



Operating manual

# **Hand flow meter**

## ZVE Preset

Art no.: 027170475

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## **Important!**

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**The operating manual is always to be read before commissioning the equipment. No warranty claim will be granted for faults and damage to the equipment arising from insufficient knowledge of the operating manual.**

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## 1. Safety instructions

The device is a state of the art piece of equipment and has been constructed according to recognized safety specifications. It is nevertheless possible that use of the device will present hazards to the operator or to third parties, or may damage the device or other property. It is therefore essential to act in accordance with these safety instructions, and in particular with those sections identified as warnings.

### Warning notices and symbols

In the operating manual, the following signs are used for highlighting important information.



**Special information for economical usage of the equipment.**



**Special information or 'do and do not's for damage prevention.**



**Information or 'do and do not's for the prevention of damage to persons or equipment.**

**Warning**



**Skin injection hazard**



High-pressure fluid from dispense valve, hose leaks, or ruptured components will pierce skin. This may look like just a cut, but it is a serious injury that can result in amputation. **Get immediate surgical treatment.**

**Fire and explosion hazard**



When flammable fluids are present in the work area, such as gasoline and windshield wiper fluid, be aware that flammable fumes can ignite or explode.

### Intended use



The device shall only be used if it is in specified condition. The device shall only be used for its intended usage, in compliance with all relevant safety regulations, with awareness of the potential risks, and according to the operating manual. Any faults that may impair the safety must be rectified immediately.



The device and its components are only to be used for handling the liquids listed and the purpose described. Using the machine for any other purpose would constitute inappropriate use. The manufacturer is not responsible for any loss arising as a result of this. The risk for this is borne only by the operating company.

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## Organizational measures

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- ! This operating manual should always be available at the site of operation! Each person who is involved with the assembling, commissioning, maintenance and operation of the equipment must have read and understood the entire operating manual. The type plate and the warning notices attached to the device have to be observed and maintained in a fully readable condition.

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## Qualified personnel

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- ! The person operating, maintaining and assembling must be appropriately qualified for their work. The areas of responsibility, competences and supervision of the personnel must be precisely regulated by the operating company. If the operators do not have the required knowledge, they must be trained and instructed. The operating company must also ensure that the contents of the operating manual are properly understood by the operator.

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## Waters protection

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-  The device is designed to handle water hazardous substances. The relevant local and national regulations to protect the environment have to be fulfilled at the operating place.

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## Hydraulics

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-  Only persons with special knowledge and experience with hydraulic systems are permitted to work on hydraulic parts and equipment. All lines, hoses and screw joints should regularly be checked for leaks and visible external damage. Any damage must be rectified immediately. Pressurized fluid can cause injuries and fire.
- During handling oils, greases or other chemical substances the relevant local and national safety regulations for the product must be observed!

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## Maintenance and Service

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- For maintenance works at devices for flammable and/or water endangering substances consider the regulations of the water resources law. Use only authorized service companies.
-  Before starting any kind of maintenance ensure that all fuel lines are pressureless, completely empty and aerated.
- Any changes, modifications or additions to the device are prohibited without consent of the manufacturer. Spare parts have to fulfil the specifications of the manufacturer. This is only guaranteed by original spare parts from the manufacturer.

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## Electric power

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-  Only qualified electrician or trained persons under the guidance and supervision of a qualified electrician according to electro-technical guidelines are permitted to work on the electrical equipment. Before starting any kind of maintenance or repair work ensure that the device is de-energised.

## **2. Technical description**

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### **2.1 Description**

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The hand flow meter is used to measure neutral liquid media, primarily oils.

This product features a nozzle and measuring element in a single device, providing a compact, cost-effective, and practical solution for the controlled dispensation of liquid media.

The hand flow meter can be installed on filling hoses and hose reels.

A long-lasting lithium battery supplies the device with power. If the battery is low, a battery symbol will appear in the display. The battery lasts for a minimum of 10 years or 1,000,000 liters.

A fine sieve integrated in the handle prevents dirt and foreign bodies from entering the measuring element.

Included in the standard scope of delivery are the meter with handle, the protective rubber ring for the meter, and the outlet nozzle.

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## 2.2 Technical information

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Flow range*	0.4 to 19 l/min
Maximum working pressure	69 bar
Weight	1.36 kg
Dimensions without extension/nozzle	
Length	28 cm
Width	8.3 cm
Height	8.3 cm
Inlet	1/2"
Outlet	3/8"
Operating temperature range	0 °C to 49 °C
Storage temperature range	-34 °C to 49 °C
Battery**	9 volt alkaline
Wetted parts	Stainless steel, nitrile rubber, zinc, CS, LCP
Fluid compatibility	Lubricating oils, antifreeze mixtures
Pressure loss	1.2 bar @ 19 l/min
Accuracy***	+/- 0.5%
Units of measurement	Pints, quarts, liters, or gallons (factory setting is quarts)
Maximum totalizer amount	99.999 units
Maximum recorded dispensation amount	999.99 units

\* Tested in No. 10W motor oil. Flow rates vary with fluid pressure, temperature and viscosity.

\*\* Battery required to meet safety approvals: Duracell® MN1604 or Eveready® EN22, 522

\*\*\* At 2.5 gpm (9.5 l/min), at 70°F (21°C), with 10W motor oil and 1 gallon (3.8 l) dispensed. May require calibration; out-of-box accuracy is +/- 1.25 percent.

Duracell® is a registered trademark of Duracell Inc.

Eveready® is a registered trademark of Eveready Battery Co., Inc.

### 3. Installation

#### 3.1 Typical installations

Fig. 1 shows a typical hose reel installation. Dispense valves can also be installed on a console.

The typical installation shown in Fig. 1 is only a guide. It is not a complete system design. Contact your TECALEMIT-Service for assistance in designing a system to suit your needs.

KEY	DESCRIPTION
A	Metered dispense valve
B	Fluid shut-off valve
C	Hose
D	Hose reel fluid inlet hose
E	Hose reel

A Thermal Relief Kit (not shown) is required. The kit will vary by pump selected.

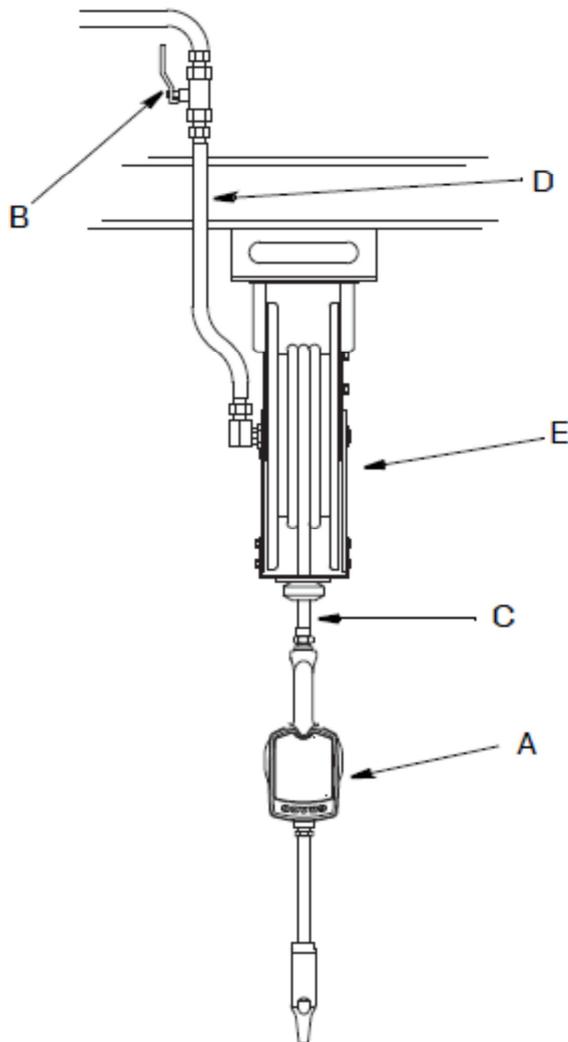


Fig. 1



**Do not use this dispense valve on non-TECALEMIT-consoles. The trigger could be inadvertently pressed while the dispense valve is stowed.**



**This dispense valve is not designed for in-line installation. Do not install with a shut-off valve on the outlet side of the meter which could damage the meter housing cover.**

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### 3.2 Pressure relief procedure

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The equipment stays pressurized until pressure is manually relieved. To reduce the risk of serious injury from pressurized fluid, accidental spray from the dispense valve, or splashing fluid, follow this **Pressure Relief Procedure** when you:

- are instructed to relieve pressure.
  - check, clean, or service any system equipment.
  - install or clean fluid nozzles or filter.
1. Turn off the power supply to the pump.
  2. Trigger the dispense valve into a waste container to relieve pressure.
  3. Open any bleed-type master air valves and fluid drain valves in the system.
  4. Leave the drain valve open until you are ready to pressurize the system.

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### 3.3 Grounding

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Proper grounding is an essential part of maintaining a safe system. The movement of fluids through the dispensing system generates static electricity. Static electricity can cause fumes to ignite, resulting in explosion and fire. To reduce the risk of static sparking, ground all system components per local and national electrical codes. Refer to user manuals for pump and other system components to ground the following:

- **Pump:** Follow the manufacturer's recommendations.
- **Air and Fluid hoses:** Only use grounded hoses.
- **Air compressor:** Proceed according to manufacturer's recommendations.
- **Fluid supply container:** Follow the local code.

In order to ensure that the components are grounded during dispensation or pressure relief procedures, always touch a metal component of the outlet nozzle firmly to a grounded metal bucket before actuating the outlet valve.

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### 3.4 Pre-Installation procedure

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1. Insert the battery. See section on replacing the battery on page 32.
2. Follow the instructions in section describing pressure relief procedure on page 9.
3. Close the stop valve (B, Fig. 1, page 8).
4. Ground hose and hose retraction device or bracket. See section entitled "Grounding" on page 9.



**If you are using PTFE strips as windings, leave at least two interlocking screw windings uncovered. These exposed screw thread windings ensure that the device is continuously grounded.**

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### 3.5 Installation procedure

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**When conducting a new installation or the liquid media in the pipes/lines are contaminated, the pipes/lines will need to be flushed before installing the metering valve. Dirty pipes/lines may cause leaks at the valve.**

If this is an existing installation, go to point 5. Steps 1 - 6 are the Flushing Procedure.

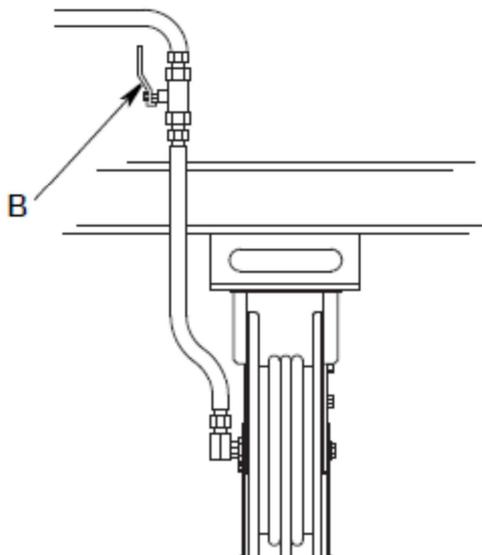


Fig. 2

1. Close the stop valve for liquid media (B, Fig. 2) at all outlet points.
2. Ensure the following:
  - The main fluid outlet valve at the pump is closed.
  - Compressed air supply to pump motor has been turned off.
  - The compressed air valve is open.
3. Slowly open the main fluid valve.
4. a. Place the end of the hose (without attached metering valve) in a waste oil container.  
b. Fix the hose in place in waste oil container so that it cannot slide out during the flushing procedure.  
c. If there exist multiple outlet points in the system, start with the point that is furthest from the pump. After that, flush the next furthest point, and continue until you reach the pump itself.

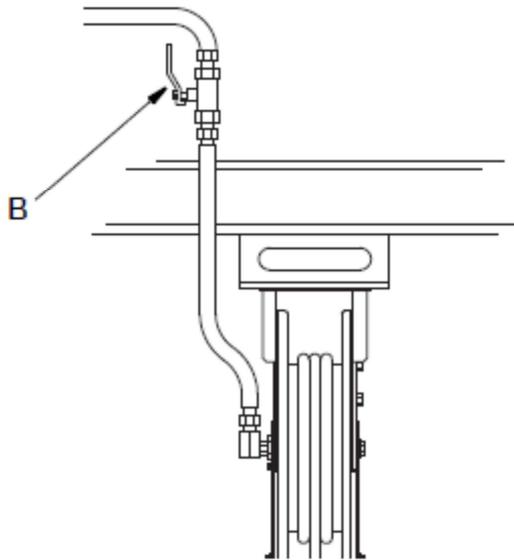


Fig. 3

5. Slowly open the stop valve (B, Fig. 3) at outlet point. Flush out a sufficient enough quantity of oil in order to ensure that the entire system has been flushed clean. Close the valve.
6. Repeat step 5 at all other outlet points.

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### 3.5.1 Installing the electronic control unit and seals

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**!** It is important to ensure that the seals (2) are installed properly when installing the electronic control unit (1) in the section for liquid media. Seals that have not been installed properly may result in invalid/incorrectly reported dispensation amounts arising from the broken glass housing of the reed switch.

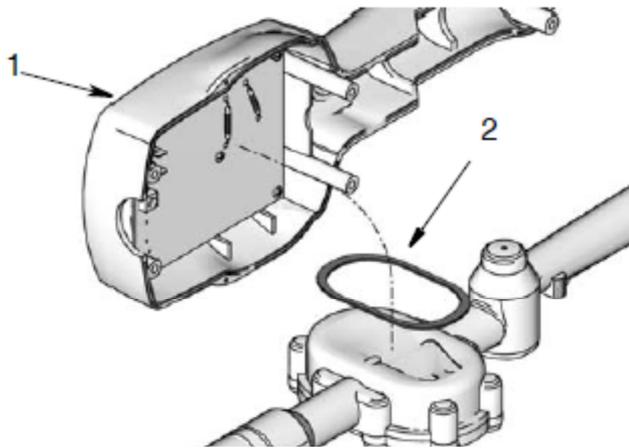


Fig. 4

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### 3.5.2 Connecting the hose to the metering system

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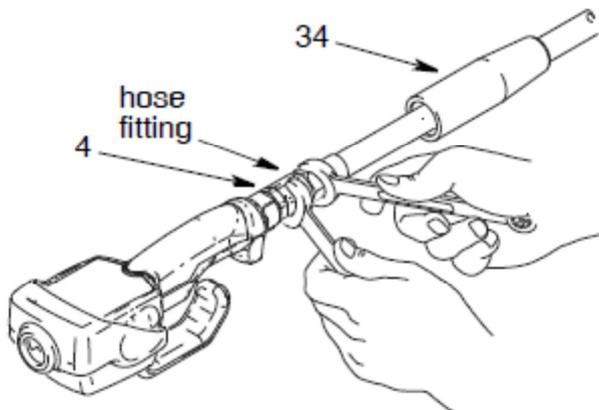


Fig. 5

1. Follow the instructions for pressure relief on page 9.
2. Slide the rotating cover (34) onto the hose with the small end first, before connecting the hose fitting to the rotating device (4).
3. Apply thread sealant to the outer screw threads of the hose fitting. Thread the hose fitting into the rotating device (4) and screw it on tightly.



**Ensure that the sealant hardens according to the manufacturer's instructions before allowing media to enter the system.**

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### 3.5.3 Installing Extension and Nozzle on Meter

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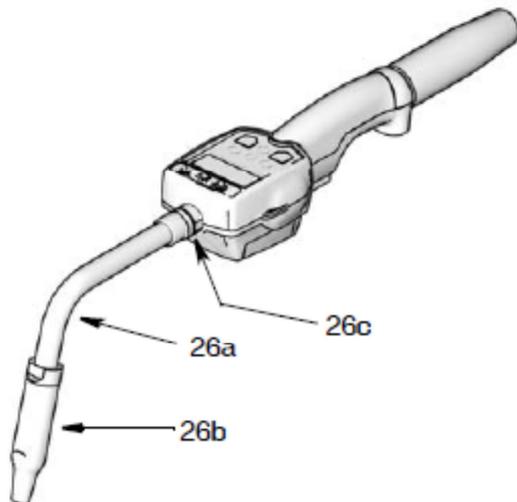


Fig. 6

1. Thread the fitting (26c) into the extension element (26a).
2. Screw the extension fitting (26c) into the outlet side of the metering system using at least three complete turns. (Fig. 6).



**Do not screw on the extension element too tightly at the sealing nut. This may result in cracks in the housing of the measurement device.**



**Do not use any locking pins or manual valve gates. You will need to use an automatic nozzle tip on the metering system with a measuring device, or the metering system may be damaged.**

3. Screw a new nozzle tip (26b) onto the extension element. Screw it on tightly with an adjustable wrench.

 When tightening the nozzle tip, position the wrench only on the surfaces of the nozzle tip connector meant for the wrench. Do not remove the connector from the nozzle tip. This will impact the performance of the nozzle tip.

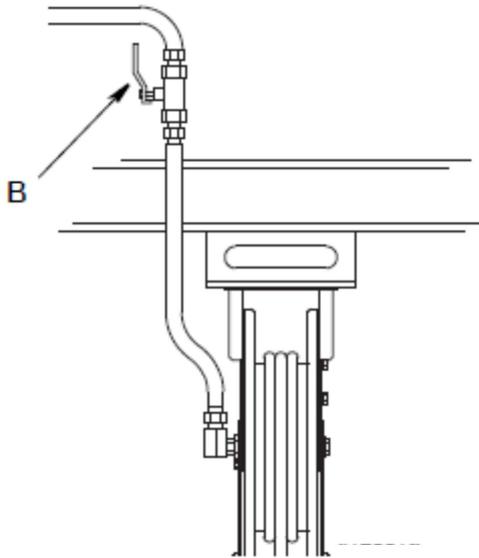


Fig. 7

4. Open the stop valve (B, Fig. 7) at all metering points and start the pump in order to pressurize the system.
  - In order to ensure the accuracy of the metering system, all the air from the pipes/lines for liquid media and the outlet valves must be bled out before commissioning.
  - The system flow volume must be set to the desired range, which is normally 5,7 l/min (1.5 gpm). Do not exceed a flow volume of 19 l/min (5 gpm).

## 4. Configuration and operation manual for HDZ metering system

### 4.1 Configuration

#### 4.1.1 Locking and unlocking the lever

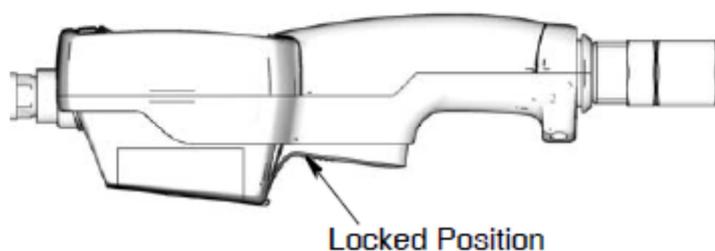


Fig. 8

To lock the lever (Fig. 8), press on the grooved part of the lever (see below) until it snaps into the locked position.

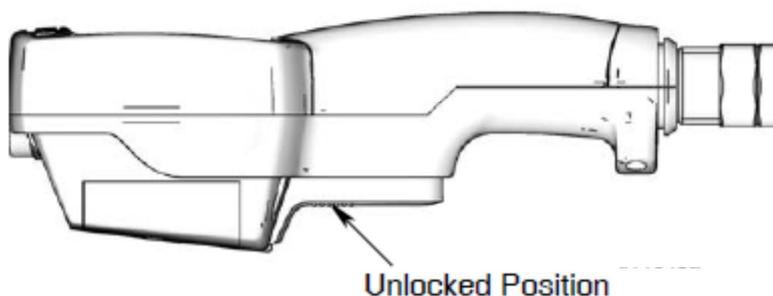


Fig. 9

To unlock the lever (Fig. 9), press on the smooth part of the lever until it snaps out of the locked position. When the lever is unlocked, fluid dispensation will be halted.

In auto mode, the device stops when the preset amount has been dispensed.

In manual mode, the lever does not unlock automatically. Instead, it will need to be unlocked manually.

#### 4.1.2 Terms

The following terms will either be shown on the display or are used often in this operating manual.

- **R-TOTAL:** Resettable total amount. Shows the cumulative amount dispensed in all operating modes. This value can be reset to zero.
- **TOTAL:** Resettable total amount. Shows the cumulative amount dispensed in all operating modes during the lifetime of the unit. This value cannot be reset to zero.

- **Manual operation mode**

Dispensation mode in which the display counts from zero upwards in order to indicate the volume dispensed. In this operation mode, the lever can be locked; however, it will need to be unlocked manually when the desired amount has been dispensed. The storage setting also unlocks the lever.

- **Automatic mode**

Dispensation mode in which a preset volume input by the user is dispensed. Once the preset volume has been dispensed, the lever will be unlocked to stop the dispensation procedure and the volume dispensed will be shown on the display. At this point in time, the lever can be actuated to dispense more medium; the counter will continue to run on the display.

- **Asleep / Awake mode**

Asleep is a battery-saving mode that turns off display illumination after 45 seconds of inactivity. The display becomes active once again (back to awake mode from asleep mode) when a key on the keypad is pressed or when the lever is pulled to dispense liquid media.

### 4.1.3 Keys



Fig. 10

- **Manual / Reset\***

Used to select manual mode for dispensation (see conditions). For these keys, pressing them once selects the mode indicated, while pressing them a second time resets the display to zero.

- **Auto / Reset\***

Used to select automatic mode for dispensation (see conditions). For these keys, pressing them once selects the mode indicated, while pressing them a second time resets the display to zero.

\* Press the Manual / Reset and Auto / Reset keys simultaneously to display the configuration menus (page 16).



- **Total**

The key can be pressed in any mode to display the resettable total amount and the non-resettable total amount.

- **10, 1.0, and 0.1**

These keys are used in auto mode and during configuration to input the amount to be dispensed.

**☞ All keys are deactivated when media is being dispensed.**

## 4.2 Configuration menus

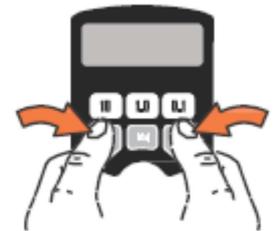


Fig. 11

1. When the display is dark (asleep function), activate it by pressing any key.



2. Press and hold down the Manual / Reset and Auto / Reset keys simultaneously for approx. six seconds to enter the configuration menus.



**During the first four seconds, all segments will be displayed. Subsequently, the software version number will be displayed for two seconds.**

3. There are five available configuration menu screens that are saved in a preset sequence.
  - a. The first screen displayed shows the menu for the resettable total amount (Fig. 12, page 17). When the menu is displayed, R-TOTAL (G) flashes in the bottom right corner of the screen.
  - b. Press and hold down the Auto / Reset key to enter the metering units menu (Fig. 13, page 18). When this menu is displayed, the last metering set will flash in the bottom right corner of the screen.
  - c. Press and hold down the Auto / Reset key once again to enter the calibration menu (Fig. 14, page 19). When this menu is displayed, CAL will flash on the screen.
  - d. Press the Auto / Reset key once again to display the menu for the automatic preset amount (Fig. 15, page 20). When this menu is displayed, AUTO will flash on the screen and the current preset amount will be displayed.
  - e. Press the Auto / Reset key once again to display the Standard cutoff amount menu (Fig. 16, page 21). When the menu is displayed, the clock symbol will flash and the saved standard cutoff amount will be displayed.



The value shown when you leave the current menu is the value that will be saved.

## 4.2.1 Resettable total amount

Resets the total dispensation to zero or saves the total dispensation amount shown. The resettable total amount will continue to be incremented until it is reset.



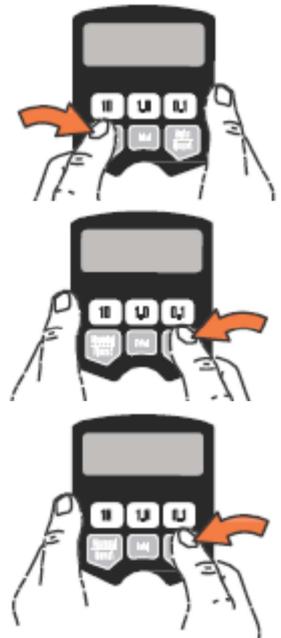
Fig. 12

1. If the menu for the resettable total amount is not already being displayed, perform steps 1-2 in the section entitled "Configuration menus".
2. R-TOTAL flashes and indicates that you are in the menu for the resettable total amount. The current saved total amounts and the metering units are displayed.
3. Perform **ONE** of the following:

- a. Press and hold down the Manual / Reset key to reset the total amount to zero (0).
- b. Press and hold down the Auto / Reset key to save the zero (0) metering units. The menu for metering units will be displayed.

**OR**

Press and hold down the Auto / Reset key to save the total amounts currently being displayed. The menu for metering units will be displayed.



## 4.2.2 Metering units

Sets the metering units to pints, quarts, liters, or gallons.



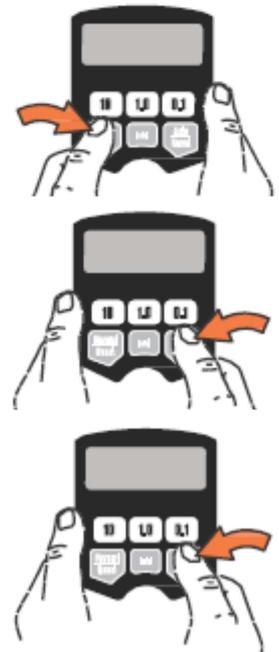
Fig. 13

1. If the menu for the metering units is not already being displayed, perform steps 1-3 in the section entitled "Configuration menus" on page 16.
2. GAL, QTS, PTS, or LITERS flashes and shows that you are currently at the screen for the metering units menu.
3. Perform ONE of the following:
  - a. Press and hold down the Manual / Reset key to display the next metering unit in sequence. Each time you press and hold down this key, the next metering unit in the sequence will appear on the display.

- b. When the desired metering unit is displayed, press and hold down the Auto / Reset key to use (lock in) this new metering unit. The calibration menu will be displayed.

**OR**

Press and hold down the Auto / Reset key. The currently displayed metering unit will be saved. The calibration menu will be displayed.



## 4.2.3 Calibration

Carries out a recalibration of the metering system with measurement device for the dispensation of other liquid media.



Fig. 14

1. If the calibration screen is not already being displayed, perform steps 1-3a in the section entitled "Configuration menus" on page 16.
2. CAL flashes and indicates that you are in the calibration menu.
3. Perform ONE of the following:  
Use the current calibration.

Press and hold down the Auto / Reset key to lock the value displayed. You will now be taken to the Automatic preset amount menu.

### OR

The counter can be recalibrated as follows:

- a. If the metering unit gallons, pints, or quarts is selected, dispense exactly one quart of liquid into a calibrated 1-quart receptacle.  
If the metering unit liters is selected, dispense exactly one liter of liquid into a calibrated 1-liter receptacle.



**In order to achieve a perfect calibration, you will need to dispense an exact amount of liquid.**

- b. Press and hold down the Auto / Reset key until CAL is no longer flashing.
- c. If CAL should start flashing again, the display should show 1.00, indicating that the recalibration is complete.



**If a mistake is made during the calibration of the metering system, repeat steps a to c of the calibration procedure to recalibrate the metering system again.**

- d. Press and hold down the Auto / Reset key to continue to the Automatic preset amount menu.



## 4.2.4 Automatic preset amount

Specifies an amount that will be displayed when you select Automatic dispensation mode. Usually, the amount entered here is the amount that is most frequently dispensed.



Fig. 15

1. If the menu for the Automatic preset amount is not already being displayed, perform steps 1-3b in the section entitled "Configuration menus" on page 16.
2. AUTO flashes and indicates that you are in the Automatic preset amount menu. The current Automatic preset amount saved in memory will be displayed. (This is the amount that will be displayed when the Auto/Reset key is pressed during normal operation.)
3. Perform ONE of the following:
  - a. Press the 10 key to modify the tens digit.



Press the 1.0 key to modify the ones digit.



And press the 0.1 key to modify the first digit after the decimal point. The value zero cannot be input.



**Press the Manual / Reset key to reset the display to 0.00.**

- b. Press and hold down the Auto / Reset key to lock in the amount entered. The standard cutoff amount menu will now be shown.



OR

Press and hold down the Auto / Reset key to lock in the preset amount currently displayed. The display now brings you to the standard cutoff amount menu.



#### 4.2.5 Standard cutoff amount

Prevents an accidental overfilling when the dispensation is set to be triggered in manual operation. The factory preset for the standard cutoff amount is 5 quarts.



Fig. 16

1. If the menu for the standard cutoff amount is not already being displayed, perform steps 1-3c in the section entitled "Configuration menus" on page 16.
2. The clock symbol will blink to indicate that you are located in the standard cutoff amount menu. The saved standard cutoff amount will be displayed.
4. Perform ONE of the following:
  - a. Press the 10 key to modify the tens digit.



Press the 1.0 key to modify the ones digit.



And press the 0.1 key to modify the first digit after the decimal point. The value zero cannot be input.



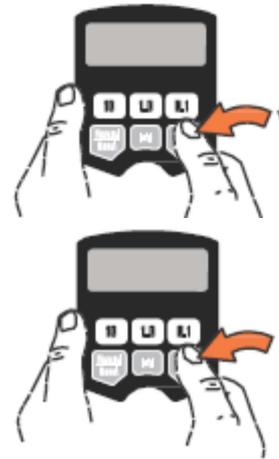


**Press the Manual / Reset key to reset the display to 0.00.**

- b. Press and hold down the Auto / Reset key to lock in the amount entered. The standard cutoff amount menu will now be shown.

**OR**

Press and hold down the Auto / Reset key to lock in the preset amount currently displayed. The display now brings you to the standard cutoff amount menu.



## 4.3 Operation



Fig. 17

### 4.3.1 Dispensing fluid in manual mode

1. Press and hold down the Manual / Reset key.

- If the display was dark ("asleep" mode), it will be activated and show the amount that was on the screen before the display went inactive (dark).
- If the display was active and the counter was in manual dispensation mode, the display will be set to 0.00.
- If the display was active and the device was in total amount display mode or in automatic dispensation mode (Auto), the counter will switch to manual dispensation mode (Manual).



2. When the display is active, dispensation can be done starting from zero or the amount displayed by performing one of the following steps.

- If the display does not show 0.00, press the Manual / Reset key once again to reset the display to 0.00. Go to step 3.



OR

- Go directly to step 3 to start dispensation at the amount shown on the screen.

3. Pull back on the dispensation lever. The lever can also be locked in place. See section on locking and unlocking the lever on page 14.

Medium will be dispensed, and the displayed amount will continue to be incremented starting from zero or the previously dispensed amount.

4. Release or unlock lever when the desired amount of medium has been dispensed.

The flow of medium will stop. The amount dispensed will be displayed.

Now the Manual / Reset key can once again be pressed to reset the amount displayed back to zero.



**When the lever is released, the automatic nozzle tip prevents medium from flowing out of the extension element.**

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### 4.3.2 Dispensing liquid media in automatic mode

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Fig. 18

**Before beginning a dispensation cycle with a preset amount, ensure that AUTO is shown on the display. If AUTO is not yet shown on the display, this means that the device is not yet in automatic dispensation mode, and that the dispensation of medium will not be stopped once the preset amount has been dispensed.**

1. Press and hold down the Auto / Reset key.

The display will become active if it was previously dark, and AUTO and the saved preset dispensation amount will be displayed. The factory preset for this value is 5.00.



**To modify the saved preset dispensation amount, see section entitled "Automatic preset amount" on page 20.**

2. The preset amount shown can be dispensed or modified via one of the following steps.

- Go directly to the step 3 to dispense the preset amount shown.

**OR**

- To modify the preset amount shown:
  - a. Press and hold down the Auto / Reset key to reset the display to zero.



- b. Press the 10 key to modify the tens digit.



Press the 1.0 key to modify the ones digit.



And press the 0.1 key to modify the first digit after the decimal point. The value zero cannot be input.



**Press the Manual / Reset key to reset the display to 0.00.**

3. Lock the lever. See section on locking and unlocking the lever on page 14.

Medium will be dispensed, and the displayed dispensation amount will continue to be incremented starting from zero. Once the preset amount has been dispensed, the lever will be unlocked, the material dispensation will be stopped, the amount dispensed will be displayed, and the counter will switch to manual dispensation mode.

To end the material dispensation before the preset amount is dispensed, unlock the lever manually. To continue the dispensation, lock the lever, and the dispensation amount will continue to be incremented from the last value until the preset amount has been reached.

If the dispensation is to be continued after the lever has unlocked itself upon reaching the preset amount, press down on the lever. The dispensation amount will then continue to be incremented in manual dispensation mode until the lever is released.

 **When the lever unlocks itself, the automatic nozzle tip prevents medium from flowing out of the extension element.**

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#### 4.4 Show total amounts

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These instructions tell you how to display the non-resettable and resettable total amounts. To modify the resettable total amount, see the section entitled "Resettable total amount" on page 17.

1. If the display is dark, press the Manual / Reset key or Auto / Reset key to activate the display.



#### Resettable total amount



Fig. 19

2. Press the Total key to display the resettable total amount (Fig. 19).



## Non-resettable total amount



Fig. 20

3. Press the Total key again to display the non-resettable total amount.



When gallons, quarts, or pints are set as the unit of measurement, the resettable total amount, as shown below, will be indicated in gallons (Fig. 20). When liters are set as the unit of measurement, the resettable total amount will be indicated in liters.

Press the Total key to toggle between the non-resettable and resettable total amount.

4. Press the Manual / Reset or Auto / Reset key to return to manual or automatic mode.



## 4.5 Error codes

The possible error codes are listed below. The device will continue to monitor the amount dispensed even if an error occurs. If an error code is displayed, e.g. as shown in the illustration on the right, you have the following options:

- Press the Manual / Reset key. The error code will be deleted, the device will switch to manual mode, and the amount dispensed will be displayed.
- Press the Auto / Reset key. The error code will be deleted, the device will switch to auto mode, and the preset amount will be displayed.



Fig. 21

<b>Error code</b>	<b>Cause</b>	<b>Solution</b>
Err 1	The flow volume is higher than 19 l/min (5 gpm). Air was pumped through the pipes/lines.	Set the delivery rate such that it does not exceed 18,9 l/min. Bleed air from pipes/lines.
Err 4	The dispensation continued even though it should have been switched off.	Check if device's weight is pressing on lever, or if something is blocking the lever. The device will check the dispensation every two seconds and repeat the error code until the lever has been released and the error code is deleted.
Err 5	The device has dispensed the standard cutoff amount and ended the dispensation of medium.	Press the Manual / Reset key and dispense fluid again. To modify the standard cutoff amount, see section entitled "Standard cutoff amount" on page 21.
Err 6	A preset dispensation amount of zero was entered or zero is saved as the standard value, and an attempt was made to carry out a dispensation procedure with a preset value.	A value greater than zero must be entered. See section on the dispensation of fluid in automatic mode on page 24.

## 5. Troubleshooting



Relieve the pressure in the device/system according to the procedures on page 9 before inspecting or repairing the metering system. First, check if all valves and regulators and the pump are working properly.

Problem	Cause	Solution
The battery symbol is displayed.	The battery is weak.	Replace the battery. See section on replacing the battery on page 32.
The battery symbol is flashing, and bAtt (BATT) is flashing.	The battery is empty or is not suitable for this purpose (bad quality).	Replace the battery. See section on replacing the battery on page 32.
The display cannot be activated or shows strange symbols.	Battery is defective or empty.	Replace the battery. See section on replacing the battery on page 32.
	Malfunction in electronic control unit.	Replace the electronic control unit.
	No dispensation mode was selected.	Select a dispensation mode by pressing the Manual / Reset key or the Auto / Reset key.
Too little or no medium flows out during dispensation	Filter is clogged.	<ol style="list-style-type: none"> <li>1. Relieve the pressure.</li> <li>2. Clean or replace filter. See section on replacing the filter on page 33.</li> <li>3. If this does not solve the problem, have your TECALEMIT Service repair or replace the device.</li> </ol>
	Pump pressure too low.	Set a higher pump pressure.
	The stop valve was not opened properly.	Open stop valve all the way.
	Foreign objects have gotten stuck in the counter housing.	Have your TECALEMIT Service repair or replace the device.

Problem	Cause	Solution
The dispensation amount displayed is inaccurate.	The device needs to be calibrated for the liquid to be dispensed.	Calibrate the counter device for the liquid to be dispensed. See section on calibration factor on page 19.
Oil is leaking from the connection between the medium outlet pipe and the housing.	The outlet pipe, or the grommet nut, or the angle section is loose or damaged.	Check if the outlet pipe, or the grommet nut, or the angle section is loose or damaged. Tighten or replace as necessary.
	The grommet nut is positioned incorrectly.	Ensure that the PTFE seal on the grommet nut is facing the surface that it is tightened against.
Medium leaks at/out of the covering/control unit of the metering system.	Insufficient seal at swivel joint / hose connection.	Wrap PTFE strips around (leave at least two interlocking screw windings exposed to ensure an electrically conductive connection) or apply thread sealant to the screw threads of the hose and tighten the joint. See step 9 in the installation instructions.
	Insufficient seal at connection between rotation element / metering system housing	Set torque for fitting to 20-25 ft-lb (27 to 34 Nm).
	Damaged valve spindle module.	Replace or clean valve spindle and O-rings.
	Insufficient seal at the metering system housing plate. <b>NOTE:</b> Use a straightedge to check the housing plate of the metering system. If the tool shows that they are flat, the plate and the seal have been installed properly. If the tool shows that the plate is not flat, the metering system has been damaged.	Have your TECALEMIT Service repair or replace the device.

Problem	Cause	Solution
<p>The metering system leaks during automatic mode.</p> <p><b>NOTE:</b> It is important to differentiate between two possible causes for this problem. A new nozzle tip cannot solve a leak that is caused by a defective valve.</p>	<p>A seal on the automatic nozzle tip is damaged.</p>	<p>Replace nozzle tip. See section on replacing nozzle tip on page 33.</p>
	<p>Valve seals are damaged or clogged.</p>	<p>Replace or clean valve spindle and O-rings.</p>
<p>Device does not stop dispensation after the preset auto amount has been dispensed.</p>	<p>Automatic amount was not input correctly.</p>	<p>Enter a preset dispensation amount in automatic dispensation mode. Ensure that AUTO is displayed under volume value.</p>

## 6. Maintenance

### 6.1 Replacing the battery

! Do not replace the battery when there is information visible on the display. Before replacing the battery, first wait until the device switches to sleep mode and the display is empty. If the battery is replaced while data is being shown on the display, this data will be lost.



The battery may only be replaced in an area free of hazards, away from flammable liquids or fumes. The battery must conform to the following safety regulations:

- Duracell® alkaline MN1604, PC1604 or
- Eveready® alkaline EN22, 522

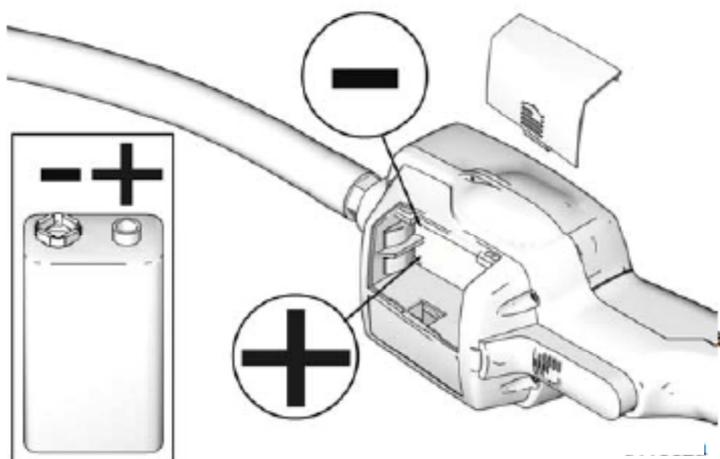


Fig. 22

To replace the battery, first remove the battery cover, and then replace the old battery with a new one (Fig. 22).



## 7. Disposal

The device is to be emptied completely and the liquids properly disposed of in case it is taken out of service.

The equipment is to be disposed of properly when taken permanently out of service:



- Return old metal for recycling.
- Return plastic parts for recycling.
- Return electronic waste for recycling.

 **The water legal regulations are to be followed.**

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### 7.1 Return of batteries

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Batteries must not be disposed of with the domestic waste. Batteries can be returned free of charge via a suitable collecting point or to the dispatch stores. Consumers are legally obliged to return used batteries.

Batteries that contain harmful substances are marked with a crossed out dustbin (see above) and the chemical symbol (Cd, Hg or Pb) of the heavy metal that is decisive for the classification as containing harmful substances:

1. "Cd" stands for cadmium.
2. "Pb" stands for lead.
3. "Hg" stands for mercury.

## 8. Declaration of Conformity



### Konformitätserklärung Declaration of Conformity

Hiermit erklären wir, dass die Bauart  
*We herewith declare that the construction type*

Typ: **Handdurchlaufzähler mit Mengenvorwahl ne**  
Type: **hand flow meter with volume preselection ne**  
Bezeichnung: **Durchflussmesser**  
Designation: **flow meter**  
Artikel-Nr.: **027170475**  
Item No.: **027170475**

in der von uns gelieferten Ausführung folgenden einschlägigen Bestimmungen  
entspricht:  
*in the form as delivered by us complies with the following applicable regulations:*

- |  |  |
|--|--|
| - Maschinenrichtlinie 2006/42/EG<br><i>Machinery safety 2006/42/EC</i> | - EMV-Richtlinie 2004/108/EG<br><i>EMC directive 2004/108/EC</i> |
|--|--|

EG-Dokumentationsbevollmächtigter: Jörg Mohr Horn GmbH & Co. KG  
*EC official agent for documentation:* Munketoft 42  
24937 Flensburg

23.04.2015  
Datum  
Date

  
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