Operating Instructions

SEWERIN
Protecting Water, Gas and Life.

Multitec® BioControl

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Multitec BioControl – Setup

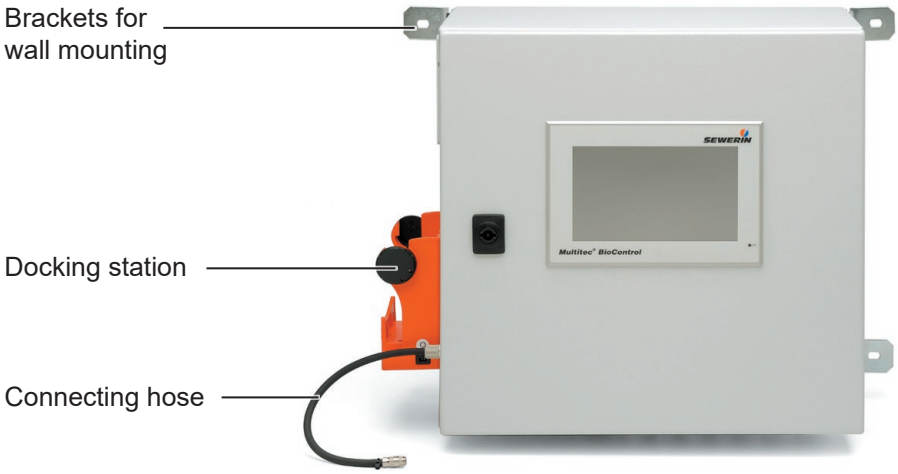

Fig. 1: **BioControl 4** (front view)

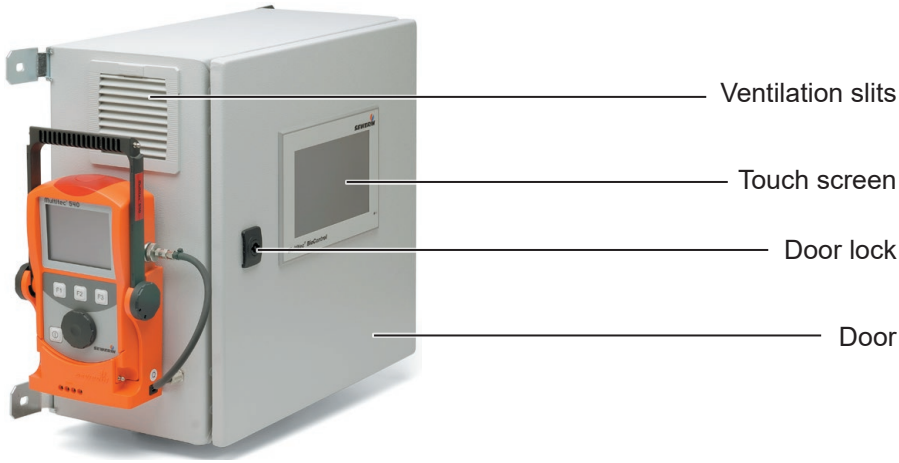

Fig. 2: **Multitec BioControl** with **BioControl 4** and **Multitec 540** gas measuring device

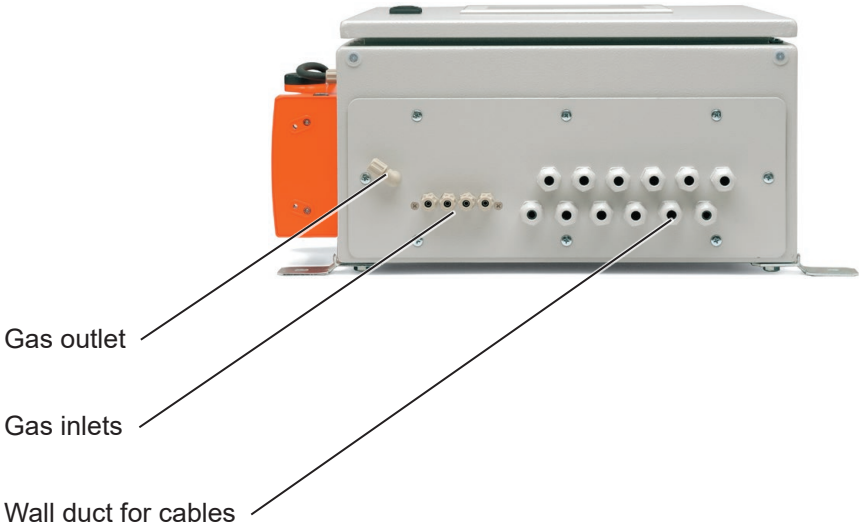

Fig. 3: **BioControl 4** – product variant for a maximum of four measuring locations (view from underneath)

Information about this document

Warnings and notes in this document mean the following:

CAUTION!
Risk of personal injury. Could result in injury or pose a risk to health.

IMPORTANT!
Risk of damage to property.

Note:
Tips and important information.

Numbered lists (numbers, letters) are used for:

- Instructions that must be followed in a certain order

Lists with bullet points (point, dash) are used for:

- Lists
- Instructions that only involve one step

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1 Introduction

The **Multitec BioControl** is a combined measuring device. It consists of a fixed **BioControl** (e.g. **BioControl 4**) and a mobile gas measuring device (e.g. **Multitec 540**).

The **Multitec BioControl** is designed for the automatic measurement and monitoring of the amount* and composition of gases produced in biogas and sewage treatment plants and in landfill sites. The maximum number of measurement locations depends on the product variant.

The device measures the gas compositions at the individual measuring locations sequentially. The gas components measured depend on the technical options available with the mobile gas measuring device. The values are transmitted to the **BioControl** via an interface.

The mobile gas measuring device is usually docked to the **BioControl** via the docking station (stationary measurements).

As an option, mobile measurements can be taken at selected measuring locations. The gas measuring device is removed from the **BioControl** docking station to carry out the measurement. When it is replaced in the docking station, the calculated measurement values are transmitted to the **BioControl** and displayed.

Exact recording of the volume of raw biogas is also possible with the **Multitec BioControl**.

Note:
These Operating Instructions only describe the operation of the **BioControl** fixed installation.

- The description of the assembly and installation of the **Multitec BioControl** can be found in the "**Multitec BioControl** Assembly and Installation Instructions".
- The description of the mobile gas measuring device can be found in the corresponding operating instructions.

The Operating Instructions are intended for users of the **Multitec BioControl**.

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*only BioControl 4 and BioControl 8

2 Notes on handling the product

2.1 Warranty

The following instructions must be complied with in order for any warranty to be applicable regarding functionality and safe operation of this equipment.

- The product must be commissioned by an authorised technician. Only after this commissioning may the user operate it.
- Use the product only as intended.
- Repairs and maintenance must only be carried out by specialist technicians or other suitably trained personnel. Only spare parts approved by Hermann Sewerin GmbH may be used when performing repairs.
- Changes or modifications to this product may only be carried out with the approval of Hermann Sewerin GmbH.
- Use only Hermann Sewerin GmbH accessories for the product.

Hermann Sewerin GmbH shall not be liable for damages resulting from the non-observance of this information. The warranty conditions of the General Terms and Conditions (AGB) of Hermann Sewerin GmbH are not broadened by this information.

In addition to the warnings and other information in these Operating instructions, always observe the generally applicable safety and accident prevention regulations.

The manufacturer reserves the right to make technical changes.

2.2 Intended use

The quality and volume* of biogas, sewer gas and landfill gas can be determined with the **Multitec BioControl** combined measuring device.

Prior to initial use, the **Multitec BioControl** must be assembled, installed and commissioned by an authorised technician. Both stationary and mobile measurements can be performed with the mobile gas measuring device.

The **Multitec BioControl** is intended for use by small and commercial operations as well as for industrial applications.

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*only BioControl 4 and BioControl 8

The product does not have certification from an official agency and cannot, therefore, be used such that end customers are charged.

2.3 General safety information

This product was manufactured in accordance with all binding legal and safety regulations. It corresponds to the state of the art and complies with conformity requirements. The product is safe to operate when used in accordance with the instructions provided.

However, if you handle the product improperly or not as intended, the product may present a risk to persons and property. For this reason, observe the following safety information without fail.

- In the setup area, smoking and open flames are prohibited.
- Do not modify the installation yourself. The **Multitec BioControl** may only be used in the manner approved in the commissioning process. Subsequent modifications to the installation and configuration must always be carried out by an authorised technician.
- The gas must always be able to flow freely in the gas hoses. Gas hoses must not be bent into kinks, accidentally disconnected or otherwise subjected to mechanical stress.
- Prevent aggressive substances (e.g. acids) from coming into contact with the touch screen. Protect the touch screen from mechanical damage.
- Ensure compliance with the permissible operating temperatures. Otherwise, there is a risk that the sensitive touch screen film may warp, and as a result, the touch screen may no longer be fully functional.
- Ensure that the ventilation slits on both sides of the housing are always freely accessible. Do not cover the ventilation slits with pieces of clothing or similar items.

3 Product description

3.1 BioControl product variants

The following product variants of the **BioControl** are available:

- **BioControl 1**
- **BioControl 2**
- **BioControl 4**
- **BioControl 8**

The number at the end of the product name indicates the maximum number of measuring locations that can be connected to the **BioControl** as part of the installation.

The product variants do not differ with respect to operation.

Test gas measurements cannot be performed with the **Multitec BioControl 1**.

3.2 Setup

For overviews including all part names for the **BioControl**, see the front cover flap (fig. 1 to fig. 3).

3.2.1 Gas flow in the combined measuring device

The entire gas volume of the system does not flow through the **Multitec BioControl**, just the volume required for the measurements.

In the **BioControl** the incoming flow of the gas is controlled by solenoid valves.

To perform a measurement, the gas is suctioned in by the mobile gas measuring device via a connecting hose. Following the measurement, the gas is exhausted using a pump with higher output (excess flow principle) and is diluted with air.

The **Multitec BioControl** is always tightly sealed.

3.2.2 Touch screen on the BioControl

The touch screen is a screen with areas that are sensitive to the touch. The touch-sensitive areas may contain the following controls:

- **Input fields**

  Values can be changed in the input fields.

  Input fields are usually dark yellow.

- **Buttons**

  A new screen view opens when you tap buttons.

  Buttons are usually orange or grey.

- **Toggle buttons**

  A function is activated or deactivated by tapping the toggle buttons.

  Activated toggle buttons are green and deactivated toggle buttons are red.

3.3 Measuring mode

Following start-up, the **Multitec BioControl** is always in measuring mode. As long as a mobile gas measuring device is connected, measurement values are recorded in a predetermined sequence at the measuring locations that have been set up.

- Measuring mode can be interrupted (see section 6.1 on page 41).
- The sequence of measurements can be interrupted to perform a manual measurement at a certain measurement location (see section 6.2 on page 42).

When the power supply is interrupted (e.g. power outage), the **Multitec BioControl** switches off automatically. Once the fault has been cleared, the device switches back on automatically.

3.3.1 Sequence of measurements

The connected measuring locations are run through sequentially in ascending order. Measuring locations that are not connected or deactivated are skipped. If a measuring location has been set up for test gas measurements, this location only measures when the test gas cycle allows.

The following table shows sample configurations for a **BioControl 4** and the resulting sequence of measurements.

Configuration examples	Sequence
● Measuring locations 1 – 4 connected ● No measuring location set up for test gas measurements	1 > 2 > 3 > 4 > 1 > 2 > 3 > 4 > 1 > …
● Measuring location 1 – 2 connected ● Measuring location 3 not connected ● Measuring location 4 set up for test gas measurements ● Value for test gas cycle: 1	1 > 2 > 4 > 1 > 2 > 4 > 1 > …
● Measuring locations 1 – 3 connected ● Measuring location 4 set up for test gas measurements ● Value for test gas cycle: 2	1 > 2 > 3 > 1 > 2 > 3 > 4 > 1 > 2 > 3 > 1 > 2 > 3 > 4 > 1 > …

A complete cycle of measurement runs at each measuring location:

Detailed information on test gas measurements can be found in section 7.1 on page 44.

3.3.2 Scope of a measurement cycle

A measurement cycle is comprised of the following steps **Wait**, **Measuring** and **Purge**.

Once an entire cycle of measurement at one measuring location has been completed, there is an automatic switch to the next measuring location at which a new measurement cycle begins.

Compared to the **Wait** step, the steps **Measuring** and **Purge** take very little time. The duration of the **Wait** step depends on the settings in the **Measurement cycle** view.

The current step at any given time is displayed under **Measuring status** (section 3.3.3).

3.3.3 Measuring status

A variety of different statuses can occur during a measurement cycle.

Status	Description
Wait	Waiting time to start of **Measuring** step. At the end of the waiting period the measurement is prepared (e.g. gas measuring device is activated). The duration of the **Wait** step depends on the settings in the **Measurement cycle** view.
Measuring	The measuring procedure is running.
Purge	The mobile gas measuring device is purged with fresh air to remove any contaminants and harmful gases.
Device missing	The mobile gas measuring device is not in the docking station (e.g. due to mobile measurement).
Off	The current measurement has been manually stopped. OR The adjustment is complete.
On	A stopped measurement has been started again manually. OR The mobile gas measuring device has been returned to the docking station.

The current measuring status is displayed in the **Measuring** view (fig. 8).

3.4 Software and password protection

The **BioControl** software distinguishes between the following:

- freely accessible areas
- password protected areas

The basic functions of the measuring mode are freely accessible. Areas of the software in which settings may be changed are password protected. This is to prevent you from inadvertently overwriting settings.

The software is protected from inadvertent or unauthorised changes at different levels. These Operating Instructions describe only the first level. This level is accessible to all users. The other protected levels are intended for authorised personnel only.

For information on password input, see section 4.4 on page 15.

Some of the software views come in two versions:

- View in the freely accessible area
- View in the password protected area with advanced functionality

These views include the **Main menu** and the views **Course**, **Start menu** and **Date/time**.

3.5 Data storage

The **BioControl** regularly and automatically saves the measurement data to a USB stick. The measurement data includes the actual measurement values and additional information. The automatic storage of measurement data complies with requirements for independent data storage.

There are two memory files:

- Log file
- Measurement data file

The following applies to both memory files:

- With each saving process, a new data record is added to the file.
- A new file is created at the beginning of every month.

File format

The file format for storage files is determined during start-up. Storage as a text file (*.txt) is common.

Save interval

Save interval refers to the time between two saving processes. The save interval is set individually for each storage file.

The length of the save interval affects the use of storage space and processing.

Save interval	Number of records per file	Evaluation
Short	High	● Complex evaluation ● High density of information
Long	Low	● Less complex evaluation ● Low density of information and in some circumstances incomplete

Information about setting the save interval can be found in section 8.8 on page 60 or section 8.9 on page 61.

USB stick

The USB stick is included in the delivery of the **BioControl**. Alternatively, any other commercially available USB stick may be used. The port for the USB stick is located on the back of the door.

Note:
If the USB stick is removed from the port, no measurement data can be stored. For this reason, only remove the USB stick briefly from the port (e.g. to read the measurement data).

An error message appears if there is no more storage space on the USB stick.

3.5.1 Log file

The course of the measurements (**Course** view) is stored in the log file.

Note:
Only the course of the measuring location for which the course is selected is saved.

The following measurement data is saved to the log file:

- Measurement values CH_4, O_2, H_2S, flow
- Gas temperature
- Measuring time (date, time)

File name

The log file has **Log** as the first part of the file name.

The file syntax is as follows: **LogYearMonth.txt**.

Month and year are replaced by the current values. For example, a file with the name **Log201106.txt** originates from June 2011.

3.5.2 Measurement data file

The measurement data from all measuring locations is saved to the measurement data file.

The following measurement data is saved to the measurement data file:

- Measurement values CH_4, CO_2, O_2, H_2S, flow, power output, volume
- CO measurement values, if a mobile gas measuring device is suitable for this measurement
- Measuring time (date, time)
- Designation of measuring location
- Serial number of mobile gas measuring device

File name

As the first part of the file name, the measurement data file has a name that can be freely defined. The name is determined during start-up.

The file syntax is as follows: **NameYearMonth.txt**.

Year and month are replaced by current values. A file named **MeasuringLocations201106.txt** is thus called **MeasuringLocations** and originates from June 2011.

3.5.3 Evaluating the measurement data

The measurement data must be transferred to a computer for evaluation.

The following can be used to transfer the measurement data:

- USB stick
- Network connection
- WLAN

Note:
Transmission via a network connection or by WLAN requires the appropriate technical conditions at the place of installation. It is the customer's responsibility to create these conditions.
SEWERIN would be happy to advise you on selecting and setting up a suitable transfer option.

3.6 Connecting to a host computer

The **BioControl** can be connected to a host computer. The host computer may be, for example, the computer that controls the biogas plant.

IMPORTANT!
Connection to the host computer may only be carried out by specialised personnel with sufficient computer experience in this area.

The RS-485 serial interface and the Ethernet interface are provided for communication between the **BioControl** and the host computer.

Note:
Upon request, SEWERIN will provide detailed information regarding the connection (MODBUS configuration).

3.7 Remote maintenance

The **Multitec BioControl** can be maintained remotely by authorised personnel.

Remote maintenance can be used to change settings or help find the causes of error messages.

To enable remote maintenance, the **BioControl** must be connected to a network with internet access. Alternatively, you may use a WLAN router with a UMTS stick.

Note:
SEWERIN would be happy to advise you on selecting and setting up a suitable transfer option.

---

4 Operation

CAUTION!
Users may only operate the **Multitec BioControl** following start-up and release by authorised personnel.

4.1 Starting point after start-up

The **BioControl** is switched on during start-up. The device is then immediately ready for use and permanently in measuring mode. As long as a mobile gas measuring device is connected, measurement values are recorded.

4.2 Mobile gas measuring device

Note:
Details of how to use the mobile gas measuring device can be found in the accompanying operating instructions.

Following start-up, the mobile gas measuring device is located in the docking station of the **BioControl**. It can be taken out of the docking station and put back in during measuring mode.

While it is removed, the **BioControl** is still in measuring mode but is not recording any measurement values. Flow rate, power output and volume continue to be recorded. As soon as the mobile gas measuring device has been replaced in the docking station and connected, measurement values are once again recorded in accordance with the specifications under **Measurement cycle**.

4.2.1 Removing from the docking station

Note:
SEWERIN recommends that you do not take the mobile gas measuring device out of the docking station during an ongoing measurement cycle.

- Do not remove the gas measuring device during the steps **Wait**, **Measuring** and **Purge** (see section 3.3.2 and section 3.3.3).
- Stop the current measurement if necessary (see section 6.1.1).

The mobile gas measuring device is in the docking station.

1. Remove the connecting hose from the gas inlet of the mobile gas measuring device.
2. Remove the mobile gas measuring device from the docking station. The measurement status changes to **Device missing**.

4.2.2 Placing into the docking station

The mobile gas measuring device is not in the docking station.

1. Place the mobile gas measuring device into the docking station.
2. Connect the connecting hose at the gas inlet of the mobile gas measuring device. Measurement starts automatically (measuring status: **On**).

4.3 Using the touch screen

The **BioControl** touch screen may only be operated using your finger. Tap lightly without much pressure on the desired area of the touch screen to access a new view, enter a value or perform other actions.

IMPORTANT! Risk of scratching!
The surface of the touch screen is sensitive.

- Do not use any hard or sharp objects to tap the screen (e.g. pen).

4.4 Password protection

General information about password protection can be found in section 3.4 on page 7.

4.4.1 Entering the password

Entering the correct password opens up the password protected area of the software.

The default password at delivery is **0001**. The password can be changed (see section 8.2 on page 54).

Any view is seen on the touch screen.

1. Go to the **Main menu**. There is a symbol of a closed lock in the **Main menu**.
2. Tap the symbol of the lock. The **Password** view appears.

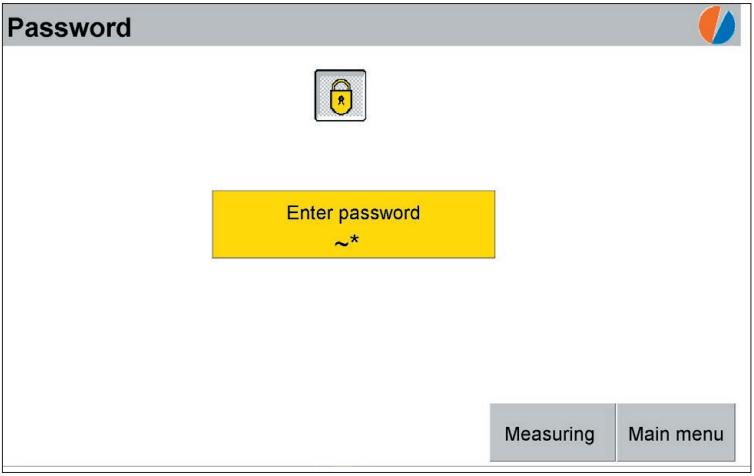

Fig. 4: **Password** view

3. Tap **Enter password**. An on-screen keyboard appears.
4. Enter the password.
5. Confirm the password with **OK**. The on-screen keyboard closes. The symbol of the lock in the **Password** view is now unlocked. The password protected area of the software is open.

If the symbol of the lock does not appear unlocked, the password was entered incorrectly. Tap **Enter password** again to try entering the password again.

Note:
SEWERIN recommends always closing the password protected area again after any changes have been carried out. This prevents other inadvertent changes from being made.

4.4.2 Closing the password protected area

The password protected area of the software can only be closed via the **Main menu** or the **Measurement cycle** view. Both views contain the symbol of the lock.

The password protected area of the software is open. Any view is displayed on the touch screen.

1. Select either the **Main menu** or the **Measurement cycle** view. Depending on the program, several other interim steps may be necessary.
2. Tap the unlocked symbol of the lock.

   Password protection is activated once again, i.e. only the freely accessible areas of the software can be accessed. The symbol of the lock appears in locked position.

5 Description of main menus and views

5.1 Main menu

Subordinated views and functions can be accessed from the **Main menu**.

The **Main menu** comes in two versions:

- View in the freely accessible area
- View in the password protected area with advanced functionality

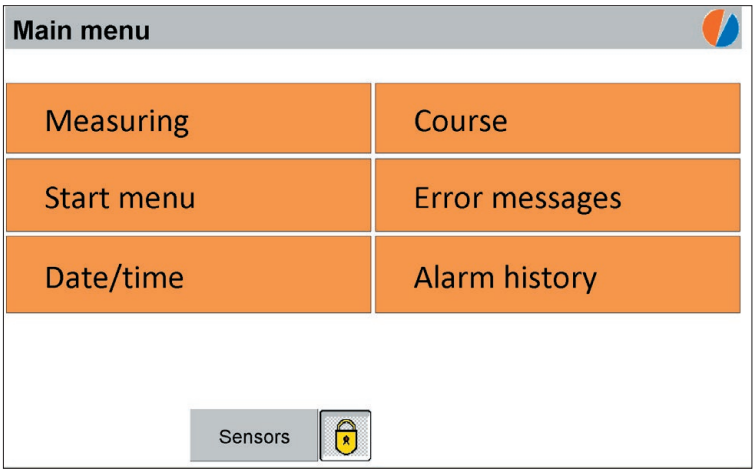

Fig. 5: **Main menu** (freely accessible area)

The following views can be accessed from the freely accessible area:

- Measuring (see section 5.2 on page 19)
- Course (see section 5.3 on page 24)
- Start menu (see section 5.4 on page 26)
- Error messages (see section 5.5 on page 27)
- Date/time (see section 5.6 on page 28)
- Alarm history (see section 5.7 on page 30)
- Sensors (see section 5.8 on page 31)

Tap the symbol of the lock to open the password entry view.

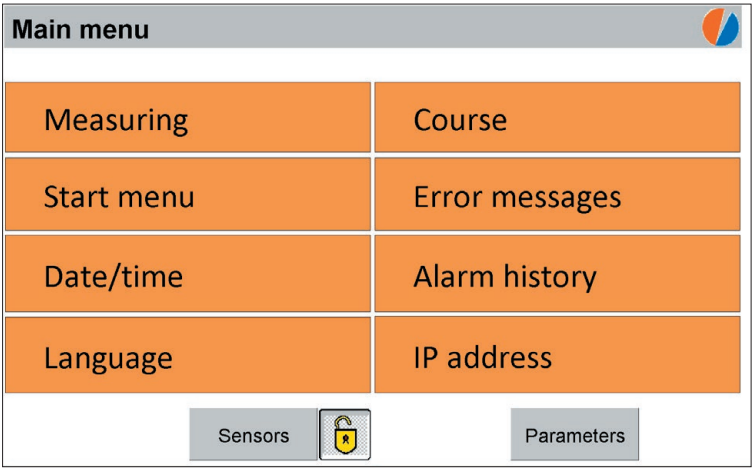

Fig. 6: **Main menu** (password protected area)

The following additional views can be accessed from the password protected area:

- Language
- IP address
- Parameters

Tap the unlocked symbol of the lock to reactivate password protection, i.e. only the freely accessible areas of the software can be accessed.

5.2 Measuring

After start-up, the **BioControl** is always in measuring mode. The accompanying view is entitled **Measuring**.

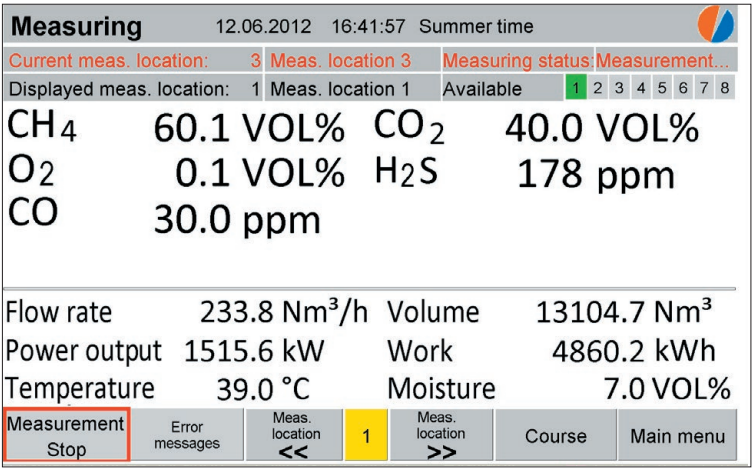

Fig. 7: **Measuring** view

The **Measuring** view displays the following:

- Gas composition and gas volume for the measuring location selected for view
- Number and designation of the current measuring location

Measurement stop manually interrupts the measuring mode. The current measurement is stopped.

Detailed information about interrupting measuring mode can be found in section 6.1 on page 41.

If an acknowledgeable fault occurs, the **Error messages** button appears outlined in red.

In the section 5.2.1 to section 5.2.4 the various areas of the **Measuring** view are explained.

5.2.1 Current measuring location

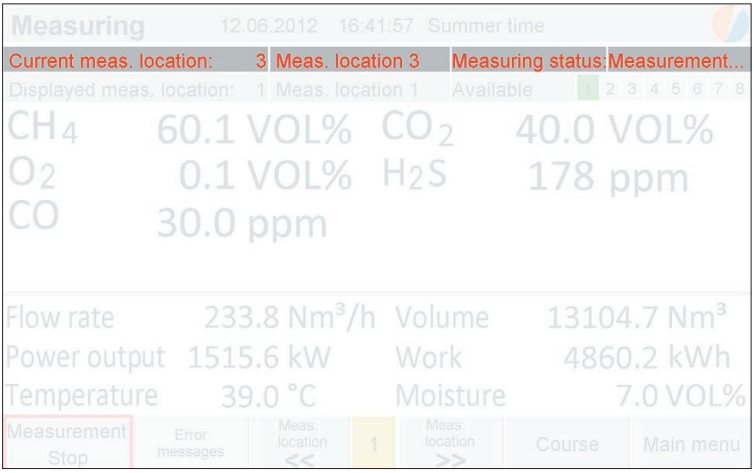

Fig. 8: **Measuring** view: Current measuring location with number (left), designation (middle) and measuring status (right)

The **Current measuring location** is the measuring location at which a measurement cycle is currently being run. The number, designation and measuring status of the measuring location are shown under **Current meas. location** .

The **Current meas. location** cannot be selected.

Information about the measuring status can be found in section 3.3.3 on page 7.

5.2.2 Displayed measuring location

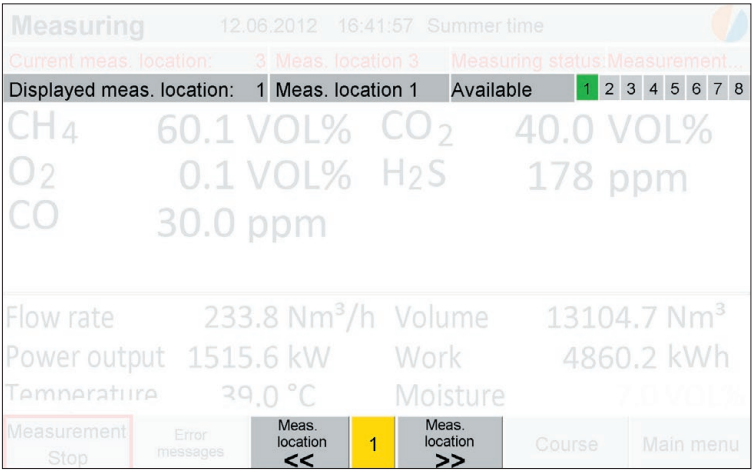

Fig. 9: **Measuring** view: Displayed measuring location including number (top left) and designation (top middle); number of available measuring locations (top right); buttons and input fields to select the displayed measuring location (bottom middle)

The **Displayed measuring location** is the measuring location for which the gas composition and volume are displayed. The number and designation of the measuring location are shown under **Displayed meas. location** .

The measuring location for which measurement data is to be displayed is selected using **Meas. location <<** or **Meas. location >>**. Alternatively, the number of the desired measuring location can be entered in the input field between the two buttons.

5.2.3 Gas composition

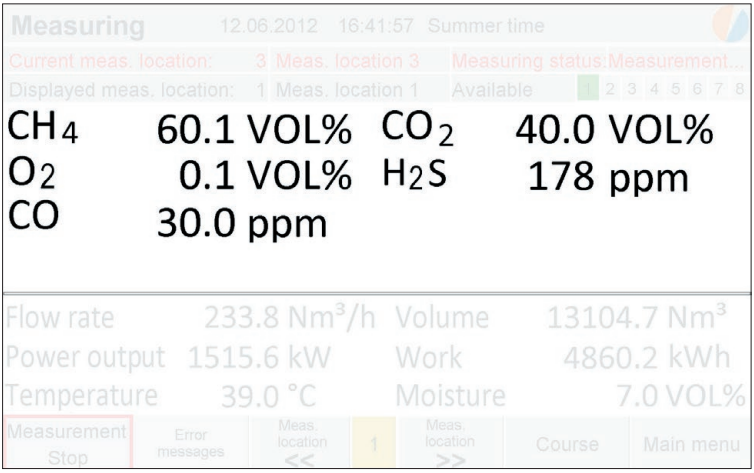

Fig. 10: **Measuring** view: Gas composition at the displayed measuring location

The **Measuring** view always shows the gas composition of the displayed measuring location.

It is always the measurement values of the most recently completed measurement that are displayed. This also applies when the gas composition of the current measuring location is displayed, i.e. when the **Displayed meas. location** and **Current meas. location** match.

The displayed measurement values are always updated at the end of a measurement cycle during the measuring status **Purge**.

Note:
To check the current measurement values at the current measuring location, tap **Sensors** in the **Main menu**.

5.2.4 Gas volume

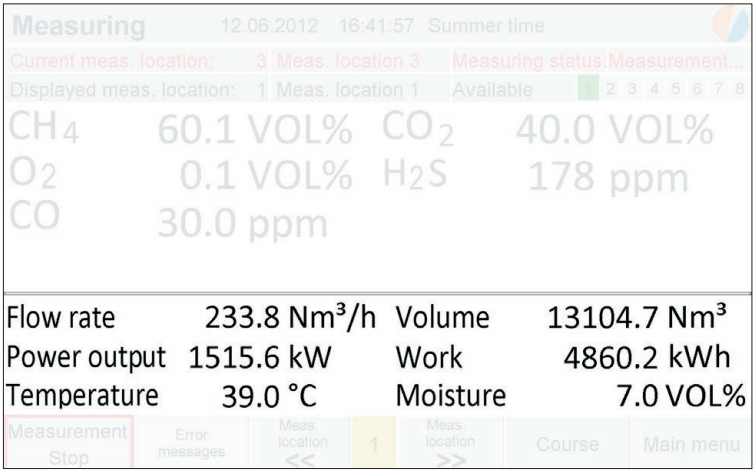

Fig. 11: **Measuring** view: Gas volume at the displayed measuring location

The **Measuring** view always indicates the gas volume of the displayed measuring location. In addition, the temperature and moisture are displayed.

5.3 Course

In the **Course** view the recorded measurement values of a measuring location are shown in a graph and saved.

The **Course** view comes in two versions:

- View in the freely accessible area
- View in the password protected area with advanced functionality

The desired measuring location and the save interval can be set in the password protected area.

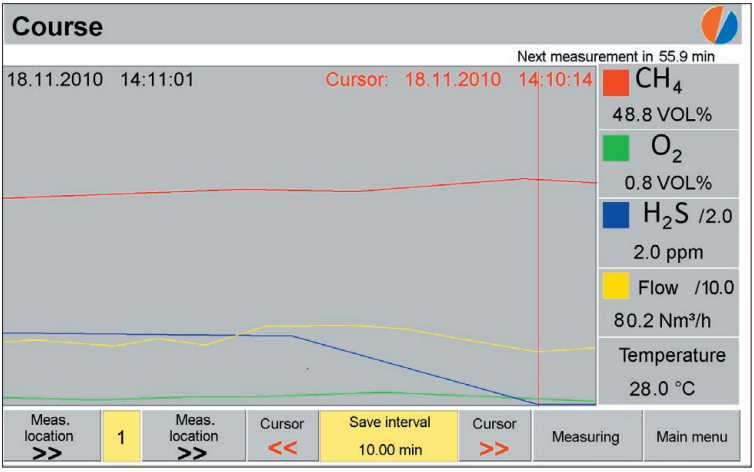

Fig. 12: **Course** view

The following measurement values are shown in a graph over the course of time:

- Methane **CH_4**
- Oxygen **O_2**
- Hydrogen sulphide **H_2S**
- Flow rate (**Flow**)

Information about the curve representation

The **H_2S** and **Flow** curves are shown to scale. The factors are indicated. Using the example of fig. 12, the factors are **2** and **10**. In other words, the actual measurement values are divided by two or ten when shown. The factors are set during start-up.

Information about the cursor

The cursor (vertical red line) marks a certain point in time during the course of the measurements. The date and time of the selected point in time are indicated above the curves (date in red).

The accompanying measurement values are shown in the right margin. The gas temperature is indicated under **Temperature**.

The cursor can be moved using the **Cursor <<** and **Cursor >>** buttons.

Note:
Changing the measuring location means that the course for the previously set measuring location is no longer recorded. The illustration of the measurement values of the newly set measuring location follows the illustration of the measurement values of the previous measuring location.

The course is regularly saved to a USB stick automatically. The frequency is determined by the **Save interval**.

Detailed information about data storage can be found in section 3.5 on page 8.

Note:
The date and time of the cursor position are always indicated in standard time, i.e. any preset automatic switch to summer/winter time is not taken into account.

5.4 Start menu

The **Start menu** appears automatically after the **BioControl** has been switched on. If the device is not operated, it automatically changes to measuring mode after 30 seconds (**Measuring** view).

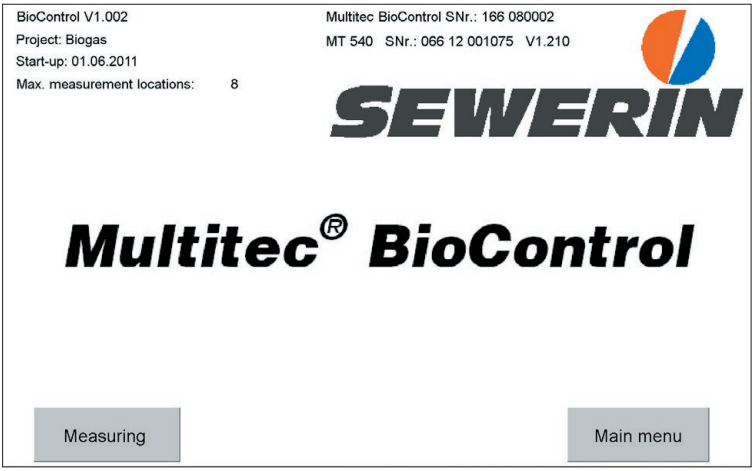

Fig. 13: **Start menu**

The **Start menu** displays the following information at the top:

- Serial number of the **BioControl** and software version
- Name and serial number of the mobile gas measuring device as well as firmware version
- Date of start-up
- Name of the project
- Maximum number of available measuring locations

The **Start menu** comes in two versions:

- View in the freely accessible area
- View in the password protected area with advanced functionality

The language can be set in the password protected area.

5.5 Error messages

The **Error messages** view displays all faults that have occurred since the last time the **BioControl** was switched on.

Unlike the **Alarm history** (section 5.7), in the **Error messages** each fault is considered to be an event with a start (**Alarm start**) and an end (**Alarm end**).

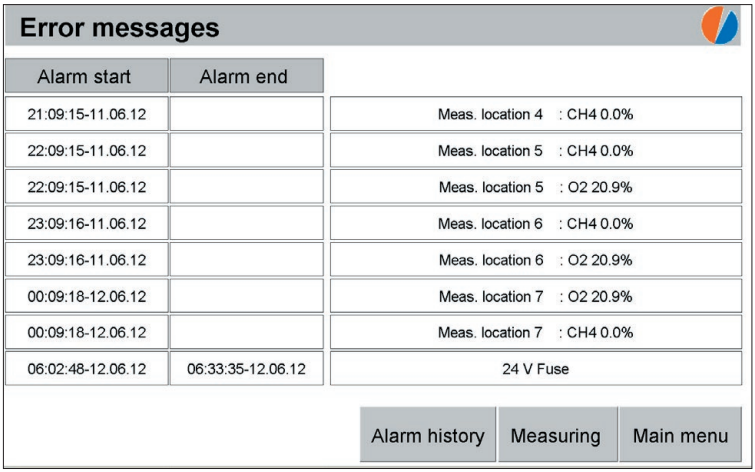

Fig. 14: **Error messages** view

The list can contain a maximum of 8 entries. The most current event is always at the bottom.

Note:
In **Alarm history** up to 50 entries from the **Error messages** are saved.

The following is displayed for each event:

- Start (**Alarm start**)
- End (**Alarm end**)
- Type of fault

Faults with no entry under **Alarm end** have not yet been eliminated.

Detailed information about possible faults can be found in section 9.2 on page 62 and section 9.3 on page 65.

5.6 Date/time

The **Date/time** view shows the date and time of the **BioControl**.

The **Date/time** view comes in two versions:

- View in the freely accessible area
- View in the password protected area with advanced functionality

---

Note:
In the **Date/time** view, the date and time are always indicated in standard time (e.g. Central European Time, CET). The activation of the automatic adjustment for daylight saving changes can only be checked in the password protected area of the view.

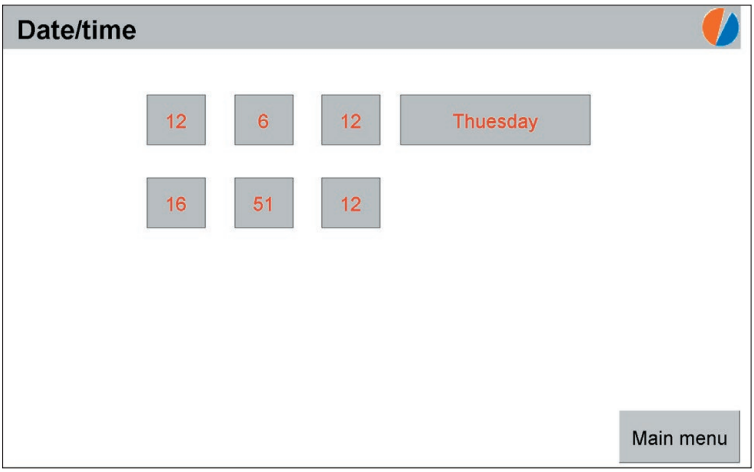

Fig. 15: **Date/time** view (freely accessible area) with date and day of the week (top row) and time (bottom row)

The date is indicated in the format Day-Month-Year. The time is indicated in the format Hours-Minutes-Seconds.

The following can be set in the password protected area:

- Date and time
- Automatically adjust clock for daylight saving changes

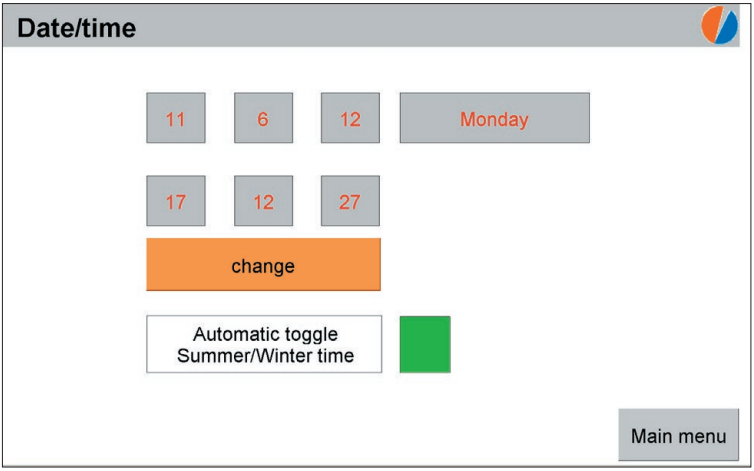

Fig. 16: **Date/time** view (password protected area)

5.7 Alarm history

The **Alarm history** view displays all errors that have occurred since the **BioControl** was started up.

Note:
The **Alarm history** also shows the current faults which are simultaneously displayed in the **Error messages**.

Unlike the **Error messages** (section 5.5), in **Alarm history** each fault is split into the two separate events **Alarm start** and **Alarm end**.

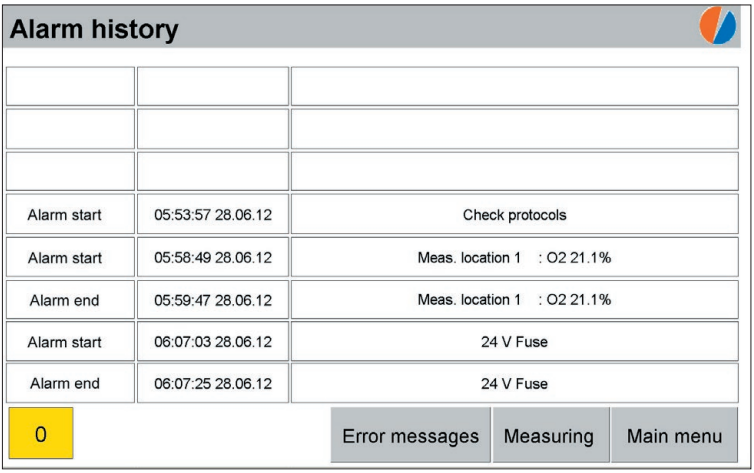

Fig. 17: **Alarm history** view

The list can contain a maximum of 50 entries. The most current event is always at the bottom. The input field in the bottom left corner can be used to move the display.

The following is displayed for each event:

- Type of event (**Alarm start** or **Alarm end**)
- Date and time of the event
- Type of fault

In the case of faults that have not yet been eliminated, the **Alarm end** event is missing.

Detailed information about possible faults can be found in section 9.2 on page 62 and section 9.3 on page 65.

5.8 Sensors

The following information is displayed in the **Sensors** view:

- Type and number of sensors in the mobile gas measuring device
- Current measurement values at the current measuring location
- Temperature inside the mobile gas measuring device

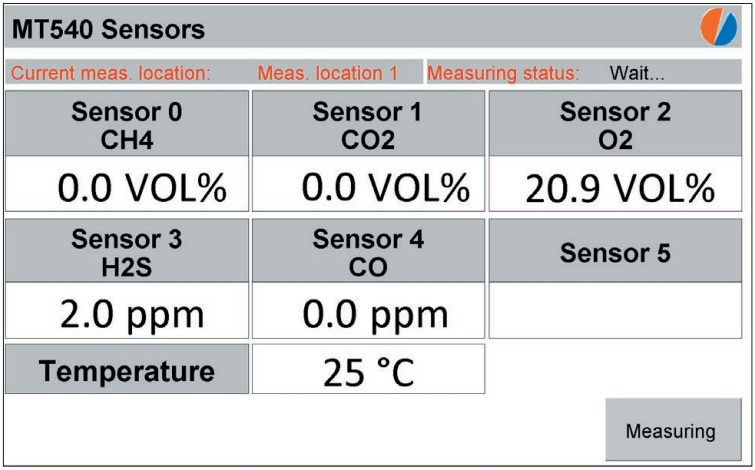

Fig. 18: **Sensors** view

5.9 Language

The language of the menu display can be set in the **Language** view.

Note:
This view is part of the password protected area of the software.

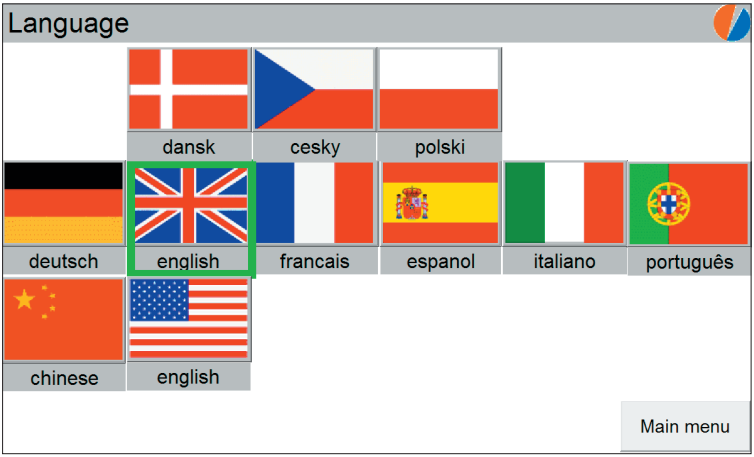

Fig. 19: **Language** view

5.10 IP address

The **IP address** view displays the IP address of the **BioControl**.

Note:
This view is part of the password protected area of the software.

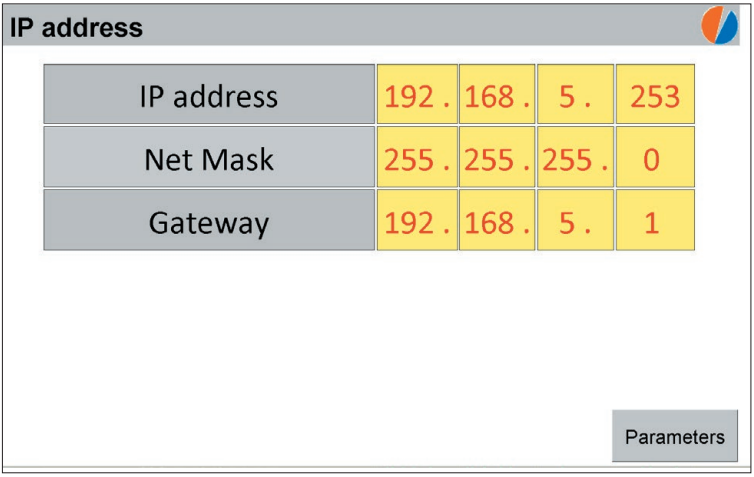

Fig. 20: **IP address** view

5.11 Parameters

Subordinated views and functions can be accessed from the **Parameters** view.

Note:
This view is part of the password protected area of the software.

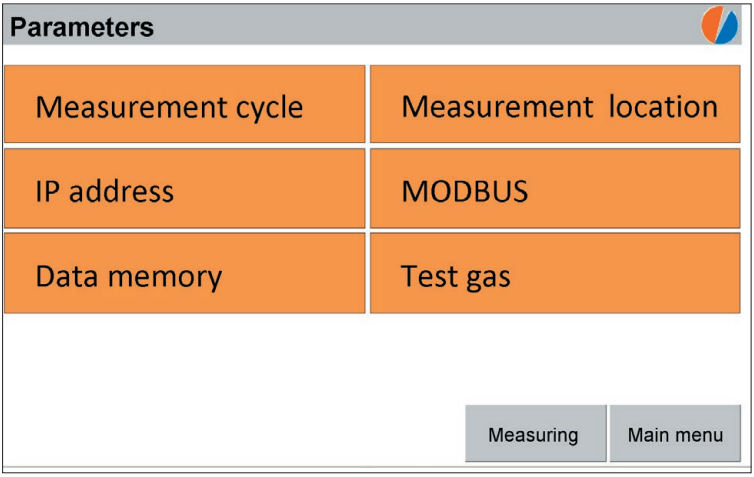

Fig. 21: **Parameters** view

The following views can be accessed from the **Parameters** view:

- Measurement cycle (see section 5.12 on page 35)
- Measurement location (see section 5.13 on page 36)
- IP address (see section 5.10 on page 33)
- MODBUS (see section 5.14 on page 37)
- Data memory (see section 5.15 on page 38)
- Test gas (see section 5.16 on page 39)

The **IP address** and **MODBUS** views are solely for displaying information. In the other views, actions can also be carried out.

5.12 Measurement cycle

The **Measurement cycle** view displays the settings for the measurement cycle. In the event that **Auto test gas** is deactivated, test gas measurements can be performed manually.

Note:
This view is part of the password protected area of the software.

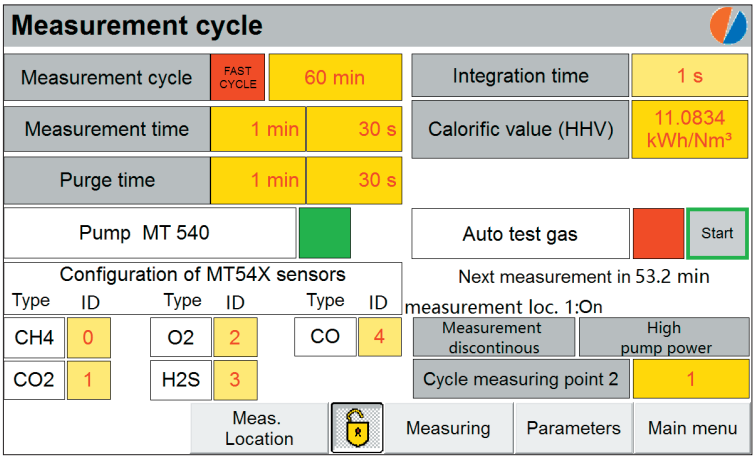

Fig. 22: **Measurement cycle** view with deactivated auto test gas

Settings in the **Measurement cycle** view may only be changed by authorised personnel. When **Auto test gas** (fig. 28) is activated, the test gas cycle can be set.

5.13 Measurement location

The **Measurement location** view displays the settings for all connected measuring locations. The designation for each measuring location can be changed.

Note:
This view is part of the password protected area of the software.

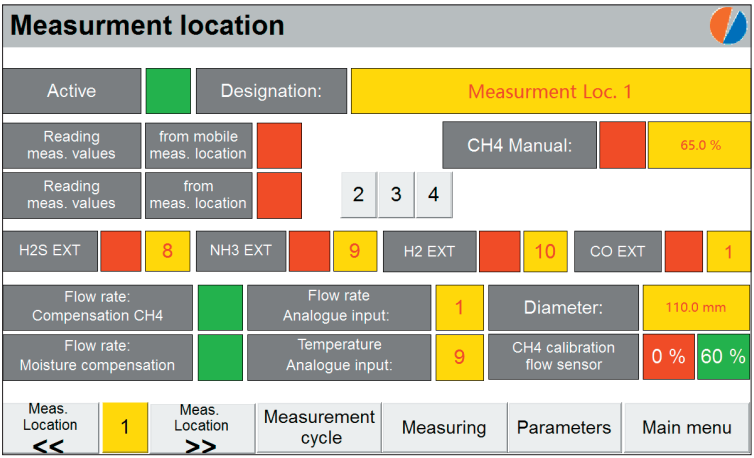

Fig. 23: **Measurement location** view

The measuring location for which settings are to be displayed can be selected using the **Meas. location <<** and **Meas. location >>** buttons. Alternatively, the number of the desired measuring location can also be entered in the input field between the two buttons.

Connected measuring locations may be active or inactive. The **Measurement location** view shows whether a measuring location is active or not.

5.14 MODBUS

The **MODBUS** view displays the configuration of the RS-485 serial interface.

Note:
This view is part of the password protected area of the software.

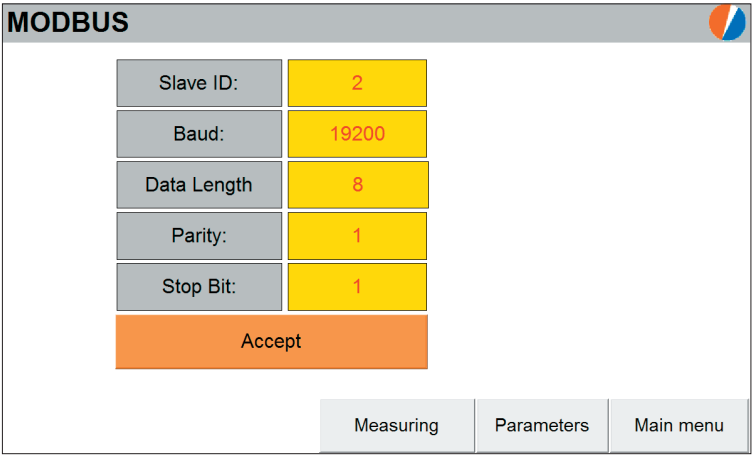

Fig. 24: **MODBUS** view

5.15 Data memory

The **Data memory** view displays the syntax of the file used when the measurement values from the course are saved to the USB stick. The save interval can also be set.

Note:
This view is part of the password protected area of the software.

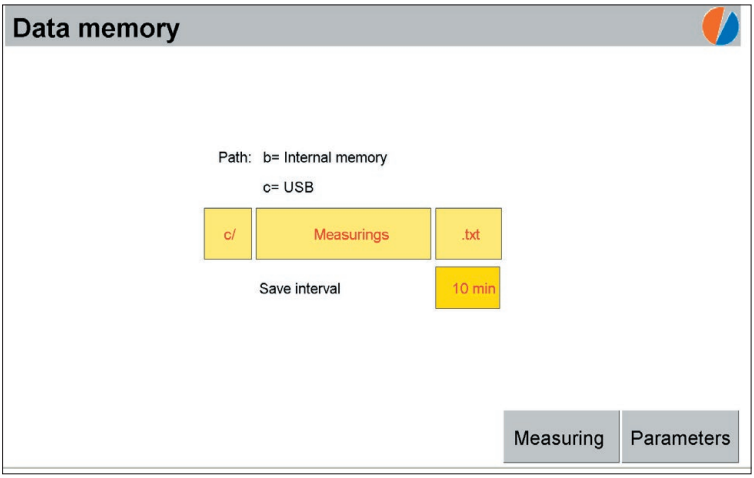

Fig. 25: **Data memory** view

5.16 Test gas settings

The **Test gas settings** view displays the values of the test gas provided for test gas measurements and adjustment. The adjustment can also be started.

Note:
This view is part of the password protected area of the software.

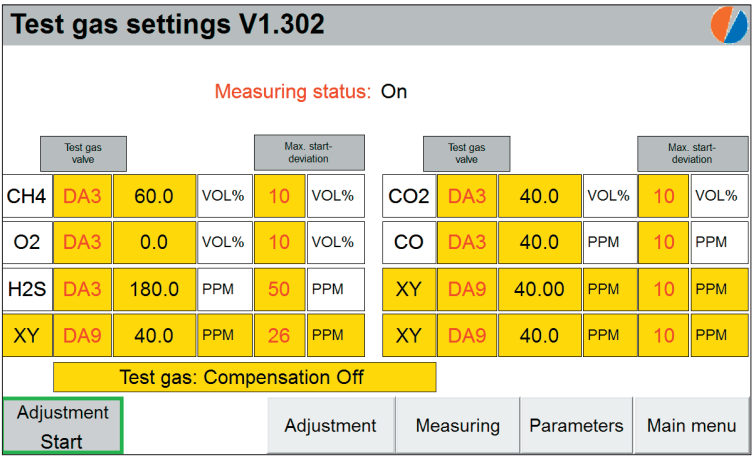

Fig. 26: **Test gas settings** view

Test gas settings may only be changed by authorised personnel.

5.17 Adjustment

The **Adjustment** view shows the adjustment progress while the mobile gas measurement device is being adjusted.

Note:
This view is part of the password protected area of the software.

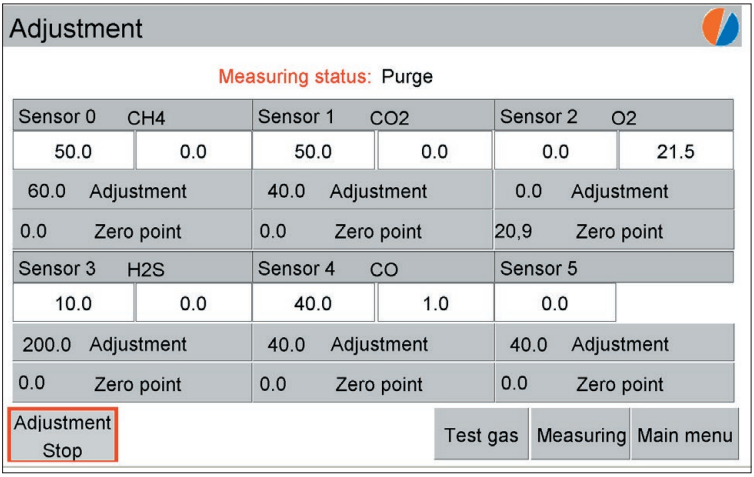

Fig. 27: **Adjustment** view

6 Measuring mode

Note:
General information about measuring mode can be found in section 3.3 on page 5.

6.1 Interrupting measuring mode

The measuring mode can be interrupted at any time. To do so, the current measurement must be stopped manually. The measurement can be continued at any later time.

An interruption means that measurement values are no longer recorded at any of the connected measuring locations.

Note:
When measuring mode is interrupted, the **BioControl** does not switch off.

It may be useful to interrupt measuring mode if, for example, there is the risk that the current gas composition may lead to damage to the sensors of the mobile gas measuring device (contamination). The sensors on the gas measuring devices should be protected until the gas composition is acceptable again.

6.1.1 Stopping a measurement

By stopping a measurement, measuring mode is interrupted.

The **Measuring** view is visible on the touch screen. The measurement cycle for the current measuring location is running.

- Tap **Measurement stop**.

  The current measurement stops (Measuring status **Off**). The measuring mode is interrupted. The label on the button changes to **Measurement start**.

6.1.2 Continuing measurement

To continue measuring mode, measurement must be restarted.

The **Measuring** view is visible on the touch screen. The current measurement is interrupted.

- Tap **briefly** on **Measurement start**.

  The measuring mode continues with the displayed measurement (measuring status **On**). The label on the button changes back to **Measurement stop**.

6.2 Manual measurement

The sequence of measurements can be interrupted to measure at a specific measuring location.

The **Measuring** view is visible on the touch screen. The measurement cycle for the current measuring location is running.

1. Use the **Meas. location <<** and **Meas. location >>** buttons to select the measurement location to be measured.

   Alternatively, the number of the desired measuring location can also be entered in the input field between the two buttons.

2. Tap **Measurement stop**.

   The current measurement stops (Measuring status **Off**). The measuring mode is interrupted. The label on the button changes to **Measurement start**.

3. Wait until the mobile gas measuring device has issued two audible signals.

4. Tap **Measurement start** for **at least 5 seconds**.

   Measuring mode continues (Measuring status **On**). A new measurement cycle starts at the selected measuring location. The label on the button changes back to **Measurement stop**.

Once measurement at a specific measurement location has finished, measurements continue in the specified order.

6.3 Displaying the gas composition and gas volume

The gas composition and gas volume of the displayed measuring location appear automatically in the **Measuring** view in measuring mode. To display the values of another measuring location, only the displayed measuring location must be changed.

Information on changing the displayed measuring location can be found in section 5.2.2 on page 21.

6.4 Displaying the course of measurements

The course of measurement at a specific, previously set measuring location is automatically displayed in the **Course** view.

Detailed information about the **Course** view can be found in section 5.3 on page 24.

7 Special measurements

7.1 Indication accuracy test of mobile gas measuring device (test gas measurements)

Measurements with test gas (“test gas measurements” for short) are used to check the indication accuracy of the mobile gas measuring device.

SEWERIN recommends performing test gas measurements using the **SPE BioControl** test set. The test set is available to buy as an accessory.

IMPORTANT!
If performing test gas measurements without an **SPE BioControl** test set, it is crucial you abide by the permitted operating conditions.

- In particular, make sure that the pressure at the gas input does not exceed 100 mbar.

Note:
SEWERIN recommends performing test gas measurements on a weekly basis or at least once a month.
Test gas measurements can also be performed directly on the mobile gas measuring device. The corresponding function in the gas measuring device is called **Indication accuracy test** and is part of the device inspection.

Test gas cycle

The test gas cycle determines how often test gas measurements are performed.

If, for example, the test gas cycle has a value of 5, then a test gas measurement is only carried out every fifth cycle. In the four cycles in between, the measurement at the measuring location set up for test gas measurements is skipped.

The test gas cycle is determined during start-up. The setting can only be changed by authorised personnel.

Detailed information on the sequence of measurements can be found in section 3.3.1 on page 6.

Scope

Each test gas measurement consists of a complete measurement cycle.

Results

Like all other measurements, the results of test gas measurements are displayed in the **Measuring** view. If the deviations in the measurement values are too great compared to the target values, the mobile gas measuring device must be adjusted.

7.1.1 Measuring locations for test gas measurements

A separate measuring location is required for test gas measurements. This location cannot be used for normal measurements. The product variant determines which measuring location is set up for the test gas measurement.

Product variant	Number of measuring location for test gas measurement
BioControl 2	2
BioControl 4	4
BioControl 8	8

Note:
Test gas measurements cannot be performed with the **BioControl 1**.

7.1.2 Suitable test gases

The mixes of gases best suited to be test gases are those which contain all gases that can be measured by mobile gas measuring devices.

Note:
SEWERIN explicitly recommends **Bio IR test gas** for test gas measurements and adjustment because it is perfect for the intended use.

The test gas provided for test gas measurements and adjustment must be determined during start-up. The values of the test gas are stored in the test gas settings.

7.1.3 Types of test gas measurement

Test gas measurements can take place automatically or manually.

The type of test gas measurement is determined at start-up. This setting may only be changed by authorised personnel.

The type of test gas measurement that has been set up can be seen in the **Measurement cycle** view (fig. 22 or fig. 28).

Toggle button	Auto test gas
Green	activated
Red	deactivated

Detailed information about automatic test gas measurement can be found in section 7.1.3.1.

Detailed information about manual test gas measurement can be found in section 7.1.3.2.

7.1.3.1 Automatic test gas measurement

Features

- Measurements run automatically and thus cannot be omitted
- Results are automatically recorded in the measurement data file
- Sufficient test gas required (test gas bottle rather than test gas can)

Requirements

- A measurement location is permanently set up for test gas measurements (see Table in section 7.1.1).
- A controlled supply of the test gas is guaranteed (e.g. via **SPE BioControl** test set or by using a pressure regulator).
- Auto test gas is activated (fig. 28)

  Only authorised personnel may activate it.

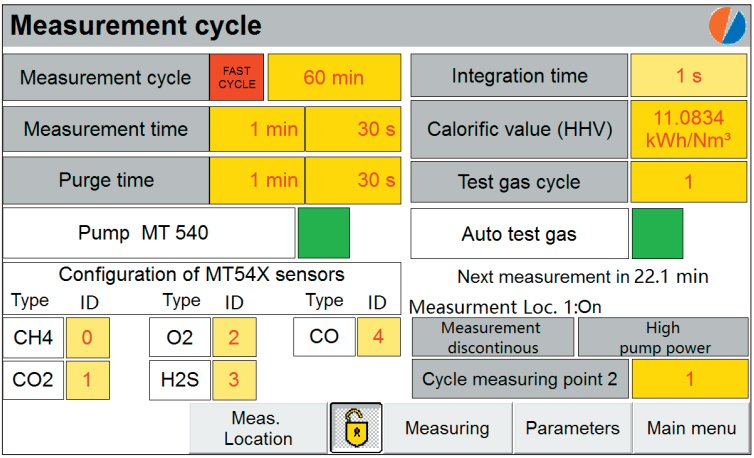

Fig. 28: Measurement cycle view with activated auto test gas

The test gas measurements run automatically.

- Check regularly to see how greatly the measured values deviate from the target values.

  Testing frequency depends on the settings in the **Measurement cycle** view. SEWERIN recommends weekly checks for short measurement and test gas cycles. In the case of long measurement and test gas cycles, monthly checks may be sufficient.

  Information about evaluating the results can be found in section 7.1.1.

- Please ensure that there is always enough test gas available.
  - Check the indicator on the pressure regulator regularly to monitor the available residual volume in the test gas bottle.
  - Replace the test gas bottle in good time.

7.1.3.2 Manual test gas measurement

Features

- Measurements do not take place automatically and as a result can be carried out as required
- Results are automatically recorded in the measurement data file

Requirements

- A measurement location is reserved for test gas measurements (see Table in section 7.1.1).
- A controlled supply of the test gas is guaranteed (e.g. via **SPE BioControl** test set or by using a pressure regulator).
- Auto test gas is deactivated (fig. 22)

  Only authorised personnel may deactivate it.

  The **Main menu** is visible on the touch screen.

- Perform the manual test gas measurement at the reserved measurement location in the same way you would a manual measurement (section 6.2 on page 42).
- Check to see how greatly the measured values deviate from the target values.

Information about evaluating the results can be found in section 7.1.4 on page 49.

7.1.4 Evaluation

When evaluating the results of test gas measurements, the measured values are compared to the maximum permitted deviation.

The measured values are shown in the **Measuring** view (fig. 7).

Consult the Operating Instructions for the mobile gas measuring device for the maximum permitted deviation. For the **Multitec 540** you will find the values in the appendix under **Limit values for the device inspection**.

- Readjust the mobile gas measuring device if the deviations are greater than the maximum permitted values.

  Detailed information about adjustment can be found in section 7.2.

7.2 Adjustment of the mobile gas measuring device

The indication accuracy of the mobile gas measuring device may deteriorate in operation. If the deviations are greater than those permitted, the mobile gas measuring device must be adjusted.

The size of the deviations is determined by way of test gas measurement. Detailed information on test gas measurements can be found in section 7.1.

Note:
An adjustment interrupts measuring mode.

7.2.1 Requirements

The mobile gas measuring device can only be adjusted using the **BioControl** under the following conditions:

- The **BioControl** is designed for automatic or manual test gas measurements.
- The measuring location for automatic or manual test gas measurements is set up.
- The test gas for the adjustment corresponds to the test gas laid out in the **Test gas settings**.

Note:
Adjustment can also be carried out directly on the mobile gas measuring device. The corresponding function in the **Multitec 540** is called **Adjustment**.
SEWERIN explicitly recommends **Bio IR test gas** for test gas measurements and adjustment because it is perfect for the intended use.

7.2.2 Procedure and scope

The adjustment must be started manually. It then runs automatically in two steps:

- **Step 1**

  Calibrating the zero point with fresh air
- **Step 2**

  Comparing the indication accuracy of all gases with the test gas

  The following applies to both steps:
- Each gas that makes up part of the test gas is adjusted separately.
- The mobile gas measuring device is purged with fresh air (step 1) or test gas (step 2) at the beginning of each step. This process, including a waiting period to ensure stabilisation of measurement values, lasts approx. 100 s.
- First, a sample measurement is taken for each gas. The value obtained is compared to the maximum permitted starting de-

viation (fig. 26). If the deviation is greater than permitted, the adjustment of the gas is skipped.

- Each successfully adjusted gas is briefly marked in green.
- Each unsuccessfully adjusted gas is marked with a red cross.
- In the event of problems, the adjustment can be repeated up to four times for each gas.

7.2.3 Performing the adjustment

Note:
An adjustment always requires time.

Requirements

- See section 7.2.1.
- A controlled supply of the test gas is guaranteed (e.g. via **SPE BioControl** test set or by using a pressure regulator).

The **Main menu** is visible on the touch screen.

1. Open the password protected area of the software. To do this, enter the password (see section 4.4.1 on page 15).
2. Go back to the **Main menu**.
3. Tap **Parameters** in the **Main menu**. The **Parameters** view appears (fig. 21).
4. Tap **Test gas**. The **Test gas settings** view appears.
5. Tap the **Adjustment start** button.

   Adjustment starts. The label on the button changes to **Adjustment stop**.

Note:
Adjustment cannot start if a measurement is running at another measuring location (**Measuring** or **Purge** measuring status). In this case, start adjustment again upon completion of the measurement in progress.

The **Adjustment** view appears after approx. 30 s.

The adjustment runs. Information on device-internal activity can be found in section 7.2.2.

Upon completion of the **Adjustment**, the**Test gas settings-**view appears once again. The label on the button has changed back to **Adjustment stop**. The measuring status is **Off**.

6. The measuring mode was interrupted by the adjustment. Continue the measurement. To do so, tap **Measuring**. The **Measuring** view appears.
7. Keep tapping the **Measurement >>** or **Measurement <<** button until the measurement at the current measuring location continues (measuring status **ON**).
8. Close the password protected area of the software (see section 4.4.2 on page 16).

7.2.4 Adjustment errors

If a gas cannot be successfully adjusted, there is an adjustment error. The corresponding gas is marked in the **Adjustment** view with a red cross. In addition, an error message appears in the **Error messages** view. This message helps ascertain the cause of the faulty adjustment and find a solution.

Detailed information about the error messages can be found in section 9.2 on page 62.

7.3 Mobile measurements

Note:
Mobile measurements that are to be evaluated using the **BioControl** may only be carried out at measuring locations set up for that purpose.
Mobile measurements can be performed with the **BioControl 1**, but not saved.

The gas measuring device is taken out of the docking station of the **BioControl** for mobile measurements (see section 4.2.1 on page 14). The gas measuring device is brought to the measuring location set up for mobile measurements. Measurement is

carried out as described in the Operating Instructions for the mobile gas measuring device. Upon completion of the measurement, the gas measuring device is returned to the docking station (see section 4.2.2 on page 14).

The **BioControl** reads out the calculated measurement values automatically from the gas measuring device as soon as the measuring location set up for mobile measurements is next in line (see section 3.3.1 on page 6).

It is always the measurement values from the last measurement that are read out. This means: that if no new mobile measurements have been carried out, the **BioControl** reads out the values from the old measurement again.

The measurement data from mobile measurements and the measurement data from stationary measurements are saved together to the measurement data file.

8 Settings

8.1 Preliminary notes on changing settings

All of the settings necessary to operate the **Multitec BioControl** are determined during start-up. Some of these settings can be changed by the user in the password protected area after start-up.

Note:
Settings for which the changes are not described in this section can only be changed by authorised personnel.

8.2 Changing the password

The default password at delivery is **0001**. The password can be changed. To change it, the password protected area of the software must first be locked.

The **Main menu** is visible on the touch screen.

1. First close the password protected area of the software if necessary (see section 4.4.2 on page 16).
2. Tap the locked symbol of the lock in the **Main menu**. The **Password** view appears.
3. Tap **Enter password**. An on-screen keyboard appears.
4. Enter the current password.
5. Confirm the password with **OK**. The on-screen keyboard closes.
6. Tap **SET**.
7. Tap **Enter password** again. The on-screen keyboard reappears.
8. Enter the new password.
9. Confirm the password with **OK**. The on-screen keyboard closes.
10. Click **OK** in the **Password** view. The new password is accepted.

8.3 Changing the date/time

The date and time of the **BioControl** can be changed. To change it, the password protected area of the software must be open.

Note:
In the **Date/time** view, the date and time are always indicated in standard time (e.g. Central European Time, CET).

The **Main menu** is visible on the touch screen.

1. Open the password protected area of the software. To do this, enter the password (see section 4.2.1 on page 14).
2. Go back to the **Main menu**.
3. In the **Main menu** tap **Date/time**. The **Date/time** view appears (fig. 16).
4. Tap **Change**. The date, day of the week and time appear as input fields.

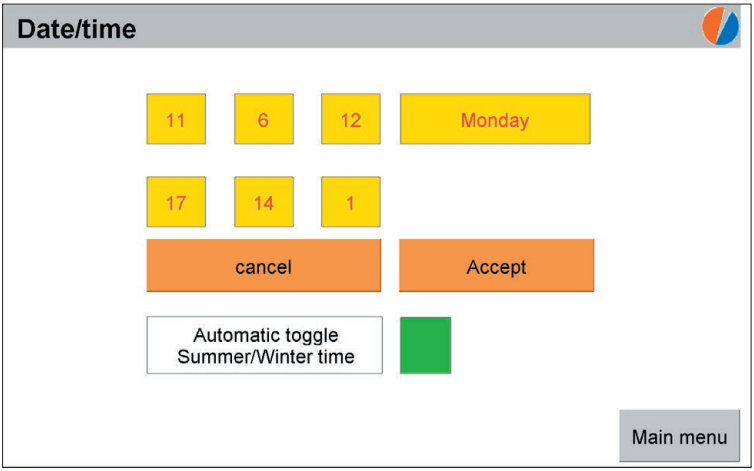

Fig. 29: **Date/time** view: The date, day of the week and time can be changed

5. Change the values as required. Tap the corresponding input fields to do so.

   Date

   - Top row, three input fields from the left
   - Format: Day-Month-Year
   - An on-screen keyboard appears for input .

   Day of the week

   - Top row, right input field
   - Tap the input field until the desired day of the week appears.

   Time

   - Bottom row, three input fields
   - Format: Hours-Minutes-Seconds
   - An on-screen keyboard appears for input .

6. Tap **Accept**. The modified values are accepted. The input fields for the date, time and day of the week are locked against input again.
7. Close the password protected area of the software (see section 4.4.2 on page 16).

8.4 Automatically adjusting the clock for daylight saving changes

The time display can switch automatically to daylight saving time (and back).

Note:
By activating the automatic toggle, only the time display changes when the clocks change for daylight saving time, not the time of the **BioControl** itself.

The state of activation can be recognised by the colour of the toggle button.

Toggle button	Automatic toggle
green	activated
red	deactivated

Toggle activated

When the toggle is activated, **Summer time** or **Winter time** appears after the time indication in the different views.

Toggle deactivated

When the toggle is deactivated, the **BioControl** displays standard time (e.g. Central European Time CET) all year round.

To change it, the password protected area of the software must be open.

The **Main menu** is visible on the touch screen.

1. Open the password protected area of the software. To do this, enter the password (see section 4.4.1 on page 15).
2. Go back to the **Main menu**.
3. In the **Main menu** tap **Date/time**. The **Date/time** view appears (fig. 16).
4. Tap the toggle button next to **Automat. toggle summer/winter time**, if the activation status is to be changed. The activation status is changed immediately.

5. Close the password protected area of the software (see section 4.4.2 on page 16).

8.5 Changing the language

The language of the user interface can be changed. To change it, the password protected area of the software must be open.

The **Main menu** is visible on the touch screen.

1. Open the password protected area of the software. To do this, enter the password (see section 4.4.1 on page 15).
2. Go back to the **Main menu**.
3. Tap **Language** in the **Main menu**. The **Language** view appears (fig. 19).
4. Tap the button with the desired language. The language will not yet be changed.
5. Tap the button a second time with the required language. The language of the user interface will change. There is no need to confirm the change.
6. Close the password protected area of the software (see section 4.4.2 on page 16).

8.6 Changing the designation of a measuring location

The designation of any measuring location can be changed. To change it, the password protected area of the software must be open.

The **Main menu** is visible on the touch screen.

1. Open the password protected area of the software. To do this, enter the password (see section 4.4.1 on page 15).
2. Go back to the **Main menu**.
3. Tap **Parameters** in the **Main menu**. The **Parameters** view appears (fig. 21).
4. Tap **Measurement location**. The **Measurement location** view appears (fig. 23).
5. Select the measuring location for which the designation is to be changed.

To do so, tap the **Meas. location <<** or **Meas. location >>** buttons or enter the number of the measuring location using the input field between the two buttons.

6. Tap the input field next to **Designation**. An on-screen keyboard appears.
7. Delete the old designation using **clr**.
8. Enter the new designation.
9. Confirm the designation with **OK**. The on-screen keyboard closes. The new designation is accepted.
10. Close the password protected area of the software (see section 4.4.2 on page 16).

8.7 Changing the measuring location for the course

In the **Course** view, the measurement values of a measuring location are graphically represented and saved across the temporal course of events. The measuring location can be changed. To change it, the password protected area of the software must be open.

Note:
Changing the measuring location means that the course for the previously set measuring location is no longer recorded. The illustration of the measurement values of the newly set measuring location follows the illustration of the measurement values of the previous measuring location.

The **Course** view is visible on the touch screen.

1. Open the password protected area of the software. To do this, enter the password (see section 4.4.1 on page 15).
2. Go back to the **Course** view.
3. Select the measuring location for which the recorded measurement values are to be graphically represented and saved across the course of time.

To do so, tap the **Meas. location <<** or **Meas. location >>** buttons or enter the number of the measuring location using the input field between the two buttons.

The new measuring location has been set.

4. Close the password protected area of the software (see section 4.4.2 on page 16).

8.8 Changing the save interval for the course (log file)

The save interval for the **Course** indicates the period of time after which the measurement data is recorded and saved to the log file.

The save interval can be changed. To change it, the password protected area of the software must be open.

The **Course** view is visible on the touch screen.

1. Open the password protected area of the software. To do this, enter the password (see section 4.4.1 on page 15).
2. Go back to the **Course** view.
3. Tap the **Save interval** input field. An on-screen keyboard appears.
4. Enter the new save interval.

   The possible values are between 0.1 and 120 minutes.

Note:
SEWERIN recommends a save interval of at least 10 minutes.

---

5. Press **OK** to confirm the value. The on-screen keyboard closes. The new save interval is accepted.
6. Close the password protected area of the software (see section 4.4.2 on page 16).

8.9 Changing the save interval for measurement data (measurement data file)

The save interval for the measurement data file indicates the period of time after which the most recent measurement data from all measurement locations is read out from the device-internal interim storage memory and saved to the measurement data file.

The save interval can be changed. To change it, the password protected area of the software must be open.

The **Main menu** is visible on the touch screen.

1. Open the password protected area of the software. To do this, enter the password (see section 4.4.1 on page 15).
2. Go back to the **Main menu**.
3. Tap **Parameters** in the **Main menu**. The **Parameters** view appears (fig. 21).
4. Tap **Data memory**. The **Data memory** view appears (fig. 25).
5. Tap the input field next to **Save interval**. An on-screen keyboard appears.
6. Enter the new save interval.

   The possible values are between 10 and 1440 minutes.

Note:
SEWERIN recommends a save interval of 60 minutes.
To avoid redundant measurement data, the save interval should not be shorter than the duration of a measurement cycle.

---

7. Press **OK** to confirm the value. The on-screen keyboard closes. The new save interval is accepted.
8. Close the password protected area of the software (see section 4.4.2 on page 16).

9 Faults

9.1 Preliminary notes on error messages

Faults may occur in measuring mode. They are indicated by error messages.

Error messages may also be indicated by an audible or visual signal. The settings are determined during start-up. They can only be changed by authorised personnel.

Error messages are displayed in the following views:

- **Error messages** view (see section 5.5 on page 27)
- **Alarm history** view (see section 5.7 on page 30)

There are errors that affect the entire measuring mode and errors that pertain only to measurements at a particular measuring location (see section 9.2 and section 9.3).

Some error messages need to be acknowledged (see section 9.4).

9.2 Error messages for measuring mode errors (overview)

Error messages	Possible causes and corrective action
24V fuse	Short-circuit in one of the external transmitters ● Replace transmitter and eliminate short-circuit
Adjustment required	Total of gas concentrations >100% ● Perform adjustment

Error messages	Possible causes and corrective action
Faulty adjustment	Test gas used does not correspond to set test gas, deviations too great, faulty sensor in the mobile measuring device ● Check test gas settings > use different test gas or have test gas settings changed by authorised personnel ● Carry out adjustment directly on the mobile gas measuring device ● Perform adjustment more frequently (i.e. shorter time intervals) ● Carry out inspection on mobile gas measuring device
Leak	Purge time too short, dirty air filter, room air contaminated, leak in gas hose ● Have purge time setting changed by authorised personnel ● Change air filter ● Ventilate the room ● Check gas hoses
MT 5xx temperature too high	Ambient temperature too high, ventilation failed ● Lower room temperature, ventilate room ● Check ventilation
Check zero point setting	Purge time too short, air filter dirty, adjustment of zero point on mobile gas measuring device required ● Have purge time setting changed by authorised personnel ● Perform adjustment: via **BioControl** or directly on mobile gas measuring device ● Change air filter

Error messages	Possible causes and corrective action
Check O2 sensor	Oxygen sensor on the mobile gas measuring device maladjusted or faulty ● Carry out adjustment directly on the mobile gas measuring device ● If you suspect a defect, send the mobile gas measuring device to the SEWERIN service department.
Pump error	Measuring gas hose blocked, hydrophobic filter dirty, test gas bottle empty ● Check measuring gas hoses: are there points that sag where condensate has built up, kinks etc.? ● Change hydrophobic filter ● Change test gas bottle
USB stick full	No more space on the USB stick ● Clear or replace USB stick

9.3 Error messages for measurements (overview)

Error message	Cause
Meas. location: CH4 x %	Error parameter at the measuring location mentioned has been exceeded or not reached
Meas. location: CO x %	
Meas. location: H2S x %	
Meas. location: O2 x %	
Measuring location: x°C	Gas temperature too high, cooler failed

Explanations for error messages column

In an actual error message, the following items are replaced:

- **Meas. location** is replaced by the actual designation of the measuring location
- **x** is replaced by the actual measurement value

Explanations for the cause column: Error parameters

Error parameters are limit values. An error message appears when these values are exceeded or not attained. The settings for the error parameters are determined during start-up. They can only be changed by authorised personnel.

The error parameters for CH_4, O_2 and CO are set for all measuring locations together. The error parameters for H_2S and the temperature are set individually for each measuring location.

9.4 Acknowledging error messages

A note appears in the **Measuring** view when certain errors occur. The note refers to the particular meaning of the error.

The note must be acknowledged, i.e. taken note of. Once acknowledged, the audible signal is switched off.

Acknowledgeable error messages

The following error messages in the **Measuring** view can be acknowledged:

- Pump error
- USB stick full

The **Measuring** view is visible on the touch screen. An acknowledgeable fault has occurred. That is why the **Error messages** button has a red outline.

1. Tap **Error messages**. This acknowledges the error message. The **Error messages** view appears.
2. Check to see what type of fault it is. Take corrective action if necessary.

   Information can be found in section 9.2 and section 9.3.

   Once the fault has been eliminated, the **Error messages** button in the **Measuring**view is no longer outlined in red.

10 Servicing

IMPORTANT!
Note and observe all regulations regarding the servicing of the mobile gas measuring device. These regulations are described in the accompanying Operating instructions.

10.1 Care

All that is necessary to care for the device is to wipe it down with a damp cloth. SEWERIN recommends removing significant contamination immediately.

IMPORTANT! Risk of scratching!
The surface of the touch screen is sensitive.
- Use soft, non-scratching cloths only.
- Do not use any mechanical or aggressive chemical agents for care.

10.2 Maintenance

To maintain the full functionality of the measuring device combination, the following checks must be carried out at the recommended frequency:

- **BioControl leak test**

  SEWERIN recommends having the device checked regularly for leaks by authorised personnel. The leak test should be performed at least once a year.

- **Indication accuracy test for mobile gas measuring device**

  Information about the frequency and performance of test gas measurements can be found in section 7.1 on page 44.

The following maintenance tasks are necessary and must be carried out daily, weekly or as required:

Daily maintenance tasks

- Check the level of the condensate containers
  - Empty the condensate container when the level is high.
- Check the filter in front of the condensate containers for visible contamination
  - Change the filter immediately when dirty.

Weekly maintenance tasks

- Change the fine dust filter of the mobile gas measuring device

Maintenance tasks as required

The frequency of the following maintenance tasks depends on the degree of contamination of the gas.

- Check the hydrophobic filters on the measuring gas hoses for visible contamination
  - Change the hydrophobic filters immediately if dirty.
- Only if external flow and temperature transmitters are available:

  Check the tip of the sensor for contamination
  - Carefully clean the tip of the sensor with a copper wire brush if contaminated.

11 Appendix

11.1 Technical data

11.1.1 BioControl 1, BioControl 4, BioControl 8

Device data

Dimensions (W × D × H):	520 × 205 × 425 mm
Weight:	15 kg
Product variants	BioControl 1 (1 gas connection) BioControl 4 (4 gas connections) BioControl 8 (8 gas connections)

Features

Gas connections	1, 4 or 8 per gas connection: 1 input for flow (4 – 20 mA) 1 input for temperature (4 – 20 mA)
Display	7 inch touch screen, 256 colours, 800 × 480 pixels
Ports	1 × Ethernet (Modbus TCP) 2 × RS-485 (Modbus RTU) 2 × RS-232 1 × USB, expandable on BioControl 4 and BioControl 8: 4 × analogue (0/4 – 20 mA) optional: PROFIBUS
Data memory	USB stick: 2 GB Flash memory, can be expanded to 16 GB

Permitted operating conditions

Operating temperature	+5 – +40 °C
Storage temperature	-10 – +50 °C
Humidity	Environment: < 85 % r.h., non-condensing Gas: See data sheet for the mobile gas measuring device
Pressure at gas inlet	±100 mbar relative (depending on mobile gas measuring device)
Permitted operating environments	In frost-free, sufficiently ventilated space
Non-permitted operating environments	In potentially explosive zones
Operating position	Wall mount (hanging)

Power supply

Operating voltage	24V DC (max. 2A), no stabilisation required

Data transmission

Communication	CAN bus between mobile gas measuring device and BioControl

Gas types

Standard	Depending on mobile gas measuring device

Resolution of the gases in the combined measuring device

CH_4	0.1 % vol.
CO_2	0.1 % vol.
O_2	0.1 % vol.
H_2S	2 ppm

Additional data

Attachment option	Brackets for wall mounting

11.1.2 BioControl 2

Device data

Dimensions (W x D x H)	270 × 160 x 300 mm
Weight	6.5 kg

Features

Gas connections	2
Display	4.3 inch touch screen, 256 colours
Ports	1 × Ethernet (Modbus TCP) 1 × USB optional: PROFIBUS
Data memory	USB stick: 2 GB Flash memory, can be expanded to 16 GB

Operating conditions

Operating temperature	+5 °C – +40 °C
Storage temperature	-10 °C – +50 °C
Humidity	Environment: < 85 % r.h., non-condensing Gas: See data sheet for the mobile gas measuring device
Pressure at gas inlet	±100 mbar relative (depending on mobile gas measuring device)
Permitted operating environments	In frost-free, sufficiently ventilated space
Non-permitted operating environments	In potentially explosive zones
Operating position	Wall mount (hanging)

Power supply

Power supply	External 230 V~ via SEWERIN BioControl mains adapter

Data transmission

Communication	CAN bus between mobile gas measuring device and BioControl

Gas types

Standard	Depending on mobile gas measuring device

Resolution of the gases in the combined measuring device

CH_4	0.1 % vol.
CO_2	0.1 % vol.
O_2	0.1 % vol.
H_2S	2 ppm

Additional data

Attachment option	Brackets for wall mounting

11.2 Accessories and consumables

Accessories

Part	Order number
Gas sample connection installation set	MG05-Z1000
Wall duct for measuring gas removal	MG05-Z1200
Assembly plate with holes for 4 water extractors or for 3 water extractors and 1 pressure regulator	9200-0010
Flow rate and temperature transmitter	9072-0001
Peltier measuring gas cooler	MG03-Z1000
Water extractor installation set	MG05-Z2000
Gas sample hose with hydrophobic filter	MG05-Z1100
In-line detonation arrester	MG03-Z0300
Mains adapter	LD24-10000
SPE BioControl test set	PP01-10301
Wall holder for test gas bottle	MG05-Z1500
Pressure regulator set for test gas bottle 1.5 l	MG05-Z1800
Pressure regulator for test gas can 1 l	MG05-Z1900

Consumables

Part	Order number
Hydrophobic filter	2491-0050
Air filter	02493-0001
Test gas Bio IR, test gas bottle 1.5 l, non-returnable	ZT50-10000
Test gas Bio IR, test gas can 1 l, non-returnable	ZT49-10000

Other accessories and consumables are available for the product. Please contact our SEWERIN sales department for further information.

11.3 Declaration of conformity

Hermann Sewerin GmbH hereby declares that the **Multitec BioControl** fulfils the requirements of the following guidelines:

- **2014/30/EU**

The complete declarations of conformity can be found online.

11.4 Advice on disposal

The European Waste Catalogue (EWC) governs the disposal of appliances and accessories.

Description of waste	Allocated EWC waste code
Device	16 02 13

End-of-life equipment

Used equipment can be returned to Hermann Sewerin GmbH. We will arrange for the equipment to be disposed of appropriately by certified specialist contractors free of charge.

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