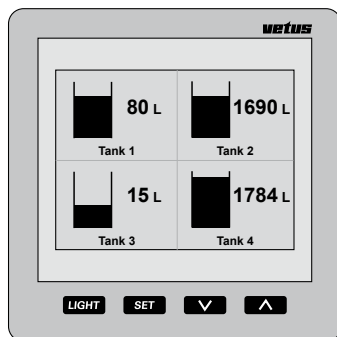**Ultrasoon tank managementsysteem**

Ultrasonic tank management system

Ultraschall-Tankniveausystem

Système de gestion réservoir, ultrasonore

Sistema de gestión de depósito ultrasónico

Sistema di gestione ad ultrasuoni per serbatoi

SENSORD

Contents

1   Introduction

This manual gives information about the use, installation and setting of the tank manager. The tank manager consists of a display instrument and an ultrasonic level sensor for each tank.

A maximum of 8 sensors for 8 different tanks can be connected to each instrument.
The volume of liquid in a maximum of 4 different tanks can be displayed on the instrument simultaneously, in litres, Imperial Gallons or US Gallons according to choice.
The maximum tank volume which can be displayed on the screen is 6553 liter.

The sensors required must be purchased separately (Art. code: SENSORB).
Read the instructions supplied with each sensor before installing the sensors.

1.1   Included in the delivery
-   1 display instrument
-   1 8-pin female socket
-   1 UTP network cable (5 metres)
-   1 UTP splitter
-   Assembly seal
-   4 metal rings + M4 nuts
-   Drilling template
-   Installation instructions

2   Operating

2.1   Switching on

Switch on the instrument using an external switch (there is no ON/OFF switch on the instrument).
A welcome screen is displayed briefly after switching on.
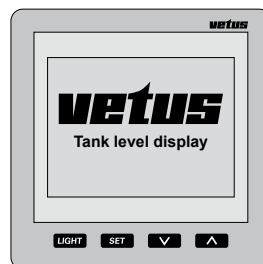
The contents of the tank or tanks will be displayed after this.
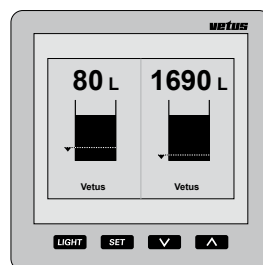
2.2   Overview of the operating functions

There are 4 keys on the instrument.
These keys have the following functions:

LIGHT   Switch the background lighting on or off.

SET   press `SET` to go to the setting menus.
Press the `∨` / `∧` key to select the desired menu item and press `SET` to open the selected menu.

∨   press `∨` to select for which tanks the volume is to be displayed. When the setting menus have been opened this key can be used to select a menu or change a setting.

∧   press `∧` to select how many tanks are to be displayed simultaneously on the display.
When the setting menus have been opened this key can be used to select a menu or change a setting.

The effect of the key is only noticeable when the key is released. While setting in one of the setting menus both key `∨` and key `∧` have an automatic repeat function.

2.2.1 Key sound

A sound is heard when one of the keys is pressed.
This sound can be switched off in the menu 'Display settings', option 'Sound' paragraph 2.4.4.

2.2.2   Suppression of acoustic alarm

An acoustic alarm can be suppressed (MUTE) and then released by pressing the `LIGHT` key for 2 seconds.

2 sec.
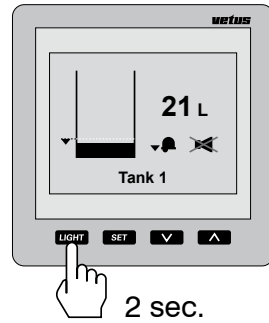
2.2.3   Two display instruments

If 2 display instruments are connected the settings controlling which tanks are displayed can be set independently from each other for both instruments.
The settings for contrast and background lighting can also be set independently of each other.
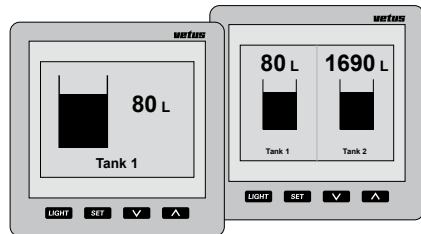
The settings for the tanks can be made on either of the display instruments and then also apply automatically for the other instrument.

vetus Ultrasonic tank management system

LIGHT	**SET**	**V**	**^**

| Scale lighting On/Off | *Configuration menu *)* | Choice for which tanks the volume is displayed | Select how many tanks are to be displayed simultaneously |

LIGHT 2 sec.

Acoustic alarm On/Off (Mute)

Only if the acoustic alarm is active

Volume tank 1 + volume tank 2	1 tank

V **^**

Volume tank 2 + volume tank 3	2 tanks

V **^**

Volume tank 3 + volume tank 1	3 tanks

V **^**

4 tanks

^

Example:
3 tanks connected and set to
show 2 tanks simultaneously

*) for **Configuration menu** see 5.1.

2.3　The screen

One or more tanks displayed simultaneously on the screen:
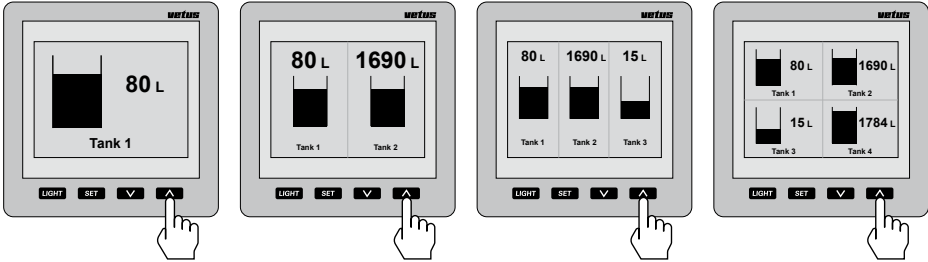
Scroll down through tanks in the screen when there are more tanks than can be shown simultaneously in the screen:
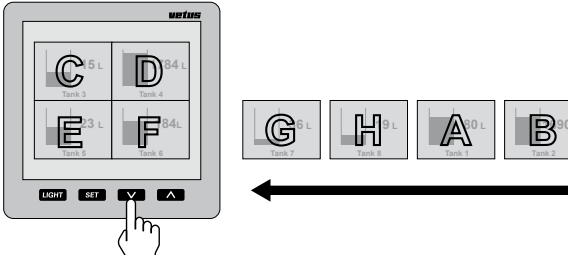
Note!
The tanks will be displayed in the screen in alphanumerical order according to the tank name!
Information displayed on

the screen concerning alarms
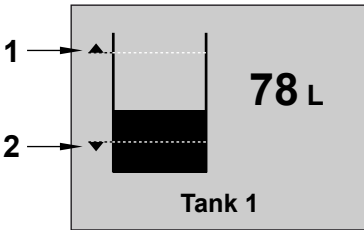
1　High alarm 'On' and indication of the set level.
2　Low alarm 'On' and indication of the set level.

Low alarm without acoustic alarm.
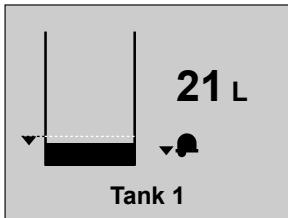
Low alarm with acoustic alarm.
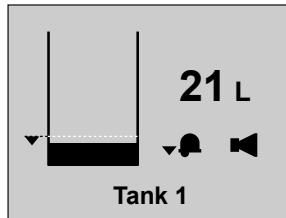
Low alarm with suppressed acoustic alarm.
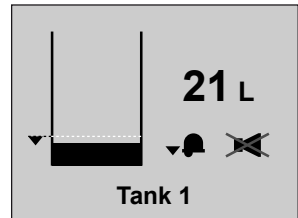
2.4　Settings

2.4.1 Setting the language

When the instrument is switched on for the first time the texts in the display are in English.

The following languages can be selected for the texts in the display:

Dutch, English, German, French, Spanish or Italian.

Set the language required as follows:

• Press the [SET] key 1x.

Configuration menu	
Tank	
Vetus	**Vetus**
Display settings	
Exit	

• Press the [∧] key 2x .

Configuration menu	
Tank	
Vetus	**Vetus**
Display settings	
Exit	

• Press the [SET] key 2x.

Display settings	
Language	**English**
Volume unit	**Litre**
Depth unit	**cm**
Contrast	**50**
Sound	**On**
Brightness	**100**
Lighting mode	**Automatic**
Exit	
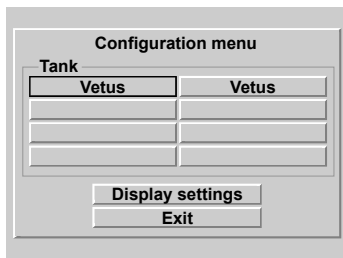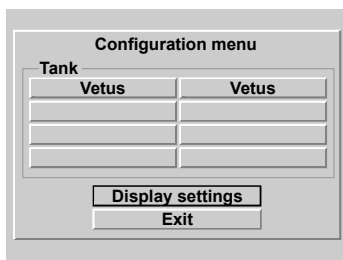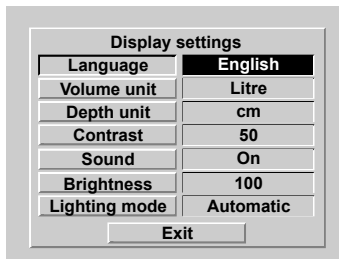
• Use the [∨]/[∧] keys to select the language required.

Display settings	
Language	**English**
Volume unit	**Litre**
Depth unit	**cm**
Contrast	**50**
Sound	**On**
Brightness	**100**
Lighting mode	**Automatic**
Exit	
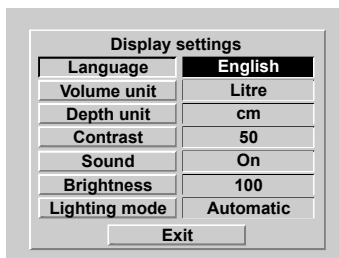
• Return to the normal display screen as follows:
  Press successively:
  [SET] , [∧] , [SET] , [∧] and [SET] .

2.4.2 Setting the units

- Go to 'Display settings' via the Configuration menu and `SET`.

```
                Configuration menu
    ┌ Tank ─────────────────────────────────┐
    │  Fresh water tank  │  Dieseltank       │
    │                    │                   │
    │                    │                   │
    │                    │                   │
    │                                        │
    ──▶     Display settings                 │
    │            Exit                        │
    └────────────────────────────────────────┘
```

- Press the `SET` key.

```
              Display settings
    ┌────────────────────────────────────┐
    │  Language       │    English        │
    │  Volume unit    │    Litre          │
    │  Depth unit     │    cm             │
    │  Contrast       │    50             │
    │  Sound          │    On             │
    │  Brightness     │    100            │
    │  Lighting mode  │    Automatic      │
    │             Exit                    │
    └────────────────────────────────────┘
```
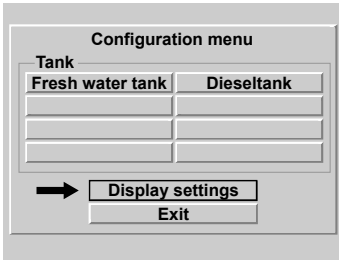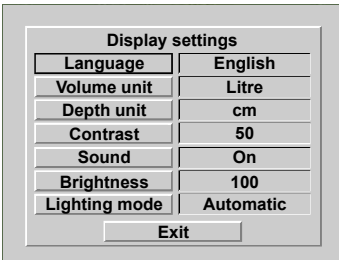
- Select '**Volume unit**'
  `∨` , `SET`

- Use the `∨` key to select the units from:
  - '**litre**',
  - '**Imperial Gallon**' and
  - '**US Gallon**'.
- Press the `SET` key to confirm.

- Select '**Height unit**'
  `∨` , `SET`
- Use the `∨` key to select the units from:
  - '**cm**' and
  - '**in**' (inch).
- Press the `SET` key to confirm.

2.4.3 Setting the contrast in the display

Setting: 0:   minimum
          100:    maximum

- **Go to menu 'Display settings', see 2.4.2.**
  Select '**Contrast**' and press the `SET` key.

- Use the `∨`/`∧` keys to select from:
  - **0**
  - **25**
  - **50**
  - **75**
  - **100**
- Press the `SET` key to confirm.

2.4.4 Setting the sound

Setting:
Alarm: only an acoustic alarm when the level is too high or too low.
Keys: only a beep when a key is pressed.
On: acoustic alarm when the level is too high or too low, and when pressing a key.
Off: no sound.

- Go to menu 'Display settings', see 2.4.2.
  Select '**Sound**' and press the `SET` key.

- Use the `∨`/`∧` keys to select from:
  - **Alarms**
  - **Keys**
  - **On**
  - **Off**
- Press the `SET` key to confirm.

vetus Ultrasonic tank management system

2.4.6 Setting the background lighting

Setting:
Manual:
> the background lighting can only be switched on/off by pressing the `LIGHT` key.

Automatic:
> the background lighting is switched on/off when the dashboard lighting is switched on/off (by the external switch input). The `LIGHT` key also still works.

* Go to menu 'Display settings', see 2.4.2. Select '**Light**' and press the `SET` key.

* Use the `V` / `∧` keys to select from:
  > **Manual**
  > **Automatic**

* Press the `SET` key to confirm.

2.4.5 Setting the brightness of the back-ground lighting

Setting: 25: minimum
100: maximum

* Go to menu 'Display settings', see 2.4.2. Select '**Brightness**' and press the `SET` key.

* Use the `V` / `∧` keys to select from:
  > **25**
  > **50**
  > **75**
  > **100**

* Press the `SET` key to confirm.

2.4.7 Setting the alarms

2 alarms can be set for each tank.

Low alarm, an alarm when the level in the tank is lower than the value set for **Low level**.

High alarm, an alarm when the level in the tank is higher than the value set for **High level**.

See the summary below.

Multiple alarms -high/low or on different tanks- can be coupled to the same alarm output.

If warning lights or buzzers are connected to the alarm outputs, these can be set off by an alarm.

Summary of alarm settings

Low alarm	- Off	The low alarm is switched off.
	- On	The low alarm is switched on.
	- On output 1	The low alarm is switched on and coupled to alarm output 1, 2, 3 or 4 respectively.
	- On output 2	
	- On output 3	
	- On output 4	
Low level	the option set for low alarm is carried out when the level in the tank has dropped to below the set low level	
High alarm	- Off	The high alarm is switched of.
	- On	The high alarm is switched on.
	- On output 1	The high alarm is switched on and coupled to alarm output 1, 2, 3 or 4 respectively.
	- On output 2	
	- On output 3	
	- On output 4	
High level	the option set for high alarm is carried out when the level in the tank has risen to above the set high level	

vetus *Ultrasonic tank management system*

- Press the [SET] key 1x
  All tanks connected are shown in the display.

```
        Configuration menu
   Tank
     Vetus          Vetus


     Display settings
     Exit
```
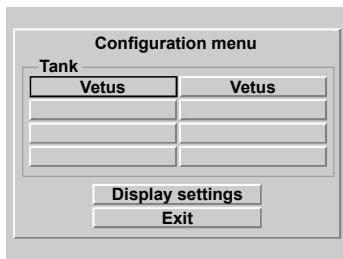
- Use the [V] / [∧] keys to select the tank for which an alarm or both alarms has/have to be set.
  In this example the Diesel tank.

- Press the [SET] key.
  The screen 'Tank settings' will now be displayed with 'Name tank' selected.

```
        Tank settings
   Tank name     Black water
   Tank type     Vetus 170 l
   Low alarm     Off
   Low level     10.0 l
   High alarm    On
   High level    150.0 l
        Exit
```
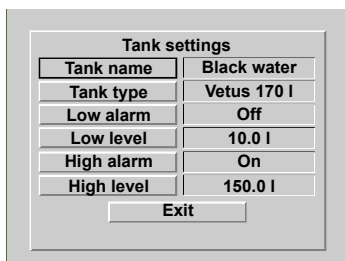
- Use the [V] key to select the alarm to be set and press the [SET] key.

```
        Tank settings
   Tank name     Diesel tank
   Tank type     Vetus 170 l
   Low alarm     Off
   Low level     10.0 l
   High alarm    Off
   High level    150.0 l
        Exit
```
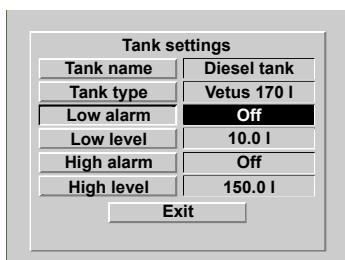
- Use the [V] / [∧] keys to select from:
  Off
  On
  On: output 1
  On: output 2
  On: output 3
  On: output 4

  Press the [SET] key to confirm.

- Use the [V] key to select the level corresponding to this alarm and press the [SET] key.

  The screen allowing the level to be entered will now be displayed.

```
        Tank settings
   Tank name  |   Black water
   T            Low level        l
   L  0 1 2 3 4 5 6 7 8 9
      .     ←      ↵
   H         0.0
             Exit
```
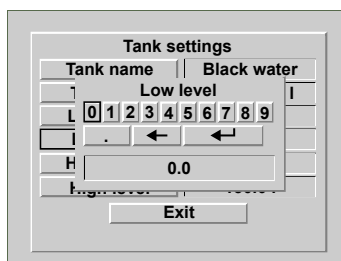
- Delete value 0.0 using the backspace function (←) and enter the level for the alarm. For example, '15' (litre).
  This value must now be saved in the memory.

```
        Tank settings
   Tank name  |   Black water
               Low level        l
   L  0 1 2 3 4 5 6 7 8 9
      .     ←      ↵
   H          15
             Exit
```
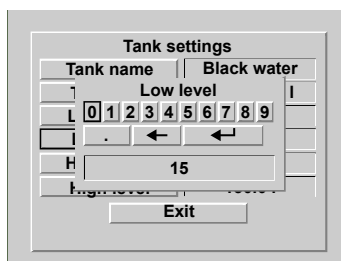
- Select Enter (↵) and press the [SET] key 1x.

3 Installation

3.1 Display instrument

See Chapter 8 for the main dimensions.
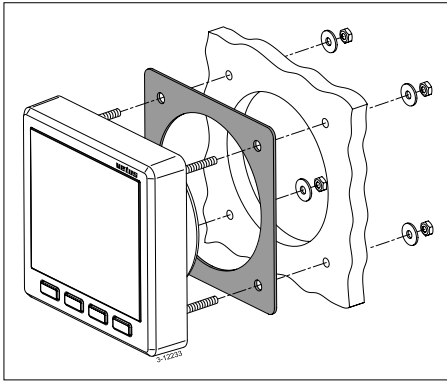
Cut holes in the instrument panel or a bulk-head using the template supplied. Fit the display instrument using the 4 threaded studs and nuts supplied. Make sure that the packing is positioned correctly between the instrument and the panel or bulkhead.

3.2 Connections

3.2.1 Power supply

The instrument is suitable for both 12 and 24 Volt direct current.

Connect the power supply as shown in the wiring diagram, see Chapter 6.

3.2.2 Background lighting

The background lighting can be switched on and off by an external switch (dashboard lighting). The function 'Light' must then be set to 'Automatic', see 2.4.6 'Setting the background lighting'.

3.2.3 Alarm outputs

External warnings, such as a light or a buzzer, can be connected to the alarm outputs.

If these devices use more than 200 mA connect a small relay in between.

3.2.4 Sensors

Fit the sensors in the tanks as described in the instructions supplied with the sensor.

Each sensor has a cable (about 1.5 m) with an RJ45 connector.

Connect the sensors to the display instrument and to each other as shown in the installation examples, see Chapter 7.

Use a patch cable*) and a double RJ45 coupling piece to extend the cable to the sensor.

2 sensors can be connected directly to the instrument.

NB: there is no difference between the two connections!

Use the splitters and connection cables supplied if more than 2 sensors have to be connected.

3.2.5 Subsidiary instrument

Connect a subsidiary instrument directly to

the main instrument or to the network of sensors, see Chapters 6 and 7.
Use a patch cable*) for this.

*) Patch cable: A Cat.5 UTP network cable with an RJ45 plug at both ends. **Do not use a 'crossed' cable!**

The following lengths of patch cable can be supplied.

- 3 metres:
  Art. code: SENSOR03

- 5 metres:
  Art. code: SENSOR05

- 10 metres:
  Art. code: SENSOR10

These cables are supplied inclusive with (1) coupling block.

3.2.6 Check the installation

After making the connections check that all sensors function.

• Switch on the instrument, see 2.1 'Switching on'.

  The volume in the 2 tanks will now be displayed on the instrument.

• Press the [SET] key 1x.
  The name of the tank should now be displayed for each tank connected.

```
Configuration menu
Tank
  Vetus        Vetus


Display settings
Exit
```
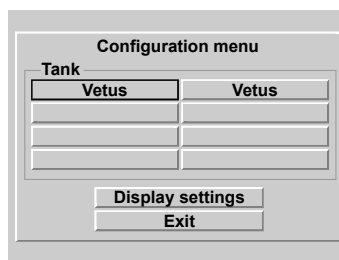
• Return to the normal display screen as follows:
  Press successively:
  [∧], [∧] and [SET].

• Now set the required language, see 'Setting the language'.

3.3   The tank data

Data must be entered for each tank.

First of all each sensor must be given a unique name so that it can be recognised. Choose a name which is in agreement with the function of the tank in which the sensor is placed. On delivery each sensor has the name 'Vetus' and Vetus 40 l tank is entered for the type of tank.

The corresponding volume and height are already entered for the plastic tanks from the Vetus range; these cannot be altered.

Select a tank from the table below if a Vetus tank is used.

Type of tank	Tank height:
Vetus 40 l	37 cm
Vetus 42 l	29 cm
Vetus 60 l	37 cm
Vetus 61 l	29 cm
Vetus1 88 l	33 cm
Vetus2 88 l	37 cm
Vetus 110 l	29 cm
Vetus 120 l	29 cm
Vetus 137 l	33 cm
Vetus 170 l	40 cm
Vetus 216 l	60 cm
Vetus 335 l	35 cm
Vetus 390 l	80 cm

The shape, volume and height must be entered for other tanks.

The volume for different heights must also be entered depending on the shape, see the table below.

Type of tank	Data to be entered
V-shape	- Volume in litres - Height in cm
Irregular shape	- Volume in litres - Height in cm - Volume: at 20, 40, 60 and 80% of the height of the tank respectively
Regular shape Cylindrical	- Volume in litres - Height in cm

The names for the tanks and the corresponding data are saved in the sensors, also after switching off the power and pulling out the plug connector.

Explanation of tank volume and tank height

Type of tank: **V-shape**
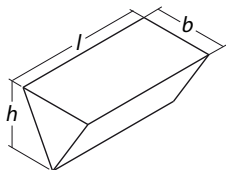
with l, b and h in cm,
the **volume of the tank** in litres: **l x b x h / 2000**
and the **height of the tank** is: **h**

Type of tank: **Irregular shape**

$E = 1/5\ h$
$D = 1/5\ h$
$C = 1/5\ h$
$B = 1/5\ h$
$A = 1/5\ h$
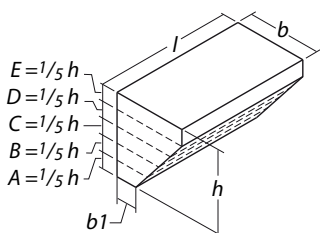
Divide the height of the tank into 5 equal pieces
- calculate the volume of part A
- calculate the volume of part B
- calculate the volume of part C
- calculate the volume of part D
- calculate the volume of part E

As an example a tank with a partially sloping side

the **volume of the tank** is: the volume of part A + B + C + D + E
the **height of the tank** is: h
the **volume at 20%** of the height is: the volume of **part A**
the **volume at 40%** of the height is: the volume of **part A + B**
the **volume at 60%** of the height is: the volume of **part A + B + C**
the *volume at 80%* of the height is: the volume of **part A + B + C + D**

Type of tank: **Regular shape**
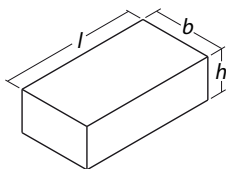
with l, b and h in cm,
the **volume of the tank** in litres: **l x b x h / 1000**
and the **height of the tank** is: **h**

Type of tank: **Cylindrical**
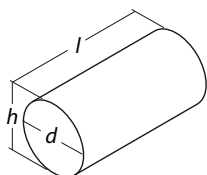
with l and d in cm
the **volume of the tank** in litres: **l x d x d x 0,785 / 1000**
and the **height of the tank** h is: **d**

3.4 Entering tank data

Enter the data for each tank as follows:

— A —

- Disconnect all sensors from the network except one.

- Switch on the power.

- Press the [SET] key 3x
  The following screens are displayed successively:
  - 'Configuration menu'
  - 'Tank settings'
  - 'Name of tank' with a keyboard and the preset name of the tank (Vetus).

— B —

Enter the name of the tank

- Press the [∧] key 2x
  Now select the Backspace function (←)
  And then press the [SET] key 5x to delete the tank name 'Vetus'.
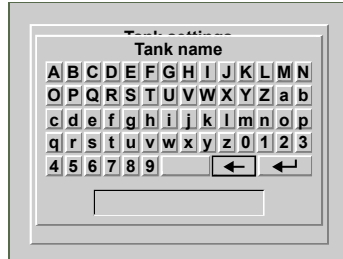
- Enter the name of the tank by using the [∨] / [∧] keys to navigate to the required letter or number and press the [SET] key.
  The space key is to the right of the number '9'.

  After entering the name of the tank, e.g. 'Drinking water tank', this must be saved in the memory.

vetus Ultrasonic tank management system

- Select Enter (↵) and press the SET key.
  The screen 'Tank settings' will now be displayed with 'Name tank' selected.

Tank settings	
Tank name	Drinking water
Tank type	Vetus 40 l
Low alarm	Off
Low level	0.0 l
High alarm	Off
High level	40.0 l
Exit	

— C —

Enter type of tank, volume and height

- Press ∨ to select 'Type of tank'

Tank settings	
Tank name	Drinking water
Tank type	Vetus 40 l
Low alarm	Off
Low level	0.0 l
High alarm	Off
High level	40.0 l
Exit	

- Press the SET key.
  The screen 'Calibrate tank' will now be displayed on the instrument.

Tank calibration	
Tank type	Vetus 40 l
Tank volume	40.0 l
Tank depth	37.0 cm
20% tot. depth	n.a.
40% tot. depth	n.a.
60% tot. depth	n.a.
80% tot. depth	n.a.
Exit	

Vetus 40 l is set as the type of tank when the sensor is delivered.

- Press the SET key.

  Use the ∨ / ∧ keys to select the type of tank.

  Press the SET key to confirm.

Example 1

If the drinking water tank is a **Vetus 120 litres tank** then the settings for tank volume and tank height will now have been changed accordingly.

The settings for tank volume and tank height can now not be changed.

The other settings, e.g. 20% tot. height etc, do not apply here and can therefore also not be changed.

Tank calibration	
Tank type	Vetus 120 l
Tank volume	120.0 l
Tank depth	29.0 cm
20% tot. depth	n.a.
40% tot. depth	n.a.
60% tot. depth	n.a.
80% tot. depth	n.a.
Exit	

• Return to the menu 'Tank settings' by using the [∨] / [∧] keys to navigate to 'Exit' and pressing [SET].

• Return to the 'Configuration menu' by using the [∨] / [∧] keys to navigate to 'Exit' and pressing [SET].

• Connect the next sensor; the name of the sensor that has just been connected (Vetus) will be displayed after a brief interval.

Configuration menu	
Tank	
Drinking water	Vetus
Display settings	
Exit	

Select the sensor that has just been connected using the [∨] / [∧] keys and press [SET] 2x. The keyboard and the name of the tank will then be displayed again.

Repeat steps B and C for each following sensor.
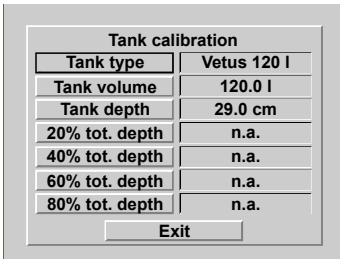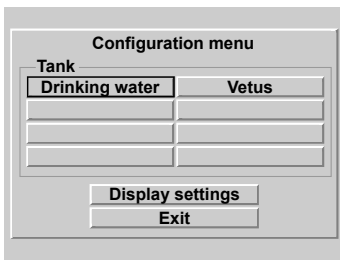
Example 2

If the drinking water tank is a **V-shaped tank,** for example, the volume and the height of the tank must be entered. These are both still set to 0.

Tank calibration	
Tank type	V-shape
Tank volume	0.0 l
Tank depth	0.0 cm
20% tot. depth	n.a.
40% tot. depth	n.a.
60% tot. depth	n.a.
80% tot. depth	n.a.
Exit	

• Press ⌐∨⌐ followed by ⌐SET⌐.

   The screen allowing the volume to be entered will now be displayed.

Tank calibration	
Tank type	V-shape
Tank volume	
0 1 2 3 4 5 6 7 8 9	
. ← ↵	
123	
80% tot. depth	n.a.
Exit	

☞ **NOTE**

Maximum tank volume is 6553 liter.

• Delete value 0.0 using the backspace function (←) and enter the volume of the tank. For example, '123' (litre).
   This value must now be saved in the memory.

Tank calibration	
Tank type	V-shape
Tank volume	
0 1 2 3 4 5 6 7 8 9	
. ← ↵	
123	
80% tot. depth	n.a.
Exit	

• Select Enter (↵) and press the ⌐SET⌐ key 1x.

Tank calibration	
Tank type	V-shape
Tank volume	123.0 l
Tank depth	0.0 cm
20% tot. depth	n.a.
40% tot. depth	n.a.
60% tot. depth	n.a.
80% tot. depth	n.a.
Exit	

• Then press ⌐∨⌐ followed by ⌐SET⌐ to be able to set the tank height.

Tank calibration	
Tank type	V-shape
Tank depth	
0 1 2 3 4 5 6 7 8 9	
. ← ↵	
80% tot. depth	n.a.
Exit	

- Delete value 0.0 using the backspace function (←) and enter the height of the tank. For example, '45' (cm).
  This value must now be saved in the memory.

- Select Enter (↵) and press the `SET` key 1x.
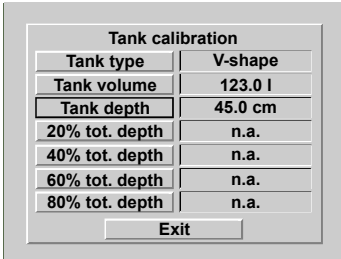
```
Tank calibration
Tank type        V-shape
Tank volume      123.0 l
Tank depth       45.0 cm
20% tot. depth   n.a.
40% tot. depth   n.a.
60% tot. depth   n.a.
80% tot. depth   n.a.
         Exit
```

- Return to the menu 'Tank settings' by using the ∨ / ∧ keys to navigate to 'Exit' and pressing `SET`.

- Return to the 'Configuration menu' by using the ∨ / ∧ keys to navigate to 'Exit' and pressing `SET`.

- Connect the next sensor; the name of the sensor that has just been connected (Vetus) will be displayed after a brief interval.

```
Configuration menu
Tank
Drinking water      Vetus


       Display settings
            Exit
```
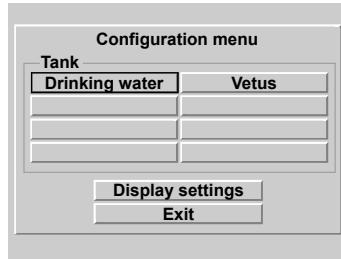
Select the sensor that has just been connected using the ∨ / ∧ keys and press `SET` 2x. The keyboard and the name of the tank will then be displayed again.

Repeat steps B and C for each following sensor.

For a tank with an irregular shape the volumes at 20, 40, 60 and 80% tot. height must be entered after this.

This done in the same way as entering the tank volume and tank height.

Setting the alarms is described in Chapter 'Operating' paragraph 2.4.7.

vetus Ultrasonic tank management system

4   Technical Data

Power supply	: 8 - 32 Volt DC
Current consumption	
Instrument	: 125 mA at 12 Volt,
	63 mA at 24 Volt,
	including background lighting
Sensor	: 35 mA
Communication protocol sensors	: RS-485
Number of sensors	: maximum 8
Number of display instruments	: maximum 2
Alarm outputs	: 4
Maximum current on alarm output	: 200 mA
Languages	: Dutch, English, German, French, Spanish and Italian.
Operating temperature	: 0 to +50 °C (32 °F to 122 °)
Protection class	: IP66

Declaration of conformity
We declare that this product conforms to the following directives:
- 2014/30/EU

5 Menu structure

5.1 Configuration menu

5.2 Tank settings

```
Tank name ──▶ SET ──▶ Enter tank name,
                       see 3.4

Tank type ──▶ SET ──▶ Calibration
                       Enter type of tank,
                       see 5.4

Low alarm ──▶ SET ──▶ Off / On /
                       On: output 1 / 2 / 3 / 4 ──▶ SET
                       ∨ / ∧

Low level ──▶ SET ──▶ Enter tank volume
                       for low alarm,
                       see 2.4.7

High alarm ──▶ SET ──▶ Off / On /
                        On: output 1 / 2 / 3 / 4 ──▶ SET
                        ∨ / ∧

High level ──▶ SET ──▶ Enter tank volume
                        for high alarm,
                        see 2.4.7

Exit ──▶ SET ──▶ Back to
                  Configuration menu
```

5.3   Display settings

Language	SET → Nederlands / English / Deutsch / Français / Español / Italiano → SET
Volume unit	SET → liter / UK Gallon / US gallon → SET
Depth unit	SET → cm / inch → SET
Contrast	SET → 0 / 25 / 50 / 75 / 100 → SET
Sound	SET → On / Off / Alarms / Keys → SET
Brightness	SET → 25 / 50 / 75 / 100 → SET
Lighting mode	SET → Automatic / Manual → SET
Exit	SET → *Back to Configuration menu*

5.4   Calibration, enter type of tank

```
                    ┌─────────┐
                    │    ∧    │
                    └─────────┘
   ┌────────────────────────┐       ┌─────────┐       ┌──────────────────────┐       ┌─────────┐
   │       Tank type        │──────→│   SET   │──────→│         Type         │──────→│   SET   │
   └────────────────────────┘       └─────────┘       │    1 / 2 / 3 / etc.   │       └─────────┘
                    ┌─────────┐                        └──────────────────────┘
                    │    ∨    │                         ┌─────────┐   ┌─────────┐
                    └─────────┘                         │    ∨    │ / │    ∧    │
                                                        └─────────┘   └─────────┘

                    ┌─────────┐
                    │    ∧    │
                    └─────────┘
   ┌────────────────────────┐       ┌─────────┐       ┌──────────────────────┐
   │      Tank volume       │──────→│   SET   │──────→│ Enter total tank volume,
   └────────────────────────┘       └─────────┘       │        see 3.4
                    ┌─────────┐                        └──────────────────────┘
                    │    ∨    │
                    └─────────┘

                    ┌─────────┐
                    │    ∧    │
                    └─────────┘
   ┌────────────────────────┐       ┌─────────┐       ┌──────────────────────┐
   │       Tank depth       │──────→│   SET   │──────→│   Enter tank height,
   └────────────────────────┘       └─────────┘       │        see 3.4
                    ┌─────────┐                        └──────────────────────┘
                    │    ∨    │
                    └─────────┘

                    ┌─────────┐
                    │    ∧    │
                    └─────────┘
   ┌────────────────────────┐       ┌─────────┐       ┌──────────────────────┐
   │     20% tot. depth     │──────→│   SET   │──────→│  Enter tank volume at
   └────────────────────────┘       └─────────┘       │  20% of total height,
                    ┌─────────┐                        │        see 3.4
                    │    ∨    │                        └──────────────────────┘
                    └─────────┘

                    ┌─────────┐
                    │    ∧    │
                    └─────────┘
   ┌────────────────────────┐       ┌─────────┐       ┌──────────────────────┐
   │     40% tot. depth     │──────→│   SET   │──────→│  Enter tank volume at
   └────────────────────────┘       └─────────┘       │  40% of total height,
                    ┌─────────┐                        │        see 3.4
                    │    ∨    │                        └──────────────────────┘
                    └─────────┘

                    ┌─────────┐
                    │    ∧    │
                    └─────────┘
   ┌────────────────────────┐       ┌─────────┐       ┌──────────────────────┐
   │     60% tot. depth     │──────→│   SET   │──────→│  Enter tank volume at
   └────────────────────────┘       └─────────┘       │  60% of total height,
                    ┌─────────┐                        │        see 3.4
                    │    ∨    │                        └──────────────────────┘
                    └─────────┘

                    ┌─────────┐
                    │    ∧    │
                    └─────────┘
   ┌────────────────────────┐       ┌─────────┐       ┌──────────────────────┐
   │     80% tot. depth     │──────→│   SET   │──────→│  Enter tank volume at
   └────────────────────────┘       └─────────┘       │  80% of total height,
                    ┌─────────┐                        │        see 3.4
                    │    ∨    │                        └──────────────────────┘
                    └─────────┘

                    ┌─────────┐
                    │    ∧    │
                    └─────────┘
   ┌────────────────────────┐       ┌─────────┐       ┌──────────────────────┐
   │          Exit          │──────→│   SET   │──────→│  Back to tank settings
   └────────────────────────┘       └─────────┘       └──────────────────────┘
                    ┌─────────┐
                    │    ∨    │
                    └─────────┘
```

5 Struttura del menu

5.1 Menu configurazione

5.2   Impostazioni serbatoio

Nome serbatoio → SET → *Inserisci nome serbatoio, vedi 3.4*

Tipo serbatoio → SET → *Calibratura Inserisci tipo serbatoio, vedi 5.4*

Allarme basso → SET → Spento / Acceso / Acceso: Uscita 1 / 2 / 3 / 4 → SET

Livello basso → SET → *Inserisci volume serbatoio per allarme livello basso, vedi 2.4.7*

Allarme alto → SET → Spento / Acceso / Acceso: Uscita 1 / 2 / 3 / 4 → SET

Nivello alto → SET → *Inserisci volume serbatoio per allarme livello alto, vedi 2.4.7*

Esci → SET → *Torna a menu di configurazione*

5.3   Display impostazioni

```
         ┌─────────────────────────────────────────────────────────────────┐
         │  ┌──────────────────────────────────────────────────────────┐    │
         │  │      [∧]                                                  │    │
    ┌────┼──┤                                                          │    │
    │    ▼  │              ┌───────────────────────────────────┐       │    │
    │  ┌─────────┐  ┌─────┐│  Nederlands / English / Deutsch   │ ┌─────┐│    │
    │  │ Lingua  │─▶│ SET │▶│  Français / Español / Italiano    │▶│ SET │┘    │
    │  └─────────┘  └─────┘│└───────────────────────────────────┘ └─────┘     │
    │    ▼                 │      [∨] / [∧]                                    │
    │  [∨]       [∧]                                                          │
    │    │      ┌──────────────────────────────────────────────────┐         │
    │    ▼      │          ┌───────────────────────────────────┐    │         │
    │  ┌──────────────┐  ┌─────┐│ litri / Galloni UK / Galloni US │┌─────┐    │
    │  │ Unità volume │─▶│ SET │▶│                                 │▶│ SET │   │
    │  └──────────────┘  └─────┘└───────────────────────────────────┘└─────┘  │
    │    ▼                      [∨] / [∧]                                      │
    │  [∨]       [∧]                                                          │
    │    ▼      ┌────────────────────────────────────────┐                   │
    │  ┌──────────────┐  ┌─────┐│      cm / inch          │┌─────┐            │
    │  │ Unità altezza│─▶│ SET │▶│                         │▶│ SET │          │
    │  └──────────────┘  └─────┘└─────────────────────────┘└─────┘           │
    │    ▼                      [∨] / [∧]                                      │
    │  [∨]       [∧]                                                          │
    │    ▼      ┌────────────────────────────────────────┐                   │
    │  ┌──────────────┐  ┌─────┐│    0 / 25 / 50 / 75 / 100 │┌─────┐          │
    │  │  Contrasto   │─▶│ SET │▶│                         │▶│ SET │          │
    │  └──────────────┘  └─────┘└─────────────────────────┘└─────┘           │
    │    ▼                      [∨] / [∧]                                      │
    │  [∨]       [∧]                                                          │
    │    ▼      ┌────────────────────────────────────────┐                   │
    │  ┌──────────────┐  ┌─────┐│ Acceso / Spento / Alarmi / Tasti │┌─────┐   │
    │  │    Suono     │─▶│ SET │▶│                                 │▶│ SET │  │
    │  └──────────────┘  └─────┘└─────────────────────────┘└─────┘           │
    │    ▼                      [∨] / [∧]                                      │
    │  [∨]       [∧]                                                          │
    │    ▼      ┌────────────────────────────────────────┐                   │
    │  ┌──────────────┐  ┌─────┐│    25 / 50 / 75 / 100   │┌─────┐            │
    │  │   Nitidezza  │─▶│ SET │▶│                         │▶│ SET │          │
    │  └──────────────┘  └─────┘└─────────────────────────┘└─────┘           │
    │    ▼                      [∨] / [∧]                                      │
    │  [∨]       [∧]                                                          │
    │    ▼      ┌────────────────────────────────────────┐                   │
    │  ┌──────────────┐  ┌─────┐│  Automatica / Manuale   │┌─────┐            │
    │  │ Illuminazione│─▶│ SET │▶│                         │▶│ SET │          │
    │  └──────────────┘  └─────┘└─────────────────────────┘└─────┘           │
    │    ▼                      [∨] / [∧]                                      │
    │  [∨]       [∧]                                                          │
    │    ▼                       ┌──────────────────┐                         │
    │  ┌──────────────┐  ┌─────┐ │  Torna a menu    │                         │
    └─▶│    Esci      │─▶│ SET │▶│  di configurazione│                        │
       └──────────────┘  └─────┘ └──────────────────┘                         │
         ▼                                                                     │
       [∨]                                                                     │
         └───────────────────────────────────────────────────────────────────┘
```
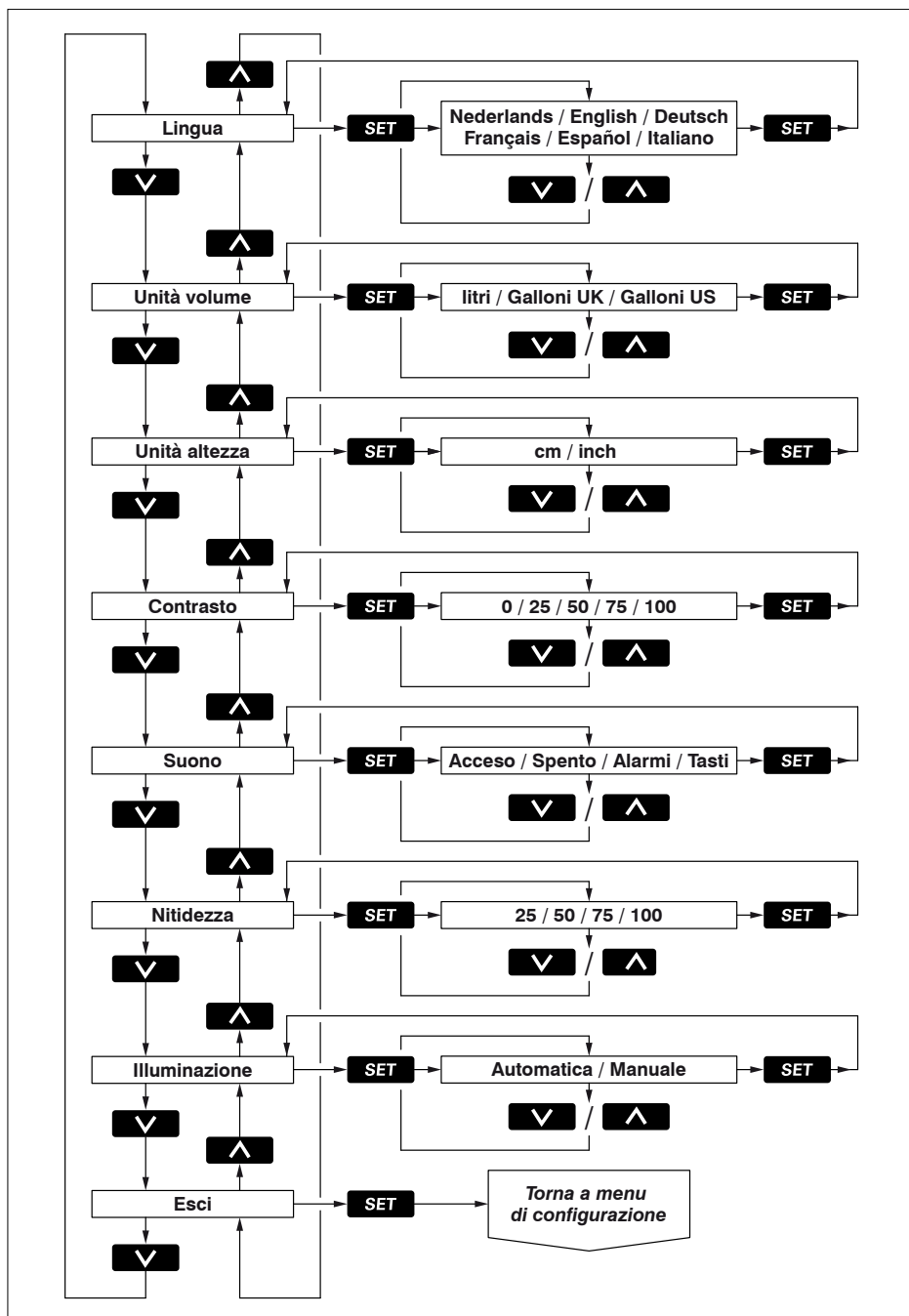
5.4   Calibratura, inserimento tipo serbatoio

```
Tipo serbatoio  →  SET  →  Tipo 1 / 2 / 3 / etc.  →  SET
                               V / ∧

Capienza serbatoio  →  SET  →  Inserisci volume totale serbatoio, vedi 3.4

Altezza serbatoio  →  SET  →  Inserisci altezza serbatoio, vedi 3.4

20% altezza tot  →  SET  →  Inserisci volume serbatoio a 20% dell'altezza, vedi 3.4

40% altezza tot  →  SET  →  Inserisci volume serbatoio a 40% dell'altezza, vedi 3.4

60% altezza tot  →  SET  →  Inserisci volume serbatoio a 60% dell'altezza, vedi 3.4

80% altezza tot  →  SET  →  Inserisci volume serbatoio a 80% dell'altezza, vedi 3.4

Esci  →  SET  →  Torna a impostazioni serbatoio
```

6 Aansluitschema · Schéma électrique
Wiring diagram · Esquema de conexión
Anschlußschaltplan · Schema dei collegamenti

Dochterinstrument
Repeater
Tochtergerät
Répétiteur
Instrumento adicional
Ripetitore

1	Afleesinstrument	1	Meter	1	Anzeigeinstrument
2	Sensor	2	Sensor	2	Sensor
3	Aan/uitschakelaar	3	On/Off switch	3	Ein-/Ausschalter
4	Zekering 500 mA	4	Fuse 500 mA	4	Sicherung 500 mA
5	Accu	5	Battery	5	Batterie
6	Lichtschakelaar	6	Lighting switch	6	Lichtschalter
7	Andere instrumenten	7	Other instruments	7	Andere Instrumente
8	Waarschuwingslamp	8	Warning light	8	Warnleucht
9	Zoemer	9	Buzzer	9	Summer
10	Relais	10	Relay	10	Relais
11	UTP-Splitter	11	UTP-Splitter	11	UTP-Splitter

vetus *Ultrasonic tank management system*
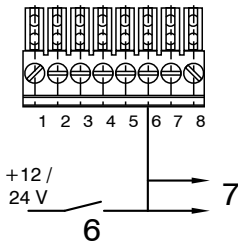
Schakelaar voor achtergrondver-lichting
Switch for backlight
Schalter für Beleuchtung
Interrupteur d'éclairage d'arrière-plan
Interruptor de luz de fondo
Interruttore per illuminazione
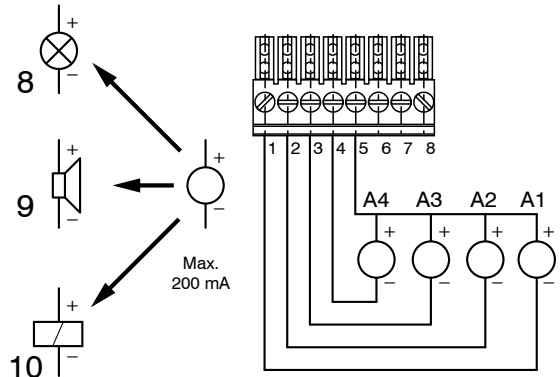
Alarmuitgang
Alarm output
Ausgabe Alarmsignal
Sortie d'alarme
Salida de alarma
Uscita allarme

1	Instrument à cadran	1	Instrumento de lectura
2	Capteur	2	Sensor
3	Interrupteur Marche/Arrêt	3	Interruptor de encendido/apagado
4	Fusible 500 mA	4	Fusible 500 mA
5	Batterie	5	Batería
6	Interrupteur d'éclairage	6	Interruptor de la luz
7	Autres instruments	7	Otros instrumentos
8	Voyant de controle	8	Luce de aviso
9	Bruiteur	9	Timbre
10	Relais	10	Relé
11	Splitter UTP	11	Divisor UTP

1 Quadrante
2 Sensore
3 Interruttore acceso/spento
4 Fusibile 500 mA
5 Batteria
6 Interruttore luce
7 Altri strumenti
8 Spie luminose
9 Segnalatore acustico
10 Relè
11 Splitter UTP

7 Aansluiten sensoren, dochterinstrumenten
Connecting sensors, repeater instruments
Anschluss von Sensoren und Tochtergeräten
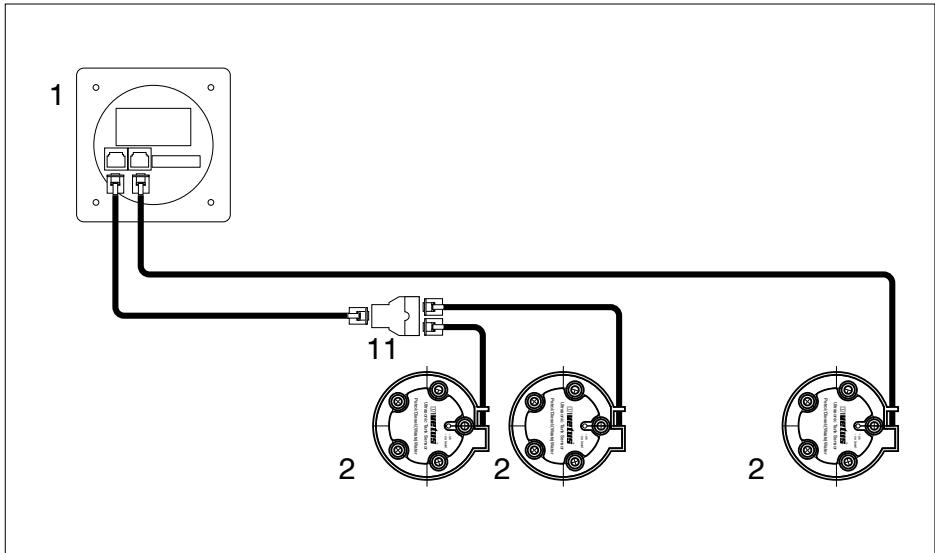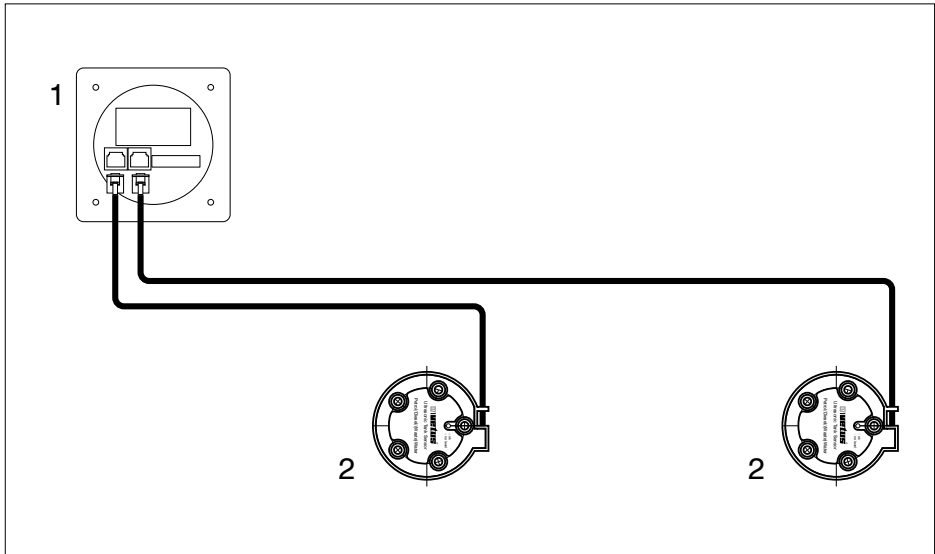
1	Afleesinstrument	1	Meter	1	Anzeigeinstrument
2	Sensor	2	Sensor	2	Sensor
11	UTP-Splitter	11	UTP-Splitter	11	UTP-Splitter

Ultrasonic tank management system

Raccordement des capteurs, instruments secondaires
Conexión de sensores e instrumentos adicionales
Collegamento sensori, strumenti secondari

1	Instrument à cadran	1	Instrumento de lectura	1	Quadrante
2	Capteur	2	Sensor	2	Sensore
11	Splitter UTP	11	Divisor UTP	11	Splitter UTP
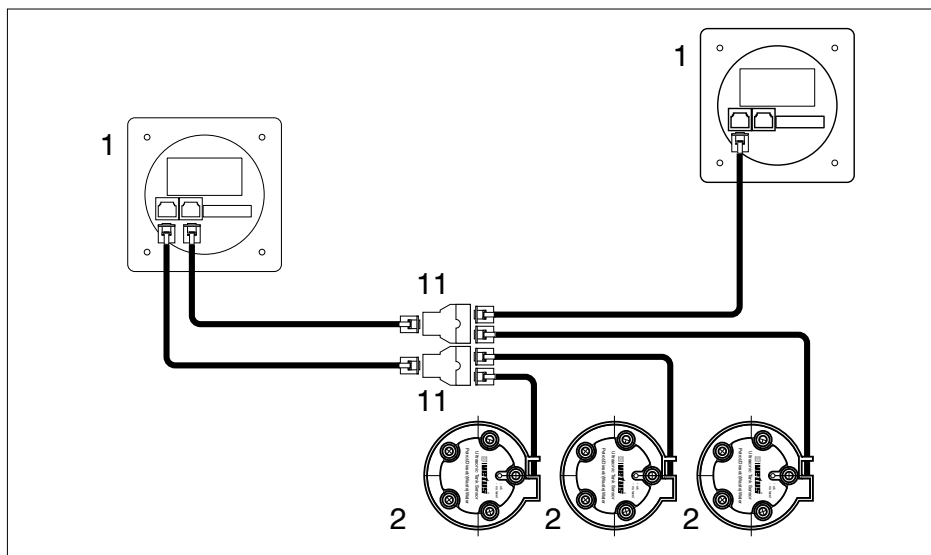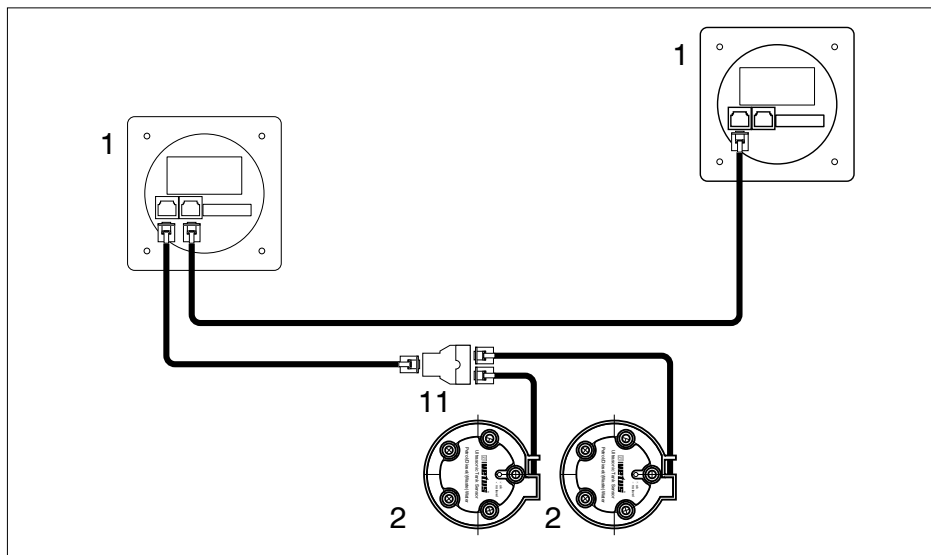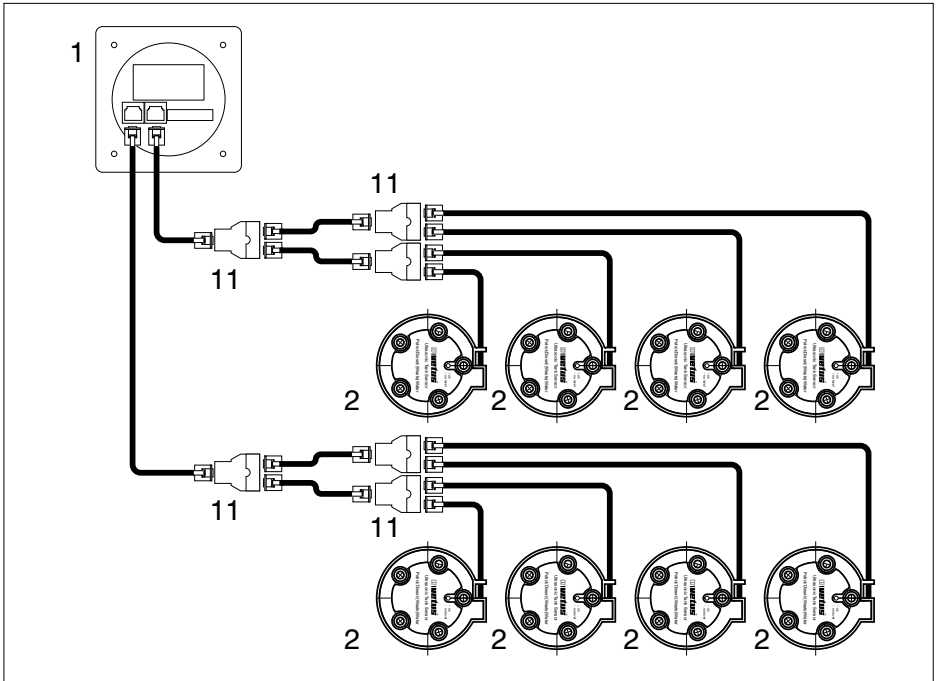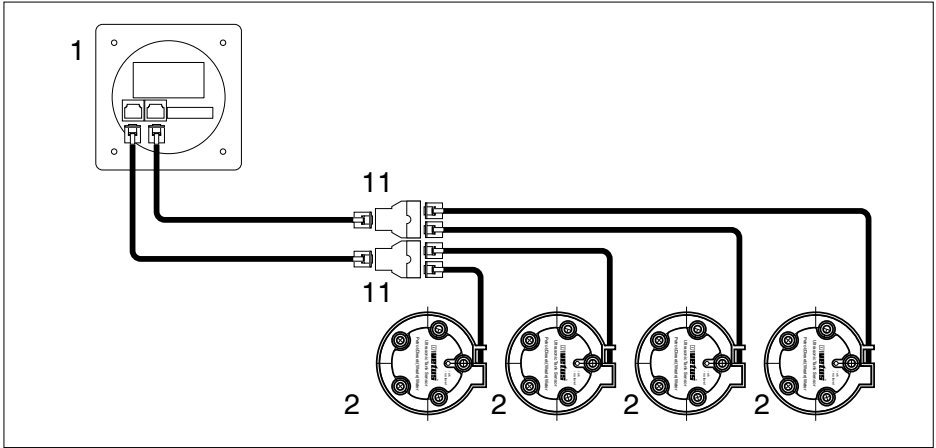
1 Afleesinstrument	1 Anzeigeinstrument	1 Instrumento de lectura
2 Sensor	2 Sensor	2 Sensor
11 UTP-Splitter	11 UTP-Splitter	11 Divisor UTP

1 Meter	1 Instrument à cadran	1 Quadrante
2 Sensor	2 Capteur	2 Sensore
11 UTP-Splitter	11 Splitter UTP	11 Splitter UTP

vetus *Ultrasonic tank management system*

8 Hoofdafmetingen Dimensions principales
Overall dimensions Dimensiones generales
Hauptmaße Misure principali

110 (4 5/16")

110 (4 5/16")

21 (13/16")

24,5 (31/32")

31,5 (1 1/4")

3-12234

ø 84 (3 5/16")

80 (3 5/32")

80 (3 5/32")

ø 5 (4x) (3/16")