Universal Flow Computer System URS-06

Additional operating manual

Pre-set counter, temperature corrector, batch computer

URS-06

Operating manual included:
Universal flow computer UR06
A-EN-08728-UR in the respective valid version

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Foreword

I. Transport, delivery, storage

Equipment shall be protected from moisture, humidity, contamination, shock and damage.

Check of delivery:

The shipment is to be checked for completeness upon receipt. The data of the device are to be compared with the data of the delivery note and the order documents.

Any transport damage must be reported immediately after delivery. Damage reported later cannot be accepted.

II. Warranty

The scope and period of a warranty can be found in the contractual delivery conditions.

A warranty claim presupposes professional assembly and commissioning in accordance with the operating instructions valid for the device. The necessary assembly, commissioning and maintenance work may only be carried out by competent and authorized persons.

III. General safety instructions

1. The UR06 universal calculator is a highly accurate and reliable quantity measuring device. It may only be used in accordance with its intended purpose. The temperature application limits listed in the operating instructions as well as the other technical data of the devices and safety instructions must be observed during installation, commissioning and operation of the devices.
2. National and international regulations for the operation of electrical equipment and systems must be observed.
3. Before installation, the operator must ensure that the URS universal computer system has not been damaged during transport.
4. The equipment must be installed, operated and maintained by qualified personnel. The operator is responsible for ensuring that the personnel are sufficiently and appropriately qualified. In cases of doubt, the manufacturer must be consulted.
5. The URS universal flow computer system may only be installed and operated in a safe area.

IV. Basic safety information

Description of symbols:

	IMPORTANT NOTES! Please consider these notes carefully to achieve a reliable functional system. The accompanying text contains important information about the product, handling the product or about a section of the document that is of particular importance.

	WARNING! Failure to take the prescribed precautions could result in death, severe bodily injury, or substantial material / product damage.

V. Intended User

The intended user is not a general purpose user.

	The intended user is not allowed to open, manipulate or dismantle the device. The device may be maintained, serviced or opened only by dedicated and qualified service personnel.

1. Identification

Manufacturer: Bopp & Reuther Messtechnik GmbH
Am Neuen Rheinhafen 4
67346 Speyer / Germany
Phone: +49 6232 657-0
Fax: +49 6232 657-505

Product type: Universal flow computer

Product name: URS-06

Version-No.: A-EN-08726-S6 Rev. B

Operating manual included:
Operating manual Universal flow computer UR06
A-EN-08728-UR in the respective valid revision

2. Range of application

2.1 Intended use

The URS-06 is used to control simple filling and dosing in a plant. The URS-06 contains a UR06 (**U**niversal **R**echner (flow computer 06)), which takes over the measurement of the input variables (volume transmitter, mass flow meter, pressure, temperature) and calculates the volume under standard conditions and, if necessary, the mass from the measured values and the set parameters according to the recognised rules of technology. Different types of volume, mass, flow, pressure and temperature transmitters can be connected to the URS-06. A quantity to be dispensed can be preselected via a touch screen and the integrated control (PLC) controls the dosing valve (two-stage, ramp function when starting and stopping). The dosing processes are logged in an internal archive and can be forwarded via variably configurable standard interfaces (RS232, RS485 or Ethernet) for further processing of the measured and calculated values.

A special feature of the software version described here is the acquisition of the volume signals from two flowmeters connected in series. For each dosing process, the measurement results (operating volume) and calculation results (standard volume) of both meters are stored and the differences are shown as percentages and absolute values.

2.2 Danger warnings

The URS-06 universal computer has been built in accordance with the state of the art and is safe to operate. It has been tested and left the factory in perfect condition.

Dangerous situations may arise if the unit is used improperly or not as intended.

Therefore, pay attention to the warnings.

2.3 Operational safety

	**The URS-06 must not be used in potentially explosive atmospheres.**

The URS-06 universal flow computer or the included UR06 universal flow computer meets the requirements of the following standards: safety requirements according to EN 61010-1:2001

- Noise immunity according to EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8
- Interference emission according to EN 61326 Class A
- Housing protection class IP 65

In the event of a power failure, parameters and counters remain stored in the EEPROM.

2.4 Personnel for assembly, commissioning and operation

- Only trained specialist personnel authorised by the system operator may carry out assembly, electrical installations, commissioning, maintenance work and operation. They must have read and understood the operating instructions and follow their instructions without fail.

	WARNING! Errors during installation and commissioning can lead to considerable measurement errors or damage the unit.

- In principle, the rules and regulations applicable in your country must be observed.

	WARNING! There is a danger to life if the supply voltage is connected incorrectly.

2.5 Factory setting

The URS-06 universal flow computer is often adapted to the customers' requirements. In the standard configuration, the URS-06 has two inputs or three outputs. On request, further inputs or outputs can be integrated.

The set values can be seen in the attached configuration data sheet (data book).

Improper changes to the parameters can lead to measurement errors.

2.6 Technical changes

Bopp & Reuther Messtechnik GmbH reserves the right to make technical changes without separate notification due to technical improvements.

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3. System structure

The URS-06 universal flow computer is a pre-set flow computer with integrated temperature / quantity conversion function of the latest design. The URS-06 has a 3.5" touch panel display for showing all relevant measured and calculated values. It is easy to operate and menu-driven. In the individual screens, the operator / user can enter or change settings and parameters approved for his authorisations.

The Universal computer System 06 consists of the following components:

- Flow computer UR06 with integrated inputs and outputs (pulses, resistance (temperature), current)
- Touch panel PLC / PC for operation and control
- Further input cards for the UR06 can be requested optionally
- Further output cards for the UR06 can be requested optionally

4. Input measured variables

4.1 Measured variables

The following mentioned measurands are explained in detail in the UR06 description:
Electrical measurands:
current, pulse, frequency, resistance, contact (status)
Physical measurands: Temperature, pressure, differential pressure, volume, volumetric flow, mass, mass flow

Special feature:
2 independent 24-bit AD converters for resistance (temperature) and current (e.g. pressure).

The URS-06 pre-set flow computer from Bopp & Reuther Messtechnik is currently suitable for **non**-custody transfer.
The preselection counter consists of the UR06 flow computer and a touch panel PC with PLC software for the operation and control of the individual components. The control of valve and pump are realised via the outputs of the UR06. Both components (UR-06 and URS-06) are housed in a compact casing.

The outputs on the URS-06 are the same as in the UR06 and are already described in its operating manuals.

The following measurands can be measured with the UR06 component included in the URS-06.

Input variables	

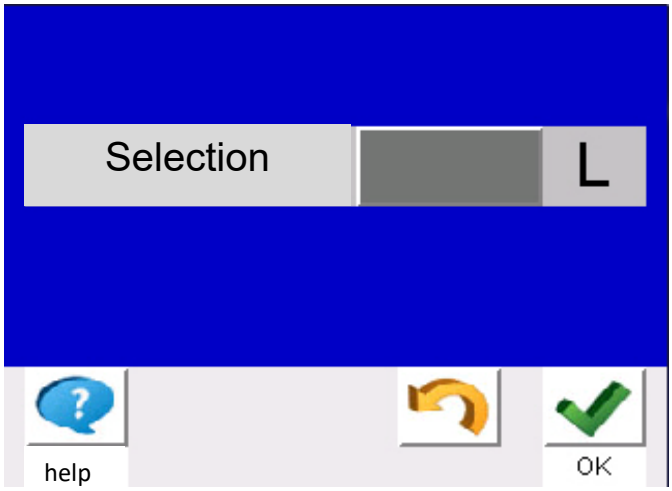
Resistance	Type: PT 100, 4-wire measurement or head transmitter(4...20 mA) Measuring ranges: -20 °C ... 60 °C up to 100°C possible PT100: -20 °C ... 60 °C (custody transfer -10...+50°C) Overload protection: > ± (24 V + 15 %) Accuracy: (related to temperature) Tabs 0.1 % f.s. ± 0.1 K ΔT 0.1 % f.s. ± 0.02 K Temperature drift: 0.0025 % / K Resolution: 0.01 K (-100 °C ... 250 °C) 0.03 K (> 250 °C) Measuring rate: > 2 / s Sensor break monitoring (also short-circuit monitoring)
Power	Measuring range: 0...22 mA Overload limit: >= 30 mA, no influence on other measured values Overload protection: > ± (24 V + 15 %) Error detection 3.6 mA and 21 mA according to Namur NE43 (software) Accuracy: 0.01 % f.s. ± 0.001 mA Temperature drift: 0.0025 % / K Resolution: 0.001 mA Measuring rate: > 10 / s (0.1 s per channel)
Frequency Pulse Status	Status: <= 50 ms (reaction to status changes) min. Measuring time adjustable: (0.1 s, 1 s, 2 s) Accuracy: 0.01 % f.s. Temperature drift: 0.0025 % / K Resolution: 0.001 % f.s. Switchable hardware filter: without, 50 Hz (For suppression of contact bounce) Signals active: Voltage Lo (Us approx. 2 V), Hi (Us approx. 9 V) Signals passive: O.C, relay, Namur (without KS and LB monitoring) approx.: U_0 = 8V, Ri,= 1k, I_s = 1.5 mA
Input types	1 x volume measurement 1 or 2 channel. (depending on requirement) 1 x temperature measurement as 4-wire technology (medium temperature, density sensor temperature) optionally for PT100, PT500 or PT1000
Output variable	Output parameter
Power	Range: 0...22 mA, active max. load: >= 500 Ω (U_0 approx. 12V -15 V) Galvanic isolation from each other and from the basic unit Error signals: 3.6 mA and 21 mA according to Namur NE43 Accuracy: 0.02 % f.s. ± 0.002 mA Temperature drift: 0.005 % / K Resolution: 0.001 mA
Pulse / Status	Type: Open collector, passive, galvanically isolated Frequency range: 0 ... 100 Hz min. Pulse width: 5 ms ... 500 ms adjustable I_{max} > 20 mA U_{max} : 24 V + 15 % R_i : Internal resistance 70 Ω U_{Rest} : Residual voltage < 1.2V
Outputs	3 x pulse outputs freely configurable 1x current output can be assigned to the respective manipulated variables 2 x interfaces: RS485 and USB at the touch panel

5. Operation

5.1 Screen 1: normal display when ready to dose / end of dosing

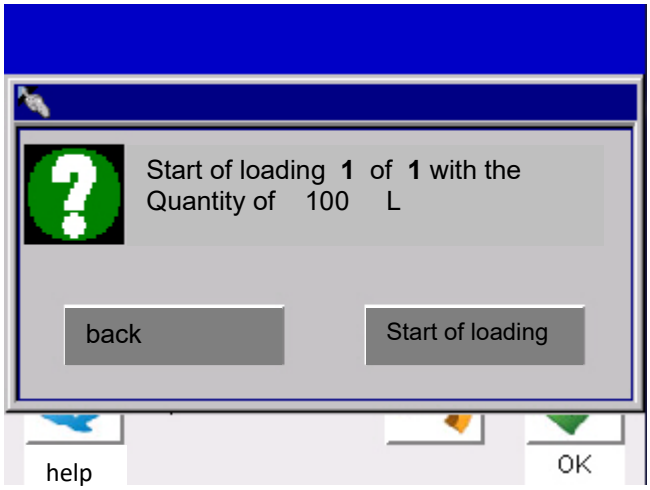
The screen shown above is the start-up screen and appears at "New start-up" as well as after "Power failure" and also after filling, provided this has been completed correctly.

5.2 Screen 2: Preselection menu



On this screen you can enter the volume in litres to be filled.
If you press the darker button, a pop-up window opens and you can enter your prefix using the keyboard that appears.

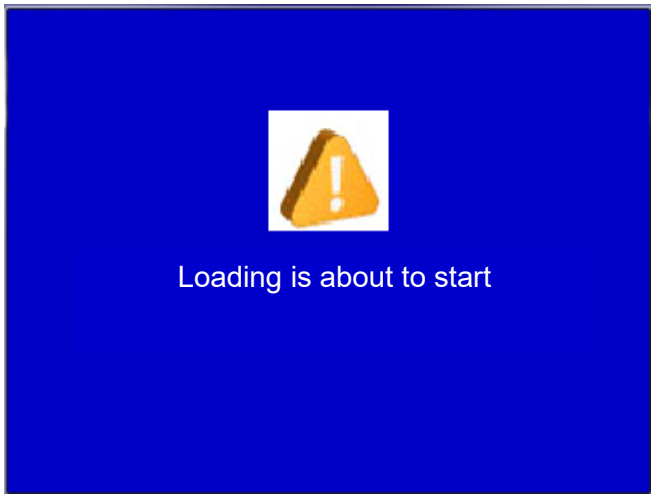
5.3 Screen 3: Menu check if the selected is OK.



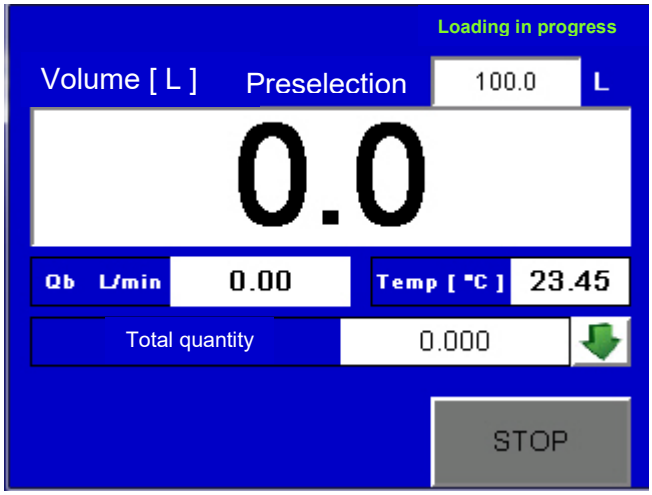
On the screen shown above, a kind of security query is made again:

- How many identical fillings are selected and processed one after the other.
- Is the prefix in litres OK?
- Back
- Start of loading

5.4 Screen 4: Signal that loading / filling is about to start



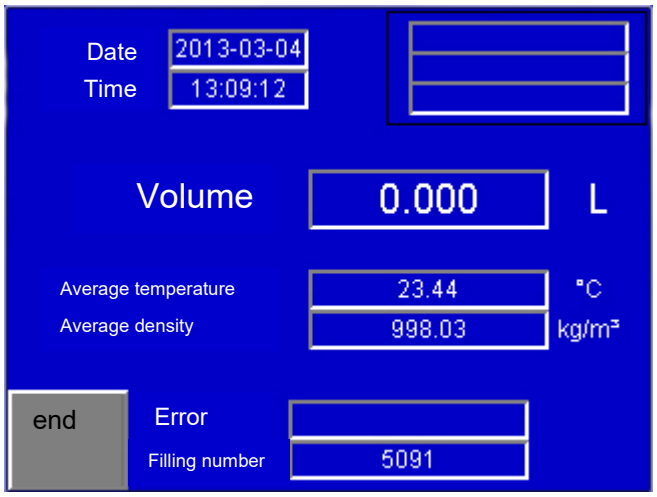
5.5 Screen 5: Display during filling / loading



The screen above shows the following:

- The area code in litres
- On the large display the already filled volume
- Below this the instantaneous volume flow and the instantaneous temperature
- A selection menu that can be operated via the green arrow key (different quantities or temperature, V15 can be displayed there depending on the selection).
- To the right is the "stop button" with which filling can be stopped at any time.

5.6 Screen 6: Display that loading / filling is about to start



The screen above shows the following:

- Date, time
- Filled volume
- The temperature averaged over the filling and the density.
- Whether an error has occurred over the last filling (loading time)
- Consecutive filling number

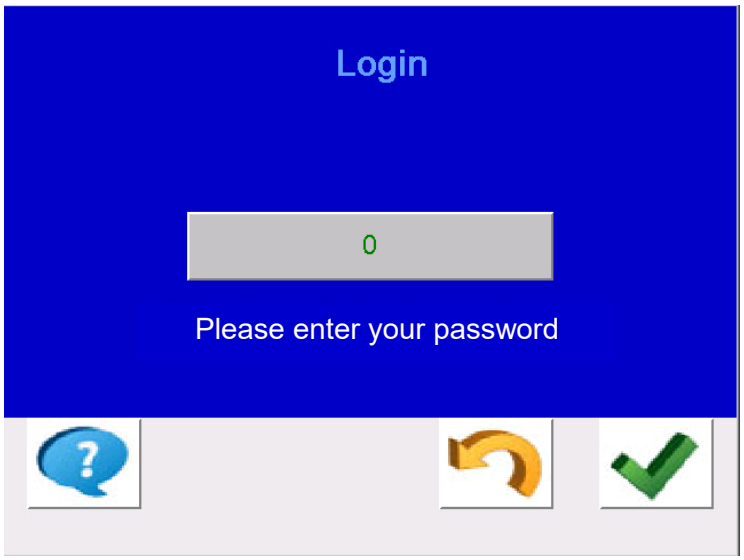
5.7 Screen 7: End of filling display

On the above screen, the end of the filling/loading process is displayed. "Please wait" stands for the period of time during which a protocol is generated that can then be printed out on a printer if one is available and provided. After the end of this display, the "start screen" is automatically reset.

5.8 Programming of the specific data by operating personnel or service personnel (Bopp & Reuther Messtechnik GmbH)

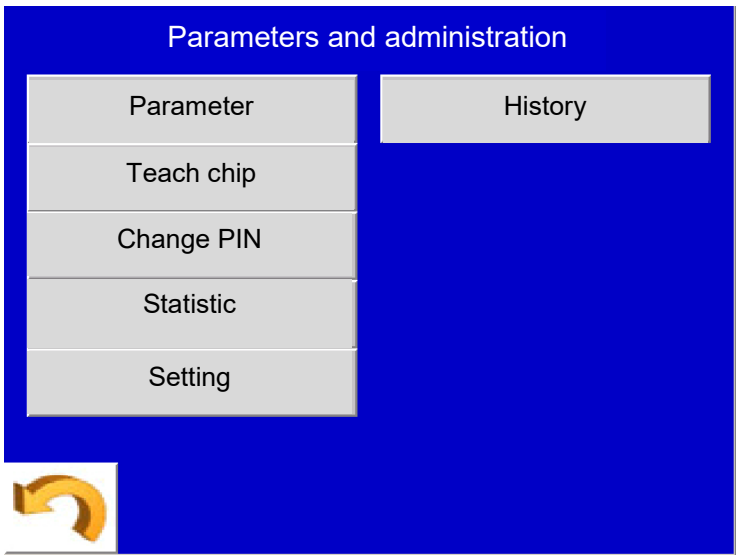
5.8.1 Start screen

The menus that now follow have **only** been set up for the **operator** and for the **service personnel of** Bopp & Reuther Messtechnik GmbH.
To access this menu, the computer expects a PIN number from the operator or the service staff. This can be changed by the operator as well as by the service staff before leaving the menu assigned to them in the respective level.



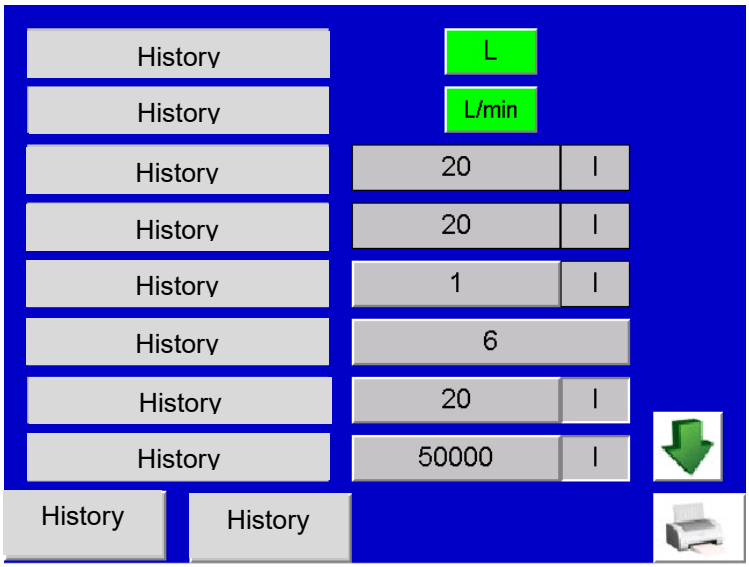
5.8.2 Parameters and management

In this menu, the operator can change the parameters that were set during commissioning by the service personnel of Bopp und Reuther Messtechnik GmbH in cooperation with the operator.
Under the level "Parameters and administration" and the button "Teach chip" (**not relevant for the URS-06 as no RFID reader is installed),** the operator can enter new customers or also change drivers, vehicles, customers, etc. The button "Teach chip" can be used to change the driver's name.
In the "Statistics" area, the operator can call up the occurrences of the charging process. For example, it is possible to see which valve has switched how often.



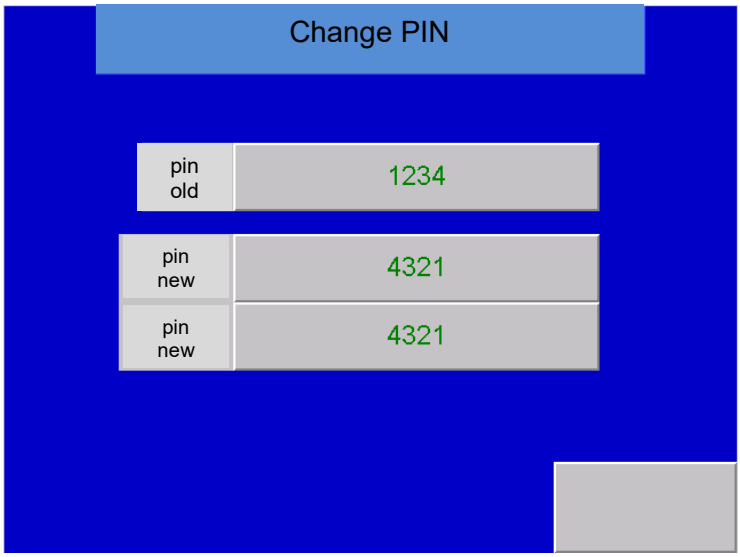
5.8.3 System specific data

In this level, the operator can set system-specific parameters, such as start-up and shut-down ramps, the units, pre-switch-off quantity, max. chamber preselection for the vehicles with bottom loading, smallest or largest delivery quantity, etc.



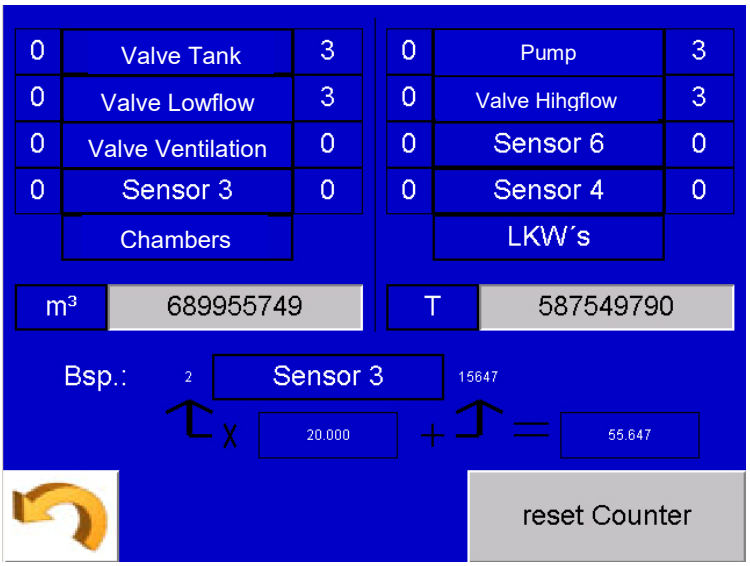
5.8.4 Change PIN

Under "Change PIN", the operator has the option of changing PINs in his authorised area.



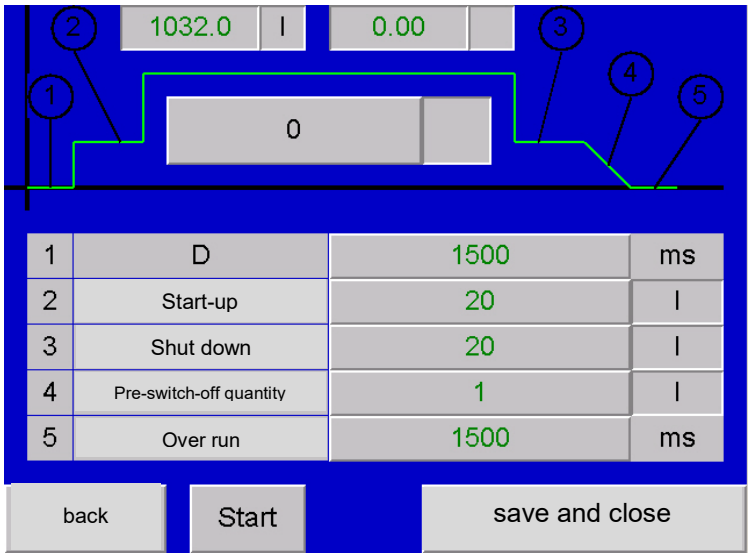
5.8.5 History

In this menu, the operator can see how often the individual valves used in the system have switched. He can also see the total quantity and reset it. The custody transfer total remains unaffected by the reset, as it was stored in UR 06 (approx. 7000 fillings).



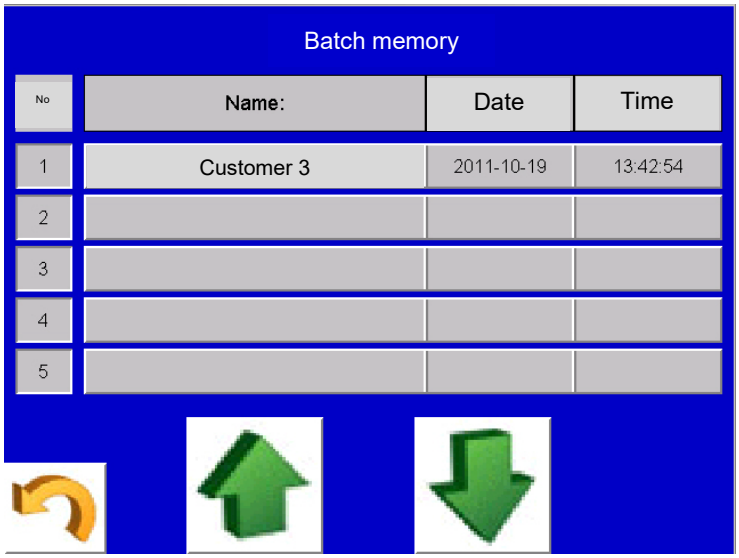
5.8.6 Plant specific parameters

Here, the system-specific parameters can be checked and set once again.



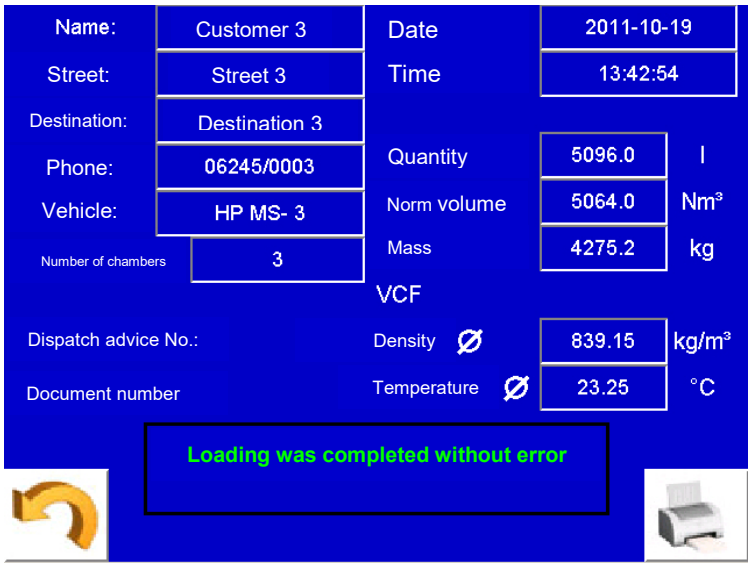
5.8.7 Batch memory

In the batch memory, the last individual fillings/loadings can be called up again and displayed on the screen and printed out if necessary.



If a loading is called up again from the batch memory, all relevant data can be seen on the panel, such as date, time, quantity at loading temperature, standard volume, mass, averaged temperature over loading, etc.

Batch memory



A. Certificates

A.1 EU-Declaration of conformity

BOPP & REUTHER MESSTECHNIK

EU - Konformitätserklärung
EU - Declaration of conformity
UE - Déclaration de conformité

Hiermit erklärt der Hersteller in alleiniger Verantwortung, dass die nachfolgend bezeichnete Baueinheit den Anforderungen der zutreffenden EU-Richtlinien entspricht. Bei nicht mit uns abgestimmten Änderungen verliert diese Erklärung ihre Gültigkeit.

The manufacturer herewith declares under sole responsibility that the unit mentioned below complies with the requirements of the relevant EU directives. This declaration is no longer valid if the unit is modified without our agreement.

Par la présente, le fabricant déclare sous sa seule responsabilité que les appareils décrits ci-dessous, correspondent aux exigences de la réglementation UE qui les concerne. Toute modification des appareils sans notre accord entraine la perte de validité de cette déclaration de conformité.

Hersteller *Manufacturer* Fabricant	Bopp & Reuther Messtechnik GmbH Am Neuen Rheinhafen 4 67346 Speyer / Germany
Bezeichnung *Description* Description	Wärmezähler Rechenwerk / Durchfluss Rechner *Thermal energy computer / flow computer* *Calculateur de débit / calculateur d'énergie thermique*
Typ, Modell *Type, model* Type, modèle	ERW 700, 700A, 700C, UR06, URS06, URS09

Richtlinie *Directive* Directive	2014/30/EU /UE L 96/79 Elektromagnetische Verträglichkeit *Electromagnetic interference* Compatibilité électromagnétique
Normen und normative Dokumente *Standards and normative documents* Normes et documents normatifs	EN IEC 61000-6-2:2019 EN IEC 61000-6-3:2021

Richtlinie *Directive* Directive	2014/35/EU /UE L 96/357 Niederspannung *Low voltage* Basse tension
Normen und normative Dokumente *Standards and normative documents* Normes et documents normatifs	EN 61010-1:2010+A1:2019+A1:2019/AC:2019

Richtlinie *Directive* Directive	2011/65/EU /UE L 174/88 Beschränkung gefährlicher Stoffe *Restriction of hazardous substances* Limitation de substances dangereuses
Delegierte Richtlinie *Delegated Directive* Directive Déléguée	(EU /UE) 2015/863 L 137/10 Änderung Anhang II der Richtlinie2011/65/EU *Amending Annex II to Directive 2011/65/EU* Modifiant l'annexe II de la directive 2011/65/UE
Normen und normative Dokumente *Standards and normative documents* Normes et documents normatifs	EN IEC 63000:2018

Ort, Datum / *Place, Date* / Lieu, Date: **Speyer, 2023-01-30**

Dr. J. Ph. Herzog
Geschäftsführer
Managing director / Gérant

i . V. J. Riedl
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Deputy *QM Officer* / Adjoint chargé de la qualité

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Z-ML-KE ERW700-UR06-V3 2023-01-30

Notes:

Notes:

Our product portfolio:

Volume flowmeter:

- Oval wheel meter
- Turbine meter
- Electromagnetic flowmeter

Mass flowmeter:

- Vortex meter
- Compact orifice
- Coriolis mass flowmeter

Density and concentration meter (Measuring and testing equipment)

Dosing measurement technology

- Electromagnetic flowmeter
- Coriolis mass flowmeter
- Oval wheel meter
- Dosing control system

Measurement Accessories

- Processing electronics
- Mechanical indicator
- Pulse pick-ups
- Components

Measuring and testing equipment

Conformity assessment according to MID Directive 2014/32/EU

After Sales Service

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