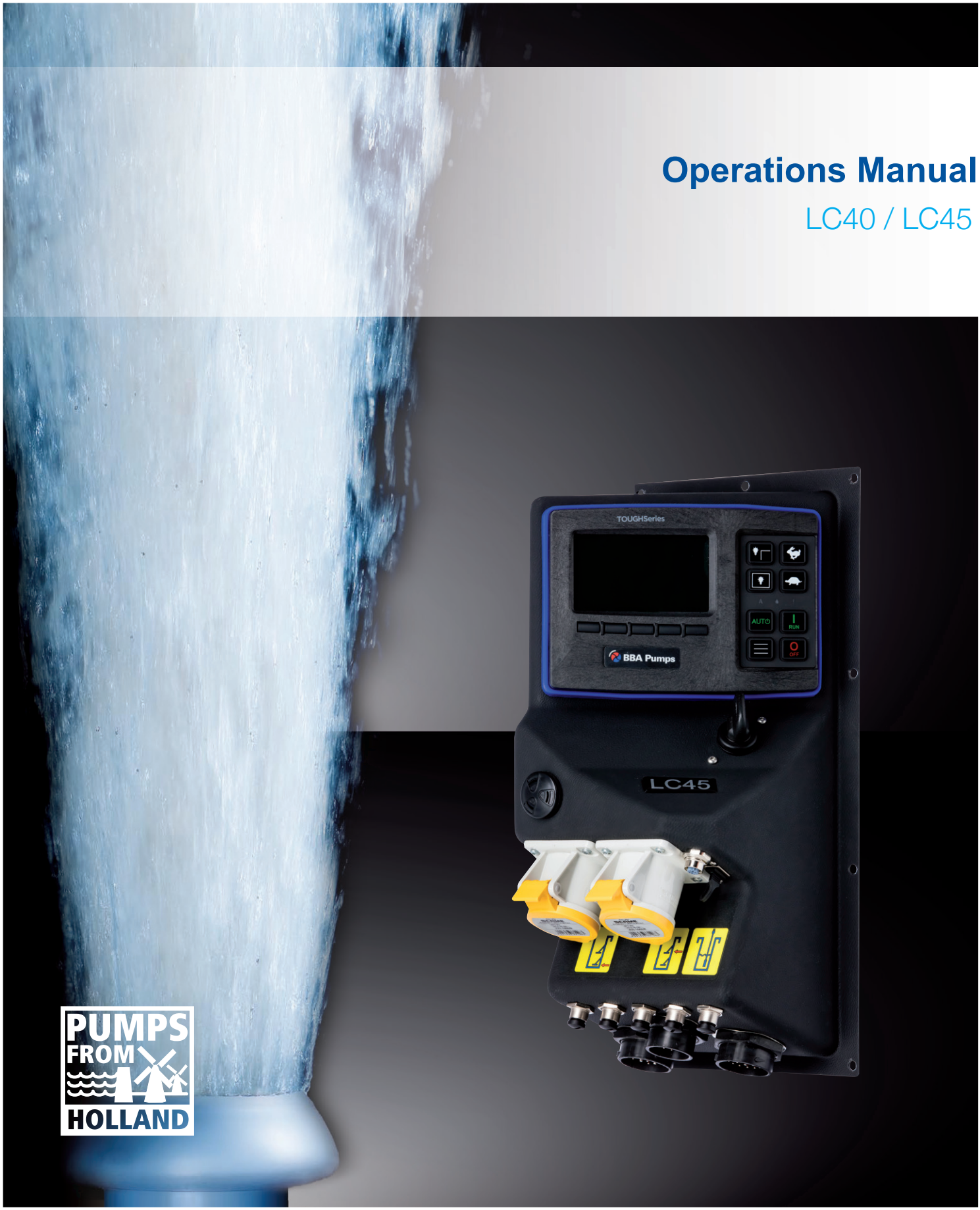
Operations Manual

LC40 / LC45



Pumps for results

BBA Pumps

This operations manual is intended for the use of the LC40 and LC45 control panels, it has been prepared and owned by BBA Pompen & Buizen BV.

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In the event of a dispute, the original instructions written in Dutch will be considered as the only and authentic source for determining the content and meaning of the text.
This manual shows the state of the art at the time of issue and is in accordance with the software version mentioned below. BBA Pumps reserves the right to make changes to both the technical and implementation specifications without prior notice.

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Product number: 31720
Software version: --

Preface
This operations manual contains information on how to use the LC40 and LC45 control panels. Unless agreed otherwise these apply to BBA pump units with electronically governed diesel engines with after-treatment systems. In case of questions, contact BBA pumps BV.

BBA Pumps cannot be held responsible for any accidents and / or damages occurring as a result of the instructions contained in this manual not being followed.

Table of Content

1. Safety

Safety symbols
Warning and safety instructions are included throughout this manual. Do not ignore these warnings. They are provided to protect your health and safety and to prevent damage to the environment, control panel and the pump unit.

WARNING
When the WARNING symbol and WARNING text is shown, this information is of extreme importance for those working with the pump unit. Ignoring this information can cause injury or lead to (serious) damage to the pump unit.

DANGER
When the DANGER symbol with DANGER text is shown, this information is of extreme importance for the safety of those involved. Ignoring this information could cause (serious) injury or possibly even death.

1.1 Automatic stop-start system

This control panel is fitted with an automatic engine starting system, this allows the engine to start or stop at any time without WARNING or notification.
It is the responsibility of the user to provide labels and visible and audible WARNINGS in order to warn the user that the device will start.

1.2 Ignition key

There is a key on the control panel which serves as an isolation switch. If the ignition key on the control panel is in the "OFF" position (vertical), the pump unit cannot be started. Changes to the functions of the control panel may only be performed in the "OFF" position. Never use the ignition key to stop the pump unit.

1.3 Battery isolation switch

If the pump unit is equipped with a battery isolation switch, it will be located as close as possible to the control panel. The battery isolation switch must **ALWAYS** be turned off and removed when carrying out maintenance and work on the pump unit.

1.4 Emergency stop

The emergency stop should only be used to switch off the pump set in case of emergencies. The sudden shutdown of the installation can cause serious damage.

- Press the emergency stop button to quickly stop the engine.
- Depending on the version, turn the yellow ring of the emergency stop to release it or pull out the red knob.

1.5 Exhaust gases

This control panel is specifically designed for the compliance with international exhaust gas regulations. Responsibility for the input and compliance with the exhaust gas regulations lies solely with the user of the machine to which this control panel is fitted. The products of BBA Pumps comply with the latest regulations concerning exhaust gas emissions

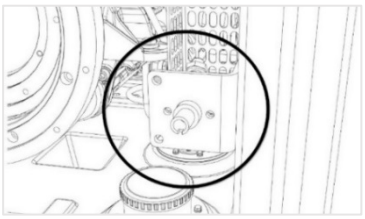
2. Functions

2.1 Battery isolation switch

The pump unit is often equipped with a battery isolation switch. This is located as close as possible to the control panel. When carrying out maintenance and work on the pump unit, the battery isolation switch must **ALWAYS** be switched off and removed.

The switch is turned on by turning the knob clockwise 90 degrees to the right**.**

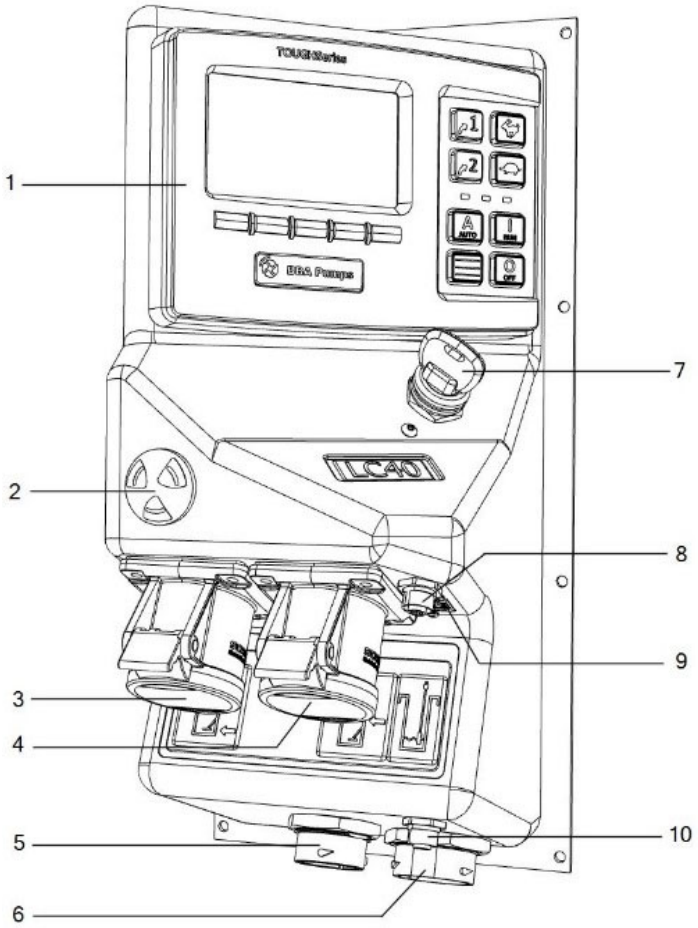
The switch is turned off by turning the lever counterclockwise by 90 degrees to the left. Note: the direction of the off-position may differ for each pump model.



When in the off position, pull the lever forwards and remove it. You can now work safely.

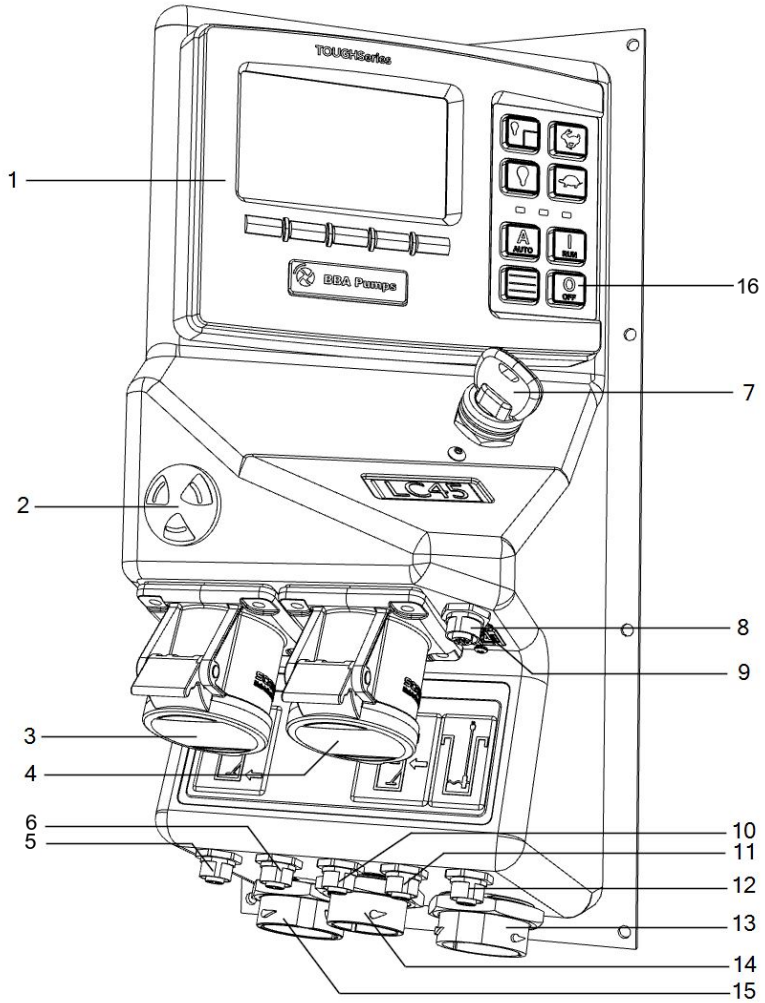
Battery Isolation Switch removed: you can now work safely.

2.2 Control panel LC40



1. Display
2. Buzzer
3. Float Switch Connection "Low" (single float)
4. Float Switch Connection "High"
5. External connection
6. ECU cable connection
7. Key Switch
8. Transducer connection
9. USB plug
10. Modbus connection

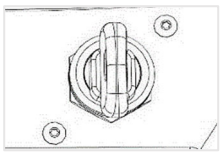
2.3 Control panel LC45



1. Display
2. Buzzer
3. Float Switch Connection "Low" (single float)
4. Float Switch Connection "High"
5. Transducer 5
6. Transducer 4
7. Key switch
8. Transducer connection
9. USB plug
10. Transducer 3
11. Transducer 2
12. Modbus connection
13. ECU cable connection
14. External connection 1
15. External connection 2
16. OFF: stop

2.4 Ignition key

The ignition key on the control panel is not used as a start or stop switch, it is designed to prevent unexpected switching on. You can start the pump with the RUN button (green) and stop with the OFF button (red). As soon as the ignition key is operated, the pump will stop immediately. If the key is in vertical position and you want to switch on RUN or AUTO a message will appear confirming that the key is in the off position.

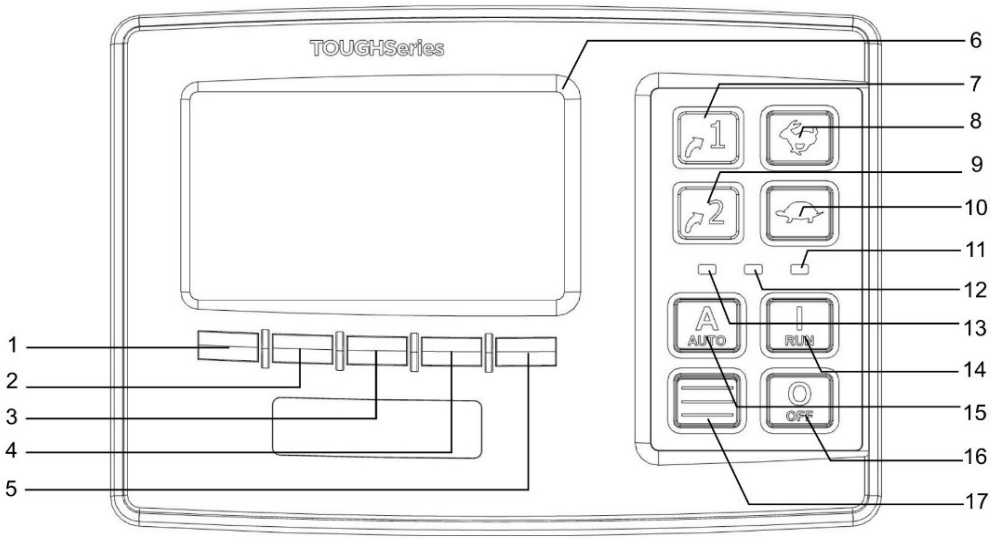


Key in vertical position: No start up is possible

Key turned to the right: Start up is possible

NOTE: Never use the ignition key to stop the pump unit.

2.5 Display



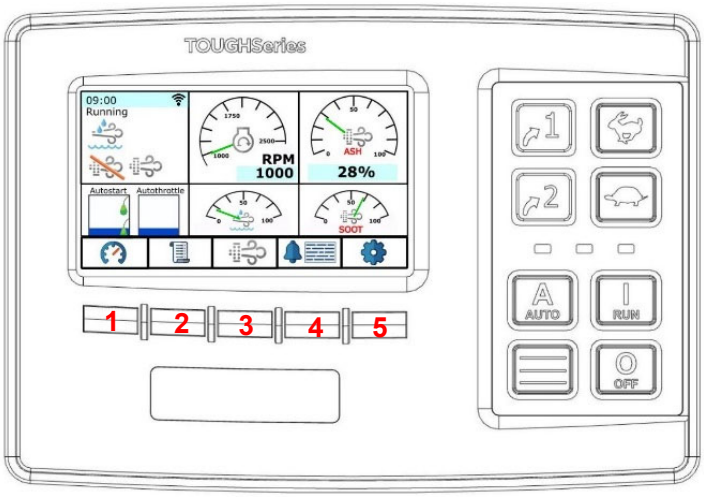
1. Menu button 1
2. Menu button 2
3. Menu button 3
4. Menu button 4
5. Menu button 5
6. Display
7. LC40: Short cut Autostart
   LC45: External lighting
8. RABBIT: Increase speed
9. LC40: Short cut Line Graph
   LC45: Interior lighting
10. TURTLE: Decrease speed
11. Alarm (red)
12. DEF (ad-blue) level low (blue)
13. Pump in autostart mode (green)
14. RUN: Start
15. AUTO : Autostart modus
16. OFF: Stop
17. Quick Access Menu

2.6 Display

When the pump is switched off, the display screen can be switched on by briefly pressing the **RUN** button.

Press any button below the display screen to display the pop-up menu. When a button is operated, a pop-up bar appears. This will fade away later.

The screen is divided into six boxes; the two upper and lower left boxes are always displayed on screen.



Upper Left:
Time indication with the status below (Running, Stop, Auto) and regeneration status.
Lower Left:
Choice of autostart (left) and auto throttle (right).
The four boxes on the right can be adjusted. Switch between the screens by pressing menu button 1. The most important engine and pump data are shown here.

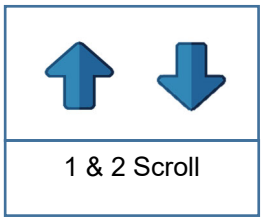
Menu button **1** → Switch between screens
Menu button **2** → Database Viewer
Menu button **3** → Regeneration menu
Menu button **4** → Alarm menu
Menu button **5** → Settings

The screen will turn off after a set time and can be turned back on by pressing any menu button when the pump unit is on or in standby. The autostart functions remain in standby mode.

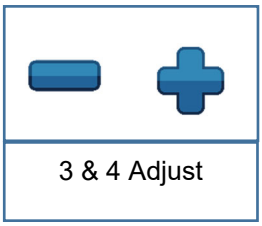
2.7 Operating menu

The functions of the menu buttons can change per menu selection.

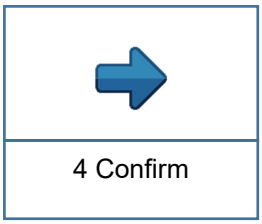
Press button 17  to open the Quick Access Menu.



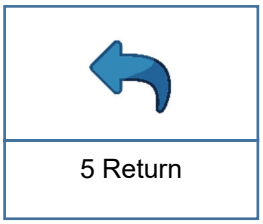
Scroll up and down through the menu with buttons 1 and 2.



Adjust the setting with buttons 3 and 4.



Confirm the setting with button 4.



Return with button 5.

2.8 Menu levels

There are three menu levels.

Quick access menu	Accessible to everyone. No PIN required. **See chapter 5.**
User menu	Accessible to users with a PIN. You will receive a PIN from the owner of the BBA pump unit. Press menu button 5 and a PIN will be requested. The display screen shows in the top right-hand corner the menu level to which the PIN gives access. **See chapter 6.**
Technical menu	Accessible to technicians. You have received a PIN from BBA Pumps. This manual contains a description of the quick access and user menus only.

3. Operation

3.1 Manually starting the pump

- Turn the **battery isolation switch** clockwise to the right.
- Turn the **ignition key** to the right (this makes the pump unit ready to start).
- Start the pump unit by pressing the **RUN** button until the engine is running.
- Let the engine warm up at idling speed.
- You can use the **RABBIT** or **TURTLE** buttons to reach the desired speed.

3.2 Manually stopping the pump

- Use the **TURTLE** button to reduce the speed down to idle.
- Let the engine cool down while idling.
- Press the **OFF** button until the engine is switched off.
- The **battery isolation switch** may only be switched off **after 2 minutes**(the engine must automatically run and finish the program).

Note
In the software version 1.07, the OFF button function has been modified.

- Briefly press the OFF button to automatically slow down the pump set according to a set cycle and cooldown time.
- If you hold down the OFF button, the pump set will stop immediately without slowing down.

Note: Never use the ignition key to stop the pump unit.

3.3 Automatic start/stop

The pump unit is supplied with dual float switches as standard. These have factory settings as standard for pumping empty at maximum speed.

- Turn the **battery isolation switch** clockwise to the right.
- Turn the **ignition key** to the vertical position (the pump cannot start).
- Press briefly on the **RUN** button to switch on the display screen.
- Turn the **ignition key** to the right (the pump can now be started).
- Press the **AUTO** button until a signal sounds and the green LED A lights up.
- The display will automatically switch off. You can also press briefly the OFF button to switch it off. There is a chance that the machine will also switch off.
- The unit will now start and stop according to the switch settings.

In automatic start/stop mode, the engine can start or stop at any time without WARNING or announcement. Provide labels, visible and audible WARNINGS to alert the user that the pump unit will start.

4. Regenerating Soot Particulate Filter

4.1 Diesel Particulate Filter (DPF)

In order to comply with current emission legislation, most diesel-driven BBA pump sets are fitted with an exhaust gas after-treatment system, including a particulate filter (DPF).

DPF stands for Diesel Particulate Filter, whereby soot particles contained in exhaust gases from combustion engines are collected. Depending on the engine load, the DPF can become full during the pumping process and the pressure in the exhaust system will increase. If the pressure reaches a certain level, the display screen will show a WARNING and the DPF must be regenerated (burned clean).

In addition to engine and pump data, the display also shows the **current soot level** in percent. The section on the display screen explains how you can easily switch between the screens using menu button 1 until you see this “soot symbol” in one of the four boxes on the right.

There are two ways to regenerate the DPF: via an automatic or a manual regeneration. Different procedures can apply to different engine brands. First determine which engine your pump is fitted with and then undertake the relevant regeneration process. Not all engine brands have a manual regeneration function or provide information that the engine is regenerating.

4.2 Points of note when regenerating the diesel particulate filter

- Do not run the pump set for short intervals;
- Do not turn the pump set on and off unnecessarily
- Run the pump set in the speed range recommended by the manufacturer;
- During regeneration, fuel consumption will be 30% to 40% higher than normal;
- Pay attention during maintenance to the condition of the EGR valve, the thermostat and the air flow meter.

4.3 Warnings and safety precautions for regeneration

During the manual regeneration process, all doors of the pump set must be kept closed. Place clearly visible warning signs around the pump set with the texts; “pump set is regenerating” and “keep at least 2.5 meters away from the exhaust outlet”. Please note that the pump set may be regenerating at any time.

Do not switch off the pump set if the display shows that it is regenerating automatically or manually. The only exception to this is in case of emergencies.

If the motor continues to regenerate continuously, turn off the pump set to avoid damage to the engine. After stopping the pump set, contact the engine dealer.

The pump set may be approached after approximately 30 minutes from switching off for an outdoor installation or after approximately 45 minutes for an indoor installation. This is due to residual heat in the exhaust system.

During the regeneration process, the exhaust temperature can reach a temperature of approximately 700 °C. Ensure that the pump set is set up in a suitable and safe environment.

NOTE
When the regeneration process is active, a change in the engine noise may be heard, including jarring sounds. The speed of the engine may temporarily increase.

4.4 Automatic regeneration of Hatz engines

The Engine Control Unit (ECU) of the engine will automatically start and complete the regeneration process. You can continue to use the pump unit during automatic regeneration. The yellow soot symbol "automatically regenerate" appears on the display screen.

If the exhaust temperature exceeds a set value, the soot symbol “exhaust temperature >500°C” also appears.

Automatic regeneration is done when:

- The pressure difference in the DPF has reached a certain value.
- The calculation model of the ECU has reached 100% soot load.
- After every 60 hours of operation.

For a properly functioning automatic regeneration process the following conditions are required:

- At least 30% engine torque for Hatz 3H50TICD engines.
- At least 25% engine torque for Hatz 4H50TICD engines.
- That the engine has no malfunctions.
- That the engine is allowed to run for at least 30 minutes.

To display information about the engine torque:

- Press any button below the display screen (pop-up menu will appear).
- Press **menu button 2**.
- Scroll with **menu buttons 1 of 2** to “actual torque %”.

4.5 Manual regeneration of Hatz engines

If the conditions for automatic regeneration are not met during the pumping process and the soot level exceeds 124%, then the red soot symbol “manual regeneration” will show on the display screen. It is only possible to manually regenerate with a soot level up to 135%.

With a soot level above 135%, the **red** error light in the display will become **lit** and the engine will operate in the emergency running mode. You must then contact your local Hatz dealer.

You can only manually regenerate the DPF when the **following conditions** are met:

- There is no water in the pump casing.
- Cooling water temperature is >10°C.
- "Regeneration Inhibit" is switched off.
- If there are no engine malfunctions.
- Let the pump set run for at least 15 minutes.

During manual regeneration, the exhaust temperature can rise above 500°C. Make sure that the pump is placed in a suitable and safe location.

Disconnect the suction and discharge hoses, drain the pump (see the BA series manual for drainage instructions) and allow the pump to run dry during the manual regeneration process. Then let the pump and motor cool down for at least 20 minutes before you reconnect the hoses and continue with the pumping process.

The manual regeneration takes about 25 to 30 minutes. Do not stop the engine during regeneration, doing so would reduce the service life of the Diesel Particulate Filter.

Regenerate activation manually

- Press any button below the display screen (pop-up menu will appear).
- Press **menu button 3**.
- Press and hold down **menu button 4** "force request" for **10 seconds**.
- Manual regeneration starts when all conditions are met.
- Regeneration process is complete when the soot symbol disappears from the display screen.

4.6 Automatic regeneration of Perkins engines

The engine ECU will automatically initiate and complete the regeneration process. You can continue to use the pump set during the automatic regeneration. There will be no messages in the display.

If the exhaust temperature exceeds a set value, the soot symbol “exhaust temperature >500°C” also appears.

Automatic regeneration is undertaken if:

- Part of a continuous process while running.
- Every 60 operating hours

NOTE
Manual regeneration does not apply to Perkins engines.

4.7 Automatic regeneration of Volvo Penta engines

The engine ECU will start automatically and complete the regeneration process. You can continue to use the pump during the automatic regeneration. There will be no messages in the display. This process works when there are no engine malfunctions and the soot level is lower than 60%.

Engine torque information can be shown on the display:

- Press any button below the display screen (pop-up menu will appear).
- Press **menu button 2**.
- Scroll with the **menu buttons 1 or 2** to “actual torque %”.

4.8 Manual regeneration of Volvo Penta engines

If the soot level is higher than 60%, the yellow soot symbol will appear on the display screen and the regeneration must be manually started. *(If under 60% then this function cannot be activated via the display.)*

If the soot level is above 70%, the **yellow** soot symbol will start **blinking** and a manual regeneration must be immediately started.

If the soot level is above 80%, the **red** soot symbol will appear and **blink** in the display screen, the engine will then operate in an emergency run mode. You should then contact your local Volvo Penta dealer.

With the Volvo Penta Vodia tool you can undertake a manual regeneration between 0% and 99%. At 100% the filter must then be replaced.

Manual regeneration of the filter will only take place under **the following conditions**:

- If the pump unit is fitted with a gearbox, make sure that this is **not** active. When disconnecting the suction line, the gearbox will not be active.
- If no gearbox is mounted between the pump and diesel engine, make sure that the pump casing is filled with water, but the pump cannot suck in water. This will prevent unnecessary dry running and possible damage to the mechanical seal.
- “Regeneration Inhibit” is switched off.
- There are no malfunctions with the engine.

Manual regeneration can take up to 45 minutes depending on the type of engine. Do not stop the engine during manual regeneration, this will reduce the service life of the Diesel Particulate Filter.

Regenerate activation manually

- Press any button below the display screen (pop-up menu will appear).
- Press the **menu button 3**.
- Press and hold down **menu button 4** "force request" for **10 seconds**.
- Manual regeneration will start once all conditions are met.
- The regeneration process is finished once the soot symbol disappears from the display screen.

4.9 Temporarily inhibit the regeneration process

It is possible to temporarily inhibit the regeneration process, the engine will then continue to run and the soot level may even rise above the maximum soot level percentage.

Do not use this inhibit option without good reason and never for long periods. Otherwise this will reduce the service life of the DPF.

Postpone regeneration temporarily (inhibit)

- Press any button below the display screen (pop-up menu will appear).
- Press **menu button 3.**
- Press on **menu button 2** and select “inhibit”.
- With **menu button 4** you can select on or off.
- Return back to the home screen via the **menu button 5**.

The temporary suspension of the regeneration feature is automatically disabled after the pump set is manually stopped. If the pump set is in autostart mode, the temporary delay regeneration function must be disabled manually.

If the soot level is too high, the engine will automatically switch off. In such cases contact a specialist.

5. Quick Access Menu

The quick access menu is accessible to everyone; you do not need a PIN. You can adjust the following settings in the quick access menu.

5.1 Language

- Press on **button 17** to open the menu.
- Press **menu button 4** (right arrow)
- Choose the required language with **menu buttons 1 or 2**.
- Press on **menu button 4** to confirm.
- Return back to the home screen with **menu button 5**.

Button 17 Quick Access Menu

5.2 Distance (change units)

- Press **button 17** to open the menu.
- Use **menu buttons 1 or 2** to select "distance".
- Choose the required units with **menu buttons 3 or 4**.
- Return back to the home screen with **menu button 5**.

5.3 Pressure (change units)

- Press **button 17** to open the menu.
- Use **menu buttons 1 or 2** to select "pressure".
- Choose the required units with **menu buttons 3 or 4**.
- Return back to the home screen with **menu button 5**.

5.4 Volume (change units)

- Press **button 17** to open the menu.
- Use **menu buttons 1 or 2** to select “volume”.
- Choose the required units with **menu buttons 3 or 4**.
- Return back to the home screen with **menu button 5**.

5.5 Temperature (change units)

- Press **button 17** to open the menu.
- Use **menu buttons 1 or 2** to select “temperature”.
- Choose the required units with **menu buttons 3 or 4**.
- Return back to the home screen with **menu button 5**.

5.6 High set point (when operating with transducer)

- Press **button 17** to open the menu.
- Use **menu buttons 1 or** 2 to select “high set point”.
- Select the value with **menu buttons 3 or 4**.
- Return back to the home screen with **menu button 5**.

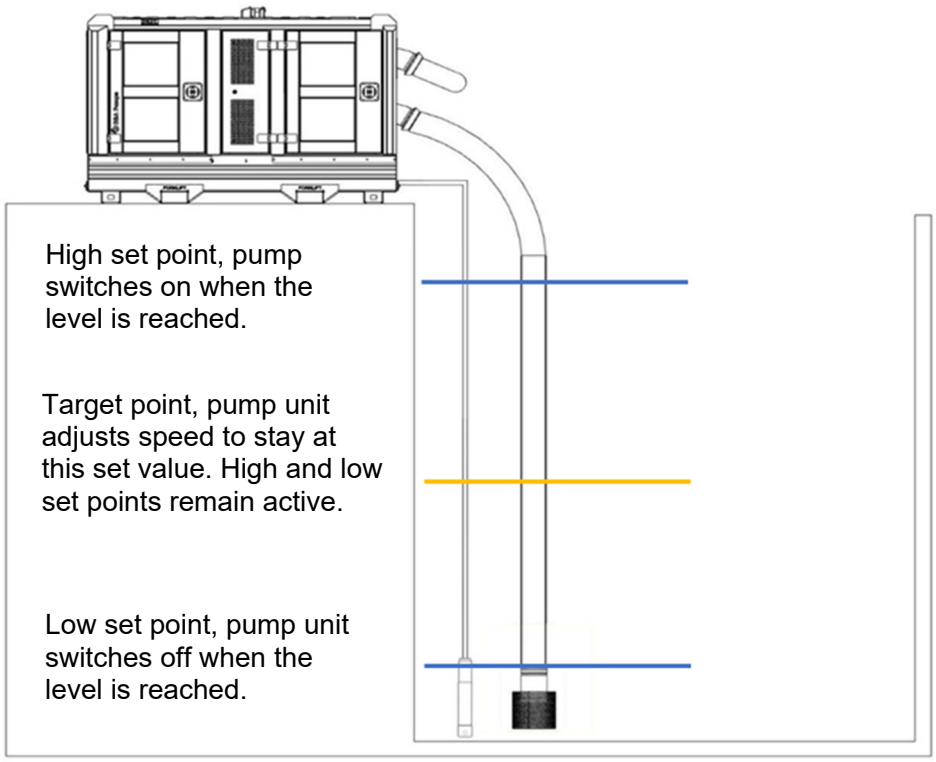
5.7 Low set point (when operating with transducer)

- Press **button 17** to open the menu.
- Use **menu buttons 1 or 2** to select “low set point”.
- Select the value with **menu buttons 3 or 4**.
- Return back to the home screen with **menu button 5**.

Button 17 Quick Access Menu

5.8 Target Point (when operating with transducer)

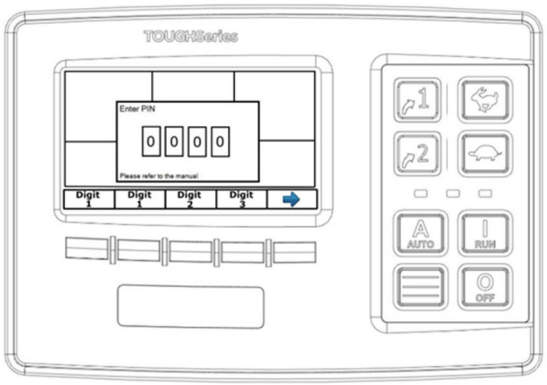
- Press **button 17** to open the menu.
- Use **menu buttons 1 or 2** to select “transducer”.
- Select the value with **menu buttons 3 or 4**.
- Return back to the home screen with **menu button 5**.



6. User Menu

6.1 Entering the PIN

The user menu is only accessible with a PIN. Press menu button 5 and a pop-up requesting a PIN will appear.



Use **menu buttons 1 to 4** to enter the PIN

Confirm the code with **menu button 5**.

You now have access to the menu; the screen displays the **user level** in the top right.

6.2 Display

In this submenu you can set the information below. Use the menu buttons as described in section 2.7.

- Language (see paragraph 5.1)
- Units of Measurement (see paragraphs 5.2, 5.3, 5.4, 5.5)

6.3 System setup

6.3.1 Configurations and updates

By inserting an empty USB stick into the USB connection you can download the current configuration via the Export settings. A copy of the current configuration will be saved on the USB stick. By default, this file is called Save_1.LFC .
When the download is complete, remove the USB stick from the USB connection. Make sure that the USB stick with the configuration is kept in a safe place.

6.3.2 Setting the date and time

- Press **menu button 4** to open the settings.
- Use **menu buttons 1 and 2** to scroll through the menu.
- Use **menu buttons 3 and 4** to set the time and date.
- Press **menu button 5** and a confirmation will appear.

6.3.3 Personal identification number (PIN)

Increase access level
If you have a PIN for a higher access level, you can enter it here.

Change PIN
Change the PIN here.

PIN activate and deactivate
Here you can enable and disable access to the user menu using the PIN.

6.3.4 Info

Product and software information.

6.4 Throttle

6.4.1 Idle RPM

Do not use this functionality! By changing the standard BBA Pumps factory settings or idle speed, the factory warranty will be made invalid.

6.4.2 Switch/Rotary

Do not use this functionality! By changing the standard BBA Pumps factory settings or idle speed, the factory warranty will be made invalid.

6.5 Autostart

Below you will find an explanation about the layout of the autostart settings. Go to section 3.3 for simple instructions on how to automatically start / stop the pump**.**

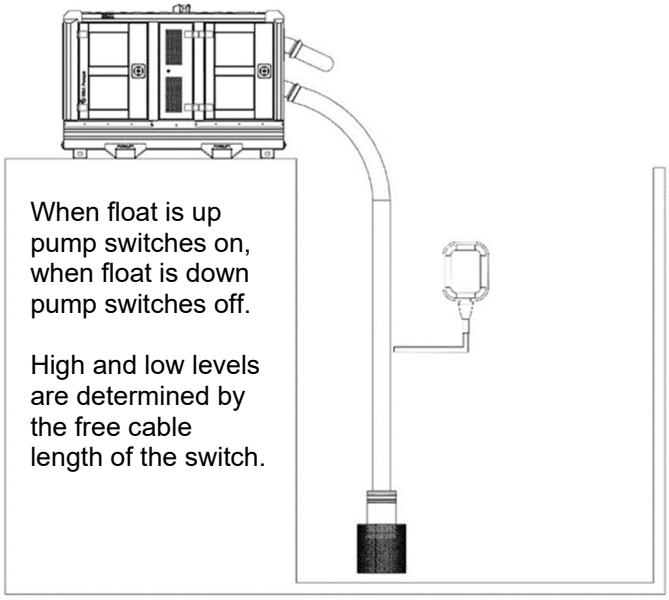
6.5.1 Full or empty pumping

- Press on **menu button 4** “autostart”.
- Press on **menu button 4** “behavior”.
- With “operation” you can use **menu buttons 3 and 4** to choose between full pumping and emptying.

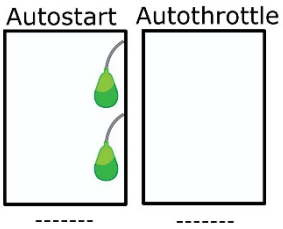
Low → High = full pumping
High → Low = emptying

6.5.2 Autostart with a switch (always use low level float switch connection)

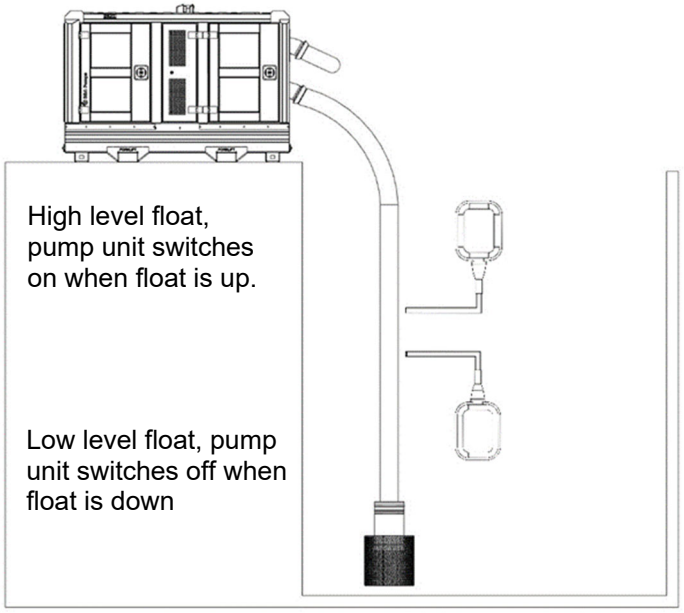
- Press **menu button 4** “autostart”.
- Press on **menu button 4** “behavior”.
- Use **menu button 1 or 2** to select “start/stop with”.
- Press on **menu button 4**.
- Use **menu buttons 1 or 2** to select “Sngl Switch”.
- Press **menu button 4**, to save setting.



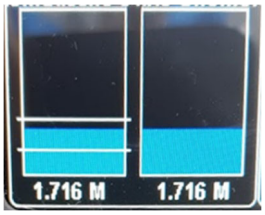
6.5.3 Autostart with dual switch



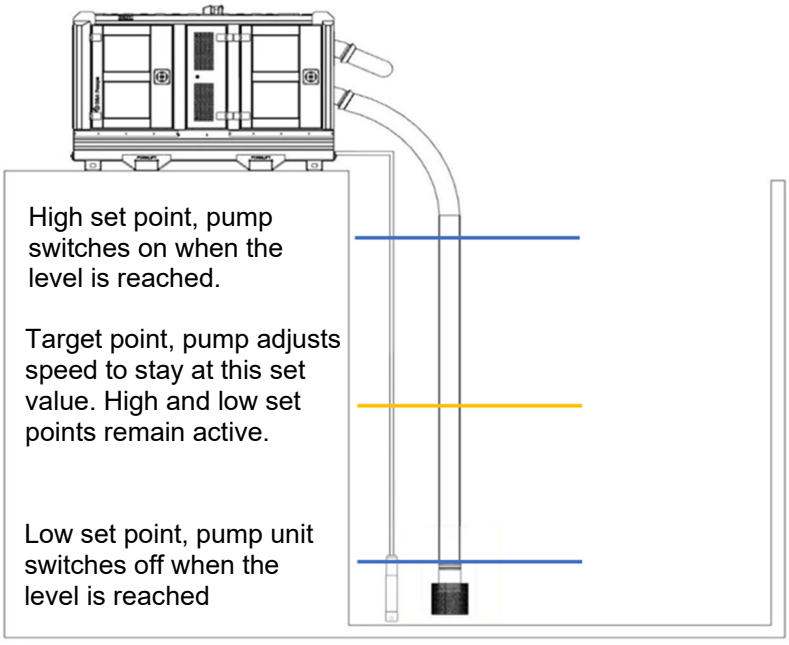
- Press **menu button 4** “autostart”.
- Press **menu button 4** “behavior”.
- Use **menu buttons 1 or 2** to select “start/stop with”.
- Press **menu button 4**.
- Use **menu buttons 1 or 2** to select “dual switch”.
- Press **menu button 4**, to save the setting.



6.5.4 Autostart with transducer (see also 5.6, 5.7 en 5.8)

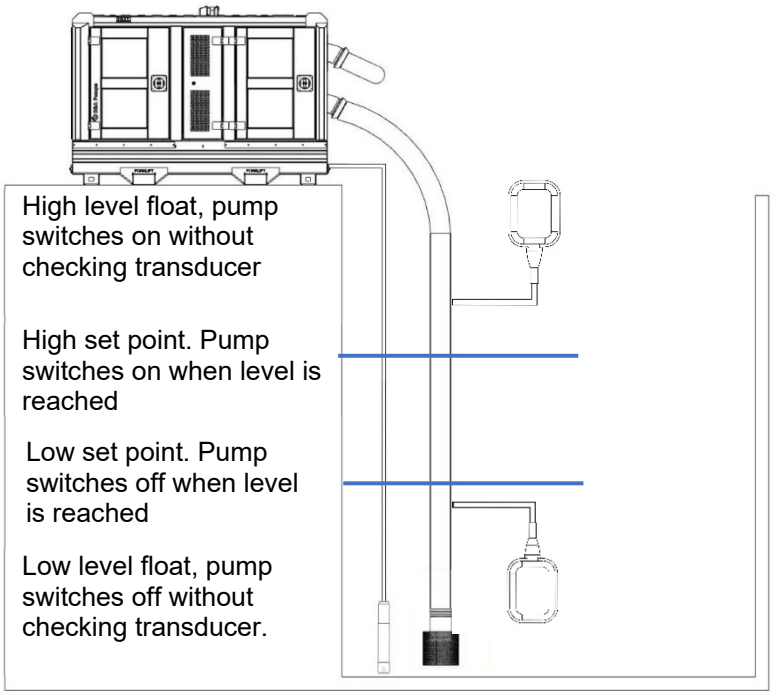


- Press **menu button 4** “autostart”.
- Press **menu button 4** “behavior”.
- Use **menu buttons 1 or 2** select “start/stop with”.
- Press **menu button 4**.
- Use **menu buttons 1 or 2** select “transducer”.
- Press **menu button 4**, to save the setting.



6.5.5 Transducer with switches

- Press **menu button 4** “autostart”.
- Press **menu button 4** “behavior”.
- Use **menu buttons 1 or 2** select “start/stop with”.
- Press on **menu button 4**.
- Use **menu buttons 1 or 2** select “sensor and switches”.
- Press **menu button 4**, to save the setting.



6.5.6 Delay Start / Stop in seconds

If the circuit is not stable due to, for example waves, the start and stop can be delayed by delaying the switch-on and switch-off time.

- Press **menu button 4** “autostart”.
- Press **menu button 4** “behavior”.
- Use **menu buttons 1 or 2** select “start delay” or “stop delay”.
- Select with **menu buttons 3 or 4** the number of seconds that the start or stop must be delayed.
- The settings will be automatically saved.

6.5.7 Cycle delay

Do not use this functionality! By changing the standard BBA Pumps factory settings, the factory warranty will be invalid.

6.5.8 Auto throttle settings

Do not use this functionality! By changing the standard BBA Pumps factory settings, the factory warranty will be invalid.

6.5.9 Transducer

This functionality is also accessible in the Quick access menu, described in chapter 5.

- Press **menu button 4** “autostart”.
- Use **menu buttons 1 or 2** select “transducer”.
- Press on **menu button 4**.
- Press on **menu button 4** “autostart trigger”.
  Note: with "autostart trigger" only transducer 1 is allowed!
- Use **menu buttons 1 or 2** select “high set point” or “low set point”.
- Use **menu buttons 3 of 4** to select the value.
- The settings will be automatically saved.

6.5.10 Scheduler

The scheduler ensures that the pump set can be started or stopped automatically at pre-set times and dates. Set up the scheduler by following these steps:

- Press menu **button 4** “autostart”.
- Press menu **button 4** “behaviour”
- Use menu **buttons 1 or 2** to go to “scheduler”.
- Press menu **button 4**.
- Use menu **buttons to select 3 or 4** method. bridged (floats) or allowed times.
- Use menu **buttons 1 or 2** to go to “permitted time cycle” (number of switching moments).
- Use menu **buttons 1 or 2** to go to “schedule A to P” (set the times here).

Then a method has to be chosen. This can be done by:

- Press menu **button 4** “autostart”.
- Use menu **buttons to select 3 or 4** method.”

Here you can choose one of two options:

- “Override” where all other autostart options are overwritten.
- “Allowed times” which is combined with the other autostart options. As a result, the pump will only start automatically within the set times.

- Use menu **buttons 1 or 2** to go to “allowed time cycle”.
  How often should it be started. Normally set to continuous, but can also be set to 1 time.
- Use menu **buttons 1 or 2** to go to “schedule (At/Mp)
  Set the days of the week and times here. Make sure that the time in the display is also correct.

6.5.11 Timed Run

By setting a set run time, the pump set will run for the time you set after a manual start.

- Press menu **button 4** “autostart”.
- Press menu **button 4** “behaviour”.
- Use menu **buttons 1 or 2** to go to “set run time”.
- Press menu **button 4**.
- Set the time that the pump has to run to run after starting.

6.5.12 Cycle Time

By setting a cycle time, the pump set will run for (x) minutes after pressing autostart. Then the pump set will then be off for (y) minutes. After this, the cycle will repeat itself again.

- Press menu **button 4** “autostart”.
- Press menu **button 4** “behaviour”.
- Use menu **buttons 1 or 2** to go to “cycle time”.
- Press menu **button 4**.
- Set the times that the pump set should run and be switched off.

7. Optional

7.1 Remote control

As an optional extra the pump can be started and stopped with a remote control.

7.2 Transducer

The pump unit can be fitted with a transducer as an optional extra.

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