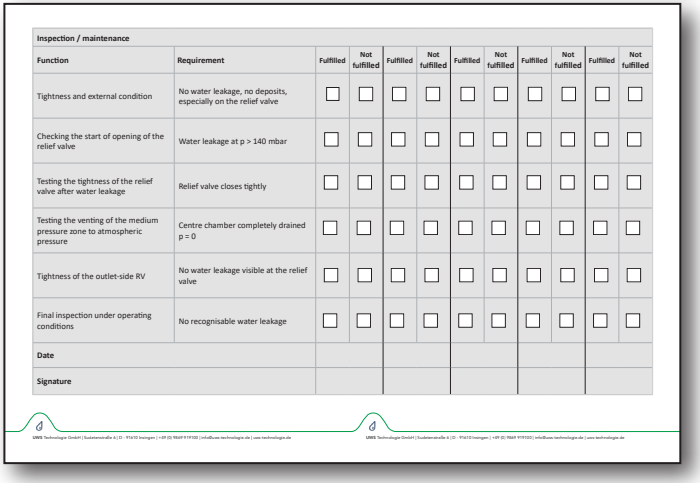
Telephone / Fax

e-mail

Your heating specialist

Commissioning by:

For the correctness of technical information UWS Technologie assumes no liability. Liability is excluded.



Inspection / maintenance

Function	Requirement	Fulfilled	Not fulfilled	Fulfilled	Not fulfilled	Fulfilled	Not fulfilled	Fulfilled	Not fulfilled	Fulfilled	Not fulfilled
Tightness and external condition	No water leakage, no deposits, especially on the relief valve	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Checking the start of opening of the relief valve	Water leakage at p > 140 mbar	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Testing the tightness of the relief valve after water leakage	Relief valve closes tightly	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Testing the venting of the medium pressure zone to atmospheric pressure	Centre chamber completely drained p = 0	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Tightness of the outlet-side RV	No water leakage visible at the relief valve	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Final inspection under operating conditions	No recognisable water leakage	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Date											
Signature											

5 Maintenance / Cleaning

5.1 Maintenance intervals

Proper, regular inspections and maintenance as well as the exclusive use of original spare parts are crucial for trouble-free operation and a long service life of your system separator tester.

Danger!
Failure to carry out inspections/maintenance can lead to material damage.
The purpose of an inspection is to determine the actual condition of a device and compare it with the target condition. This is done by measuring, testing and observing.

Maintenance is required to eliminate any deviations between the actual condition and the target condition. from the target state. This is usually done by cleaning, adjusting and, if necessary, replacing individual components that are subject to wear.

5.1.1 Maintenance instructions

In order to ensure that all functions of your system separator test device are maintained in the long term and that the approved series condition is not changed, only original UWS spare parts may be used for inspections, maintenance and repair work!

Remove the battery from the battery compartment if the device is not to be used for a longer period of time.

Careful handling is necessary for operation.

5.2 Exclusion of liability

1. The protection of drinking water from non-drinking water is an essential part of the Drinking Water Ordinance and is regulated by various sets of rules.
2. The current regulations on the construction, commissioning and design of system separators must be observed.
3. The manufacturer's specifications for the installed system separator must be observed, in particular with regard to the pressure ratios listed there.
4. If there are still residues of additives of any kind in the inlet water to the system separator, in particular dirt or chlorine components (> than the permissible limit value), no guarantee can be given for the device technology.
5. The installer is responsible for keeping the system log in accordance with DIN EN 806-5 / SWKI 97
6. UWS accepts no liability for application errors on the part of the installer.
7. The UWS system separator test device is to be operated exclusively by the installer.

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Your contact: