ME 6 ...

Overfill prevention sensor testing device
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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 (WasgeStAnlV). 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. overfill 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. overfill 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 ... overfill prevention sensor testing device guarantees optimal and safe testing in accordance with prEN 13616-2 ...

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 overfill prevention sensors without product coding.
- The ME 6 P is used to test overfill prevention sensors with product coding in accordance with Quality Assurance systems (QSS).
- The ME 6 F is used to test overfill 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 ... overfill prevention sensor testing device.

The ME 6 ... overfill 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 ... overfill prevention sensor testing device is used to test overfill 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 ... overfill 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 batteries than the required NiMH rechargeable batteries, see chapter 6, Technical Data.

⚠️ Charging standard batteries instead of rechargeable batteries result in the risk of fire or explosion.
3. The ME 6 ... overfill prevention sensor testing device

3.1 Design and construction

The ME 6 ... overfill prevention sensor testing device is used to test overfill prevention sensors in accordance with prEN 13616-2. 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 ... overfill 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 prEN 13616-2. 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. They can only be charged when in USB mode. Depending on the nominal capacity of the batteries, it takes about 10 hours to charge them. The batteries can be freely 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 … overfill 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.

![Activation fields of the graphical user guidance](image)

- Confirmation, Activity successful, Amendments accepted
- Refusal, Unsuccessful, Abort without amendments, Delete
- Return to the previous screen
- Input of figures

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.**
When in the main screens, the date, time, memory occupancy, and battery status is indicated in the upper line of the screen.

- Measuring range data storage over 50% full
- Batteries about 1/3 discharged
- Memory almost empty
- Batteries 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

Before starting up the testing device, the rechargeable batteries must first be charged. A complete charging takes about 10 hours.
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.

![Calibrating the touch screen](image)

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.

![Results of touch screen calibration](image)

Figure 7: Results of touch screen calibration

a) Successful  b) Unsuccessful
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.

![Country selection image](image)

**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 −.

![Date and time image](image)

**Figure 9: Date and time**

a) Setting the date

b) 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 underside of the testing device into the corresponding position.

![Toggle switch in the measuring position](image)

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.

⚠️ *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 product recognition (QSS code), 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.

![Main menu, operating mode “Measurement”](image)

Figure 11: Main menu, operating mode “Measurement”

These tests can also be carried out individually if they are selected via the main menu in the operating mode “*Measurement*”.
The faults SHORT CIRCUIT and RESISTANCE TOO HIGH can occur in all tests, which stop the test immediately. In the case of the RESISTANCE TOO HIGH fault, the testing device has perhaps not been switched to the Measurement mode with the result that the overfill prevention sensor is not connected to the heating circuit. Or a cable is broken.

Figure 12: Fault display "Short circuit" and "Resistance too high"
4.3.1 Heating-up time

The test starts automatically when the overfill prevention sensor is connected to the socket coupler or if the field HEATING-UP TIME is selected in the main menu. First of all the testing device attempts to read the QSS code. The code is displayed and the actual measurement commences. The overfill 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.

![Test for heating-up time](image1)

![Error message](image2)

![Test result](image3)

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 overfill prevention sensor. This is displayed by the message HEAT. After a target temperature has been reached, the message changes to READY and a 2-second count-down is displayed which ends with the command IMMERSE. The overfill prevention sensor must now be manually immersed in a test liquid. The time needed for the overfill prevention sensor to fall to a pre-set value is measured.
Testing the Overfill Prevention Sensor

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

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

4.4 Power saving (stand-by) mode and reactivation

If not connected to a USB power supply, the testing device switches to a stand-by mode after 30 seconds of inactivity. The screen is switched off in this mode. The testing device can be reactivated by touching the screen for about 2 seconds or connecting an overfill prevention sensor. It is therefore also possible to take a measurement directly after the stand-by mode.
4.5 Settings

The settings of the ME 6 ... overfill 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 a) in the menu in USB mode and b) in Measurement mode](image)

Select language / country code

Set date and time

Set screen brightness

Calibrate touch screen

Edit QSS code identifiers

Display saved data

Delete saved data

Reset to factory settings

![Figure 18: Symbols of settings](image)
4.5.1 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

4.5.2 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 date is not changed.

Figure 20: Setting the date and time
4.5.3 Backlight

The backlight is set to the required brightness by dragging the slide. Reduced brightness increases the testing device’s operating time.

![Setting the screen brightness](image)

Figure 21: Setting the screen brightness

4.5.4 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.

![Calibrating the touch screen](image)

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

a) Successful calibration   b) Unsuccessful calibration
4.5.5 QSS code identifiers

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: QSS codes and identifiers

- a) Example of QSS identifiers
- b) Editing a QSS identifier
4.5.6 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.

| #: 16/303 | < Record number | Index / entire number (e.g. 16/303) |
| QSS: NO QSS | < QSS code | Code and identifier (e.g. 1 E5) or "NO QSS" (if no code) |
| DATE: | < Date | yyyy/mm/dd (e.g. 2015/10/01) |
| 2015/10/01 16:41 | < Time | hh:mm (e.g. 16:41) |
| HEAT-UP: | < Heating-up time | ✓ with heating-up time (e.g. ✓ 15 s) or X with heating-up time "<0.5 s" or ">180 s" |
| ✓ 15 s | (0.5 s ... 180 s) | |
| SWITCH-OFF: | < 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 |
| ✓ 0.3 s | (0 s ... 2 s) | |
| -1 | < -1 or +1: Display previous or next record |
| +1 | |
| -10 | < -10 or +10: Jump 10 records back or forward |
| +10 | |

Figure 25: Display of saved readings in the archive

4.5.7 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
4.5.8 Resetting to factory settings

The ME 6 ... overfill 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 ... overfill 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.

珢 If it is likely that the instrument would not be used for a lengthy period, the batteries should be removed and stored in the supplied case.

⚠ Only NiMH rechargeable batteries (type AA 1.2 V, 2000 mAh) may be used.
4.6.2 Regular charging of the rechargeable batteries necessary

When charging the batteries, the toggle switch must be set to Charge. The testing device can then 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.

Depending on the capacity of the batteries used and their charge, charging the batteries from empty can take more than a day. If the testing device is used every day it is recommended that the batteries are charged over the week-end.

☞ 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.

⚠️ To prevent a deep discharge of the batteries, they should be regularly charged until they are full and at least every 20 days.

Figure 28: Toggle switch in Charge position

Figure 29: Charge statuses displayed in the status bar
5 PC software

5.1 Driver installation

As soon as the ME 6 ... overfill 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 ... overfill 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 4.5.4)

### 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. The selected date is set by clicking on the button which appears.

---

**Table 1: Software settings**
5.2.2 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

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Figure 31: ME 6 software, records
6  Technical Data

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<th>Temperature range</th>
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<td>Overfill prevention sensor with product identification</td>
<td>-20 ... +50 °C</td>
<td>Socket coupler type AS 903, USB type B</td>
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<tr>
<td>ME 6 F</td>
<td>Overfill prevention sensor in liquefied petroleum gas</td>
<td>-20 ... +50 °C</td>
<td>Socket coupler type CEE, USB type B</td>
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Table 3: Technical data of the ME 6 ... types

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<th>Size</th>
<th>Nominal Voltage [V]</th>
<th>Capacity [mAh]</th>
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<td>AA</td>
<td>1.2</td>
<td>2000</td>
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EU-Konformitätserklärung
EU Declaration of Conformity
Déclaration UE de Conformité

FAFNIR GmbH
Bahrenfelder Straße 19
22765 Hamburg / Germany

erklärt als Hersteller in alleiniger Verantwortung, dass das Produkt
deeares as manufacturer under sole responsibility that the product
déclare sous sa seule responsabilité en qualité de fabricant que le produit

Grenzwertgeberprüfgerät
Overfill Prevention Sensor Testing Device
Appareil de test pour capteur de valeur limite

ME 6 ...

den Vorschriften der europäischen Richtlinien
complies with the regulations of the European directives
est conforme aux réglementations des directives européennes suivantes

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Durch die Anwendung folgender harmonisierter Normen entspricht
by applying the harmonised standards
par l'application des normes

- RoHS / RoHS / RoHS
- EMV / EMC / CEM
- ATEX / ATEX / ATEX
- EN 50581:2012
- EN 61326-1:2013
- EN 60079-0:2012 + A11:2013
- 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 déterminés comme des équipements électriques et électroniques de RoHS

Kategorie / Category / Catégorie

- Überwachungs- und Kontrollinstrumenten in der Industrie /
  Industrial Monitoring and Control Instruments /
  Instruments de contrôle et de surveillance industriels

Das Produkt entspricht den EMV-Anforderungen
The product complies with the EMC requirements
Le produit est conforme aux exigences CEM

- Störaussendung / Emission / Émission
- Störfestigkeit / Immunity / D’immunité

Klasse B / Class B / Classe B

- Industrielle elektromagnetische Umgebung /
  Industrial electromagnetic environment /
  Environnement électromagnétique industriel

Die notifizierte Stelle IBExU Ins. f. Sicherh. GmbH, 0637 hat eine EG-Baumusterprüfung durchgeführt und folgende Bescheinigung ausgestellt
The notified body IBExU Institut für Sicherheitstechnik GmbH, 0637 performed a EC-type examination and issued the certificate
L’organisme notifié IBExU Institut für Sicherheitstechnik GmbH, 0637 a effectué examen CE de type et a établi l’attestation

ME 6 ...

Ort, Datum / Place, Date / Lieu, Date

Geschäftsführer / Managing Director / Gérant: René Albrecht
[1] **EC-TYPE EXAMINATION CERTIFICATE**
according to Directive 94/9/EC, Annex III
(Translation)

in Potentially Explosive Atmospheres, Directive 94/9/EC

[3] EC-Type Examination Certificate Number: **IBExU15ATEX1080 X**

type ME 6 ...


[6] Address: Bahrenfelder Straße 19
22765 Hamburg
Germany

[7] The equipment mentioned under [4] and any acceptable variation there to are specified in the schedule to this EC-Type Examination Certificate.

[8] IBExU Institut für Sicherheitstechnik GmbH, NOTIFIED BODY number 0637 in accordance with article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that the equipment mentioned under [4] has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of the equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The examination and test results are recorded in test report IB-15-3-045 of 30 June 2015.


[10] If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified under [17] in the schedule to this EC-Type Examination Certificate.

[11] This EC-Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

[12] The marking of the equipment mentioned under [4] 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

\[-20 \, ^{\circ}C \leq T_a \leq +50 \, ^{\circ}C\]

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Authorized for certifications
- Explosion protection -

By order
(Dipl.-Ing. [FH] Henker)

[Seal]

(ID no. 0637 )

Freiberg, 30 June 2015

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.
Schedule

to EC-TYPE EXAMINATION CERTIFICATE IBExU15ATEX1080 X

Description of the equipment

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 <1.3 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: $U_o \leq 20.8 \, \text{V DC}$
Output current: $I_o \leq 133 \, \text{mA}$
Output power: $P_o \leq 690 \, \text{mW}$
Internal inductance: $L_i \leq 10 \, \mu\text{H}$
Internal capacitance: $C_i \leq 2 \, \text{nF}$
Permitted external inductance: $L_o \leq 500 \, \mu\text{H}$
Permitted external capacitance: $C_o \leq 110 \, \text{nF}$

Test report

The test results are recorded in the test report IB-15-3-045. The test documents are part of the test report and listed there.

Summary of the test results:

The Overfill Prevention Sensor Testing Device type ME 6 ... 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.

Special conditions

- 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 gasses with a temperature class T5 or T6, the type ME 6 P or connector type AS 903 is not permitted for use.

Essential health and safety requirements

Confirmed by compliance of standards (see [9]).

By order

Freiberg, 30 June 2015

(Dipl.-Ing. [FH] Henker)
9.3 Instructions

Overfill prevention sensor testing device type ME 6 ...

I Range of application

The purpose of the type ME 6 ... overfill prevention sensor testing device 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 overfill prevention sensor testing device is designed in accordance with the following European standards:

- EN 60079-0:2012 + A11:2013 Equipment – General requirements
- EN 60079-11:2012 Equipment protection by intrinsic safety "i"

III Instructions for safe use

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 type 903 socket coupler and the CEE socket coupler are classified as simple electrical equipment. The type AS 903 socket coupler 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 type ME 6 P product identification and the type AS 903 socket coupler may not be used.

The approval applies to equipment types:

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

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 device.

III.d ... adjustment

No safety-related arrangement or fittings are necessary to operate the 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.

1 Overfill prevention sensor testing devices using the PTC resistor principle are certified to T3, maximum T4.
III.f  ... maintenance (servicing and emergency repair)

The device is normally maintenance-free. In the event of a defect, the device must be send back to FAFNIR or one of its agencies.

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

If the batteries used are found to be defective they may be replaced by batteries of the same type.

IV  Equipment marking

1  Manufacturer:    FAFNIR GmbH, 22765 Hamburg
2  Type designation:   ME 6 ...
3  Certificate number:  IBExU 15 ATEX 1080 X
4  Ex-marking:
   Overfill prevention sensor 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:

   Ambient temperature range
   $T_a = -20 \degree C \ldots +50 \degree C$

V  Technical data

In order to charge the batteries (secondary cells), the overfill prevention sensor testing device is suitable for connection to a USB interface (5 V, 500 mA).

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  $U_o \leq 20.8$ V
Output current   $I_o \leq 133$ mA
Output power    $P_o \leq 690$ mW
Internal, externally effective inductance $L_i \leq 10$ µH
Internal, externally effective capacitance $C_i \leq 2$ nF
Permissible external inductance  $L_o \leq 500$ µH
Permissible external capacitance $C_o \leq 110$ nF

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

The overfill prevention sensor testing device has a degree of protection provided by enclosure of:

Degree of protection provided by enclosure  IP30

VI  Specific conditions

1) It is not permitted to connect simultaneously the overfill prevention sensor at sensor connector and the auxiliary energy at USB connector.

2) If the connector of the overfill prevention sensor is located in an potentially explosive atmosphere of gases with a temperature class T5 or T6, the type ME 6 P or connector type AS 903 is not permitted for use.