

ME 6 ...

Overfill prevention sensor tester



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1 Overview



Testing obligations in accordance with §§ 15 and 16 of the German Industrial Safety Regulations (BetrSichV) and § 1 of the German Regulations on Equipment Handling Substances Hazardous to Water (WasgefStAnlV). In other countries, the corresponding national rules and regulations must be observed.

When in operation, storage facilities for static tanks, filler points, petrol stations, airport refuelling equipment, and their components, e.g. overflow prevention sensors, must be tested by an approved inspection agency prior to commissioning, re-commissioning (after modifications subject to testing) as well as repeatedly at specific testing intervals.

The system parts, e.g. overflow prevention sensors, must be tested by the operator or an authorised person as required by the manufacturer's operating instructions at regular intervals.

The ME 6 ... overflow prevention sensor testing device guarantees optimal and safe testing in accordance with EN 13616.

Three different types of these testing devices are available; they differ in the nature of the application and the medium which is to be monitored:

- The ME 6 is used to test overflow prevention sensors without product coding.
- The ME 6 P is used to test overflow prevention sensors with product coding in accordance with Quality Assurance systems (QSS).
- The ME 6 F is used to test overflow prevention sensors in LPG tanks.

In the following sections you will be guided by means of a detailed description through the installation and commissioning of the ME 6 ... overflow prevention sensor testing device.



The ME 6 ... overflow prevention sensor testing device may only be supplied with power by 4 pcs NiMH rechargeable batteries (type AA 1.2 V, 2000 mAh).

2 Safety instructions

The safety instructions in this manual are marked as follows:



If you do not comply with the safety instructions, there is a risk of accident, or the device/system may be damaged.



Useful tips and information in this manual that should be observed appear in italics and are identified by this symbol.

The ME 6 ... overflow prevention sensor testing device is used to test overflow prevention sensors in storage tanks. The testing device must be used exclusively for this purpose. The manufacturer accepts no liability for any form of damage resulting from improper use.

The ME 6 ... overflow prevention sensor testing device has been developed, manufactured and tested in accordance with the latest good engineering practices and generally accepted safety standards. Nevertheless, hazards may arise from its use. For this reason, the following safety instructions must be observed:



Do not change or modify the testing device or add any equipment without the prior consent of the manufacturer.



The operation and maintenance of the testing device must be carried out by expert personnel only. Specialised knowledge must be acquired by regular training.



Operators, installers and service technicians must observe all applicable safety regulations. This also applies to any local safety and accident prevention regulations which are not stated in this manual.



The manufacturer accepts no liability for any other rechargeable batteries than the required ones, see chapter 6, Technical Data.



Charging standard batteries instead of rechargeable batteries result in the risk of fire or explosion.

3 The ME 6 ... overflow prevention sensor testing device

3.1 Design and construction

The ME 6 ... overflow prevention sensor testing device is used to test overflow prevention sensors in accordance with EN 13616. In order to do this, the testing device is equipped with a socket coupler on a flexible spiral cable.

The testing device is operated by a touch screen.

Readings which has been saved can be transferred to a PC/laptop and archived by means of software and the USB socket.

The testing device is powered by 4 pcs NiMH rechargeable batteries. These can be replaced by the user. The batteries can be charged by a plug-in power supply or a PC/laptop via the USB socket.

A toggle switch is used to move between the two operating modes *Measurement* and *USB connection/charging*.

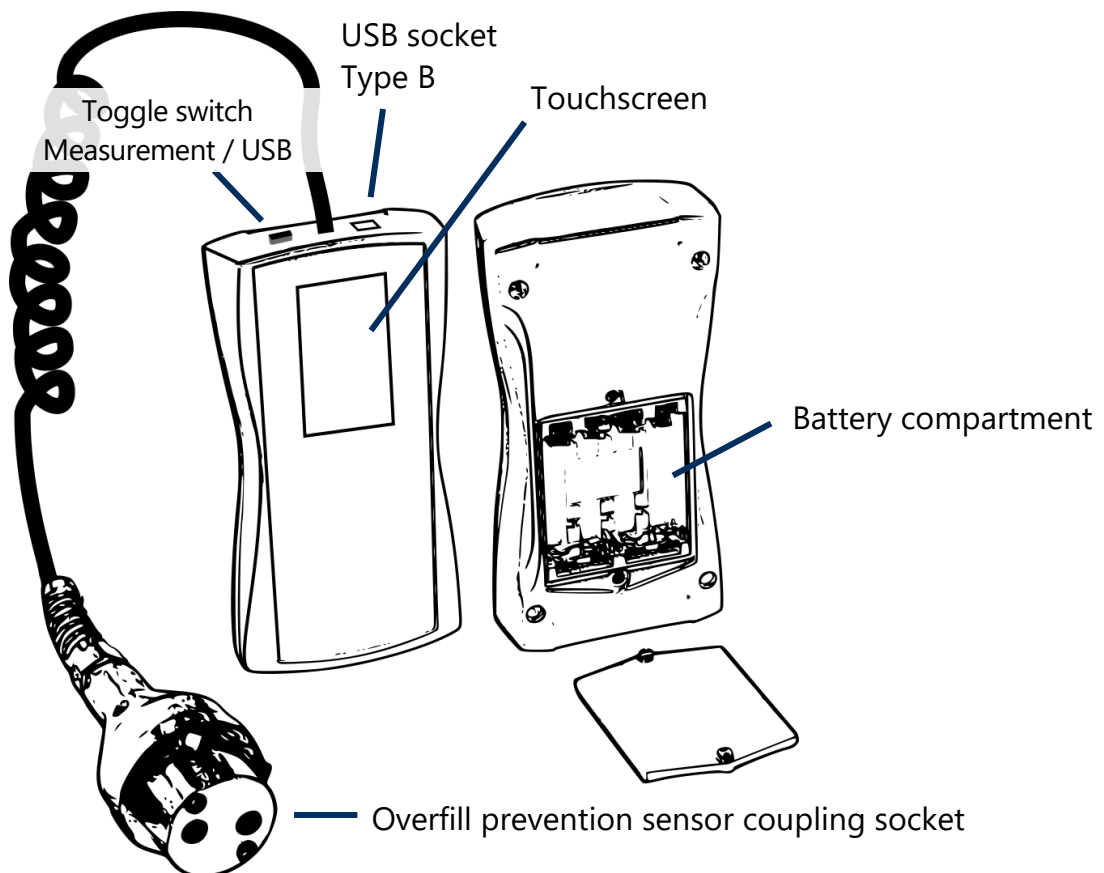


Figure 1: The ME 6 ... overflow prevention sensor testing device

3.2 Function

The overfill prevention sensor is heated by the intrinsically safe electric current of the ME 6 ... overfill prevention sensor testing device. The heating-up time needed is measured, assessed and presented on the screen. The switch-off time is treated in the same way. The QSS coding is captured and also displayed (ME 6 P).

As the testing device has an intrinsically safe output circuit, it can be used for testing all overfill prevention sensors approved by EN 13616. The testing device itself must be operated outside the Ex area. The type 903 socket coupler needed for the connection to the overfill prevention sensor is equipped with an appropriate length of cable. The testing device must be equipped with a FAFNIR socket coupler type AS 903 for checking the product identification.

The testing device is fitted with 4 pcs. NiMH rechargeable batteries. These batteries are charged with the plug-in power supply via the USB socket or with the USB host of a PC/laptop. The charging is only possible in the USB mode. Depending on the remaining capacity of the batteries, the charging time takes up to 14 hours. The batteries can freely be exchanged.

3.3 Scope of delivery

- The ME 6 ... overfill prevention sensor testing device with connected coupling cable (with product identification, without product identification, or LPG)
- USB cable type A/B
- 4 pcs NiMH rechargeable batteries (type AA 1.2 V, 2000 mAh), plugged in or separate
- Technical Documentation



Figure 2: Scope of delivery in carrying case as a set (e.g. ME 6 P)

4 Operation

4.1 Fundamentals

The ME 6 ... overflow prevention sensor testing device is operated by a *Touchscreen*; operations are activated by touching special activation fields. The user is generally guided by icons or informative items of short text with the result that it is quite evident in the individual screens which functions are triggered by the various activation fields. The activation fields which regularly recur are listed below.

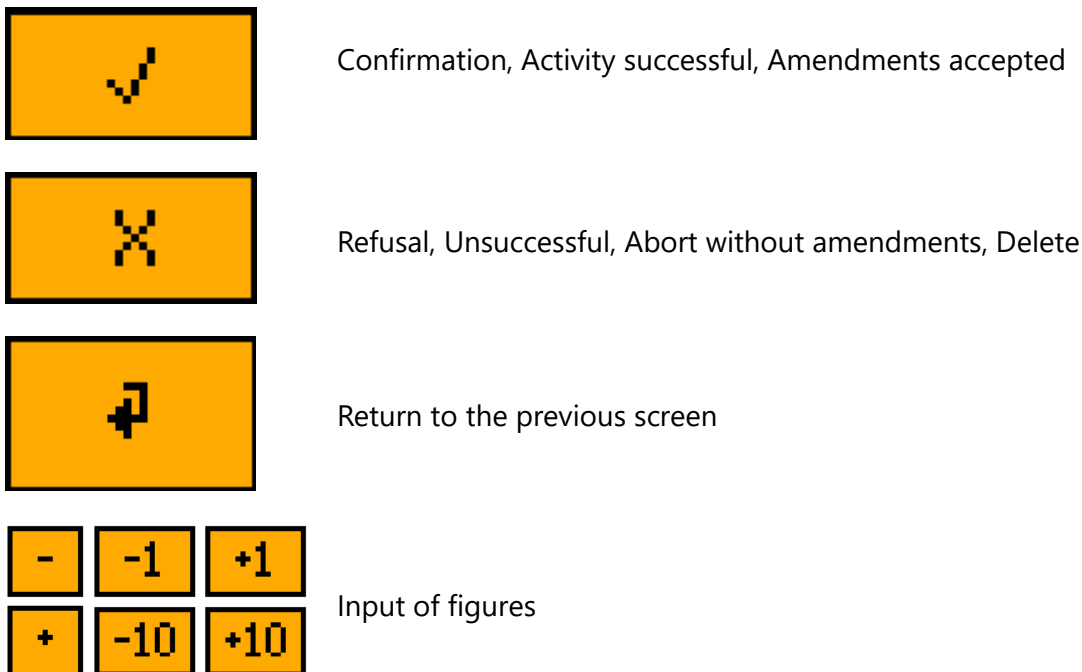


Figure 3: Activation fields of the graphical user guidance



In this manual important activation fields are highlighted by a fingertip in symbolic form.



Excessive pressure can damage the screen. Gently touching the screen is sufficient to operate it.



If no reaction is produced, the touch screen is perhaps decalibrated. In this case, all that is needed to start the calibration process is to touch the screen with a finger for about 5 seconds.

On the top segment of the main screen, date, time, memory usage, battery status and normal or prolonged battery runtime in power save mode are displayed.



< Measuring range data storage over 50% full

< **Standard battery runtime:** Batteries about 1/3 discharged



< Measuring range data storage over 50% full

< **Prolonged battery runtime:** Batteries about 1/3 discharged



< Memory almost empty

< Batteries are being charged



< Memory almost full

< No batteries inserted; testing device being powered via the USB socket

Figure 4: Status display

4.2 Start-Up

If the testing device was supplied with 4 unplugged separate NiMH rechargeable batteries, first the batteries must correctly be inserted for starting up. Open the battery compartment on the rear side of the testing device with a Philips screwdriver and insert the batteries according to the symbols in the battery compartment. The testing device starts for the first time to enter the basic settings.

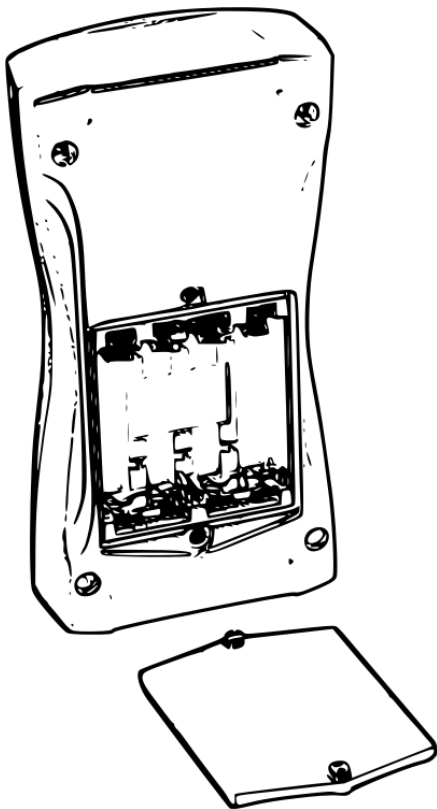


Figure 5: Battery compartment in the rear side of the testing device

4.2.1 Basic settings

After the first start or reset to the factory settings, the basic settings are to be set displayed automatically in sequence. The touch screen must then be calibrated. To do this, each of the icons in the 4 corners must be touched until the next one is shown. A point situated in the middle must be touched as final test.

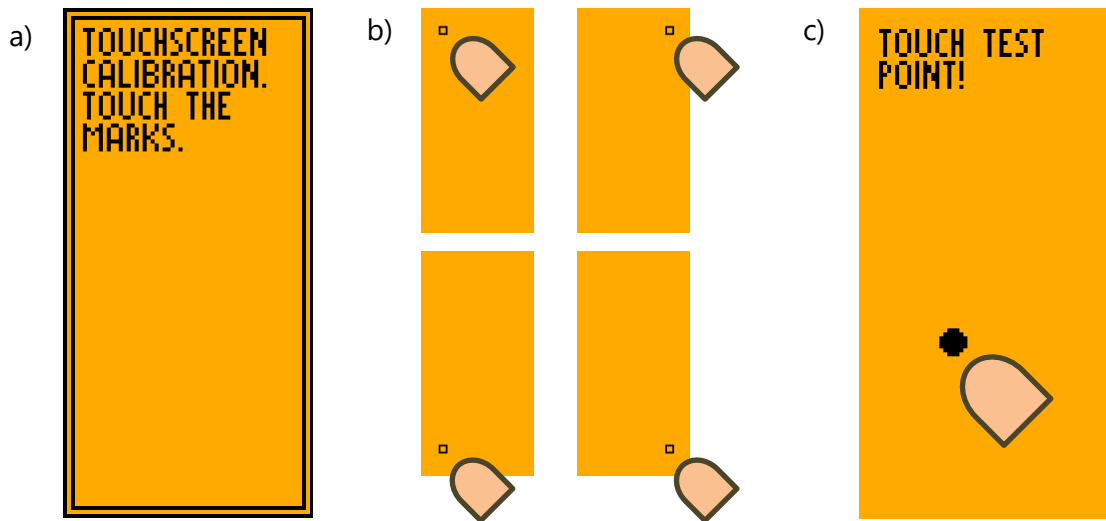


Figure 6: Calibrating the touch screen

The calibration can fail if the points are incorrectly touched. In this case the basic settings are interrupted and the standard values are loaded. However, it is still possible to configure the testing device at a later time by means of the graphical user interface.

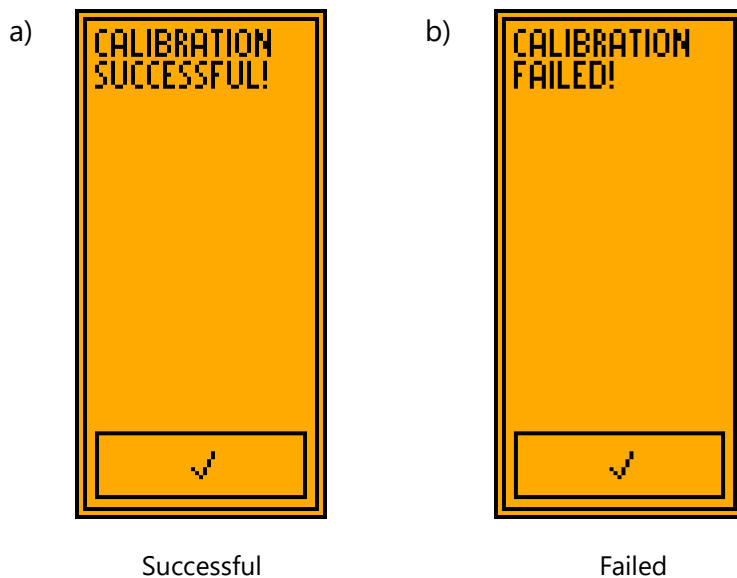


Figure 7: Results of touch screen calibration

The country is selected after calibrating the touch screen. This determines the user interface language and, when applicable, the assessment methods. Select by touching the relevant field.



Figure 8: Country selection

The real time clock is adjusted after selecting the country. The date can be set in the first screen and the time in hours and minutes in the second screen by touching + and -.

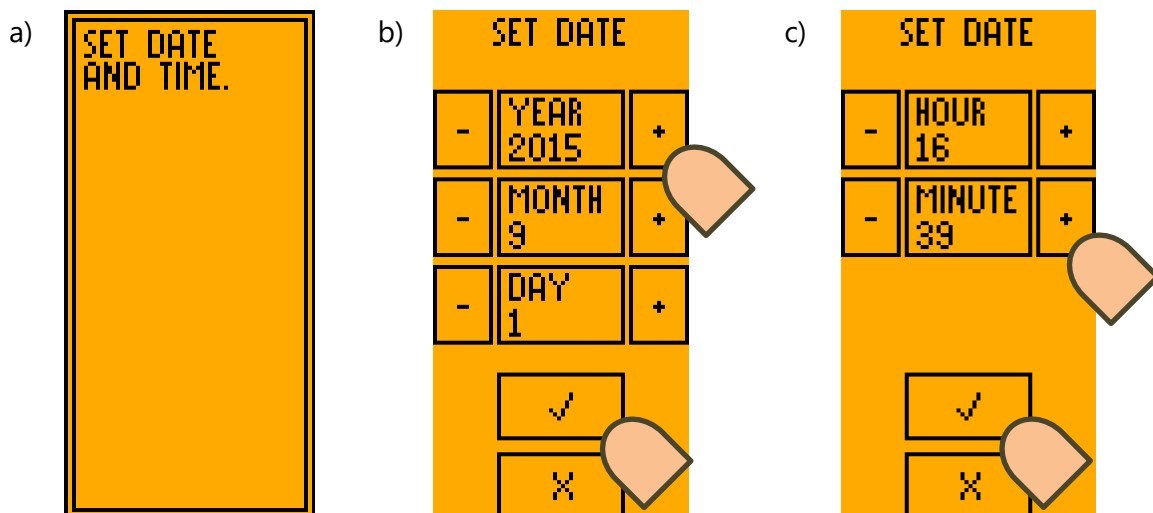


Figure 9: a) Date and time b) Setting the date c) Setting the time

4.3 Testing the Overfill Prevention Sensor

The operating mode *Measurement* must be set in order to be able to test overfill prevention sensors with the ME 6 ... overfill prevention sensor testing device. To set the mode, push the toggle switch on the upper side of the testing device into the corresponding position.

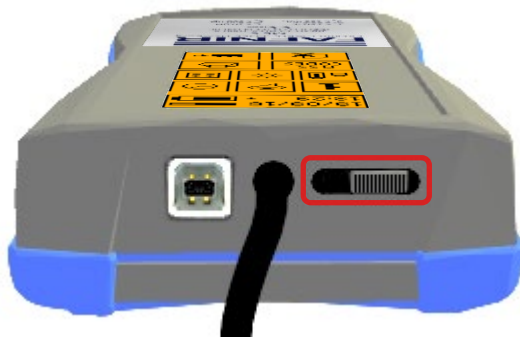


Figure 10: Toggle switch in the measuring position

Testing the heating-up time of an overfill prevention sensor starts as soon as an overfill prevention sensor is connected to the socket coupler and recognised by the system.



In power save mode with prolonged battery runtime, the automatic start of a measurement is disabled. Then the device can be reactivated only by touching the screen.



If the test fails to start, the resistance is outside the applicable figures; this is caused, for example, by a short circuit or a cable breakage or by the toggle switch being in the wrong position.

The standard test includes the test of the heating-up time and optionally after successful completion the test of the switch-off time. This can be declined in a selection dialogue. For ME 6 P the standard test includes the product recognition (QSS code).

These tests can also be carried out individually if they are selected via the main menu in the operating mode "Measurement".

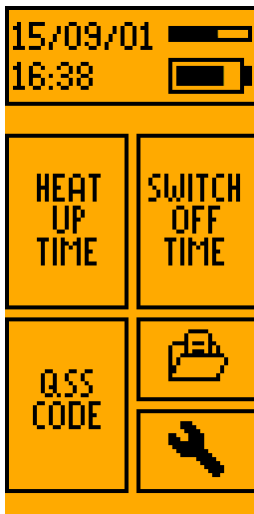


Figure 11: Main menu, operating mode "Measurement"

The faults SHORT CIRCUIT and RESISTANCE TOO HIGH can occur in all tests, which stop the test immediately. In case of the RESISTANCE TOO HIGH fault, the reason may be a broken cable.

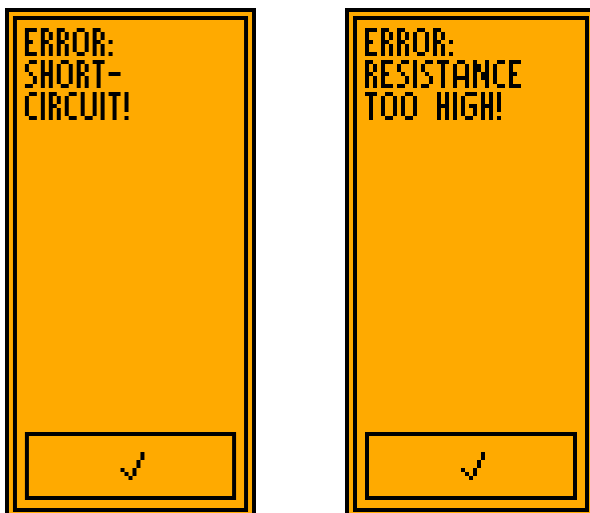



Figure 12: Fault display "Short circuit" and "Resistance too high"

4.3.1 Heating-up time

The test starts automatically when the overflow prevention sensor is connected to the socket coupler or if the field HEATING-UP TIME is selected in the main menu.

 In power save mode with prolonged battery runtime, the automatic start of a measurement is disabled. Then the device can be reactivated only by touching the screen.

For ME 6 P the testing device attempts to read the QSS code. The code is displayed and the actual measurement commences. The overflow prevention sensor is heated up and the progress of the change in resistance is displayed graphically. If the target resistance value is not reached within 180 seconds, the measurement is aborted with a fault. At the end of a successful test, a dialogue asks if the TEST FOR SWITCH-OFF TIME is to be performed.

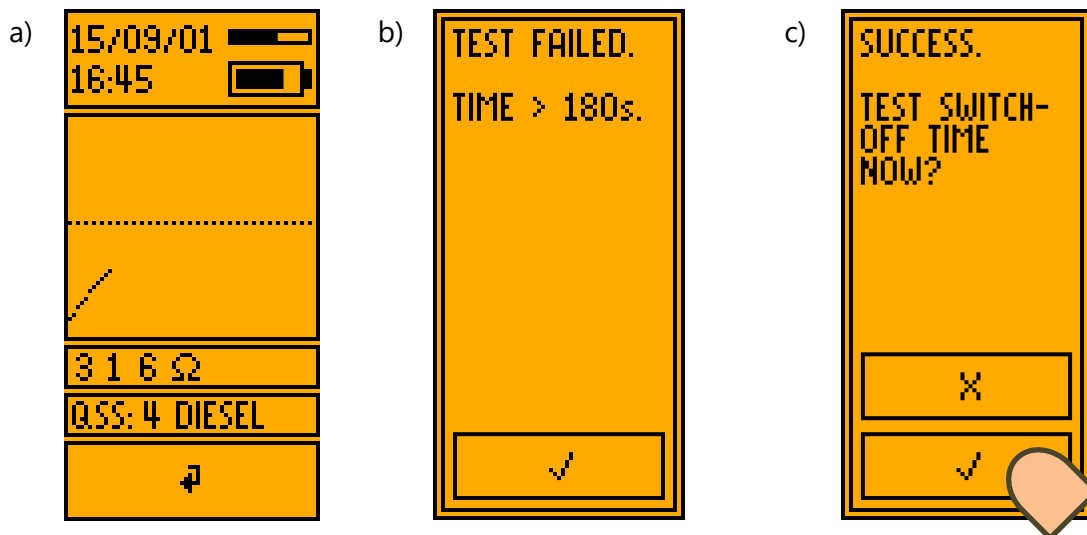


Figure 13: a) Test for heating-up time b) Error message c) Test result

4.3.2 Switch-off time

The TEST FOR SWITCH-OFF TIME can be performed as an option immediately after a successful TEST FOR HEATING-UP TIME. A corresponding dialogue is superimposed on the display for this purpose. The test can also be selected manually by selecting the field SWITCH-OFF TIME in the main menu.

The switch-off time is tested by heating the overflow prevention sensor. This is displayed by the message HEAT. After a target temperature has been reached, the message changes to READY and a 3-second count-down is displayed which ends with the command IMMERSE. The overflow prevention sensor must now be manually immersed in a test liquid. The time needed for the overflow prevention sensor to fall to a pre-set value is measured.

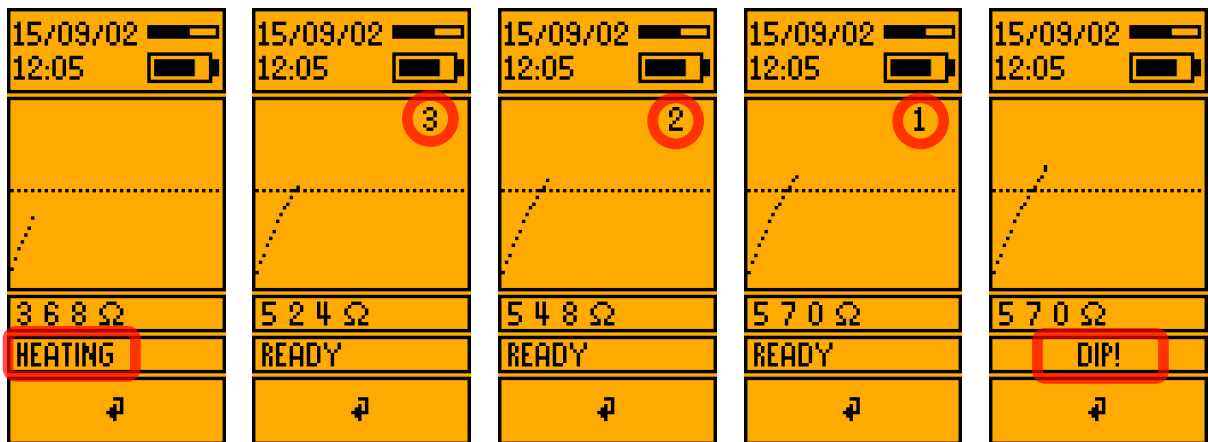


Figure 14: Images showing the test of the switch-off time from the heating-up phase to the "Immerse" command after the count-down

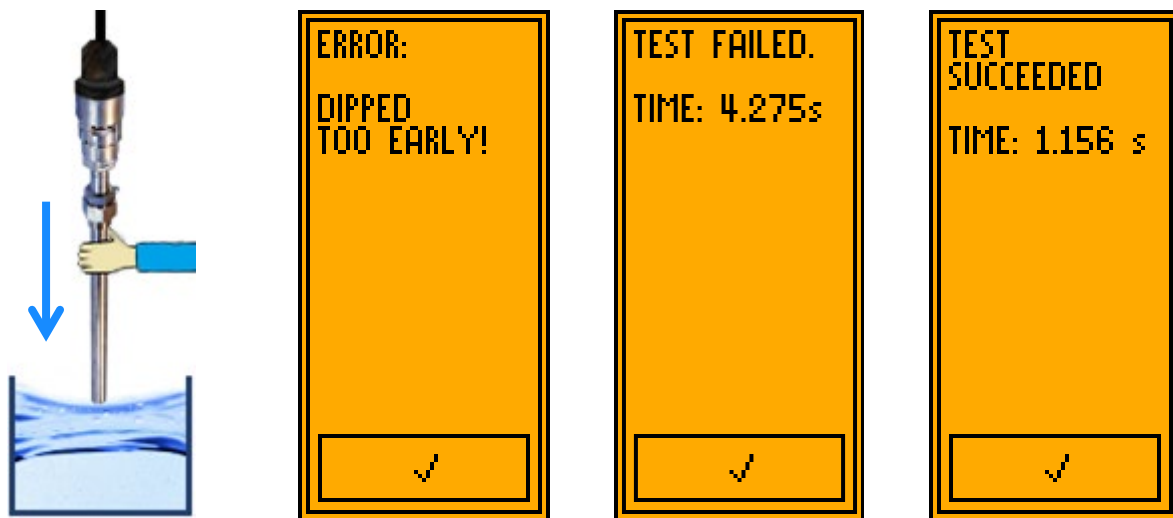


Figure 15: Images relating to the immersion of the overfill prevention sensor with possible measuring results

4.3.3 QSS Code (ME 6 P)

This test is carried out at the same time as the TEST FOR HEATING-UP TIME is performed. The test can also be started manually by selecting the field QSS CODE in the main menu.

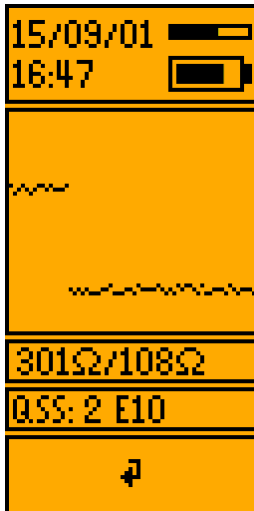


Figure 16: Checking the QSS code (ME 6 P)

4.4 Power save mode (stand-by) and reactivation

After 40 seconds of inactivity, the backlight is switched off. After 2 minutes of inactivity and if not connected to a USB power supply, the testing device switches to the power save mode and the screen is switched off. Then the testing device can be reactivated by touching the screen for about 2 seconds or by connecting an overflow prevention sensor.



In power save mode with prolonged battery runtime, the testing device can be reactivated only by touching the screen for about 2 seconds.

4.5 Settings

The settings of the ME 6 ... overflow prevention sensor testing device can be adjusted using the ME 6 PC software when in *USB* operating mode (see Section 5 PC software) or directly on the testing device. In *USB* operating mode, the settings can be accessed directly via the main menu; when in *Measurement* mode, the spanner (wrench) icon must be selected.

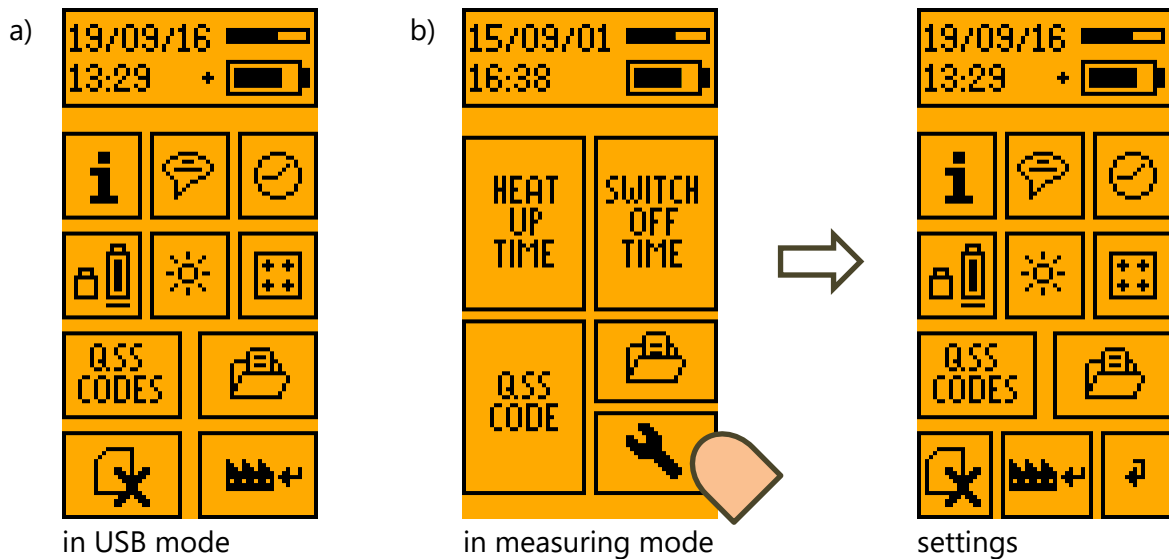


Figure 17: Settings

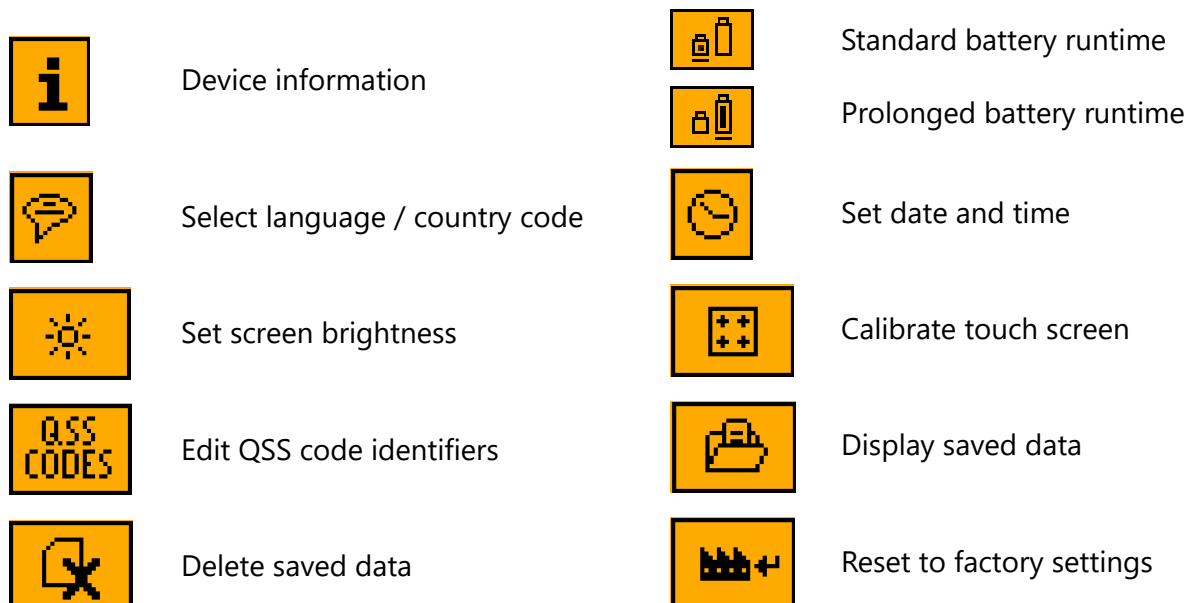


Figure 18: Symbols of settings

4.5.1 Device information



Information about the device type, device number, and firmware will be displayed.

4.5.2 Country selection

Country selection determines the user interface language and, when applicable, the assessment methods. Selection is by touching the relevant field.



Figure 19: Country selection

4.5.3 Date and time

The date can be set by touching + and - in the first screen. The time can be set in hours and minutes in the second screen. The **X** button aborts the process; the current values of date and time are not changed.

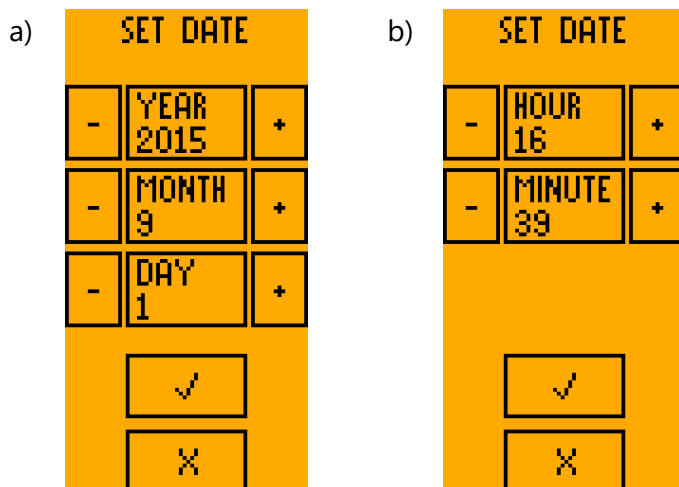


Figure 20: Setting the date and time

4.5.4 Power save mode

To prolong the battery runtime in the power save mode, the automatic start of a measurement can be disabled. Then the device can be reactivated only by touching the screen for a moment (ca. 2 seconds).

This should be done especially with the ME 6P, since the automatic start of a measurement results in high current consumption due to a permanent active product detection.

The power save mode with prolonged battery runtime is displayed by the symbol shown in the settings and a plus sign next to the charge status in the status bar. Switching between normal/extended battery life is done by touching the symbol.



Settings: normal battery runtime selected



Settings: prolonged battery runtime selected



Status bar: normal battery runtime displayed



Status bar: prolonged battery runtime displayed

4.5.5 Backlight

The backlight is set to the required brightness by dragging the slide. Reduced brightness increases the battery runtime of the testing device.

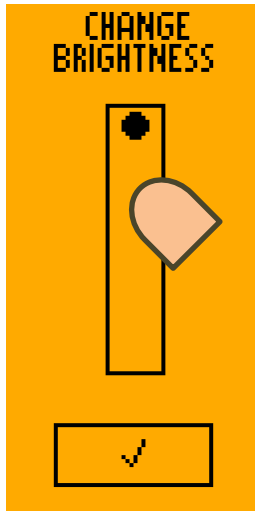


Figure 21: Setting the screen brightness

4.5.6 Touch screen calibration

The touch screen can be calibrated to increase the accuracy of the inputs on the sensitive screen. To do this, each of the icons in the 4 corners must be touched until the next one is shown. A point situated in the middle must be touched as the final test.

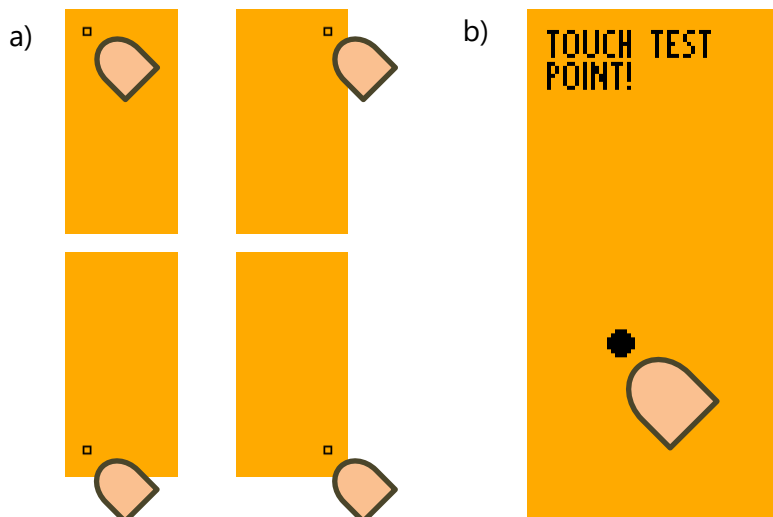


Figure 22: Calibrating the touch screen

The calibration can fail if the points are incorrectly touched. In this case the basic settings are interrupted and the standard values are loaded. However, it is still possible to configure the testing device at a later time by means of the graphical user interface.

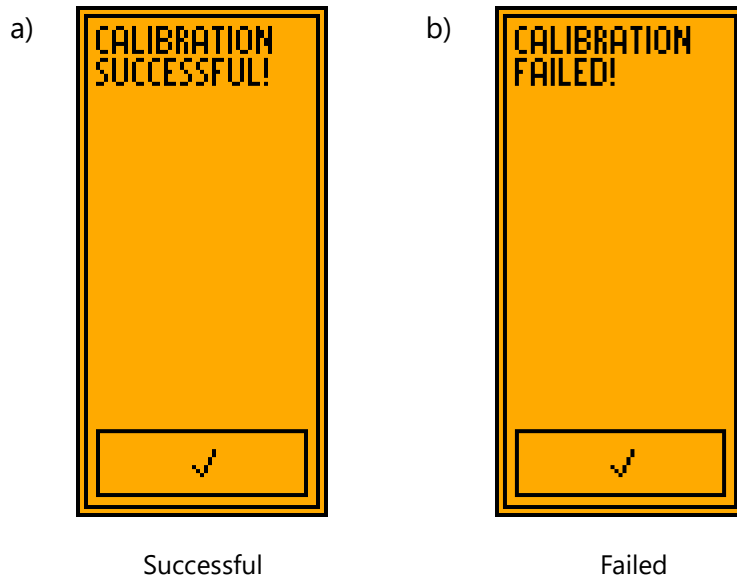


Figure 23: Results of the touch screen calibration

4.5.7 QSS code identifiers

On ME 6 P the identifiers can be added to the numeric QSS codes. A 7-character identifier can be programmed for each of the 6 possible codes. The identifier can be edited by touching the relevant field in the overview. This changes the program to the Editor view. The field with the current text is located at the top. A keyboard to enter the characters is superimposed in the middle. The control symbols are located in the bottom row.

A ✓ accepts the current text; X deletes the last character; ↩ switches to the overview without adopting any changes.

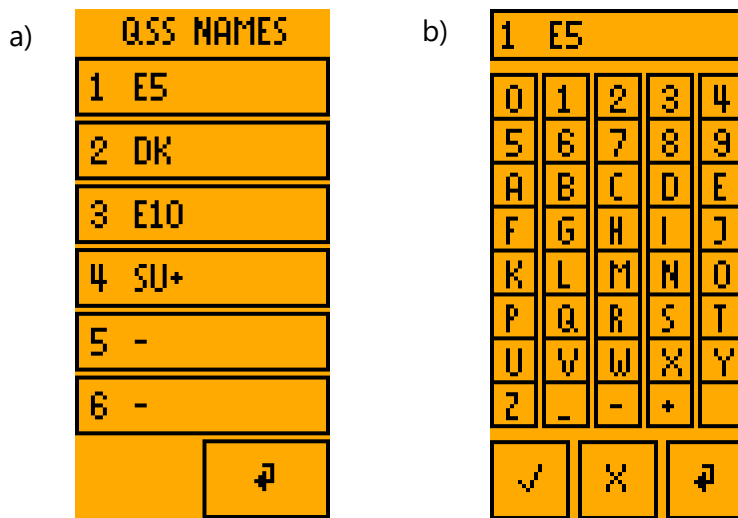


Figure 24: ME 6 P QSS codes and identifiers

a) Example of QSS identifiers

b) Editing a QSS identifier

4.5.8 Readings archive

The data from completed measurements (at least the heating-up test) are archived in the instrument's memory. If the memory for the readings is full no further measurements can be recorded. In this case, the data in the testing device should be downloaded to a PC/laptop via a USB connection and the memory cleared.

<pre>#: 16/303 QSS: NO QSS DATE: 2015/10/01 16:41 HEAT-UP: ✓ 15s SWITCH-OFF: ✓ 0.3s</pre>	<p>< Record number Index / entire number (e.g. 16/303)</p> <p>< QSS code Code and identifier (e.g. 1 E5) or "NO QSS" (if no code)</p> <p>< Date yyyy/mm/dd (e.g. 2015/10/01)</p> <p>< Time hh:mm (e.g. 16:41)</p> <p>< Heating-up time ✓ with heating-up time (e.g. ✓ 15 s) or X with heating-up time "<5 s" or ">180 s"</p> <p>< Switch-off time ✓ with switch-off time (e.g. ✓ 0.3 s) or X with switch-off time ">2 s" (e.g. X 2.3 s) or no test</p>						
<table border="1" style="border-collapse: collapse; width: 100%; text-align: center;"> <tr> <td style="width: 33%;">-1</td> <td style="width: 33%;">+1</td> <td style="width: 33%;">↵</td> </tr> <tr> <td>-10</td> <td>+10</td> <td>↵</td> </tr> </table>	-1	+1	↵	-10	+10	↵	<p>< -1 or +1: Display previous or next record</p> <p>< -10 or +10: Jump 10 records back or forward</p>
-1	+1	↵					
-10	+10	↵					

Figure 25: Display of saved readings in the archive

4.5.9 Delete readings

No further measurements can be recorded if the memory for the readings is full. In this case, the data in the testing device should be downloaded to a PC/laptop via a USB connection to clear the memory.

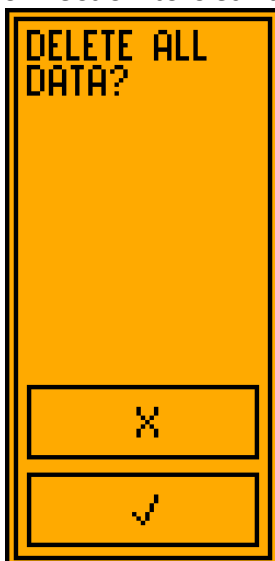


Figure 26: Deleting the readings memory

4.5.10 Resetting to factory settings

The ME 6 ... overflow prevention sensor testing device can be reset to the factory settings. In this case all settings are deleted and the readings memory emptied. Once deletion is complete the testing device restarts with the basic settings.

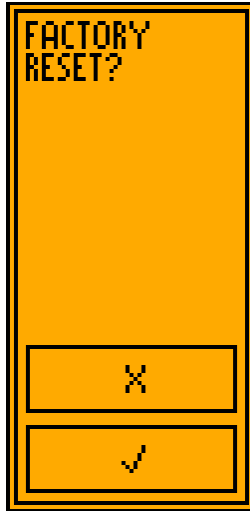


Figure 27: Resetting the testing device to factory settings

4.6 Power supply

The ME 6 ... overflow prevention sensor testing device is operated in measurement mode by NiMH rechargeable batteries. The charge level is indicated in the status bar. If this is low, the testing device must be recharged. This is done via the USB connection.

4.6.1 Changing the rechargeable batteries

The rechargeable batteries can be changed at any time. To do this, the cover of the battery compartment must be opened with a Philips screwdriver and the rechargeable batteries replaced by new ones. Battery alignment is shown by symbols in the battery compartment. The rechargeable batteries need a nominal capacity of 2000 mAh. They allow a number of approx. 150 complete measurements.




If it is likely that the testing device will not be used for a lengthy period, the prolonged battery runtime should be set up.



Only NiMH rechargeable batteries (type AA 1.2 V, 2000 mAh) may be used.

4.6.2 Charging the rechargeable batteries

For charging the rechargeable batteries, the toggle switch must be set to USB (charging position). Then the testing device can be connected to a computer or a USB plug-in power supply (5 V DC) with the USB cable provided. The testing device immediately starts to charge the batteries. The current status is indicated in the upper status bar.

 *When connecting to USB hubs with a passive supply, care must be taken that without active supply these often limit the maximum current to 100 mA. In this case it is not possible to charge the batteries.*


 *The batteries must be charged regularly to prevent the deep discharge. The time for the next recharging depends on the use of the device and the configured battery runtime in the power save mode.*



Figure 28: Switch in USB position (charging position)



Batteries being charged



Batteries fully charged



No batteries present / batteries defective

Figure 29: Charge statuses displayed in the status bar


5 PC software

5.1 Driver installation

As soon as the ME 6 ... overflow prevention sensor testing device is connected to a Windows® computer, the operating system will look for a driver. If the computer is connected to the Internet, the driver will normally be installed automatically. Manual installation is also possible with the drivers provided by FAFNIR.

5.2 Starting the ME 6 Software

The software is launched by starting *ME6.exe*. An ME 6 ... overflow prevention sensor testing device which is connected is automatically recognised and the settings are uploaded.

 *The driver installation must be carried out before the start of the ME 6 software, otherwise an error message will be displayed and the software will not be executed.*

5.2.1 Settings

The testing device's settings are displayed in the tab *ME 6* and can be edited.

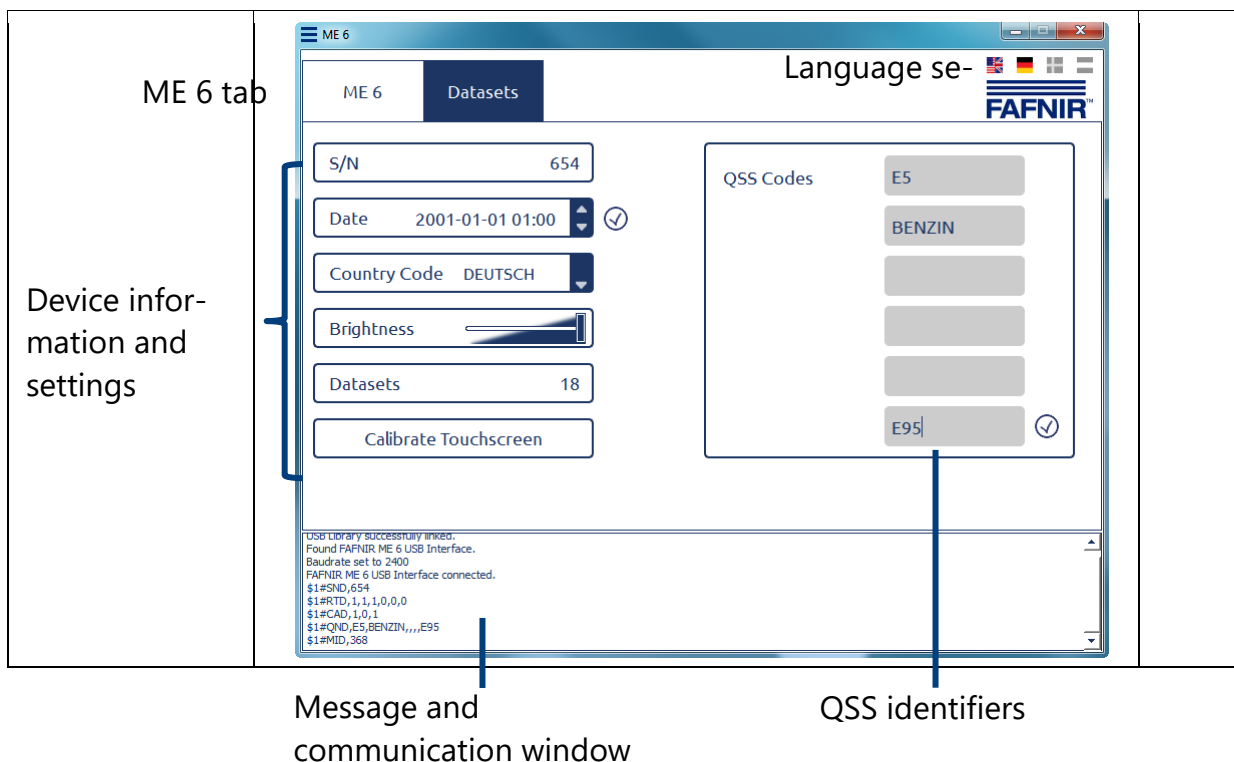


Figure 30: ME 6 software, device information and settings


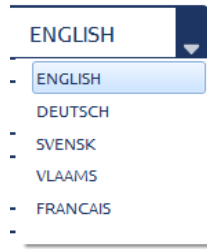



Setting the date and time	The corresponding field of the date must be clicked on with the mouse; the required date can then be set with the mouse wheel or the arrows. The selected date is set by clicking on the ✓ button which appears.	
Selecting the country code	Open the list of country identifiers by clicking on the arrow and select the required country by clicking on it.	
Setting the brightness	Use the mouse to move the slide between the minimum and maximum values.	
Calibrating the touch screen.	The calibration of the instrument's touch screen can be started by clicking on the button (see Section 4.5.6).	
Editing QSS identifiers.	The 6 fields on the right-hand side of the user interface show the identifiers currently allocated to the QSS codes. Any required identifiers with a maximum of 7 characters can be entered in these fields.	

Table 1: Software settings

5.2.2 Records

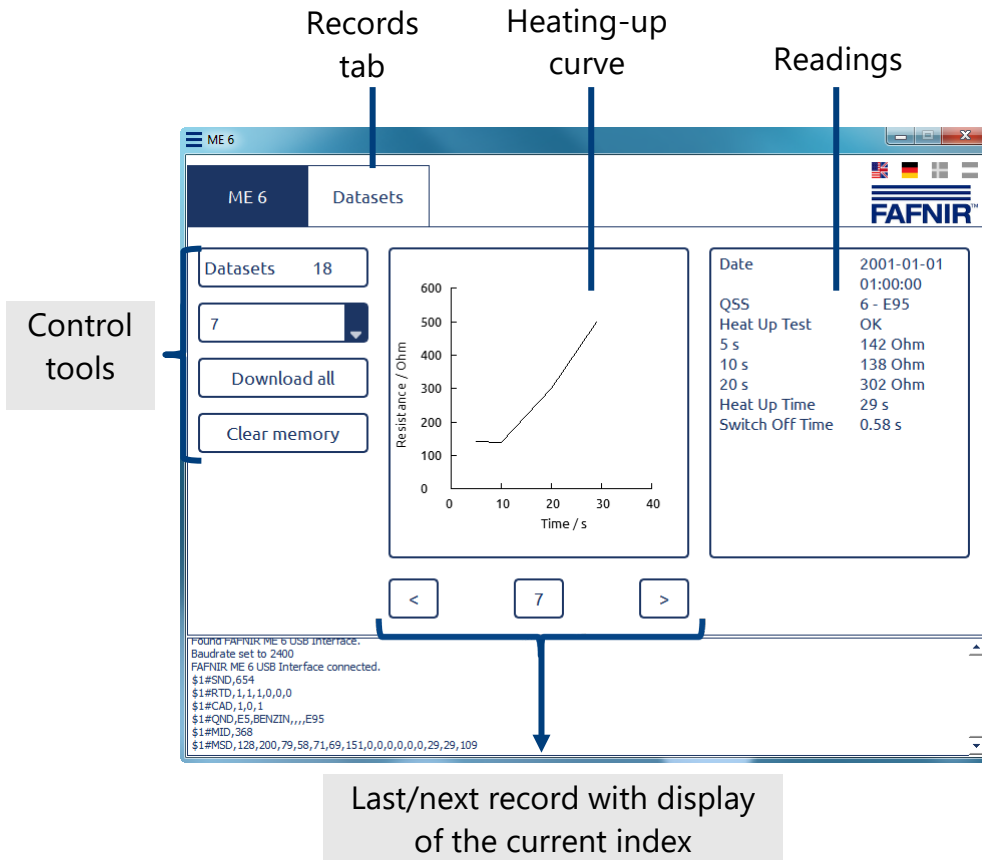


Figure 31: ME 6 software, records

Select record	Open the list of record indices by clicking on the arrow and then select the required one.	
Downloading and saving data	Clicking on the button downloads all saved data of the testing device and saves it in a file specified by the user.	
Delete memory.	By clicking on the button, the testing device's memory is emptied after a prompt for confirmation. Data saved up to that point is then no longer available.	

Table 2: Read out the readings in the memory

6 Technical Data

Type	Application	Temperature range	Connection
ME 6	Overfill prevention sensor without product identification	-20 ... +50 °C	Spiral cable (max. 3 m) with Socket coupler type 903, USB type B
ME 6 P	Overfill prevention sensor with product identification	-20 ... +50 °C	Spiral cable (max. 3 m) with Socket coupler type AS 903, USB type B
ME 6 F	Overfill prevention sensor in liquefied petroleum gas	-20 ... +50 °C	Spiral cable (max. 3 m) with Socket coupler type CEE, USB type B

Table 3: Technical data of the ME 6 ... types

Battery Type	Size	Nominal Voltage [V]	Capacity [mAh]
NiMH	AA	1.2	2000

Table 4: Battery type

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**EU-Konformitätserklärung
EU Declaration of Conformity
Déclaration UE de Conformité
Dichiarazione di Conformità UE**



FAFNIR GmbH, Deutschland / Germany / Allemagne / Germania

erklärt als Hersteller in alleiniger Verantwortung, dass das Produkt
declares as manufacturer under sole responsibility that the product
déclare sous sa seule responsabilité en qualité de fabricant que le produit
dichiara sotto la sola responsabilità del produttore, che il prodotto

**Grenzwertgeberprüfgerät / Overfill Prevention Sensor Testing Device / Appareil de test pour capteur de valeur limite / Apparecchiatura di test per sensori di rilevazione del troppo pieno
ME 6 ...**

den Vorschriften der europäischen Richtlinien
complies with the regulations of the European directives
est conforme aux réglementations des directives européennes suivantes
è conforme ai regolamenti delle direttive europee

2011/65/EU	Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten	RoHS
2011/65/EU	Restriction of the use of certain hazardous substances in electrical and electronic equipment	RoHS
2011/65/UE	Limitation de l'utilisation de certaines substances dangereuses dans les équipements électriques et électroniques	RoHS
2011/65/UE	Restrizione dell'uso di determinate sostanze pericolose nelle apparecchiature elettriche ed elettroniche	RoHS
2014/30/EU	Elektromagnetische Verträglichkeit	EMV
2014/30/EU	Electromagnetic compatibility	EMC
2014/30/UE	Compatibilité électromagnétique	CEM
2014/30/UE	Compatibilità elettromagnetica	CEM
2014/34/EU	Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen	ATEX
2014/34/EU	Equipment and protective systems intended for use in potentially explosive atmospheres	ATEX
2014/34/UE	Appareils et systèmes de protection destinés à être utilisés en atmosphères explosibles	ATEX
2014/34/UE	Apparecchi e sistemi di protezione destinati a essere utilizzati in atmosfera potenzialmente esplosiva	ATEX

durch die Anwendung folgender harmonisierter Normen entspricht
by applying the harmonised standards
par l'application des normes
applicando le norme armonizzate

RoHS / RoHS / RoHS / RoHS	EN 50581:2012
EMV / EMC / CEM / CEM	EN 61326-1:2013
ATEX / ATEX / ATEX / ATEX	EN IEC 60079-0:2018
	EN 60079-11:2012

Das Produkt ist bestimmt als Elektro- und Elektronikgerät der RoHS-
The product is determined as electrical and electronic equipment of RoHS
Le produit est déterminé comme des équipements électriques et électroniques de RoHS
Il prodotto è determinato come apparecchiatura elettrica ed elettronica di RoHS

Kategorie / Category / Catégorie / Categoria	Überwachungs- und Kontrollinstrumenten in der Industrie / Industrial Monitoring and Control Instruments / Instruments de contrôle et de surveillance industriels / Strumenti di monitoraggio e controllo industriali
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Das Produkt entspricht den EMV-Anforderungen
The product complies with the EMC requirements
Le produit est conforme aux exigences CEM
Il prodotto è conforme ai requisiti CEM

Störaussendung / Emission / Émission / L'emissione	Klasse B / Class B / Classe B / Classe B
Störfestigkeit / Immunity / D'immunité / Immunità	Industrielle elektromagnetische Umgebung / Industrial electromagnetic environment / Environnement électromagnétique industriel / Ambiente elettromagnetico industriale

Die notifizierte Stelle IBExU Ins. f. Sicherh. GmbH, 0637 hat eine EU-Baumusterprüfung durchgeführt und folgende Bescheinigung ausgestellt
The notified body IBExU Institut für Sicherheitstechnik GmbH, 0637 performed a EU-type examination and issued the certificate
L'organisme notifié IBExU Institut für Sicherheitstechnik GmbH, 0637 a effectué examen UE de type et a établi l'attestation
L'organismo notificato IBExU Institut für Sicherheitstechnik GmbH, 0637 ha effettuato esame UE del tipo e rilasciato il certificato

ME 6 ...	IBExU 15 ATEX 1080 X
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Hamburg, 24.01.2020

Ort, Datum / Place, Date / Lieu, Date / Luogo, data

Geschäftsführer / Managing Director / Gérant / Direttore Generale: René Albrecht

[1] **EU-TYPE EXAMINATION CERTIFICATE - Translation**



[2] Equipment or protective systems
intended for use in potentially explosive atmospheres, Directive 2014/34/EU

[3] EU-type examination certificate number **IBExU15ATEX1080 X** | Issue 1

[4] Product: **Overfill Prevention Sensor Testing Device**
Type: ME 6 ...

[5] Manufacturer: FAFNIR GmbH

[6] Address: Schnackenburgallee 149 c
22525 Hamburg
GERMANY

[7] This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

[8] IBExU Institut für Sicherheitstechnik GmbH, notified body number 0637 in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the essential health and safety requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential test report IB-19-3-0159.

[9] Compliance with the essential health and safety requirements has been assured by compliance with: EN IEC 60079-0:2018 and EN 60079-11:2012 except in respect of those requirements listed at item [18] of the schedule.

[10] If the sign "X" is placed after the certificate number, it indicates that the product is subject to the specific conditions of use specified in the schedule to this certificate.

[11] This EU-type examination certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

[12] The marking of the product shall include the following:

Overfill Prevention Sensor Testing Device:

II (1)G [Ex ia Ga] IIC

connector AS 903:

II 2G Ex ia IIC T4 Gb
-20 °C ≤ T_a ≤ +50 °C

IBExU Institut für Sicherheitstechnik GmbH
Fuchsmühlenweg 7
09599 Freiberg, GERMANY

By order

Dipl.-Ing. [FH] Henker



(notified body number 0637)

Tel: + 49 (0) 37 31 / 38 05 0
Fax: + 49 (0) 37 31 / 38 05 10

Certificates without signature and seal are not valid. Certificates may only be duplicated completely and unchanged. In case of dispute, the German text shall prevail.

Freiberg, 2020-01-02

[13] **Schedule**

[14] **Certificate number IBExU15ATEX1080 X | Issue 1**

[15] **Description of product**

The Overfill Prevention Sensor Testing Device type ME 6 serves for functional controlling of overfill Prevention Sensors by using the PTC resistor principle. The equipment is intended for use in safe areas. It can supply in areas requiring Category 1G equipment.

The connection of the Overfill Prevention Sensor with the connector can be carried out in Zone 1. Only type AS 903 contains an electronic with a dissipating power <1.25 W.

Variations:

ME 6

Overfill Prevention Sensor Testing Device with connector type 903 without product recognition

ME 6 F

Overfill Prevention Sensor Testing Device for liquid gas with connector type CEE without product recognition

ME 6 P

Overfill Prevention Sensor Testing Device with connector type AS 903 with product recognition

Ambient temperature range: -20 °C to +50 °C

Degree of protection of the enclosure: ≥ IP20

Electrical data

Output voltage:	U_o	≤ 21.4 V DC
Output current:	I_o	≤ 137 mA
Output power:	P_o	≤ 732 mW
Internal inductance:	L_i	≤ 10 μH
Internal capacitance:	C_i	≤ 2 nF
Permitted external inductance:	L_o	≤ 490 μH
Permitted external capacitance:	C_o	≤ 98 nF

Variations compared to EC-Type Examination certificate:

Variation 1

The intrinsically safe parameter have been changed.

Variation 2

The Overfill Prevention Sensor Testing Device complies with the requirements of EN IEC 60079-0:2018.

Variation 3

Manufacturer's address has been changed.

[16] **Test report**

The test results are recorded in the confidential test report IB-19-3-0159 of 2019-12-20.

The test documents are part of the test report and they are listed there.

Summary of the test results

The Overfill Prevention Sensor Testing Device type ME 6 ... further fulfils the requirements of explosion protection on an associated apparatus for the Equipment Group II and Category 1G in type of protection Intrinsic safety for gases of the Explosion Group IIC.

[17] Specific conditions of use

- It is not permitted to connect simultaneously the overfill prevention sensor at sensor connector and the auxiliary energy at USB-connector.
- If the connector of overfill prevention sensor is located in an explosive atmosphere of gases and vapors with a temperature class T5 or T6, the type ME 6 P or connector type AS 903 is not permitted for use.

[18] Essential health and safety requirements

In addition to the essential health and safety requirements (EHSRs) covered by the standards listed at item [9], the following are considered relevant to this product, and conformity is demonstrated in the test report:

None

[19] Drawings and Documents

The documents are listed in the test report.

IBExU Institut für Sicherheitstechnik GmbH
Fuchsmühlenweg 7
09599 Freiberg, GERMANY

By order



Dipl.-Ing. [FH] Henker

Freiberg, 2020-01-02



Instructions in accordance with directive 2014/34/EU

IBExU 15 ATEX 1080 X

Overfill prevention sensor testing device type ME 6 ...

Edition: 12.2019

I Range of application

The purpose of the overfill prevention sensor testing device type ME 6 ... is to test the function of overfill prevention sensors by means of the PTC resistor principle. The overfill prevention sensor may be in Zone 0 during testing, but the overfill prevention sensor testing device may only be operated outside the potentially explosive area.

II Standards

The OPS testing device is designed in accordance with the following European standards

EN IEC 60079-0:2018	Equipment – General requirements
EN 60079-11:2012	Equipment protection by intrinsic safety "i"

III Instructions for safe ...

III.a ... use

The overfill prevention sensor testing device acts as associated equipment and is not approved for use in potentially explosive areas. The intrinsically safe sensor circuit can be brought into Zone 0 and is suitable for all gas groups (IIA, IIB and IIC).

Because of the construction of the socket couplers the connection of the overfill prevention sensor must be in Zone 1 or in a less hazardous area. The socket coupler type 903 and the CEE socket coupler are classified as simple electrical equipment. The socket coupler type AS 903 is also marked and is suitable for use in Zone 1 or a less hazardous area.

If the connection of the overfill prevention sensor is in potentially explosive areas with gases in temperature class T5 or T6*, the overfill prevention sensor testing device with product identification type ME 6 P and the socket coupler type AS 903 may not be used.

The approval applies to equipment types

ME 6	OPS testing device without product identification (with socket coupler type 903)
ME 6 F	OPS testing device for LPG overfill prevention sensors (with CEE socket coupler)
ME 6 P	OPS testing device with product identification (with socket coupler type AS 903)

III.b ... assembling and dismantling

The overfill prevention sensor testing device may only be assembled or dismantled when no overfill prevention sensor is connected!

Only the battery compartment may be opened. Opening the case is not allowed as this could be damaged and the approval would therefore be void.

III.c ... installation

No installation is necessary to operate the overfill prevention sensor testing device.

III.d ... adjustment

No Ex-related arrangements are necessary to operate the overfill prevention sensor testing device.

III.e ... putting into service

The overfill prevention sensor testing device may only be connected to an overfill prevention sensor if nothing is connected to the USB port.

The overfill prevention sensor may be connected and disconnected while the overfill prevention sensor testing device is in operation.

* Overfill prevention sensor testing devices using the PTC resistor principle are certified to T3, maximum T4






III.f ... maintenance (servicing and emergency repair)

The overflow prevention sensor testing device is normally maintenance-free. In the event of a defect, the device must be sent back to the manufacturer or one of its agencies.

The overflow prevention sensor testing device may only be charged via a USB connection if no overflow prevention sensor is connected.

When replacing the accumulators, only Ni-MH cells of type AA may be used.

IV Equipment marking

1	Manufacturer:	FAFNIR GmbH, 22525 Hamburg
2	Type designation:	ME 6 ...
3	Certificate number:	IBExU 15 ATEX 1080 X
4	Ex marking:	
	OPS testing device type ME 6 ...:	 II (1) G [Ex ia Ga] IIC
	Socket coupler type AS 903:	 II 2 G Ex ia IIC T4 Gb
5	CE marking:	 0044
6	Technical data:	$T_a \leq +50 \text{ }^\circ\text{C}$ $U_o \leq 21.4 \text{ V}$ $I_o \leq 137 \text{ mA}$ $P_o \leq 732 \text{ mW}$ $L_i \leq 10 \text{ } \mu\text{H}$ $C_i \leq 2 \text{ nF}$ $L_o \leq 490 \text{ } \mu\text{H}$ $C_o \leq 98 \text{ nF}$

V Technical data

To charge the batteries (secondary cells), the overflow prevention sensor testing device is suitable for connection to a USB interface (5 V).

The electric circuit of the sensor is designed with "intrinsic safety" (ia) ignition protection class with a linear output characteristic. The safety-relevant data are as follows:

Output voltage	$U_o \leq 21,4 \text{ V}$
Output current	$I_o \leq 137 \text{ mA}$
Output power	$P_o \leq 732 \text{ mW}$
Internal, externally effective inductance	$L_i \leq 10 \text{ } \mu\text{H}$
Internal, externally effective capacitance	$C_i \leq 2 \text{ nF}$
Permissible external inductance	$L_o \leq 490 \text{ } \mu\text{H}$
Permissible external inductance	$C_o \leq 98 \text{ nF}$

The overflow prevention sensor testing device can be used in the following ambient temperature range:

Ambient temperature range	$T_a = -20 \text{ }^\circ\text{C} \dots +50 \text{ }^\circ\text{C}$
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The overflow prevention sensor testing device has a degree of protection provided by enclosure of:

Degree of protection provided by enclosure	IP30
--	------

VI Special conditions of use

1. It is not permitted to connect simultaneously the overflow prevention sensor at sensor connector and the auxiliary energy at USB connector.
2. If the connector of the overflow prevention sensor is located in a potentially explosive atmosphere of gases with a temperature class T5 or T6, the type ME 6 P respectively connector type AS 903 is not permitted for use.

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